

ANNEXURE - 13 (A)


(Purushottam Singh)
Director (Operation)
UJVN Ltd.
Dehradun

Name of Project : Asan Barrage (Kulhal HEP)

E&M Expenses

Additional Capitalization Proposed for the FY 2018-19					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works	-			
D	Plant & Machinery				
1	Providing, Fabrication & Fixing of MS Chequered plates on Hoist Pathway of Barrage gates of Asan Barrage, Dhalipur	0.17	The Barrage is more than 50 year old. wooden planks were provided on hoist pathway which has deteriorated considerably. said wooden planks are needed to be replaced in view of safety & proper working at hoist pathway.	The work will ensure safe working place for personnel on hoist pathway in efficient, effective manner and barrage operation may be done in safe and smooth manner.	As per PWD SOR and market rate.
2	Complete Automation including engineering, design, supply, erection, testing & commissioning of Barrage control and monitoring system for water distribution and barrage management at Asan Barrage, Dhalipur (Dehradun) along with AMC for 5 years under DRIP 1	1.35	Asan Barrage was commissioned in the year 1967. all the control	By application of SCADA at barrage Data acquisition will be easy and operation of barrage will be done in efficient and smoothly.	based on open tender rates

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3	Refurbishment of LT system of Asan Barrage Dhalipur	0.92	LT system of barrage is more than 50 years old. LT panels comprise of 02 nos. MOCB type incoming LT breakers and old type of different capacity main switches (Kit-Kat type). Spares of these LT system is not readily available and creates frequent trouble. Apart from above, the supply system to silt ejector is also very old and needed to be replaced. Illumination of barrage is also in very deprived condition. During night time, it is difficult to view barrage pond, downstream side of river, trash-rack, power channel etc. SOS illumination work is done for regulation of barrage during night period, which is not sufficient. It is also to submit that streetlights are not available on the road from control room to silt- ejector, pathway to store, left & right bank of downstream side of barrage. Which makes it difficult for personnel working at Barrage for various types of O&M works. Security guards deployed at barrage also finds it difficult to patrol barrage premises during night timing. For safe and proper regulation of barrage, it is very necessary to refurbish LT system including providing proper illumination at barrage.	Safe and proper regulation of barrage shall be ensured after refurbishment of LT system including providing proper illumination at barrage.	based on market survey.
		2.44			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	2.44			


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Additional Capitalization Proposed for the FY 2018-19					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building				
1	Construction of office and residential building	0.50	These projects were commissioned long before around 40 years ago. Now as per the present scenario the number of offices and officers posted at the project has been increased due to increase of number in MoC. Therefore there is a basic requirement of construction of office and residential building for effective working and accommodation of officers posted at the projects.increased due to increas of number in MoC. Therefore there is a basic requirement of construction of office and residential building for effective working and accomodation of officers posted at the projects.	The residences existing in the colony are not in sufficient numbers and staff is increasing day be day. Construction of the office and quarters will increase the ability of employees and ultimately the uninterrupted power generation.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
	Total	0.50			
3	Major Civil Works	-			


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1	Repair of Damaged Panels of Power Channel from 0.60 km downstream of Dhakrani Power House upto 2.2 km downstream of Dhakrani Power House during closure.	0.23	Power channel is essential component of power generation from all three hydro projects i.e. Dhakrani, Dhalipur & Kulhal Power House. The channel was constructed long before around 40 years ago. This channel was constructed in cutting. Therefore there was huge damage and almost all panels were slid in to the channel due to high back water pressure. Channel was not repaired from last 10 years and there was a huge requirement of repair of channel by taking closure of power house. Power channel was damaged severely at many locations due to which water carrying capacity of channel decreased considerably. Further repair is necessary for the safety of nearby area located on downstream side of the canal. Therefore repair of power channel was necessary for maintaining the regular reliable generation from these two power house. Apart from this repair of power channel is also required to avoid any future disaster as channel lining was severely damaged at some locations which may lead to damages to nearby areas during closure damage panels were repaired and silt deposited at the bottom was removed during closure. The work was essential for regular generation from power house.	Therefore repair of power channel was necessary for maintaining the regular reliable generation from these two power house. Apart from this repair of power channel is also required to avoid any future disaster The work was essential for regular generation from power house.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
2	Special maintenance and repair work of Power Channel from Dakpathar silt ejector to Dhalipur Power House Intake	0.50	Power channel was damaged severely at many locations due to which water carrying capacity of channel decreased considerably. Further repair is also necessary for the safety of canal system nearby area located on downstream side of the canal to ensure trouble free generations from the power houses. Therefore repair of power channel was done for maintaining the regular reliable generation from these two power houses. Apart from this repair of power channel is also required to avoid any future disaster as channel lining was severely damaged at some locations which may lead to damages to nearby areas	Therefore repair of power channel was necessary for maintaining the regular reliable generation from these two power house. Apart from this repair of power channel is also required to avoid any future disaster The work was essential for regular generation from power house.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.


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3	Repair of Service Road around Asan Barrage.	0.17	Service Road around Asan was damaged severely at many locations which was not safe for transportation. This road also connects the DGM office with Asan barrage and Kulhal Power House. This road is used by Nigam employees, Departmental vehicles, locals and tourists. Heavy traffic is used to roll over this road throughout day & night. The road was severely damaged and prone to accident due to big size pot holes. Therefore repair of road has been done to ensure the safety of employees and peoples	this road was used by nigam employee also used to carry machine parts of barrage and power houses. Therefore repair of road has been done to ensure the safety of employees and peoples that will avoid disaster and ultimately will help in generating contineous power from power house	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
4	Protection works at Upstream and Downstream of Asan Barrage at Dhalipur, Dehradun	0.07	The length of Barrage at top is 288m. Asan Barrage has total 14 way including 4 under sluice and 10 spillways. The total spillway capacity of all ways is 4500 m3/s. The spillways of the barrage were repaired about 12 years back in 2005 and since then floods are passing through the barrage, thereby leading to continuous wear and tear to the barrage structure. Blocks of apron bed was also washed out during flood and Divide wall foundation was undermined due to formation of cavity underneath of Divide wall. Marginal bunds of Barrage needed to be strengthening for Barrage safety. Apart from this Channel from Dhalipur power House to Asan Reservoir in 500m length was also badly damaged and need repair for safety of channel and nearby areas. Further pitching of reservoir bund of Asan Barrage was severely damaged on u/s and d/s, which was not desirable for safety reasons & therefore to avoid any future disaster, repair was done as per requirement on downstream as well as upstream side of the Barrage. Also damaged protection work was repaired/ reconstructed to ensure safety of the Asan Barrage and associated structures and also for maintaining the regular reliable generation from Kulhal power house.	Damaged protection work was repaired/ reconstructed to ensure safety of the Asan Barrage and associated structures and also for maintaining the regular reliable generation from Kulhal power house.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.


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5	Providing and laying concrete canvas (Geo synthetic composite mat) for repair of Power channel of stage -III Dakpathar to Dhalipur HEP & Stage IV Asan Barrage to Kulhal HEP .	0.18	Concrete canvas was provided at location where there was considerable damage of channel side slope tiles due to heavy erosion by high velocity of silted water during monsoon season. The canvas provided has high resistance from erosion and give hard and strong strength to the panel.monsoon season. The canvas provided has high resistance from erosion and give hard and strong strength to the pannel.	The canvas provided has high resistance from erosion and give hard and strong strength to the panel.monsoon season. The canvas provided has high resistance from erosion and give hard and strong strength to the pannel. That will reduce future damage to more extent therefore will help in generation and contineous power from Kulhal Power House	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
6	Special repair of silt ejector channel, slope and Floor at Yamuna Hydel Scheme -IV Asan Barrage.	0.06	At 0.24 Km. of power channel from Asan HR gate, silt ejector tunnels have been provide to eject bed load, material to prevent the runner blades of turbines from wearing out. Silted water is discharged back to Asan River on D/s of Asan Barrage. The condition of channel was very poor and up to 300m length pitching on side slope of channel was slid in to the channel. A fall at 300 m D/s of silt ejector head exists after that silt ejector channel was not existed. it was necessary to construct the channel for safe and effective disposal of silt from the running water of channel to avoid the wear and tear of turbine. Also the right side slope of service road was in very poor condition. The work was essential to safely discharge water from the ejector back into the river to generate uninterrupted power generation.	he work was essential to safely discharge water from the ejector back into the river to generate uninterrupted power generation.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
7	Special repair of Kulhal Power House Intake bye-pass channel and downstream channel during proposed closure.	0.04	The Kulhal Power House is situated on U/s of Powta Bridge. The total installed capacity of Power House is 30 (3X10) MW. On Down Stream of Power House, side panels were eroded and some panels were completely damaged. The energy dissipater baffles on D/s of TRC side was severely eroded. On bed at base of baffle blocks cavities were found. Apart from this, due to erosion of concrete on By-pass Channel surface, wall, piers, and intake got eroded and become porous. For the repair of these surface CWC has suggested the PICC (Poly Ironite Cementations Mortar) which is an Ultra Violet resistance mortar of strength more than M-50 and long service life. Repair was necessary for the structure so that energy can be generated by avoiding any future disaster and therefore the surface has been repaired	Repair was necessary for the structure so that energy can be generated by avoiding any future disaster	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.


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8	Special maintenance and repair work of Power Channel from Dhalipur Power House TRC at Kulhal Dehradun .	0.50	Though most of the repair works of power channel has been completed within the closure period but some panel that was not damaged at that time is now slid. Due to time limitation of closure period all panel could not be constructed from beginning therefore only those panel were repaired which have the necessarily. Untouched panel is now in poor condition and may get damaged therefore considering the repair of these panels this work is taken to take care which is essential for uninterrupted power generation from power house.	considering the importance of structure of these panels, this work is taken to take care which is essential for uninterrupted power generation from power house.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
9	Consultancy and supervision for closure works such as repair of Damaged Panels of Power Channel from Dakpathar to Kulhal, repair maintenance of Dakpathar Barrage, Asan Barrage and other associated works	0.16	As the work reasoned above required consultancy for maintaining the quality control and effective supervision therefore a provision of consultancy services was required for effective and efficient repair of damaged power channel.	As the work reasoned above required consultancy for maintaining the quality control and effective supervision therefore a provision of consultancy services was required for effective and efficient repair of damaged power channel.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
		1.91			
4	Plant & Machinery	-			
5	Vehicles	-			
6	Furniture & Fixtures				
	Procurement of Furnitures.	0.25			
		0.25			
7	Office Equipments				
	Procurement of IT Equipments.	0.17			
		0.17			
	Total	2.83			


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Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works	-			
D	Plant & Machinery				
1	Repair and overhauling of hoisting arrangement of Barrage gates and head regulator gates of Asan Barrage under DRIP 2.	4.90	Since construction of barrage no major over hauling of barrage gates has been done due to which problem in routine operation is faced. Therefore repair & overhauling of hoisting arrangement of barrage gates & HR gates is essentially required	Proper operation & maintenance of barrage & HR gates shall be ensured, which will lead to better generation at Kulahl Power station and minimise generation loss on account of barrage.	based on OEM offer
2	Refurbishment of silt ejector gates system of Asan Barrage under DRIP 2.	0.85	No major overhauling of silt ejector gates is done since commissioning of barrage. the silt ejector gate system is old & obsolete & required to be refurbished for its proper functioning & controlled silt in water flow to Kulhal Power Station. Therefore refurbishment of silt ejector gates system is essentially required	Proper operation & maintenance of Silt ejector gates shall be ensured, which will lead to better generation at Kulahl Power station and minimise generation loss on account of silt content.	based on market survey.
3	Painting on Steel Structure of Asan Barrage Dhalipur under DRIP 2	0.35	Painting of steel structure is required to be carried out in routine and is due in 2019-20. This work will enhance the life of steel structure as steel structure.	By application of painting on steel structure of barrage it will prevent steel from corrosion and rusting thereby enhancement of life of steel structure shall be ensured.	based on PWD SOR & market survey.
4	SITC of online silt monitoring system at Asan Barrage Dhalipur	0.20	Presently silt measurement in flowing water at barrage is done by manual collection of water sample. To ensure efficient monitoring & regulation online monitoring of silt content is essentially required.	After SITC of online silt monitoring system Operation & regulation of canal will be done more efficiently	based on market survey.
5	Providing & fixing of shades on hoisting mechanism of barrage & HR gates	0.25	old shades are more than 50 years old & needed to be replaced at the earliest to avoid environmental effects.	it will ensure proper safety of equipments on hoist pathway & working of personnel shall be improved	based on market survey.


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6	Design, Manufacture, Supply, Erection, Testing and commissioning of Trash Rack Cleaning Machine at Asan Barrage Dhalipur. This includes cost of material labours, T&P etc. complete in all respect under DRIP 1.	6.50	This work was suggested by DSRP under DRIP programme.	By application of trash rack machine at barrage trash may removed in all codition and weather therby increased generation from Kulhal HEP.	based on market survey.
		13.05			
E	Vehicles				
1	Procurement of vehicles for EE (E&M), Asan Barrage DGM HGC Dhakrani & Barrage control room	0.30	A dedicated vehicle is required for newly created Office of Executive Engineer (E&M), Asan Barrage & control room of barrage for various day to day and emergency works during monsoon/ flood. Presently one no. hired vehicle is provided to EE (E&M) Asan Barrage. Vehide of Dy. General Manager (E&M), HGC Dhakrani is more than 13 years old & required to be replaced . As per guidelines of National Disaster Management Authority vide letter no 02-66/2008-PP dated 24.01.2015, a vehicle with public address system essentially required to give prior warning for evacuation of human/animals from the river bank up to vulnerable area before release of water from barrage. Therefore Procurement of 03 Nos. vehicle as above is essentially required and is proposed under DRIP -2	For efficient and effective working vehicles are required for newly created office of, EE (E&M), Asan Barrage , control room and DGM Office.	Tentative
		0.30			
F	Furniture & Fixtures				
G	Office Equipment				
	Total	13.35			


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Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building				
	Construction of office and residential building	3.47	These projects were commissioned long before around 40 years ago. Now as per the present scenario the number of offices and officers posted at the project has been increased due to increase of number in MoC. Therefore there is a basic requirement of construction of office and residential building for effective working and accommodation of officers posted at the projects.increased due to increas of number in MoC. Therefore there is a basic requirement of construction of office and residential building for effective working and accomodation of officers posted at the projects.	The residences existing in the colony are not in sufficient numbers and staff is increasing day be day. Construction of the office and quarters will increase the ability of employees and ultimately the uninterrupted power generation.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
		3.47			
3	Major Civil Works				
	Fencing of Barrage, Power channel & Colony	2.00	Public safety is an important aspect of DRIP therefore provision of fencing and sign board has been taken to cover the critical poertion of the barrage and channel.	It is important for public safety and also for safety of Barrage, Channel from externals. It will help to avoide local hinderance during any unwanted casualty therefore help in regular generation of power.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
	Special maintenance and repair work of Power Channel from Dakpathar silt ejector to Dhalipur Power House Intake	0.50	Though most of the repair works of power channel has been completed within the closure period but some panel that was not damaged at that time is now slided. Due to time limitation of closure period all panel could not be constructed from beginning therefore only those panel were repaired which have the necessarily. Untouched panel is now in poor condition and may get damaged therefore considering the repair of these panels this work is taken to take care which is essential for uninterrupted power generation from power house.	considering the importance of structure of these panels, this work is taken to take care which is essential for uninterrupted power generation from power house.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.


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	Special maintenance and repair work of Power Channel from Dhalipur Power House TRC at Kulhal Dehradun .	0.50	Though most of the repair works of power channel has been completed within the closure period but some panel that was not damaged at that time is now slid. Due to time limitation of closure period all panel could not be constructed from beginning therefore only those panel were repaired which have the necessarily. Untouched panel is now in poor condition and may get damaged therefore considering the repair of these panels this work is taken to take care which is essential for uninterrupted power generation from power house.	considering the importance of structure of these panels, this work is taken to take care which is essential for uninterrupted power generation from power house.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
	Beautification & Strengthening of Asan Baarage	2.00	Beautification of Dam/Barrage is also an important aspect of DRIP therefore provision of fencing and sign board has been taken to beautify the Barrage that will attract more tourist to the state and will generate more revenue	Beautification of Dam/Barrage is also an important aspect of DRIP therefore provision of fencing and sign board has been taken to beautify the Barrage that will attract more tourist to the state and will generate more revenue	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
	Repair of damaged road associated with Barrage structures and Power Channel	2.00	Roads associated with Asan Barrage is also damaged severely at many locations which was not safe for transportation. These roads are used by Nigam employees, Departmental vehicles, locals and tourists. The road was severely damaged and prone to accident due to big size pot holes. Therefore repair of road has been done to ensure the safety of employees and peoples	this road was used by nigam employee also used to carry machine parts of barrage and power houses. Therefore repair of road has been done to ensure the safety of employees and peoples that will avoid disaster and ultimately will help in generating contineous power from power house	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
		7.00			
4	Plant & Machinery	-			
5	Vehicles				
	Hiring of vehicle for site works related to drip	0.10			
		0.10			
6	Furniture & Fixtrues	-			
7	Office Equipments	-			
	Total	10.57			


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Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works	-			
D	Plant & Machinery				
1	Providing and fixing of chequered plates at Barrage gates, HR Gate of Asan Barrage.	0.85	The Barrage is more than 50 years old and the some parts of hoist pathway of barrage gates & HR gates are provided with MS plates. These plates are damaged badly due to rusting and ageing therefore for safety of personnel dputed at barrage this work is essentilly required. As the MS plates of working platform of Asan barrage are damaged and eroded very badly and may result in any mishap during operation barrage therefore, this work is required to be taken up in DRIP -2.	This will enhance the capacity of pesonnel to work on Barrage structure in efficient, effective manner and barrage operation may be done in safe and smooth manner.	Tentative
2	Supply & Fixing of Motors of barrage gates & HR gates of Asan Barrage	0.10	For operation of barrage gates motors are installed at the structures. These motors have suffered heavy wear and tear due to regular operations of spill way (other bay) as well as HR gates over a long period of time and now-a-days these motors are creating problems frequently during operation, therefore, it needs replacement for proper and safe operation of barrage gates. This work is being taken in DRIP -2.	This will enhance the operation of barrage gate in efficient and effective manner, more smoothly and safely.	Tentative
3	Installation of all weather station at Asan Barrage	0.07	It is suggested by world Bank consultant Teams that In order to measure various parameter like wise Humidity,Rain fall etc.installation of all weather is essentially required at Asan Barrage. .	Instrumentation of Barrage is essential as per World Bank Consultant for Know how of whether so that parameter of barrage could be managed in effective and effecient manner accodgngly.	Tentative
		1.02			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	1.02			


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Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (In Crore)	Need/Urgency of Capex	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land				
2	Building	-			
3	Major Civil Works	-			
1	Fencing of Barrage, Power channel & Colony	2.00	Public safety is an important aspect of DRIP therefore provision of fencing and sign board has been taken to cover the critical poertion of the barrage and channel.	It is important for public safety and also for safety of Barrage, Channel from externals. It will help to avoide local hinderance during any unwanted casualty therefore help in regular generation of power.	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
2	Beautification & Strengthening of Asan Baarage	2.00	Beautification of Dam/Barrage is also an important aspect of DRIP therefore provision of fencing and sign board has been taken to beautify the Barrage that will attract more tourist to the state and will generate more revenue	Beautification of Dam/Barrage is also an important aspect of DRIP therefore provision of fencing and sign board has been taken to beautify the Barrage that will attract more tourist to the state and will generate more revenue	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
3	Repair of damaged road associated with Barrage structures and Power Channel	2.00	Roads associated with Asan Barrage is also damaged severely at many locations which was not safe for transportation. These roads are used by Nigam employees, Departmental vehicles, locals and tourists. The road was severely damaged and prone to accident due to big size pot holes. Therefore repair of road has been done to ensure the safety of employees and peoples	this road was used by nigam employee also used to carry machine parts of barrage and power houses. Therefore repair of road has been done to ensure the safety of employees and peoples that will avoid disaster and ultimately will help in generating contineous power from power house	Rate taken in the estimate are based on PWD SoR/ DSR/ Rate analysis.
		6.00			
4	Plant & Machinery	-			
5	Vehicles	-			
	Hiring of vehicle for site works related to drip	0.10			
		0.10			
6	Furniture & Fixtrues	-			
7	Office Equipments	-			
	Total	6.10			


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Additional Capitalization Proposed for the FY 2021-22					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land				
B	Building				
C	Major Civil Works				
D	Plant & Machinery				
1	Replacement of embeded parts of HR gates	0.70	The guide & sill beam has detriorated ocnsiderably which results in malfunctioning during operation of HR gates. Therefore replacement of embeded parts including guides & sill beam is essentially required	To avoid generation loss on account of Gate operation malfunctioning this work is required.	Tentative
2	Epoxy painting of Barrage Gates, HR gates & silt ejector gates of Asan Barrage.	1.25	Painting on barrage gate is essentilly required periodically to enhance its life as it prevent it from rusting therefore painting of barrage gates is essentially required.	To prevent dammage of gate from rusting it is essentially required. Proper up keep of gate and painting after certain interval time of four or five year.	Tentative
		1.95			
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
	Total	1.95			


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ANNEXURE - 13 (B)


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ANNEXURE - 13 (B)

E&M Expenses

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A	Land	-			
B	Building	-			
C	Major Civil Works	-			
D	Plant & Machinery				
1	LED lights for Dam Inspection Gallery/ Dam permises & Solar street lights with complete assembly.	0.50	Procurement of energy saver equipments	To reduce the power consumption resulting in safe environmet	Solar: As per GOI(Ministry of new & reneweble enery) circular 318/38/2018-GCRT/dt : 15.06.18. LED: As per Market Survey
		0.50			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
H	Others	-			
	Total	0.50			


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A	Land				
B	Building				
C	Major Civil Works				
1	Balance Rehabilitation works of Ichari Dam	4.00	Site visit of CPMU consultant and Director, DRIP on 20-04-2017 and again visit on 11-11-2017 by CPMU consultant & Dy. Director, DRIP directorate, CWC and subsequent discussions at Ichari Dam on the subject matter. It was suggested that for future repair work with latest technology and quality standards access road should be constructed. The will also easeout transportation of construction material and equipment for better quality control. In addition to above severe damages have been found at downstream left and right training wall of dam which needs to be repaired for the safety of structure. River training works were also taken in this proposal in view of suggestions from DRIP Consultants.	Proposed Balance rehabilitation works of Ichari Dam are essentially required for safety and long life of the Ichari Dam. Therefore to complete the works a new package has been added keeping in view the necessity as detailed.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


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2	Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam.	2.50	<p>The work "Special repair of 7 nos. spillway and roller buckets & Repair of downstream left bank training wall of Ichari Dam" was completed before monsoon of 2017 under DRIP (Dam Rehabilitation and Improvement Project) being funded by World Bank through Central Water Commission, Gol. Under this work only special repair of spillway no.03, 04 & 05 & roller bucket work was executed to ensure safety of the Dam body. A meeting was held on 11-09-2017, Minutes of which was issued vide your letter no. 02/01/2017-DSRD/UJVNL/1288 dated 11.09.2017. During the above meeting it was decided regarding the works of rehabilitation of Ichari dam spillway, that UJVNL will submit variation proposal to close the present contract vide which 3 spillways stand already rehabilitated and for balance 4 spillways, UJVNL will initiate parallel action for starting fresh bidding process.</p> <p>During the repair of spillway no.03, 04 & 05 & roller bucket, it has been found that actual damages of the spillways and especially roller buckets are much more than assessed. The condition of remaining four spillways is very bad. Severe damages have taken place on spillways of Ichari Dam and extent of damages to different Spillways are varying.</p>	Proposed repair works of remaining 04 spillways no. 01, 02, 06, & 07 and the respective roller buckets are essentially required for safety and long life of the Ichari Dam. Without completion of above works dam safety can't be assured.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
3	Construction of Office Building at Ichari Dam	0.50	At present, Two Assistant Engineer and Two Junior Engineer are posted at Ichari Dam for operation and maintenance of the dam but there is no site office constructed at site. Suitable space for construction of office building is also available for construction of office building near Dam site. Executive Engineer (E&M), Ichari Dam, Ichari has also requested vide letter no. 720/EE(E&M)/Ichari Dam/UJVNL Ltd./A-2 dated 07/10/17 for construction of building at Ichari Dam. In view of the above a proposal of Construction of two story office building has been prepared.	At present, Two Assistant Engineer and Two Junior Engineer are posted at Ichari Dam for operation and maintenance of the dam but there is no site office constructed at site. It is very necessary to construct office building at site.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


 (Purushottam Singh)
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4	Scanning of old drawings of Khodri Power House, Chibro Power House, HRT & Ichari Dam	0.04	Old drawing related to Khodri Power House, Chibro Power, HRT & Ichari Dam was Handed over from Irrigation to UJVN . Limited are in bad condition. Due to passage of time as a result of drawing has obsolete. General Manager has also instructed to prepare the estimate for scanning of old Drawing. In this proposal the work of repairing of drawing, scanning of drawing, purchase of box file, purchase of Hard disk has been taken.	It is very necessary to do repair and scanning work of drawing and the works included in this proposal are at least required but necessary.	As per the rates approved by DGM (CM-YV).
5	Supply, installation and commissioning of Instrumentation, monitoring system and Goe Mos monitoring software" along with required accessories at Ichari Dam	1.50	Instrumentation in dam is necessary for verification of design assumptions, construction technique & modification of design. Data collected from instrument can be extremely valuable in determination of specific cause of failure. For keeping constant watch over the performance of the structure during service & obtaining timely warnings in respect of distress spots, proper instrumentation is required. Safety in Dam can be assisted by instrumentation.	Recent dam failures in various part of world inspired significant interest in monitoring various parameters as a means for ensuring adequate margin of safety. As per IS specification basic parameters like pore pressure, displacement, seepage, strains, stresses, dynamic load, uplift pressure, temperature can be studies with the help of instrumentation.	The costing of work has been calculated on the basis analysis of rates
6	Consultancy work for "Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam." and "Balance Rehabilitation works of Ichari Dam" of Ichari Dam.	0.15	Consultancy work has been added for third party quality assurance for the "Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam." and "Balance Rehabilitation works of Ichari Dam" of Ichari Dam	consultancy work has been added for third party quality assurance	As per Offer received from NCCBM.


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7	Supply, Installation & Commissioning of Early earthquake warning and security system with accessories at Ichari Dam.	0.30	Under the DRIP Scheme, funded by The World Bank and monitored by CWC, UJVN Limited is involved in repair, maintenance and instrumentation of Dams/ Barrages as per guidelines of World Bank. As per guidelines of the World Bank, it is necessary to install seismic instruments at all the dams and barrage involved in DRIP to monitor seismic activities in India as Indian subcontinent has rich history of devastating earthquakes. For this purpose CWC has hired IIT Roorkee as a consultant for seismic activities throughout India. Currently, No dams/ barrages from UJVN Limited involved in DRIP works have any earthquake detector instruments. As per geographical location, all the working sites of UJVNL come under Seismic Zone-V, which has very high risk of earthquake activities and ground rupture caused by earthquake activities have severe effects on large structures such as dams, barrages, power houses etc. Therefore, it is very much essential to install the earthquake detector instruments at Ichari Dam, Dakpathar Barrage, Asan Barrage, Virbhadrha Barrage and Chibro Power House. All the four dams/barrages such as Ichari Dam, Dakpathar Barrage, Asan Barrage and Virbhadrha Barrage comes under DRIP and Chibro Power House is a underground power house in seismic zone-V, therefore, it is very vulnerable to seismic activities.	Earthquake detector Instrument system to be installed has very high efficiency, which detects primary waves of earthquake which are less dangerous than secondary waves and provide 30 second time to reduce collateral damage to be caused by the secondary waves of the earthquake. Therefore, this seismic instrument is very much efficient to reduce collateral damage to be caused by earthquake, which is paramount. It also reduces the aftermath effects of the earthquake by shutting down different electrical, mechanical and building installations.	As per market Rate.
8	Seepage treatment work of foundation gallery of Ichari Dam	0.50	During the inspection of foundation gallery of Ichari Dam it has been found that some seepage occurs at various locations in gallery. For the safety and long life of Ichari Dam, the repair of gallery need to be repaired.	Proposed Seepage treatment work of foundation gallery of Ichari Dam is essentially required for safety and long life of the Ichari Dam. Without completion of above works dam safety can't be assured.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
	Total	9.49			
D	Plant & Machinery				
E	Vehicles				
F	Furniture & Fixtures				
1	Purchase of Furniture for office building at Ichari Dam	0.20	Purchase of Furniture for office building at Ichari Dam	Purchase of Furniture for office building at Ichari Dam	Purchase of Furniture for office building at Ichari Dam
		0.20			


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G	Office Equipment				
1	Purchase of IT equipment including installation for the office use of the Executive Engineer (PCM), Dakpathar	0.07	A shortage of IT equipment such as Laptops, Desktops, Printers etc. have been observed in this office which resulted to inconvenience to discharge day to day office works. Sometimes important works get suffered due to inadequate number of IT equipment. The Quantum of work in the office has been increased due to involvement of works under Dam Rehabilitation and Improvement Project (DRIP)	The progress of the works under DRIP is being monitored by the World Bank through Central Water Commission (CWC), which requires timely disposal of works. Therefore, the concerned office must be facilitated by the adequate quantities of IT equipment for the timely and effectively disposal of works. Therefore, IT equipment are to be purchased for office use of the Executive Engineer (PCM), Dakpathar	Unit rates submitted by M/s Dreamzcraft Info Solutions Pvt. Ltd. For cost estimation are taken from Government e-market (GeM). However, procurement shall be made through open e-tender.
		0.07			
	Total	9.76			


(Purushottam Singh)
Director (Operation)
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Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land				
B	Building				
C	Major Civil Works				
D	Plant & Machinery				
1	Renovation of hoisting arrangement of Flushing Conduit gate No-1, 2 & 3 of Ichari dam in District Dehradun.	1.50	Better & reliable operation of Flushing conduit gate resulting in reduced down time.	It will reduced the required shutdown for the operations of the FC Gates	Market Survey.
2	Under water replacement of Sill beam of Stop log gates of spillway Gate No 2 & 4 including repair of damaged Tguide & Back Guides.	1.00	To save the Dam structure.	It will directly improve the maintenance aspect of spillway gates resulting in reduced generation losses.	Market Survey.
3	Procurement of 160kVA DG Set	0.25	To facilitate the alternate Lt Supply in case of Disaster/Earthquake.	In case of power failure due to any Disaster, there must be a sufficient source of uninterrupted LT supply for the smooth operations of Dam	Market Survey.
4	Engineering Design Installation & Installation of kill vest-fuel free solid vest disposer at Ichari Dam	0.40	To make the environment pollution free.	will also help to disposal of waste material/trash during cleaning of trash rack.	Market Survey.
5	Disaster management of the Siren facilities at different locations in the Downstream of Ichari Dam upto Killor (Approx 25 kms)	0.40	To save the lifes in case of Disaster due to controlled/Uncontrolled release of Water through Dam.	To save the lifes in case of Disaster due to controlled/Uncontrolled release of Water through Dam.	Market Survey.


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 Dehradun

6	Procurement of small size tractor for the trolley of TRCM	0.50	For proper disposal of trash & debris from the Dam site.	For proper disposal of trash & debris from the Dam site.	Market Survey.
		4.05			
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
H	Others				
	Total	4.05			


 (Purushottam Singh)
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 UJVN Ltd.
 Dehradun

Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Balance Rehabilitation works of Ichari Dam	6.00	Site visist of CPMU consultant and Director, DRIP on 20-04-2017 and again visit on 11-11-2017 by CPMU consultant & Dy. Director, DRIP directorate, CWC and subsequent discussions at Ichri Dam on the subject matter .It was suggested that for future repair work with latest technology and quality standards access road should be constructed. The will also easeout transportation of construction matrerial and equipment for better quality control. In addition to above severe damages have been found at downstream left and right training wall of dam which needs to be repaired for the safety of structure. River training works were also taken in this proposal in view of suggesstions from DRIP Consultants.	Proposed Balance rehabilitation works of Ichari Dam are essentially required for safety and long life of the Ichari Dam. Therefore to complete the works a new package has been added keeping in view the necessity as detailed.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


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 UJVN Ltd.
 Dehradun

2	Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam.	3.50	<p>The work "Special repair of 7 nos. spillway and roller buckets & Repair of downstream left bank training wall of Ichari Dam" was completed before monsoon of 2017 under DRIP (Dam Rehabilitation and Improvement Project) being funded by World Bank through Central Water Commission, Gol. Under this work only special repair of spillway no.03, 04 & 05 & roller bucket work was executed to ensure safety of the Dam body.</p> <p>A meeting was held on 11-09-2017, Minutes of which was issued vide your letter no. 02/01/2017-DSRD/UJVNL/1288 dated 11.09.2017. During the above meeting it was decided regarding the works of rehabilitation of Ichari dam spillway, that UJVNL will submit variation proposal to close the present contract vide which 3 spillways stand already rehabilitated and for balance 4 spillways, UJVNL will initiate parallel action for starting fresh bidding process.</p> <p>During the repair of spillway no.03, 04 & 05 & roller bucket, it has been found that actual damages of the spillways and especially roller buckets are much more than assessed. The condition of remaining four spillways is very bad. Severe damages have taken place on spillways of Ichari Dam and extent of damages to different Spillways are varying.</p>	Proposed repair works of remaining 04 spillways no. 01, 02, 06, & 07 and the respective roller buckets are essentially required for safety and long life of the Ichari Dam. Without completion of above works dam safety can't be assured.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
3	Construction of Office Building at Ichari Dam	0.53	At present, Two Assistant Engineer and Two Junior Engineer are posted at Ichari Dam for operation and maintenance of the dam but there is no site office constructed at site. Suitable space for construction of office building is also available for construction of office building near Dam site. Executive Engineer (E&M), Ichari Dam, Ichari has also requested vide letter no. 720/EE(E&M)/Ichari Dam/UJVNL Ltd./A-2 dated 07/10/17 for construction of building at Ichari Dam. In view of the above a proposal of Construction of two story office building has been prepared.	At present, Two Assistant Engineer and Two Junior Engineer are posted at Ichari Dam for operation and maintenance of the dam but there is no site office constructed at site. It is very necessary to construct office building at site.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


(Purushottam Singh)
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 UJVNL Ltd.
 Nehradun

4	Scanning of old drawings of Khodri Power House, Chibro Power House, HRT & Ichari Dam	0.04	Old drawing related to Khodri Power House, Chibro Power, HRT & Ichari Dam was Handed over from Irrigation to UJVN Limited are in bad condition. Due to passage of time as a result of drawing has obsolete. General Manager has also instructed to prepare the estimate for scanning of old Drawing. In this proposal the work of repairing of drawing, scanning of drawing, purchase of box file, purchase of Hard disk has been taken.	It is very necessary to do repair and scanning work of drawing and the works included in this proposal are at least required but necessary.	As per the rates approved by DGM (CM-YV).
5	Supply, installation and commissioning of Instrumentation, monitoring system and Goe Mos monitoring software" along with required accessories at Ichari Dam	1.87	Instrumentation in dam is necessary for verification of design assumptions, construction technique & modification of design. Data collected from instrument can be extremely valuable in determination of specific cause of failure. For keeping constant watch over the performance of the structure during service & obtaining timely warnings in respect of distress spots, proper instrumentation is required. Safety in Dam can be assisted by instrumentation.	Recent dam failures in various part of world inspired significant interest in monitoring various parameters as a means for ensuring adequate margin of safety. As per IS specification basic parameters like pore pressure, displacement, seepage, strains, stresses, dynamic load, uplift pressure, temperature can be studies with the help of instrumentation.	The costing of work has been calculated on the basis analysis of rates
6	Consultancy work for "Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam." and "Balance Rehabilitation works of Ichari Dam" of Ichari Dam.	0.15	Consultancy work has been added for third party quality assurance for the "Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam." and "Balance Rehabilitation works of Ichari Dam" of Ichari Dam	consultancy work has been added for third party quality assurance	As per Offer received from NCCBM.


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Dehradun

7	Supply, Installation & Commissioning of Early earthquake warning and security system with accessories at Ichari Dam.	0.42	Under the DRIP Scheme, funded by The World Bank and monitored by CWC, UJVNL Limited is involved in repair, maintenance and instrumentation of Dams/ Barrages as per guidelines of World Bank. As per guidelines of the World Bank, it is necessary to install seismic instruments at all the dams and barrage involved in DRIP to monitor seismic activities in India as Indian subcontinent has rich history of devastating earthquakes. For this purpose CWC has hired IIT Roorkee as a consultant for seismic activities throughout India. Currently, No dams/ barrages from UJVNL Limited involved in DRIP works have any earthquake detector instruments. As per geographical location, all the working sites of UJVNL come under Seismic Zone-V, which has very high risk of earthquake activities and ground rupture caused by earthquake activities have severe effects on large structures such as dams, barrages, power houses etc. Therefore, it is very much essential to install the earthquake detector instruments at Ichari Dam, Dakpathar Barrage, Asan Barrage, Virbhadrha Barrage and Chibro Power House. All the four dams/barrages such as Ichari Dam, Dakpathar Barrage, Asan Barrage and Virbhadrha Barrage comes under DRIP and Chibro Power House is a underground power house in seismic zone-V, therefore, it is very vulnerable to seismic activities.	Earthquake detector Instrument system to be installed has very high efficiency, which detects primary waves of earthquake which are less dangerous than secondary waves and provide 30 second time to reduce collateral damage to be caused by the secondary waves of the earthquake. Therefore, this seismic instrument is very much efficient to reduce collateral damage to be caused by earthquake, which is paramount. It also reduces the aftermath effects of the earthquake by shutting down different electrical, mechanical and building installations.	As per market Rate.
8	Seepage treatment work of foundation gallery of Ichari Dam	0.70	During the inspection of foundation gallery of Ichari Dam it has been found that some seepage occurs at various locations in gallery. For the safety and long life of Ichari Dam, the repair of gallery need to be repaired.	Proposed Seepage treatment work of foundation gallery of Ichari Dam is essentially required for safety and long life of the Ichari Dam. Without completion of above works dam safety can't be assured.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
		13.21			
D	Plant & Machinery				
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
	Total	13.21			


(Purushottam Singh)
Director (Operation)
UJVNL Ltd.
Nagradun

Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land				
B	Building				
C	Major Civil Works				
D	Plant & Machinery				
1	SITC Floating trash arrestor in the reservoir of Ichari Dam	2.00	minimization of choking of trash racks resulting in reduced downtime.	minimization of choking of trash racks resulting in reduced downtime.	Market Survey
		2.00			
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
H	Others				
	Total	2.00			


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 Dehradun

Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land				
B	Building				
C	Major Civil Works				
1	Balance Rehabilitation works of Ichari Dam	0.97	Site visit of CPMU consultant and Director, DRIP on 20-04-2017 and again visit on 11-11-2017 by CPMU consultant & Dy. Director, DRIP directorate, CWC and subsequent discussions at Ichari Dam on the subject matter. It was suggested that for future repair work with latest technology and quality standards access road should be constructed. The will also easeout transportation of construction material and equipment for better quality control. In addition to above severe damages have been found at downstream left and right training wall of dam which needs to be repaired for the safety of structure. River training works were also taken in this proposal in view of suggestions from DRIP Consultants.	Proposed Balance rehabilitation works of Ichari Dam are essentially required for safety and long life of the Ichari Dam. Therefore to complete the works a new package has been added keeping in view the necessity as detailed.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


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 Dehradun

2	Special repair of 4 nos. spillway bays (Bay 1,2,6 & 7) and roller buckets of Ichari Dam.	0.49	<p>The work "Special repair of 7 nos. spillway and roller buckets & Repair of downstream left bank training wall of Ichari Dam" was completed before monsoon of 2017 under DRIP (Dam Rehabilitation and Improvement Project) being funded by World Bank through Central Water Commission, GoI. Under this work only special repair of spillway no.03, 04 & 05 & roller bucket work was executed to ensure safety of the Dam body.</p> <p>A meeting was held on 11-09-2017, Minutes of which was issued vide your letter no. 02/01/2017-DSRD/UJVNL/1288 dated 11.09.2017. During the above meeting it was decided regarding the works of rehabilitation of Ichari dam spillway, that UJVNL will submit variation proposal to close the present contract vide which 3 spillways stand already rehabilitated and for balance 4 spillways, UJVNL will initiate parallel action for starting fresh bidding process.</p> <p>During the repair of spillway no.03, 04 & 05 & roller bucket, it has been found that actual damages of the spillways and especially roller buckets are much more than assessed. The condition of remaining four spillways is very bad. Severe damages have taken place on spillways of Ichari Dam and extent of damages to different Spillways are varying.</p>	Proposed repair works of remaining 04 spillways no. 01, 02, 06, & 07 and the respective roller buckets are essentially required for safety and long life of the Ichari Dam. Without completion of above works dam safety can't be assured.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
	Sub Total	1.46			
D	Plant & Machinery				
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
H	Others				
	Total	1.46			


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 Dehradun

ANNEXURE - 13 (C)


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Name of Project : Virbhadra Barrage (Chilla HEP)

E&M Expenses

Additional Capitalization Proposed for the FY 2018-19					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building	-			
3	Major Civil Works	-			
4	Plant & Machinery	-			
1	Illumination of barrage by LED lighting under DRIP programme.	0.16	These items are required for proper illumination at barrage, safety of barrage and personnel working in night shift at barrage. This work was suggested by DSRP under canal closure.	To avoid any accident, safety of Nigam's personnel and enhancement in efficiency of personnel deputed at barrage due to proper illumination of barrage.	based on market survey.
2	Repair and maintenance of Barrage gates and head regulator gates of Virbhadra barrage under DRIP programme.	2.61	Since construction of barrage no major over hauling of barrage gates has been done due to which these gates create problem in routine operation and there is leakage past these gates so far therefore repair of barrage gates has been covered under DRIP programme for proper operation of these gates.	After repair operation of these gates become efficient and leakproof. This work was suggested by DSRP under canal closure.	As per PWD SOR and market rate.
3	Replacement of Hoisting Motors and brakes of Head Regulator and Barrage gates of Virbhadra Barrage under DRIP programme.	0.06	This work was suggested by DSRP under DRIP programme. Since construction of barrage in 1979-80 no major over hauling of barrage gates motor has been done due to which these motors efficiency has been decreased considerably due to which it create problem in routine operation of gates therefore replacement of these motors is required.	By replacement of these motors Barrage operation may be done smoothly efficiently.	based on market survey.
4	Painting On Steel Structure Of Virbhadra Barrage Pashulok, Rishikesh under DRIP programme.	0.22	This work was suggested by DSRP under DRIP programme to enhance the life of steel structure as steel structure is getting rusted as there is no painting works carried out on steel structure for last five year.	By application of painting on steel structure of barrage it will be prevented from corrosion and rusting thereby enhancement of life of steel structure.	based on PWD SOR & market survey.


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5	Design, Manufacture, Supply, Erection, Testing and commissioning of a set of Stop log gates at Virbhadrha Barrage, Pashulok, Rishikesh.	2.10	<p>The barrage became operational in 1980 and 36 years have passed since then the wear and tear of these gates is more due to frequent operation of gates in monsoon period. In case of emergency the repair work of two or more gates is required to be carried during flushing for proper operation of gates which is a very short period. To increase the reliability of operation of gates through repair and maintenance of these gates in monsoon as well as pre and post monsoon periods. It is essential to procure a set of Stop log gate.</p> <p>The barrage became operational in 1980 and 36 years have passed since then the wear and tear of these gates is more due to frequent operation of gates in monsoon period. In case of emergency the repair work of two or more gates is required to be carried during flushing for proper operation of gates which is a very short period. To increase the reliability of operation of gates through repair and maintenance of these gates in monsoon as well as pre and post monsoon periods. It is essential to procure a set of Stop log gate.</p>	<p>In order to minimize generation loss at Chilla HEP due to repair and maintenance of barrage gates and to increase the reliability of operation of gates through repair and maintenance of these gates in monsoon as well as pre and post monsoon periods. It is essential to procure a set of Stop log gate.</p>	Based on offer provided by Govt Irrigation work shop on single source basis under DRIP Cscheme.
6	"Replacement of brake of hoisting arrangement of Under Sluice gate Other way gates and Head regulator gates of Virbhadrha Barrage, Pashulok, Rishikesh".	0.14	<p>Since commissioning of Virbhadrha Barrage, barrage gates are in continuous operation, due to this there is heavy wear and tear occurred in brake system of barrage gate and it is causing problem in operation of barrage gates.</p> <p>As the brake system of Barrage gates are very old and electric brake type, it has been damaged very badly therefore, it is creating problem in operation of these gates. Sometimes in hanging position of gate started moving down side due to losing its grip. Therefore, to avoid any mishap and damaged to barrage gates, it is essentially required to replace the brake system of these gates for smooth and safe operation of barrage gates.</p>	<p>to avoid any generation loss on account of failure of gate operation, mishap and damaged to barrage gates, it is essentially required to replace the brake system of these gates for smooth and safe operation of barrage gates.</p>	Based on offer provided by Govt Irrigation work shop on single source basis.


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7	Fabrication,Transportation and Erection of Under Sluice gate No.1 at Virbhadrha Barrage, Pashulok, Rishikesh."	2.30	<p>During routine inspection of barrage gates on dated 31-08-2016 it was found that the bottom tier of under sluice gate no.1 has been damaged due to due to impact of heavy logs and boulders in River Ganga, Joint inspection was carried with Uttarakhand Irrigation Workshop, Roorkee (the original manufacturer of these gates of barrage) team comprising of Executive Engineer, Assistant Engineer, Junior Engineer Erection Division and officers of UJVN Limited, Dy.General Manager, HGC Chilla, Executive Engineer (E&M),Assistant Engineer(E&M) and Junior Engineer(E&M) ,Virbhadrha Barrage, Rishikesh on dated 01-09-16 and 02-09-16.The temporary work was suggested by Uttarakhand Irrigation Workshop, to avoid further damage to Under sluice gate no. 1 and generation loss at Chilla Power House till the replacement of gate.</p> <p>As per report of Erection Division (Govt. Irrigation Workshop), the repair of damaged Under sluice gate no.1 is not likely to be reliable. The reservoir shall have to be operated at lower level to prevent further damages due to ponding and impact of heavy logs and boulder on its bottom tier mainly in rainy season. Therefore, the works of "Fabrication, Transportation and Erection of Under Sluice Gate No.1 of Virbhadrha Barrage, Pashulok, Rishikesh" is urgent to avoid generation loss at Chilla HEP. In order to minimize generation loss at Chilla HEP during replacement of this shutter of under sluice gate no.1, the work is proposed to be taken up in lean period.</p>	The reservoir had to be operated at lower level due to damaged Under sluice gate ,therefore, replacement of Under sluice gate was urgently required to avoid generation loss at Chilla HEP.	Based on offer provided by Govt Irrigation workshop on single source basis under DRIP Cscheme.
		7.59			
5	Vehicles				
6	Furniture & Fixtures				


(Purushottam Singh)
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Dehradun

1	Procurement of Furnitures.	0.20	<p>Since the date of handing over of barrage to Nigam in April 2010 to EE (Civil) was looking after the operation of barrage, Civil maintenance, repair of Hydro Mechanical & Electromechanical Electro Mechanical maintenance and Repair and maintenance of three colonies i.e. Barrage colony, New hydle colony & Maneribhali colony and offices.</p> <p>later on office of EE (E&M) was created on April 2015, Operation of barrage, repair of Hydro Mechanical & Electromechanical Electro Mechanical maintenance and Repair and maintenance of three colonies i.e. Barrage colony, New hydle colony & Maneribhali colony & offices has been handed over to office of EE (E&M).</p> <p>There is no furniture procured for this office as well as in the office of DGM HGC Chilla and GM(GV) Office since long there is scarcity of furniture in these office to dispose off the daily routine work and DRIP works associated with these offices, these offices are utilizing very old furniture by repairing and staff has been increased in these offices therefore provision has been made to procure furniture for these offices under DRIP.</p>	<p>Now a days new furniture are ergonomically desined which enhance the effeciency of personnel without fatigue, thus using new furniture the personnel will be more efficient effective.</p>	Market survey
		0.20			


 (Purushottam Singh)
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7	Office Equipments & Others				
1	Procurement of IT Equipments.	0.10	<p>Since the date of handing over of barrage to Nigam in April 2010 to EE (Civil) was looking after the operation of barrage, Civil maintenance, repair of Hydro Mechanical & Electromechanical Electro Mechanical maintenance and Repair and maintenance of three colonies i.e. Barrage colony, New hydle colony & Maneribhali colony and offices.</p> <p>later on office of EE (E&M) was created on April 2015, Operation of barrage, repair of Hydro Mechanical & Electromechanical Electro Mechanical maintenance and Repair and maintenance of three colonies i.e. Barrage colony, New hydle colony & Maneribhali colony & offices has been handed over to office of EE (E&M).</p> <p>There is no IT equipment (Computer, Printers, Dongals) procured for this office as well as in the office of DGM HGC Chilla and GM (GV) Office since long there is scarcity of IT equipments in these offices to dispose off the daily routine work and DRIP works, these offices are utilizing the very old IT equipments by repairing and staff has been increased in these offices therefore provision has been made to procure IT equipments for these offices under DRIP. More over ERP is in its implementation phase in Nigam, therefore latest peripherals are required for this programme.</p>	Now a days new IT equipments are required for disposing off daily routine work as well as DRIP works in efficient and effective manner.	Market survey
		0.10			
	Total	7.89			


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Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land				
2	Building				
3	Major Civil Works				
4	Plant & Machinery				
1	Design, Manufacture, Supply, Erection, Testing and commissioning Automation System Along with SCADA Software House at Virbhadrha Barrage, Pashulok, Rishikesh	8.16	This work was suggested by DSRP under DRIP programme.	By application of SCADA at barrage Data acquisition will be easy and operation of barrage will be done in efficient and smoothly.	based on market survey.
2	Design, Manufacture, Supply, Erection, Testing and commissioning of Trash Rack Cleaning Machine at Virbhadrha Barrage of Virbhadrha Barrage, Pashulok, Rishikesh. This includes cost of material labours, T&P etc. complete in all respect under DRIP programme.	1.76	This work was suggested by DSRP under DRIP programme.	By application of trash rack machine at barrage trash may removed in all codition and weather therby increased generation from Chilla HEP.	based on market survey.
		9.92			
5	Vehicles	-			
6	Furniture & Fixtrues	-			
7	Office Equipments & Others	-			
	Total	9.92			


 (Purushottam Singh)
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 Dehradun

Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land				
B	Building				
C	Major Civil Works				
1	Protection of both side banks in downstream of pashulok Barrage at Rishikesh. (Under DRIP-I)	3.37	During the devastating flood of 2013 in the state of Uttarakhand both banks in downstream of barrage had suffered immense damage. The damaged down-stream banks are required to be protected for the safety of the structures located on banks and further erosion of shores to safe guard assets laying adjacent to both the banks. The requirement was discussed during the visit of the Consultants from DRIP Directorate.	Work is required for the safety of the banks of barrage so that safety of the barrage structure should be ensured. It is essential to keep barrage in proper condition for diverting the water to generation.	Rates are as per CPWD/PWD SOR. Work shall be awarded thouth open tenders
2	Repair and Restoration of under sluice bays and works related to stilling basin energy desperation blocks of all the bays of pashulok. (Under DRIP-I)	6.32	The work covers provision of laying CC blocks boulder filled wire crates with other related civil works.		Rates are as per CPWD/PWD SOR. Work shall be awarded thouth open tenders
	Sub Total	9.69			
D	Plant & Machinery				
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
	Total	9.69			


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 Dehradun

Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land				
2	Building				
3	Major Civil Works				
4	Plant & Machinery				
1	Providing and fixing of chequered plates at Barrage gates, HR Gate and Gantry crane Platform at Virbhadrha barrage structure.	2.06	As the Barrage is 36 year old and the chequered plate installed at various platform of Barrage structure i.e.(HR gates , Barrage gate and gantry crane platform) has been damaged badly due to rusting and ageing therefore for safety of personnel dputed at barrage this work is essentilly required. As the chequered plates of working platform of Virbhadrha barrage are damaged and eroded very badly and may result in any mishap during operation barrage therefore, this work is required to be taken up in DRIP -2.	This will enhance the capacity of pesonnel to work on Barrage structure in efficient, effective manner and barrage operation may be done in safe and smooth manner.	Tentative
2	Supply & Fixing of Motors of Under Sluice and Other bay gates	0.75	For operation of barrage gates motors are installed at the structures. These motors have suffered heavy wear and tear due to regular operations of spill way (other bay) as well as HR gates over a long period of time and now-a-days these motors are creating problems frequently during operation, therefore, it needs replacment for proper and safe operation of barrage gates. This work is being taken in DRIP -2.	This will enhance the operation of barrage gate in efficient and effective manner, more smoothly and safely.	Tentative
3	Supply, Installation & Commissioning of Main LT Pannel including protection & incoming cable with provision of panel for TRCM etc.	0.30	LT pannel installed at Virbhadrha Barrage is very old and the spare parts are not available in the market. Cable is under rated and wiring is scattered. Therefore, LT Distribution pannel needs to be replaced with new one for safety of personnel and smooth operation of the auxiliaries etc. it is proposed for installation of new LT pannel in DRIP -2	Due to problem in LT Pannel it may cause generation loss at Chilla Power Station due to problem in operation of gates and therefore to avoid any generation loss on account of this LT panne installed at Barrage should be in healthy and good condition.	Market rate


 (Purushottam Singh)
 Director (Operation)
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 Dehradun

4	Procurement of V.C.B of 11 kV Transformers at Pashulok Barrage.	0.30	At present the OCB installed at Virbhadrha barrage is very old and spare parts of this OCB is not available in the market, frequently fault occurs in this OCB, therefore, its repair become very difficult it is proposed for procurement of new VCB in place of OCB in DRIP -2	Due to problem in VCB panel may interrupt power supply for operation of gates, thus it may cause generation loss at Chilla Power Station therefore to avoid any generation loss on account of this Installation of VCB is essentially required.	Tentative
5	Installation of all weather station at Virbhadrha Barrage	0.06	It is suggested by world Bank consultant Teams that In order to measure various parameter like wise Humidity, Rain fall etc. installation of all weather is essentially required at Pashulok Barrage.	Instrumentation of Barrage is essential as per World Bank Consultant for Know how of whether so that parameter of barrage could be managed in effective and efficient manner accordingly.	Tentative
6	Repair and strengthening of epoxy painting of Boulder excluder tunnel of Under sluice gate at Virbhadrha Barrage.	2.00	During canal closure w.e.f. 25.01.18 to 14.02.18 when inspection was carried of boulder excluder tunnel. It was found that the steel lining of boulder excluder tunnel is heavily rusted and pitting on its surface, its thickness of plate has been reduced considerable at various places, therefore its repair and strengthening and epoxy painting is essentially required to be taken up at the earliest. This work is proposed under DRIP -2	To avoid any generation loss on account of fault occurring due to this defect and for safety of barrage and smooth operation of Barrage a this work is proposed under DRIP-2.	Tentative
7	"Alignment and Overhauling of hoist system of head regulator gates No. 01 to 05 of Virbhadrha Barrage, Pashulok, Rishikesh".	1.59	during canal closure w.e.f. 25.01.18 to 14.02.18 when inspection was carried of all Barrage gates, it was suggested by World Bank Consultants during their visit during this period that alignment of the Barrage gates must be got done for proper and trouble free operation of these gate and therefore this work is proposed under DRIP -2	To avoid generation loss on account of misalignment of barrage gates and problem in operation of barrage gates, it is essentially required to align all the barrage gates for safe and smooth operation of barrage and safety of barrage personnel.	Tentative
8	Replacement of steel plate of All barrage gate.	1.01	The steel plate of gate groove of barrage gate has been deteriorated badly therefore replacement of steel plate is essentially required, therefore this work is proposed under DRIP -2	To avoid generation loss on account of operation failure due to plate of barrage gate, it is essentially required to align all the barrage gates.	Tentative
		8.06			


 (Purushottam Singh)
 Director (Operation)
 UJVN Ltd.
 Dehradun

5	Vehicles				
1	Procurement of vehicle (M&M Bolero) for EE (E&M), Virbhadra Barrage and DGM, HGC Chilla.	0.16	A dedicated vehicle is required for newly created office of Executive Engineer (E&M), Pashulok Barrage vide O&M no.No.2323-UJVNL/03/HR/MOC/RI dated 26-03-2015. for making site visit and attending meeting, now a days hired vehicle is being used by him. The vehicle of Dy. General Manager (E&M), HGC Chilla creates problem frequently therefore needs to be replacement, therefore this work is proposed under DRIP -2	For efficient and effective working vehicles are required for newly created office of, EE (E&M), Virbhadra Barrage and DGM Office.	Tentative
		0.16			
6	Furniture & Fixtures	-			
7	Office Equipments	-			
	Total	8.22			


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Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land				
B	Building				
C	Major Civil Works				
1	Construction of Trainig Centre/Transit Camp Building at Rishikes. (Under DRIP-II)	2.00	A proper training centre and transit camp at foothill is required to conduct trainings to the Nigam's personals.	For the safety of plant and manpower it is essential that the mad power deployed at power plant should be adequately trained. In present era when technologies are being changed so rapidly it becomes more important to impart training to the personals working at different power station of the corporation. Training to the personal will ensure a safe and better operation of the HEP's.	Rates are as per CPWD/PWD SOR. Work shall be awarded thouth open tenders
	Total	2.00			
D	Plant & Machinery				
E	Vehicles				
F	Furniture & Fixtures				
G	Office Equipment				
	Total	2.00			


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 Dehradun

Additional Capitalization Proposed for the FY 2021-22					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building	-			
3	Major Civil Works	-			
4	Plant & Machinery				
1	Replacement of HR Gate of Virbhadrha Barrage.	10.00	There is heavy scaling on HR gate of Barrage due to which plate thickness of gate has been reduced considerable and it was suggested by the expert of World Bank/ Irrigation for replacement of HR gates as expenditure incurred in metallic coating on Barrage gate is more expensive than procurement of new gate.	To avoid generation loss on account of Gate failure this work is required.	Tentative
2	Painting of Barrage Gate of Virbhadrha Barrage.	1.50	Painting on barrage gate is essentially required for enhance of its life as it prevent it from rusting therefore painting of barrage gates is essentially required.	To prevent damage of gate from rusting it is essentially required proper up keep of gate and painting after certain interval time of four or five year.	Tentative
3	Replacement of Sill Beam	3.50	Since commissioning of Virbhadrha Barrage Barrge gates are in continuous operation, due to this there is heavy wear and tear occurs in different parts of these gates, where more friction is involved due to during operation of underwater parts of these gates due to heavy weight and water pressure acting on these gates. During last closure it was found that the sill beam of all barrage gates has been damaged at several places causing leakage past the gates. The work of "Replacement of Sill beam of Barrage gates of Pashulok Barrage at Rishikesh." is urgent for smooth and safe operation, to avoid generation loss at Chilla HEP.	During last closure it was found that the sill beam of all barrage gates has been damaged at several places causing leakage past the gates. To avoid generation loss on accoun leakage past the gates this work is essentially required.	Tentative
		15.00			
5	Vehicles	-			
6	Furniture & Fixtrues	-			
7	Office Equipments	-			
	Total	15.00			


 (Purushottam Singh)
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 Dehradun

Additional Capitalization Proposed for the FY 2021-22					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Construction of Trainig Centre/Transit Camp Building at Rishikesh. (Under DRIP-II)	2.00	A proper training centre and transit camp at foothill is required to conduct trainings to the Nigam's personals.	For the safety of plant and manpower it is essential that the mad power deployed at power plant should be adequately trained. In present era when technologies are being changed so rapidly it becomes more important to impart training to the personals working at different power station of the corporation. Training to the personal will ensure a safe and better operation of the HEP's.	Rates are as per CPWD/PWD SOR. Work shall be awarded thouth open tenders
	Total	2.00			
D	Plant & Machinery	-			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	2.00			


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ANNEXURE - 13 (D)


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Name of Project : Dakpathar Barrage (Dhakrani & Dhalipur HEP)

E&M Expenses

Additional Capitalization Proposed for the FY 2018-19					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building	-			
3	Major Civil Works	-			
4	Plant & Machinery				
1	Overhauling of Hydro-Mechanical system of Barrage gates at Dakpathar Barrage	0.32	Proper and reliable operation of gates during monsoon period when frequently used, also to arrest the leakage after monsoon period/during lean period. Which is required to improve the generation at Dhakrani power station.	Better & reliable operation of gates.	Estimate for Irrigation Department Roorkee Uttarakhand
2	Major Overhauling of Barrage gate no. 24 & 25 of Dakpathar barrage in District- Dehradun through single quotation basis being proprietary in nature.	0.22	Proper and reliable operation of gates during monsoon period when frequently used, also to arrest the leakage after monsoon period/during lean period. Which is required to improve the generation at Dhakrani power station.	Better & reliable operation of gates.	Estimate for Irrigation Department Roorkee Uttarakhand
3	Design, manufacturing, supplying, installation, Testing & commissioning of hydraulic trash rack cleaning machine with trash rack pannels at Dakpathar Barrage, Dakpathar, Dist. Dehradun.	3.94	It is required to clean the trash rack to continuous discharge in Power channel and avoid the generation loss at Dhakrani/Dhalipur Power station.	Better & reliable operation to cleaning of Trash Rack and avoid of Generation loss.	Open Tender
		4.48			
5	Vehicles	-			
6	Furniture & Fixtures	-			
7	Office Equipments	-			
	Total	4.48			


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 Dehradun

Additional Capitalization Proposed for the FY 2018-19					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Balance work of Special repair of glacis, cracks on piers/abutments, eroded concrete, at Down stream of Dakpathar Barrage, Dehradun	4.00	<p>The work "Special Repair of Glacis, Cracks on piers/abutments, eroded concrete downstream of Dakpathar Barrage" was completed during closure of Yamuna Valley Project from 21.03.2017 to 20.04.2017. In the above work package, only upstream side portion of glacis of different bays, piers as well as left & right bank of Dakpathar barrage etc. were repaired to ensure safety of the barrage body. As the erosion and damages on upstream side was much more than estimated, only repairs on upstream portion which could be repaired only during closure, was taken up and completed in time.</p> <p>During the above repair in closure; it was observed that actual damages are much more than estimated initially and for the purpose work package was framed in consultation of DRIP consultants from CWC/World Bank. Proposed Balance work of special Repair of Glacis, Cracks on piers/abutments, eroded concrete downstream of Dakpathar Barrage are essentially required for safety and long life of the Barrage as well as to maintain uninterrupted power generation from the power house and safety of livelihoods.</p>	Proposed Balance rehabilitation works of Ichari Dam are essentially required for safety and long life of the Ichari Dam. Therefore to complete the works a new package has been added keeping in view the necessity as detailed.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
2	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	0.50	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


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3	Supply, Installation & Commissioning of Early earthquake warning and security system with accessories at Dakpathar Barrage	0.30	Under the DRIP Scheme, funded by The World Bank and monitored by CWC, UJVN Limited is involved in repair, maintenance and instrumentation of Dams/ Barrages as per guidelines of World Bank. As per guidelines of the World Bank, it is necessary to install seismic instruments at all the dams and barrage involved in DRIP to monitor seismic activities in India as Indian subcontinent has rich history of devastating earthquakes. For this purpose CWC has hired IIT Roorkee as a consultant for seismic activities throughout India. Currently, No dams/ barrages from UJVN Limited involved in DRIP works have any earthquake detector instruments. As per geographical location, all the working sites of UJVNL come under Seismic Zone-V, which has very high risk of earthquake activities and ground rupture caused by earthquake activities have severe effects on large structures such as dams, barrages, power houses etc. Therefore, it is very much essential to install the earthquake detector instruments at Ichari Dam, Dakpathar Barrage, Asan Barrage, Virbhadrha Barrage and Chibro Power House. All the four dams/barrages such as Ichari Dam, Dakpathar Barrage, Asan Barrage and Virbhadrha Barrage comes under DRIP and Chibro Power House is a underground power house in seismic zone-V, therefore, it is very vulnerable to seismic activities.	Earthquake detector Instrument system to be installed has very high efficiency, which detects primary waves of earthquake which are less dangerous than secondary waves and provide 30 second time to reduce collateral damage to be caused by the secondary waves of the earthquake. Therefore, this seismic instrument is very much efficient to reduce collateral damage to be caused by earthquake, which is paramount. It also reduces the aftermath effects of the earthquake by shutting down different electrical, mechanical and building installations.	As per market Rate.
	Total	4.80			
D	Plant & Machinery	-			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment				
1	Purchase of IT equipment including installation for the office use of the Executive Engineer (PCM), Dakpathar	0.07	A shortage of IT equipment such as Laptops, Desktops, Printers etc. have been observed in this office which resulted to inconvenience to discharge day to day office works. Sometimes important works get suffered due to inadequate number of IT equipment. The Quantum of work in the office has been increased due to involvement of works under Dam Rehabilitation and Improvement Project (DRIP)	The progress of the works under DRIP is being monitored by the World Bank through Central Water Commission (CWC), which requires timely disposal of works. Therefore, the concerned office must be facilitated by the adequate quantities of IT equipment for the timely and effectively disposal of works. Therefore, IT equipment are to be purchased for office use of the Executive Engineer (PCM), Dakpathar	Unit rates submitted by M/s Dreamzcraft Info Solutions Pvt. Ltd. For cost estimation are taken from Government e-market (GeM). However, procurement shall be made through open e-tender.
		0.07			
	Total	4.87			


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Additional Capitalization Proposed for the FY 2019-20					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Balance work of Special repair of glacis, cracks on piers/abutments, eroded concrete, at Down stream of Dakpathar Barrage, Dehradun	4.41	<p>The work mentioned at sl. no. 1 above "Special Repair of Glacis, Cracks on piers/abutments, eroded concrete downstream of Dakpathar Barrage" was completed during closure of Yamuna Valley Project from 21.03.2017 to 20.04.2017. In the above work package, only upstream side portion of glacis of different bays, piers as well as left & right bank of Dakpathar barrage etc. were repaired to ensure safety of the barrage body. As the erosion and damages on upstream side was much more than estimated, only repairs on upstream portion which could be repaired only during closure, was taken up and completed in time.</p> <p>During the above repair in closure, it was observed that actual damages are much more than estimated initially and for the purpose work package was framed in consultation of DRIP consultants from CWC/World Bank. Proposed Balance work of special Repair of Glacis, Cracks on piers/abutments, eroded concrete downstream of Dakpathar Barrage are essentially required for safety and long life of the Barrage as well as to maintain uninterrupted power generation from the power house and safety of livelihoods.</p>	Proposed Balance rehabilitation works of Ichari Dam are essentially required for safety and long life of the Ichari Dam. Therefore to complete the works a new package has been added keeping in view the necessity as detailed.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).
2	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	1.42	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016. There are few items for which rates are not available in CPWD DSR, are taken from PWD SOR of 2018-19. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-YV).


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3	Supply, Installation & Commissioning of Early earthquake warning and security system with accessories at Dakpathar Barrage.	0.42	Under the DRIP Scheme, funded by The World Bank and monitored by CWC, UJVN Limited is involved in repair, maintenance and instrumentation of Dams/ Barrages as per guidelines of World Bank. As per guidelines of the World Bank, it is necessary to install seismic instruments at all the dams and barrage involved in DRIP to monitor seismic activities in India as Indian subcontinent has rich history of devastating earthquakes. For this purpose CWC has hired IIT Roorkee as a consultant for seismic activities throughout India. Currently, No dams/ barrages from UJVN Limited involved in DRIP works have any earthquake detector instruments. As per geographical location, all the working sites of UJVNL come under Seismic Zone-V, which has very high risk of earthquake activities and ground rupture caused by earthquake activities have severe effects on large structures such as dams, barrages, power houses etc. Therefore, it is very much essential to install the earthquake detector instruments at Ichari Dam, Dakpathar Barrage, Asan Barrage, Virbhadrha Barrage and Chibro Power House. All the four dams/barrages such as Ichari Dam, Dakpathar Barrage, Asan Barrage and Virbhadrha Barrage comes under DRIP and Chibro Power House is a underground power house in seismic zone-V, therefore, it is very vulnerable to seismic activities.	Earthquake detector Instrument system to be installed has very high efficiency, which detects primary waves of earthquake which are less dangerous than secondary waves and provide 30 second time to reduce collateral damage to be caused by the secondary waves of the earthquake. Therefore, this seismic instrument is very much efficient to reduce collateral damage to be caused by earthquake, which is paramount. It also reduces the aftermath effects of the earthquake by shutting down different electrical, mechanical and building installations.	As per market Rate.
	Sub Total	6.25			
D	Plant & Machinery	-			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	6.25			


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 Dehradun

ANNEXURE - 13 (E)


(Purushottam Singh)
Director (Operation)
UJVN Ltd.
Dehradun

Name of Project : Maneri Barrage (MB-I HEP)

E&M Expenses

Additional Capitalization Proposed for the FY 2018-19					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building	-			
3	Major Civil Works	-			
4	Plant & Machinery				
1	Installation of elevator at Maneri Dam under DRIP programme.	0.54	Electric traction freight elevator is not functional for more than 10 years.	Maintenance of dewatering pumps & regular inspection of dam gallery will be smooth.	based on market survey.
		0.54			
5	Vehicles	-			
6	Furniture & Fixtures	-			
7	Office Equipments	-			
	Total	0.54			


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A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Special maintenance & repair of Spillway Glacis no. 03 & 04 including Roller bucket of all the four bays of Maneri Dam	5.00	The work is in progress and is required to effectively pass the flood. The work is being carried out as per the technical advice given by CPMU-CWC.	The spillway glacis and roller bucket were adversely damaged by the flash flood in the year 2012 & 2013. The work will help the structure to withstand against the flood.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016 & PWD SOR. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-BV).
2	Hydraulic modeling of Maneri Dam.	0.50	The work is in progress at IRI-Roorkee. The work is required to determine the efficiency and efficacy of existing slotted roller bucket of Maneri Dam.	The results obtained from the Model Study will help in improving the design of roller bucket to pass the flood effectively.	As per the offer received by IRI-Roorkee.
3	Instrumentation of Maneri Dam.	0.20	Instrumentation in dam is necessary for for keeping constant watch over the performance of the structure during service & obtaining timely warnings in respect of distress spots, proper instrumentation is required. Safety in Dam can be assisted by instrumentation.	Recent dam failures in various part of world inspired significant interest in monitoring various parameters as a means for ensuring adequate margin of safety. As per IS specification basic parameters like pore pressure, displacement, seepage, strains, stresses, dynamic load, uplift pressure, temperature can be studies with the help of instrumentation.	As per market rate.
4	Construction of TRC Gate (Back Regulator) at the confluence point of TRC of Tiloth Power House & Bhagirathi river	3.00	During the flash flood in the year 2012 & 2013, the Tail Race Channel was damaged and silted. The generation was resumed after 29 days and 45 days respectively. To avoid such occurrence in future, it is poposed to construct outfall gates at TRC so that the same could be lowered during flood.	It is necessary to construct outfall gates to avoid and siltation and damages to TRC in future as well as to resume the generation at the earliest.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016 & PWD SOR. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-BV).


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5	Engagement of NCCBM, Ballabgarh for providing design mix of M60, M90 & M90 with SFRC Grade concrete and quality supervision during execution of work.	0.20	Consultancy work for third party quality assurance for the "Special maintenance & repair of Spillway Glacis no. 03 & 04 including Roller bucket of all the four bays of Maneri Dam."	consultancy work has been added for third party quality assurance	The costing of work has been calculated on the basis analysis of rates
		8.90			
D	Plant & Machinery	-			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	8.90			


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Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
1	Land	-			
2	Building	-			
3	Major Civil Works	-			
4	Plant & Machinery				
1	Major Overhauling Of Hoisting Arrangement of 04 nos. Radial Gates of Maneri Dam, Maneri, Uttarkashi through single quotation basis being proprietary in nature.	1.03	The various Hydro Mechanical equipments associated with the above Gates have damaged with the time as the hoisting arrangement of Radial gates has never been repaired or overhauled since the commissioning of Dam in 1984. As the internal parts of hoisting like gear tooth, reduction unit, rope drum are running overaged and have already outlived their designed operation life. To prevent any damage in future we need to take precautionary action as soon as possible. Seals of Gear box of all the radial gates are worn out. The steel ropes of the hoist system are also running overaged.	the operation radial gates will become much smoother and the work will strengthen the hoisting arrangement.	based on market survey.
		1.03			
5	Vehicles	-			
6	Furniture & Fixtures	-			
7	Office Equipments	-			
	Total	1.03			


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Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Special maintenance & repair of Spillway Glacis no. 03 & 04 including Roller bucket of all the four bays of Maneri Dam	2.75	The work is required to effectively pass the flood. The work is being carried out as per the technical advice given by CPMU-CWC.	The spillway glacis and roller bucket were adversely damaged by the flash flood in the year 2012 & 2013. The work will help the structure to withstand against the flood.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016 & PWD SOR. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-BV).
2	Hydraulic modeling of Maneri Dam.	0.15	The work is in progress at IRI-Roorkee. The work is required to determine the efficiency and efficacy of existing slotted roller bucket of Maneri Dam.	The results obtained from the Model Study will help in improving the design of roller bucket to pass the flood effectively.	As per the offer received by IRI-Roorkee.
3	Instrumentation of Maneri Dam.	0.48	Instrumentation in dam is necessary for for keeping constant watch over the performance of the structure during service & obtaining timely warnings in respect of distress spots, proper instrumentation is required. Safety in Dam can be assisted by instrumentation.	Recent dam failures in various part of world inspired significant interest in monitoring various parameters as a means for ensuring adequate margin of safety. As per IS specification basic parameters like pore pressure, displacement, seepage, strains, stresses, dynamic load, uplift pressure, temperature can be studies with the help of instrumentation.	As per market rate.
4	Construction of TRC Gate (Back Regulator) at the confluence point of TRC of Tiloth Power House & Bhagirathi river	8.00	During the flash flood in the year 2012 & 2013, the Tail Race Channel was damaged and silted. The generation was resumed after 29 days and 45 days respectively. To avoid such occurrence in future, it is proposed to construct outfall gates at TRC so that the same could be lowered during flood.	It is necessary to construct outfall gates to avoid and siltation and damages to TRC in future as well as to resume the generation at the earliest.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016 & PWD SOR. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-BV).


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5	Engagement of NCCBM, Ballabgarh for providing design mix of M60, M90 & M90 with SFRC Grade concrete and quality supervision during execution of work.	0.03	Consultancy work for third party quality assurance for the "Special maintenance & repair of Spillway Glacis no. 03 & 04 including Roller bucket of all the four bays of Maneri Dam."	consultancy work has been added for third party quality assurance	The costing of work has been calculated on the basis analysis of rates
		11.41			
D	Plant & Machinery	-			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	11.41			


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Additional Capitalization Proposed for the FY 2020-21					
Sr. No.	Description	Amount (Rs. In Crores)	Need/Urgency of CAPEX	How the Capex will have improvement in performance of plant/life enhancement	Justification of cost/rate
A	Land	-			
B	Building	-			
C	Major Civil Works				
1	Construction of TRC Gate (Back Regulator) at the confluence point of TRC of Tiloth Power House & Bhagirathi river	4.00	During the flash flood in the year 2012 & 2013, the Tail Race Channel was damaged and silted. The generation was resumed after 29 days and 45 days respectively. To avoid such occurrence in future, it is proposed to construct outfall gates at TRC so that the same could be lowered during flood.	It is necessary to construct outfall gates to avoid and siltation and damages to TRC in future as well as to resume the generation at the earliest.	The cost has been estimated on the basis of rates taken from CPWD DSR-2016 & PWD SOR. However, the rates of the item which are not available in either PWD SOR or CPWD DSR are applied as per the rates approved by DGM (CM-BV).
		4.00			
D	Plant & Machinery	-			
E	Vehicles	-			
F	Furniture & Fixtures	-			
G	Office Equipment	-			
	Total	4.00			


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