

# **ENERGY CRISIS IN IHK: AN OVERVIEW OF HYDROPOWER ISSUES BETWEEN DELHI AND SRINAGAR**

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## **Introduction**

Indian-held Kashmir (IHK) has been facing tremendous power shortages for the last many years. Hydropower capacity of vast river systems and streams in the region has remained untapped. Against a total peak requirement of about 2500 MWs, the occupied state has been able to produce only 788.77 MWs till 2007-08. According to the available data there are about 2000 unelectrified villages/hamlets in the state.<sup>(1)</sup> The underlying reasons are many, ranging from rugged topography to unfair distribution of resources to lack of finances and manpower to increasing demand-supply gap to the Indian-controlled development of hydropower resources. India's state-owned National Hydropower Corporation (NHPC) is the main organisation involved in planning, construction and operation of hydropower stations in IHK. The present study attempts to identify and analyse two prominent developments in the hydropower sector of IHK. One is the Srinagar-Delhi tussle for ownership of operational projects and the second is the growing investment of private sector in new hydropower stations. Protests from civil society organisations have become more frequent in the region demanding ownership of locally developed power projects. The disappointing role of the NHPC in sharing power generation profits with the local power sector has led the Srinagar-based administration to demand that NHPC hand over a number of construction projects to independent power producers. The study also addresses the blame game started by the Indian government over the Indus Waters Treaty accusing Pakistan of putting restrictions on hydropower development in IHK.

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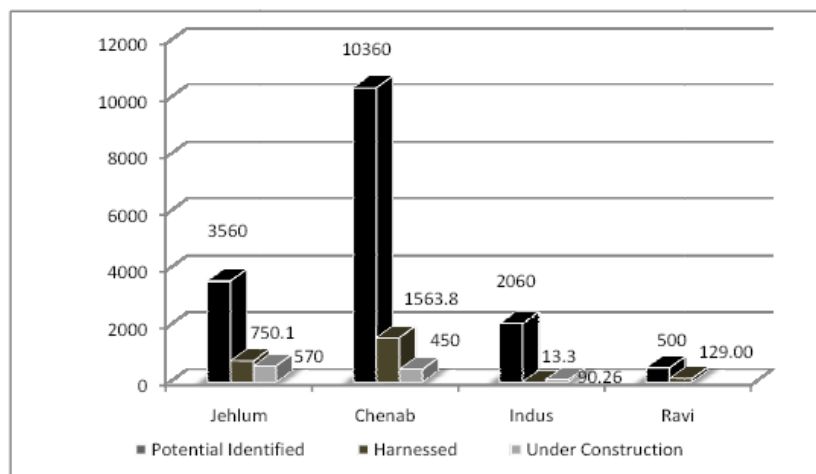
### State of hydropower resources in IHK

Situated mostly in the Himalayan Mountains, the disputed territory is home to several glaciers. The Jhelum, Chenab, Indus, Tawi (left Bank tributary of Chenab) and Ravi are its major rivers.<sup>(2)</sup> These river systems are fed from big and small glaciers of the Karakoram mountains, Ladakh ranges, Zaskar range, the great Himalayas and Pir Panjal ranges. These rivers also get seasonal rainfall contribution providing the region with vast capacity for micro run-off hydel power stations. According to the climate assessment studies, almost all IHK streams are fed to the extent of 25 per cent of total run-off/snowmelt during March-May and 45 per cent of the total run-off from June to September each year and the remaining 30 per cent during October to February indicating that glacier fed streams are not only perennial but can also be modulated with storage/reservoir to generate 50 per cent of the installed capacity even in the lean period.<sup>(3)</sup> These glacier-fed streams provide a unique opportunity both for small and medium hydel power generation schemes in the region. In-depth research and surveys on the extent of glacier cover and related climate changes may lead to a more scientific exploration of hydel power in IHK.

Hydel resources are one of the key sources for power production in the region. The region has a hydropower potential of 20,000 MWs out of which nearly 2,456 MWs is harnessed so far (Figure 1).

**Figure 1**

**Hydropower Potential in IHK**



Source: "J&K State Hydroelectric Projects Development Policy 2011."<sup>(4)</sup>

The irony with hydel power projects in IHK is that in winter (when the Kashmir Valley needs most power) owing to non-availability of water, power generation falls by 66 per cent (i.e. only 1/3rd capacity becomes operational).

Thus in winter the valley has tremendous power shortages and hence no industry can be viable there.<sup>(5)</sup>

During the pre-partition period, the state had only one 9-MW hydel power station at Mohra which was built on River Jhelum in 1905.<sup>(6)</sup> After 1947, a number of works were undertaken by India on the rivers of the occupied state to harness the hydropower resources of the much under-developed region. Ganderbal, Chenani, Upper Sindh I and Lower Jhelum hydropower plants were constructed in Kashmir Valley during the late 1970s. At present, 26 small and medium hydroelectric stations are operating in IHK (Table 1). Many of the old hydel stations are in a poor state seriously affecting their generation capacity. The 105-MW Upper Sindh hydroelectric project in Ganderbal district is handicapped by a damaged canal for the past over three years, incurring an energy loss of millions of rupees to the energy-deficit region of Kashmir.<sup>(7)</sup>

Besides water shortages for power generation, there are huge transmission losses and huge power bill arrears. For the year 1999-2000 only, transmission and distribution losses were as high as 47 per cent.<sup>(8)</sup> The 'Jammu & Kashmir State Power Development Corporation Ltd (JKSPDCL)' was established as a private company in February 1995 to plan and execute power projects in the IHK. The JKSPDCL is operating 20 hydroelectric stations with a total installed capacity of 758.70MW located in various districts including the 450-MW Baglihar-I hydroelectric plant. The four central projects set up by India's National Hydropower Corporation (NHPC) have an installed capacity of 1680 MW, from which 12 % free power is available to the occupied state as royalty.<sup>(9)</sup>

**Table 1**

**Existing Hydel Power Stations in IHK**

S.No.	Name of Project	Basin	Capacity in MW	Configuration (MW)
<b>State Sector</b>				
1.	LJHP	Jhelum	105.00	3x35
2.	USHP-II Kangan	Jhelum	105.00	3x35
3.	USHP-I	Jhelum	22.60	2x11.3
4.	Ganderbal	Jhelum	15.00	2x3+2x4.5
5.	Pahalgam	Jhelum	3.00	2x1.5
6.	Karnah	Jhelum	2.00	2x1
7.	Baglihar-I	Chenab	450.00	3x150
8.	Chenani-I	Chenab	23.30	5x4.66
9.	Chenani-II	Chenab	2.00	2x1

10.	Chenani-III	Chenab	7.50	3x2.5
11.	Bhaderwah	Chenab	1.00	2x0.5
12.	Iqbal	Indus	3.75	3x1.25
13.	Sumoor	Indus	0.10	2x0.05
14.	Hunder	Indus	0.40	2x0.20
15.	Bazgo	Indus	0.30	2x0.15
16.	Igo-Marcelloung	Indus	3.00	2x1.5
17.	Marpachoo	Indus	0.75	3x0.25
18.	Haftal	Indus	1.00	2x0.5
19.	Satakna	Indus	4.00	2x2
20.	Sewa-III	Ravi	9.00	3x3
<b>Subtotal</b>			<b>758.70</b>	
<b>'Central' Sector</b>				
1.	Salal	Chenab	690.00	6x115
2.	Dulhasti	Chenab	390.00	6x115
3.	Uri-I	Jhelum	480.00	4x120
4.	Sewa-II	Ravi	120.00	3x40
<b>Subtotal</b>			<b>1680.00</b>	
<b>Private Sector</b>				
1.	Athwatoo	Jhelum	10.00	2x5
2.	Brenwar	Jhelum	7.50	3x2.50
<b>Subtotal</b>			<b>17.50</b>	
<b>Grand Total</b>			<b>2456.20</b>	

Source: "J&K State Hydroelectric Projects Development Policy, 2011."(10)

Note: All the tables are taken from India's or IHK's official sources. In them, wherever applicable, the term "Jammu and Kashmir" refers to the occupied state, central sector means India's state-owned sector while the term "state" sector is used for that controlled by the Srinagar-based administration.

### Energy deficit scenario in IHK

Every year, the IHK administration spends millions of rupees to purchase power from India's Northern Grid to meet energy requirements. The power purchase Bill for 2011-2012 has been approved at Rs. 2900 crore.<sup>(11)</sup> During November 2011, IHK chief minister Omar Abdullah had expressed his intention of taking back the two power projects — Salal (690-MW) and Uri (390-MW) — from the Indian-owned NHPC which is demanding nearly Rs2,600 crore in return.<sup>(12)</sup> Energy generated from these two projects will be

sufficient to meet the anticipated peak shortfall of 710MW for the year 2011-2012.

IHK remained the topmost energy-deficit region in the occupation country's annual power supply position in terms of energy requirement vis-à-vis availability for the period 2010-2011. The maximum energy shortage there was 25% as compared to 14-20% energy deficit anywhere in India.<sup>(13)</sup> Such facts look shocking if one compares the hydel power resources of IHK with that of Indian states. Even the states that do not have a single hydropower project such as Delhi are able to meet their energy requirements. (Tables 2 and 3). IHK (-28.4%) comes fourth after Goa (-39.9%), Daman & Diu (-39.5%) and Bihar (-30.2) facing projected power deficit for the year 2011-2012.<sup>(14)</sup>

From 2007-2010, transmission and distribution (T&D) losses in IHK remained as high as 62 per cent, — highest compared to the figures for any of India's 29 states and six union territories (Annexure A). These additional pressures created by power theft and T&D losses increase the purchase budget. Table 4 shows the gap between the average rate of purchase and the average rate of tariff for sale of power. The rate of purchase from various sources is higher than the rate of tariff which results in huge financial losses for IHK.

**Table 2**

**Comparison of power supply position of IHK with major North Indian States (2010-2011)**

Region/State/ System	Energy				Peak			
	Demand (MW)	Availability (MW)	Surplus (+) Deficit (-) (MW) %		Peak Demand (MW)	Peak Availabili ty (MW)	Surplus(+) Deficit (-) for Peak (MW) %	
All India	861, 591	788, 355	-73, 236	-8.5	122, 287	110, 256	-12, 031	-9.8
J&K	13, 571	10, 181	-3, 390	-25.0	2, 369	1, 571	-798	-33.7
Uttar Pradesh	76, 292	64, 846	-11, 446	-15.0	11, 082	10, 672	-410	-3.7
Punjab	44, 484	41, 799	-2, 685	-6.0	9, 399	7, 938	-1, 461	-15.5
Himachal Pradesh	7, 626	7, 364	-262	-3.4	1, 728	1, 187	-91	-7.1
Delhi	25, 625	25, 559	-66	-0.3	4, 810	4, 739	-71	-1.5
Haryana	34, 552	32, 626	-1, 926	-5.6	6, 142	5, 574	-568	-9.2

Source: Central Electricity Authority, India<sup>(15)</sup>

**Table 3****Anticipated Power Supply Position for IHK in comparison to major North Indian states (2011-2012)**

Region/State/System	Energy				Peak			
	Demand (MW)	Availability (MW)	Surplus (+) Deficit (-) (MW) %		Peak Demand (MW)	Peak Availability (MW)	Surplus(+) Deficit (-) for Peak (MW) %	
All India	933741	837374	-96367	-10.3	136193	118676	-7517	-12.9
J&K	14234	10631	-3603	-25.3	2500	1790	-710	-28.4
Uttar Pradesh	82411	62975	-19436	-23.6	11800	8680	-3120	-26.4
Punjab	49277	42349	-6928	-14.1	9800	7790	-2010	-20.5
Himachal Pradesh	8626	9236	+610	7.1	1400	2040	+640	+45.7
Delhi	27870	34581	+6711	24.1	5000	5610	+610	+12.2
Haryana	35929	33777	-2152	-6.0	6500	6050	-450	-6.9

Source: Central Electricity Authority, India<sup>(16)</sup>

**Table 4****Discrepancy between rate of purchase and rate of power tariff**

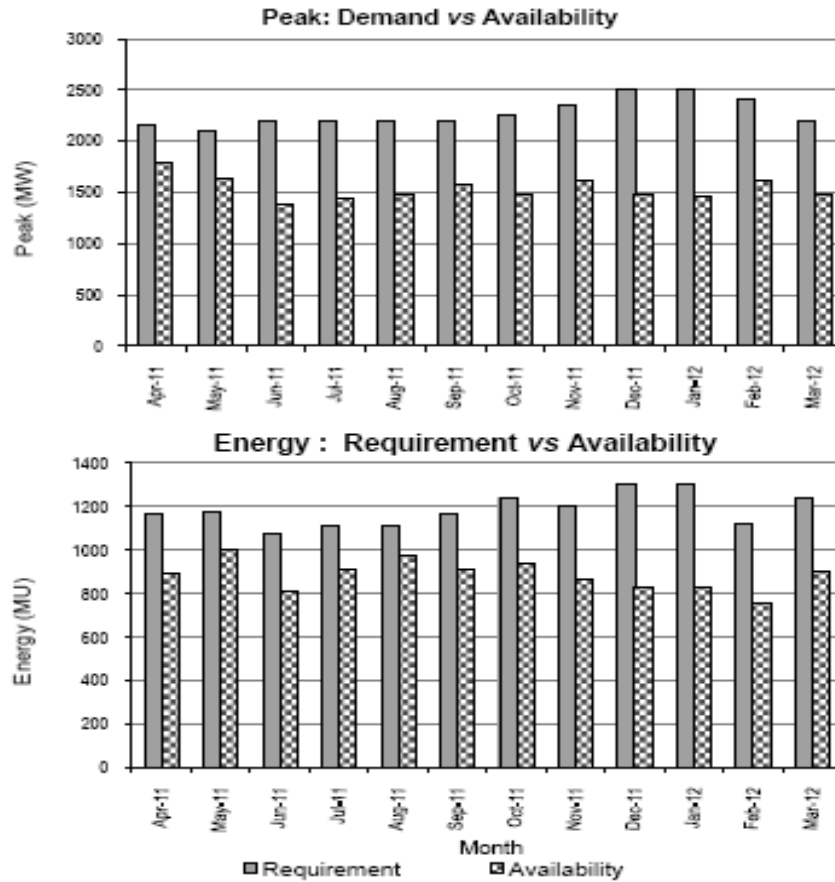
Year	Rate of Purchase	Average Tariff
1997-98	130.7	34.35
1998-99	139.9	66.67
1999-00 (RE)	144.5	156.36
2000-01 (AP)	150.1	194.06

Source: "State Development Report, 2003."<sup>(17)</sup>

There have been projections of an increase in demand-supply gap for energy requirements in the disputed state of J&K. This gap is projected to get worse during peak energy demand periods for the year 2012 (Figure 2).

Figure 2

## Anticipated Monthly Power Position in IHK for 2011-2012



Source: Central Electricity Authority, India. <sup>(18)</sup>

A number of policy reforms have been announced both by the Indian government and IHK administration. These policies focus on adding new generation capacities by involving private sector in building micro hydel power projects, upgrading existing power infrastructure and reducing T&D line losses. A brief review of these reforms follows:

### IHK 'State Hydel Power Policy, 2011'

In an attempt to enhance the power generation capacity, the IHK administration has recently embarked upon a development plan for small hydropower stations to raise regional power production. The policy deals with

the development of two types of projects: projects up to 25 MW and projects above 25 MW. Projects above 100MW are not covered by this hydel policy. The said policy aims mainly at encouraging private sector participation in the development of hydropower projects in the occupied state.

The following modes of project execution have been proposed under the policy:<sup>(19)</sup>

1. Purely state projects with 100% ownership by 'JKSPDCL'
2. Large projects through joint ventures of 'JKSPDCL' with India's public sector
3. Joint ventures of 'JKSPDCL' with the private sector
4. Large projects through international competitive bidding (ICB) for independent power producers (IPP) on 'Build, Own, Operate and Transfer (BOOT)' basis
5. Small projects through IPPs BOOT basis through competitive bidding

Under the old IHK hydel policy of 2003, 10 projects were awarded to IPPs during phase I (Annex B). These projects were given on a BOOT basis for a period of 35 years.<sup>(20)</sup> Out of these the Rattle project of 690-MW was awarded to the Mumbai-based GVK Power and Infrastructure Ltd. The Rattle project was the very first private-sector investment in IHK's power sector. Under the bidding terms and conditions, the IHK state will get 15% free power as royalty throughout the concession period after netting off 1% for local area development fund (LADF).<sup>(21)</sup> Projects with an estimated capacity of 1872MW are in the process of implementation through state, centre and IPPs. Moreover, three hydel power projects — Pakaldul, Kiru and Kawar — with a total capacity of 2120MW have recently been taken up through a joint venture between the IHK-owned 'JKSPDC', India's State-owned NHPC and the private-sector Power Trading Corporation (PTC).<sup>(22)</sup> The state authorities formed a joint venture company of JKSPDC, NHPC and PTC under the name of Chenab Valley Power Projects Private Ltd (CVPPPL) and signed a memorandum of understanding (MoU) in this regard with the trio on 21 December 2010.<sup>(23)</sup> In total, an additional 2872MWs of power will be generated from the disputed territory's rivers, a major share of which will be owned by IHK and only 659MWs will remain with the Indian government. (Table 5). A number of other hydroelectric stations with a capacity of 4756.5MW have been proposed for the region through the three sectors. (Table 6).



**Table 5****Projects under Execution (updated to December 2011)**

Sr. No.	Sector	Projects	Capacity MW
1.	State	450MW Baglihar-II, 1.26MW Sanjak, 1.5MW Pahalgam	452.76
2.	Central	45MW Nimoo Bazgo, 44MW Chutak, 240MW Uri-II, 330MW Kishanganga	659
3.	Joint Venture (Chenab Valley Power Projects Pvt. Ltd)	Pakaldul	1000
4.	Private	690MW Rattle & 08 projects out of 10 awarded to IPPs through bidding in Phase-I under State Hydel Policy of 2003	760.50
<b>Total</b>			<b>2872.26</b>

Sources: J&K State Hydroelectric Projects Development Policy 2011,(24) Indian newspapers for updates

**Table 6****Projects Planned for Execution (updated till December 2011)**

S.No.	Sector	Projects	Capacity MW
1.	State	1200MW Sawalkote, 990MW Kirthai-II, 240MW Kirthai-I, 93MW New Ganderbal, 37.5MW Parnai, 3MW Hanu & 3MW Dah	2566.50
2.	Central	Bursar	1020
3.	Joint Venture (Chenab Valley Power Projects Pvt. Ltd)	600MW Kiru, 520MW Kwar	1120
4.	Private/IPP	Lower Kalnai	50
<b>Total</b>			<b>4756.50</b>

Sources: J&K State Hydroelectric Projects Development Policy 2011,(25) Indian newspapers for updates

It has been recognized that the greatest weakness is on the distribution front for which the Srinagar-based administration is responsible. Aggregate Technical and Commercial (AT&C) losses of IHK are about 72 per cent adding to financial debt burden in the power sector. Huge financial losses have rendered the local government unable to invest in additional power generation.<sup>(26)</sup> The

IHK administration is trying to focus on reducing technical and transmission losses besides planning for new power generation projects both through Indian and private investments.

### Power sector reforms

The Indian government has announced financing of many new hydel power projects in IHK. An amount of Rs 17846.40 crore have been earmarked under the Indian 'prime minister's reconstruction programme' (PMRP) for development of power in the held state. This includes an amount of Rs 14,952.41 crore in the India's state-owned sector for generation of power and Rs 2811.00 crore for strengthening transmission and distribution network/BHEP in the IHK state sector. Under PMRP, a total of 2799 MWs of power generation capacity is planned to be added in the IHK state-owned/Indian state-owned sector. The government of India is also committed to provide an amount of Rs. 3900 crore to the IHK in the shape of power sector reforms grant over a period of three years.<sup>(27)</sup> Following is a list of the hydropower projects which have been allocated funds under the PMRP for power reforms in IHK.

**Table 7**

**Allocation of funds under 'Prime Minister's  
Reconstruction Programme (PMRP)' for IHK power sector**

S.No.	Projects	Allocation
<i>A) Central Sector</i>		
1.	1000 Micro Hydel	10.00
2.	RGGVY	782.99
3.	Pakaldul	3480.00
4.	Bursor	4378.00
5.	Uri	1778.00
6.	Kishanganga	3316.00
7.	Nimmo Bazgo	637.90
8.	Chutak	652.51
<b>Total (Central Sector)</b>		<b>15035.40</b>
<i>B) State Sector</i>		

1.	T&D=34 GS=3250 MW= 28 lines project	1350.00
2.	Access Road Sawalkote	119.00
3.	Ramban Dhumkund Rood	78.00
4.	Srinagar-Leh TL	634.00
5.	Baglihar HEP	630.00
<b>Total (State Sector)</b>		<b>2811.00</b>
<b>Total (A+B)</b>		<b>17846.40</b>

Source: "J&K Economic Survey 2008-2009" (28)

India's 11<sup>th</sup> and 12<sup>th</sup> Five-Year Plans have targeted ensuring substantial expansion in power generation. A review of the proposed additional generation capacities is tabled as below:

**Table 8**

**Power Generation Additions under 11<sup>th</sup> and 12<sup>th</sup> Five Year Plans**

S. No.	Generation capacity 2008-09		Likely addition 2009-10		Likely addition by the end of 11 <sup>th</sup> & 12 <sup>th</sup> Plan		
	Name of Project	Capacity MW	Name of Project	Capacity MW	Name of Project	Capacity MW	Estimated Cost (Rs in crores)
A.	Central Sector-NHPC						
1.	Salal-I	690.00	Sewa-II	120.00	Kishanganga \$	330.00	2414.00
2.	Uri-I	480.00			Uri-II \$	280.00	1725.00
3.	Dulhasti	390.00			Burser \$	1020.00	4378.00
					Nimoo Bozgo \$	45.00	611.00
					Chutak \$	44.00	621.00

	Additional ity during the year	Nil		120.00		1719	
	Total Capacity	1560.0 0		1680.0 0	Total	3399.0 0	9749.0 0
B.	State Sector Projects						
1.	LJ-HP	105.00	Pahalga m-III	1.50	Sawalkote I & II**	1200.0 0	7500.0 0
2.	US-HP-I	22.60	Sanjak	1.26	Baglihar II	450.00	2853.0 0
3.	US-HP-II	105.00	Bhadrw ah-III	0.50	Parnaie * #	37.50	343.00
4.	Ganderbal	15.00	Mitchil	0.35	New Ganderbal #	93.00	688.00
5.	Chenani-I	23.30			Lower Kalnaie #	50.00	376.00
6.	Chenani- II	2.00			Kirthaie-I #	240.00	1900.0 0
7.	Chenani- III	7.50			Shutkari Kalan	84.00	556.00
8.	Sewa-III	9.00			Ladakh Micro Prog	7.90	74.00
9.	Satakna	4.00			Total	2162.4 0	14290. 00
10	Karnah	2.00					
11	Sumoor	0.10					
12	Bazgo	0.30			Micro Hydel Army	200.00	1000.0 0
13	Hunder	0.40					
14	Iqbal Bridge	3.75					
15	Badarwah	1.00					

16	Pahalgam	3.00					
17	Haftal	1.00			Joint Venture & Pvt Projects		
18	Marpachoo	0.75			Kiru	600.00	2382.00
19	Igoo marsheloning	3.00			Pakaldul (*) \$	1000.00	5000.00
20	Baglihar	450.00			Kawar	520.00	3386.00
					Rattle	690	3805.00
	Total	758.70		3.61	Total	2810.00	14573.00
					Micro Hydel-IPP (59.25 MWs- 123.30 MWs) (*&)	182.55	745.00
	Total State	758.70		3.61	Total (State)	5354.95	30608.00
C.	Grand Total (Centre + State) ending March, 2008	2318.70		1683.61		8753.95	40357.00
	Additions during the year	450.00		123.61		7073.95	
	Total Availability	2318.70		2442.31		9516.26	
	Percentage of 16480 MWs	14.07		14.82	14.82	57.74	

(\*) Pakaldul is proposed to be transferred from NHPC to State Sector

\*\* May spill over to 12th Five Year Plan

\$ Projects under Central Sector to be executed BY NHPC under PMs Reconstruction Plan

() Besides, one thermal project is under consideration during 11th Five Year Plan

(\*&) Projects under IPP-Discussed below. (Out of 182.55 MW identified potential 59.25 MWs have been allotted in 1st Phase allotment).

(BB) Joint Ventures between PDC, NHPC and NTPC

(#) BOT and BOOT for Pvt. Sector.

Source: "J&K Economic Survey, 2008-2009"<sup>(29)</sup>

## Power sector rivalries

### Controversial Role of NHPC

The National Hydropower Corporation (NHPC) Limited of India is often referred to by the people of Kashmir as analogous to the East India Company of colonial times.<sup>(30)</sup> The IHK administration is set to take back various hydel power projects owned and operated by NHPC in the region, while for the new schemes, the NHPC has lost the confidence of the Kashmiris. The Rattle Project (690MW) given to a private company was earlier given to the NHPC for preparing detailed project report (DPR). Total dependence of IHK on the Indian government to plan and fulfil its energy needs is no longer evident today. The state administration has started engaging the private sector for construction of new plants while a good number of large, medium and small schemes are planned by the Srinagar administration itself. The Indian government is not completely out of the picture, though, as four major under-construction hydropower stations in IHK are financed by the NHPC while it has entered into joint venture agreement with the Srinagar administration for three others.

Considerable delays in undertaking important hydel projects have been the main cause for Srinagar's dissatisfaction regarding the unilateral role of the NHPC. For example, the Bursar power project is awaiting funds from the Indian ministry of power for preparation of DPR since 2008. The 4x255-MW Bursar HEP is a storage project in which the flow of water can be regulated not only to the benefit of this project but all downstream projects, i.e. Pakaldul, Dulhasti, Rattle, Baglihar, Sawalkote and Salal hydroelectric projects, thereby enhancing the potential of all downstream schemes. The dam site is located near Hanzal village on the Marusudar River, one of the major right-bank tributaries of the Chenab. The storage provided is intended to be used for additional power generation during lean-flow months and releasing regulated flow in the downstream.<sup>(31)</sup>

Discontent has grown also due to the recurrent energy shortages in the region in spite of the construction of large hydropower stations by the NHPC in IHK. The power generated from these stations is not available to IHK free of cost and it has to buy back from NHPC the megawatts it requires. Importing power from outside IHK means heavy burden on its exchequer. It also results in recurrent electricity breakdowns for domestic and industrial consumers.

There are two major issues that drive the insolent character of NHPC in hydropower generation in IHK: 1) Srinagar-Delhi tension over royalty, 2) IHK's struggle to take back the ownership of existing hydropower projects from NHPC.

### 1. 12 per cent royalty is unjust

The Northern Grid,<sup>(32)</sup> operated by the NHPC, a government of India enterprise, is the biggest source of power supply in IHK. Most of the major operational hydropower stations in the occupied state are financed and controlled by the NHPC. These stations provide only 20 per cent electricity to IHK whereas 80 per cent of the power generated from these stations is added to the energy capacity of India's national grid.

The NHPC owns and operates four major hydropower projects in IHK – namely Salal-I&II (690 MW), Uri-I (480 MW), Dulhasti (390 MW), Sewa II (120 MW), adding a large chunk of 1,680 MWs from IHK to the India's total contribution of just 3,615 MWs. Other projects of 659MW are under execution. In spite of such a large contribution to India's power generation, the IHK gets only 12 per cent royalty. This means free availability of 12 per cent of the total power generated from each hydropower plant operational in IHK.

Reviewing the IHK print media makes it clear that both the people and state machinery are upset over unjust distribution of resources by the NHPC. According to the reports, IHK is disadvantaged as “while in the states like Madhya Pradesh, Himachal Pradesh, Uttarakhand and North-East, most of the NHPC power projects are in joint venture with the respective state governments, sharing energy on 50:50 basis, J&K is the only exception where the Corporation offers peanuts to the state in the shape of just 12% of electricity as royalty for the state.”<sup>(33)</sup> There have been demands from Srinagar for increasing the royalty from the present 12 per cent to 25 per cent on power projects executed by India in IHK.<sup>(34)</sup>

IHK is able to get an increased share of power only by entering into a joint venture with the NHPC for the development of three power projects — Kiru, Kawar and Pakaldul — with an installed capacity of 2120 MW. Under the agreement, the IHK “State Power Development Corporation” will get a share of around 65 per cent of the total energy produced from the projects which includes 49 per cent of the share besides 12 per cent free power generated from the projects and an additional one per cent free power for local area development fund.<sup>(35)</sup>

### 2. Ownership contest for IHK hydropower projects

Voices have been raised in the IHK regarding ownership of the land and of the power projects built on that land by the NHPC. A whole debate got started to dig out the terms and conditions of the agreements ever reached between NHPC and the Srinagar authorities over the construction of hydropower projects in IHK. There are reports of records misplacement<sup>(36)</sup> for the original documentation enlisting the terms and conditions for the Salal hydropower plant — the very first hydel power project undertaken by the NHPC in the occupied state.

According to an IHK cabinet decision of 15 December 1980, “in the Salal project, J&K will have a 50 per cent share of the power generation and half

of the profits it makes. Both sides will review the power requirements of J&K after every five years. The project was supposed to be returned to the state government after the depreciation period against a payment of 10 per cent of the project cost in accordance with the J&K Electricity Supply Act, 1971.”<sup>(37)</sup> However, NHPC shows complete ignorance of any such order or agreement and in its latest and most recent communication with the Public Health Engineering, Irrigation and Flood Control (PHE) department, has categorically denied having entered into any such agreement with the IHK administration stating further that the corporation is executing the power projects “in Jammu and Kashmir under Indian sovereignty” and that the union of India “enjoys sovereign power over the land and waters of Jammu and Kashmir.”<sup>(38)</sup>

In the words of IHK minister for PHE department, Taj Mohiuddin, “the project (Salal) got fully depreciated in 2003 but was not handed over. The power share of 50 per cent was never respected. Same is the case with Dulhasti, Uri and other power projects too. This is the main reason why the state reels in the dark despite abundant resources to generate power.”<sup>(39)</sup>

Anguish has built up among the Kashmiris for their ownership rights on the hydropower projects controlled by the NHPC in their territory. Even IHK chief minister Omar Abdullah is reported to have said that the state would get self-sufficient in its energy needs by taking back Salal and Uri power projects from NHPC.<sup>(40)</sup> The NHPC has rejected ownership claims of the Srinagar administration. In the words of the NHPC Chairman and Managing Director, A.B.L. Srivastava, “the NHPC has no plan to return Salal and Uri to J&K government. The NHPC has invested over 6, 000 crore Indian rupees in these two projects and it is not feasible to give these to J&K Government.”<sup>(41)</sup> The row over ownership between NHPC and Srinagar may or may not settle in the near future but what is more important is the fact that the Kashmiris have finally woken up over the discriminatory treatment of the occupation government sitting in Delhi.

### **Srinagar’s cries for compensation: Is IWT to blame?**

Any reference to energy shortage problems in IHK does not get through without criticizing the Indus Waters Treaty, a water-sharing arrangement concluded between India and Pakistan in 1960. Many in India and IHK feel that the agreement restricts the region from fully exploiting its hydro resources, both for irrigation and hydropower generation. In a recent attempt to quantify the losses incurred by the Indus Waters Treaty (IWT) on the resources of IHK, its ‘Power Development Department’ invited proposals from “constituencies within and outside India” to assess the treaty’s impact. The ‘State Finance Commission,’ which was constituted by the IHK administration through a legislative Act, has, in its report submitted in November 2010, pointed out that the opportunity cost of economic growth and development forgone as a result of IWT bottlenecks, needed to be assessed from September 1960 to August 2010 and compensation claimed from both governments of India as well as Pakistan. The commission noted that the potential state resources got drained out when



Indian government agencies invested in power generation in the state at the cost of state's development for just 12 per cent power royalty. It mentioned that 12 per cent free power ratio could not be ipso facto applicable to the state as it has put unnatural constraints on the use of its water resources due to the treaty. Therefore, it proposed the ratio should be raised to 25 per cent in the interest of the "equity and natural justice" as it would "compensate partially the losses suffered by JK."<sup>(42)</sup>

The Indus Waters Treaty, a water-sharing arrangement brokered by the World Bank in 1962 between India and Pakistan, restricts India from any water storage on the western rivers of the Indus Basin. Under the Treaty, India can only construct run-of-the-river hydel power generation plants on the western rivers flowing through the region of Jammu & Kashmir. Technically, these run-of-the-river projects generate less than the installed capacity during the winter-season reduced flows. The August 1998 Report of the 'Committee on Economic Reforms in Jammu and Kashmir' noted that "on the recently commissioned Uri and Salal Hydro Electric Projects, the energy loss is to the order of 44 per cent and 50 per cent respectively."<sup>(43)</sup>

However it is not for this reason that the IHK region is suffering from power shortages; rather, it is the unwarranted export of energy to India at the cost of local needs and unjust profit distribution by the NHPC that is mainly responsible for the current energy crisis in the occupied state. The Treaty has allocated India substantial non-consumptive rights over the western rivers of the Indus Basin flowing through IHK besides giving complete control of the eastern rivers. It is the Indian government which is not ready to share the profits earned from the resources of the IHK.

The treaty itself is not biased vis-à-vis IHK. A careful reading of its provision suggests that the focal point of the IWT is to regulate the distribution of joint waters for irrigation in Indian and Pakistani parts of Punjab. It was as a follow-up to the bilateral water-sharing arrangement between India and Pakistan which set its foundation as early as 1948 through the Inter-Dominion Agreement on the Indus Basin waters that both governments in India and Pakistan began concluding inter-state and inter-provincial agreements for water distribution within their respective territories. In 1955, the Indian government allotted the waters of the three eastern rivers — Ravi, Beas and Sutlej — to Rajasthan (8.00MAF), Punjab (including present-day Haryana 7.2MAF) and IHK (0.65MAF). The occupied state also got a pre-partition share of 0.4MAF thus achieving a total of 0.69MAF from the eastern rivers of the Indus Basin.<sup>(44)</sup> In 1979, the then chief ministers of Punjab and IHK signed an agreement under which Punjab had to pay a share of 1,100 cusecs of water, 20 per cent of the electricity, and 15 per cent of the jobs from the Ranjit Sagar Dam (also known as Thein Dam & Hydropower station) on the River Ravi near Thein village along the borders of Punjab and IHK.<sup>(45)</sup> The Punjab government's unilateral scrapping of this agreement in 2004 led the IHK to claim Rs. 8,000 crore from Punjab for the use of its land and for non-supply of the "promised" power that is being generated from the dam.<sup>(46)</sup>

Recognising these losses suffered on the part of IHK, the government of India decided to fund the 90 per cent cost for the construction of the Main Ravi Canal known as Satwian Project — a multi-purpose hydro-irrigation scheme for the development of IHK, the remaining 10 per cent cost to be borne by the occupied state. The statement of the IHK irrigation minister, Taj Mohiuddin, that the “central” share comes in lieu of the losses owing to the Indus Waters Treaty, is justified as part of the water politics being played between East Punjab and IHK. It must not be allowed to malign the spirit of the Indus Waters Treaty or hold Pakistan responsible for any sort of energy crisis in IHK.

The Indus Waters Treaty provides IHK much larger share of development of water resources than is widely discussed and believed. It is largely the ‘internal water politics’ in India that led to the IHK bearing the whole burden of its provisions. IHK has abundant water resources to not only meet its own requirements but also to export surplus power to other areas. The fact that hydropower projects of IHK contribute nearly 40 per cent to the NHPC revenues<sup>(47)</sup> substantiates the value of resources allowed for utilisation in the region within the ambit of IWT.

The Indian claims of IHK being deprived in the Indus Waters Treaty backfires in the light the fact that the NHPC-led four operational projects — Salal, Uri-I, Dulhusti and Sewa-II having a total installed capacity of 1680MW — if added to IHK produced power of 750MW, will provide 2430MW units of power against the peak requirement of 2500MW in IHK for the year 2012 (See Tables 1&5). The four other IHK projects of NHPC — Nimmo Bazgo (45 MW), Chutak (44 MW) — Kishanganga (330 MW) and Uri-II (240 MW) — due to complete in the coming years, may also meet the additional requirements by producing a total 659MW of power.

IHK can become self-sufficient in meeting the local electricity needs provided the NHPC either gives it adequate royalty for the Indian-controlled projects or shares power generation profits on a fifty-fifty basis as was decided in the case of Salal. The fact that IHK is not fairly treated by the NHPC in profit sharing from hydropower projects in the region envisages a situation where even if the Indian government utilizes the whole permissible limit of non-consumptive water rights including power generation on the western rivers of the Indus Basin flowing through IHK, the latter would not be able to improve its condition due to the above mentioned factors.

## Conclusion

The western rivers of the Indus basin system are a major source of irrigation and hydropower development needs for the IHK people. Jhelum, one of the three western rivers of the Indus basin, originates in the region. The other two, Indus and Chenab, pass through IHK before entering Pakistan. This study explored the state of hydropower resources of the region with a focus on Srinagar-Delhi tussle for control of hydropower resources in IHK. The disputed

territory is blessed with a hydropower potential of 20,000 MWs out of which only 2,456MW is harnessed to date through private, Srinagar-sponsored or Delhi-financed projects. Delhi's contribution to this figure is the greatest with NHPC generating 1,680MW in IHK. However, the peak power availability in IHK (2010-2011) remained at 1,571MW, less than the figure the NHPC generates from its four hydropower stations in the occupied state. IHK remained the topmost energy-deficit region in the annual power supply position of the occupation country for the period 2010-2011. During this period, the energy deficit in IHK was 25 per cent in comparison to 14-20 per cent energy shortages in other regions. Besides poor marshalling of power resources, IHK administration is itself to blame for not checking power thefts and line losses, which result in huge shortfalls.

The transmission and distribution (T&D) losses in IHK are highest compared to any state/union territory in India (see Annex A). During 2008-09 only 28.87 per cent of the power was produced within the IHK,<sup>(48)</sup> while the rest — 71.13 per cent — was purchased from other sources including India's national grid. This leaves a huge gap between revenue receipts and expenses incurred. Furthermore, both purchased and generated power meets only 62 per cent of the total energy requirements.<sup>(49)</sup> The IHK is an energy-deficit area in spite of having vast hydel power resources. The root of the problem lies both within the IHK and with Delhi government's policy structures. Many NHPC hydropower projects are behind their completion schedule while many other operational projects are generating much less than their capacity. A winter decrease in water flows has cut down the daily generation capacity of the 450-MW Baglihar project to less than 150 MW.<sup>(50)</sup> Other hydropower stations face the same condition during low winter discharge in the rivers. There have also been demands to increase power quota allocation for IHK.

Above all, the people of IHK are angry at the occupation authorities who over the years have failed to compensate them and denied them their due share of water and power from the Ravi, Beas and Sutlej rivers. A mere allocation of share in the Ravi water did not help the Kashmiris after the government of Punjab breached the promise to supply the former's share of power from the Thein Dam.

Discontent among Kashmiris has grown to such an extent that they have been demanding the return of Uri and Salal hydropower projects to Srinagar and seeking involvement of the private sector instead of NHPC in the construction of new projects. There have also been demands from the Srinagar administration for increasing the royalty from the present 12 per cent to 25 per cent on the India-executed power projects in IHK. Such a raise can reduce the burden on the IHK power department, which has to buy back power from NHPC to meet local energy needs; any failure to pay back the arrears to NHPC results in power breakdowns throughout the occupied state. The NHPC has, however, rejected the IHK claims of ownership of Salal and Uri. Its neo-colonialist attitude towards the energy problems of the IHK has set off a Srinagar-Delhi tussle.

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*Annex A*

**State-wise Transmission and Distribution Losses  
(As provided by State Electricity Boards by March 2010)**

Overall T&D Loss (%)									
N o.	State Name	200 2-03 Act ual	200 3-04 Act ual	200 4-05 Act ual	200 5-06 Act ual	200 6-07 Act ual	200 7-08 Act ual	200 8- 09 (Pr ov)	200 9- 10 RE
1.	Andhra Pradesh TRANS CO	28	22	19	20	20	20	19	18
2.	Assam	39	36	38	33	33	38	34	32
3.	Bihar	39	36	37	46	46	41	39	37
4.	Chattisgarh	31	27	32	37	32	34	34	33
5.	Delhi								
6.	Gujarat	31	29	34	30	24	25	23	24
7.	Haryana (HVPN)	38	36	32	34	33	33	27	24
8.	Himachal Pradesh	21	22	26	21	17	16	16	15
9.	Jammu & Kashmir	47	48	47	47	51	62	61	62
10.	Jharkhand	47	48	47	49	45	42	43	39
11.	Karnataka PTCL & Discom	32	32	25	30	29	25	22	21
12.	Kerala	30	28	26	25	22	22	20	19
13.	Madhya Pradesh	44	44	43	41	39	42	40	39
14.	Maharashtra	38	38	35	32	34	29	27	23

15.	Meghalaya	23	25	29	41	38	37	33	32
16.	Orrisa (GRIDCO)								
17.	Punjab	24	25	25	25	26	22	20	19
18.	Rajasthan	43	44	43	45	37	36	32	30
19.	Tamil Nadu	18	18	18	18	18	18	17	18
20.	Uttar Pradesh	42	38	31	34	35	33	29	25
21.	Uttaranchal	48	45	34	32	33	32	33	30
22.	West Bengal SEB	34	28	31	32	28	26	28	24

- Note:**
- i. The figures in respect of Orrisa & Delhi have not been included.
  - ii. The improvement shown in 2008-09 and 2009-10 may only be because the data is provisional/estimated.
  - iii. It is also pointed out that State Governments often marginally change previous year's numbers in new submission each year.

**Source:** Data and Statistics, Planning Commission, India  
 <<http://planningcommission.nic.in/data/datatable/index.php?data=datatab>>. (Accessed on 16 February 2012)

**Annex B****Projects awarded through bidding to IPPs in Phase-I  
under State Hydel Policy of 2003**

S.No.	Name of SHP with Source	Capacity MW	Status
1.	Athwathoo, Bandipora Distt (erstwhile Baramullah district) Madhumati Nallah	10	Commissioned
2.	Brenwar SHP, District Budgam Doodhganga Nallah	7.5	Commissioned
3.	Tangmarg SHP, Distt Baramullah Ferozpora Nallah	10	Work in Progress
4.	Aharbal SHP District Pulwama Vishow Nallah	22.5	Clearances yet to be obtained by the IPP
5.	Hirpora SHP District Pulwama Rambhir Nallah	12.00	IPP engaged in obtaining clearances and land acquisition.
6.	Kahmil SHP District Kupwara Kahmil Nallah	4	IPP engaged in obtaining clearances and land acquisition.
7.	Boniyar SHP District Baramulla Hapathkhai Nallah	12	IPP engaged in obtaining clearances and land acquisition.
8.	Mandi SHP District Poonch Mandi Nallah	12.5	IPP engaged in obtaining clearances and land acquisition.
9.	Ranjala Dunadi SHP District Doda Lower Kalnai Nallah	15	Work in progress.
10.	Drung SHP District Kathua Ujh Nallah	5	IPP engaged in obtaining clearances and land acquisition.
	<b>Total (10 projects)</b>	<b>110.50 MWs</b>	

**Source:** J&K State Hydroelectric Projects Development Policy, 2011

(Jammu and Kashmir Power Development Department: Srinagar) <[http://www.jkspdc.nic.in/pow\\_pol.htm](http://www.jkspdc.nic.in/pow_pol.htm)>.

***Annex C*****Projects identified under Phase II for IPPs<sup>(51)</sup>**

S.No.	Name of the Scheme	District	River/Nallah	Envisaged Capacity (MW)
1.	Tuele MHS	Baramullah	KIshanganga	1.85
2.	Hanswar	Doda	Hanswar	1.30
3.	Gulah Garh	Udhampur	Ans	1.20
4.	Attal Garh	Doda	Neeru Nallah	2.50
5.	Mawar (Nawgam)	Kupwara	Mawar Nullah	4.50
6.	Boniyar-I	Baramullah	Boniyar Nallah	2.60
7.	Boniyar-II	Baramullah	Boniyar Nallah	1.20
8.	Erin	Baramullah	Erin Nallah	3.00
9.	Chandanwari Uri	Baramullah	Chandanwari Nallah	3.00
10.	Kanzil Wangath	Srinagar	Wangath	12.00
11.	Srenz Ningli	Baramullah	Ningli Nallah	2.30
12.	Hihama (Kulgam)	Anantnag	Vishow Nallah	6.00
13.	Aru (Pahalgam)	Anantnag	Liddar	3.75
14.	Bringi MHS	Anantnag	Bringi Nallah	3.50
15.	Martand Canal (Rambir pora)	Anantnag	Martand canal/lidder	3.00
16.	Sukhnag	Budgam	Sukhnag Nallah	16.00
17.	Shaliganga	Budgam	Shaliganga Nallah	10.50
18.	Girjan Ki Gali	Poonch	Suran River	15.00
19.	Chingus Stage-I	Rajouri	Nowshara Tawi	1.05
20.	Chingus Stage-II	Rajouri	Nowshara Tawi	0.60
21.	Thana Mandi	Rajouri	Suran River	4.05
22.	Ans Stage-I	Udhampur	Ans River	22.00
23.	Bhalla	Doda	Bin Kudh/Neeru Nallah	1.5
24.	Nachia	Doda	Nache Nallah	1.00
25.	Pogal Garh	Doda	Pogal Garh	1.00

			Nallah	
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***Annex D*****List of Unelectrified Census Villages/Hamlets Proposed to be covered Through Renewable Energy Sources (Jammu Division)**

S.No.	District	No. of un-electrified census villages
1.	Udhampur	15
2.	Doda	389
3.	Rajouri	45
4.	Poonch	153
5.	Jammu	06
6.	Kathua	03
7.	Ramban	32
8.	Kishtwar	82
9.	Reasi	84
	<b>Total</b>	<b>809</b>

**Kashmir Division**

S.No.	District	No. of un-electrified villages
1.	Anantnag	67
2.	Bandipora	39
3.	Budgam	88
4.	Baramulla	17
5.	Ganderbal	03
6.	Kupwara	118
7.	Srinagar	04
8.	Pulwama	13
	<b>Total</b>	<b>349</b>

**Sources:** Source: J&K Energy Development Agency, Department of Science and Tech, Government of Jammu & Kashmir.

<<http://jakeda.nic.in/rvevillages/rvejammu.pdf>>.

<<http://jakeda.nic.in/rvevillages/rvekashmir.pdf>>. (accessed on 16 February 2012).