Water adds to the importance of Kashmir

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Introduction

'Jammu and Kashmir is an integral part of India'.[1] This statement is repeatedly given by Indian policy makers. Pakistan denies any such claim by India and strongly believes that "Jammu and Kashmir is neither an integral part of India, nor has it ever been so'.[2]

Kashmir is very important for both India and Pakistan but why? Is it really the emotional attachment, a matter of national prestige or something else. Kashmir has political, economic and strategic significance which is equally imperative for both countries with water as the central and most important issue. It is because of water that India is determined to keep Kashmir integrated in its territory. Water is also vital to the life of Pakistan. This paper will look into the significance of water for Kashmir. It is based on the hypothesis that 'India is unwilling to resolve the Kashmir dispute because of Pakistani dependence on water of the Indus Basin rivers'.

Many experts of International relations believed that future conflicts will evolve around oil or water. At least for water it is believed that water wars are simply impossible since the scarcity of water and its impact is slow and therefore is not taken as an urgent matter to be resolved by the use of force.

A large number of water uses make human life extremely dependent on water. These include, water for agriculture, industry, daily use, drinking and also hydro electric power generation. Pakistan depends on the water flowing through occupied areas of Kashmir in to Pakistan for all these purposes.

Geography of the rivers

The Indus basin rivers consists of six rivers, the Indus itself, the Jehlum, Chenab, Sutlej, Beas and Ravi originate in the Jammu and Kashmir.

The Indus originates in the Himmaliyas in the shadow of Kailas. Through Leh in Ladakh it enters Skardu and then Gligit. While the route of the Sutlej is

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less complicated than that of the Indus, the Sutlej acts as a transverse Himaliya stream, the rout brings it to the Inner Siwaliks at the Bhakra site, the rim station on the Sutlej is at Rupur where it cuts through the last of the foothills and emerges onto the plains. From Rupur to Mithankot is a distance of almost 550 river miles, over which the Sutlej falls only 560 feet. Between Rupur and Ferozpur, the Sutlej collects the drainage of the Beas. The Beas used to flow all the way to the Chenab above Panjnad. The Beas is the shortest of the Punjab rivers, it rises near Rohang pass at the southeastern end of the Pir Panjal range. The rim station for Beas is at Pong district Hoshiarpur where the construction of a storage dam is underway.

The Ravi catchment area is limited to the southwestern slopes of the Pir Panjal range and it is also closely circumscribed by the Chandra Chenab. The Ravi is the most seasonal of the Punjab rivers. Compared to the Beas, the Ravi has a long course, travelling 435 miles from Madhopur to its junction with Chenab above Multan.

The two other Punjab rivers Chenab and Jehlum have certain similarities. At their rim stations, Marala and Mangla respectively, their annual run off (26 and 23 million acre feet respectively over the period (1922-61) is roughly the same. Their length differs, 600 miles for the Chenab and 450 miles for Jehlum but their course has interesting similarities. Both drain the main Himaliyas to the northwest as does the Indus, then turn south, west, south again and finally south west from the rim station until they converge at Trimmu. The Chenab flows through Jammu into Pakistan while the Jhelum rises inside the Vale of Kashmir.[3]

Historical importance

Water was the real concern of Indian policy makers even before the independence of the two countries. The Radcliff award made last moment changes in the boundary line. The two important districts, Ferozpur and Gurdaspur were given to India, because there some other factors were taken into consideration instead of the communal majority. The Gurdaspur district had the head works of the Upper Bari Doab Canal at Madhopur, as well as the bifurcation of the Main, Kasur and Sabraon branches of that canal. The second more ‘straight forward logic of communal and irrigation consideration in Gurdaspur was apparently vitiated by still further “other factors”. Gurdaspur included the only road linking Eastern Punjab, and hence India, with Jammu and Kashmir, and the only bridges (on the Modhopur barrage over the Ravi above Lahore. The railways from Amritsar and Jullandur met at Pathankot, with a branch to Madhopur, although there was no rail connection across the river here.

Had Radcliff awarded Gurdaspur to Pakistan, there would have been no land communication between India and Jammu and Kashmir).[4] Although it was earlier communicated to the Muslim leadership that due to Kashmir's demographic and geographic linkages the territory would accede to Pakistan. As was later on expressed by Pakistan foreign Minister Sir Zafarullah Khan;

The river water sharing was made an issue by the partition plan.

> 'It is well known that. .. every factor on the basis of which the question of accession should be determined-population, cultural and religious bonds, the flow of trade, the economic situation, communications, the geographical position, strategic consideration- points insistently in the direction of the accession of Kashmir to Pakistan**."**[5]

The river water sharing was made an issue by the partition plan. The water crisis for the first time hit Pakistan when in 1948, India temporarily suspended water supply from its side by using the headwork control. Pakistan entered into negotiations with India for the resumption of water supply from Indian side. The two sides after long discourse reached an agreement in 1948 but Pakistan very soon withdrew from the agreement followed by a serious deadlock on the matter. In 1952 The World Bank initially offered its good offices and later as mediator gave its own proposal. This proposal was accepted by both the states and a treaty- the "Indus water Treaty" was concluded in 1960.

The Treaty and after

The historical 100 clause Indus Waters Treaty decided that Pakistan will have riparian rights over the three western rivers Indus Jehlum and Chenab,[6] while India will have the rights over the three eastern rivers, Sutlej, Beas and Ravi.[7] India would completely withdraw the waters of the three eastern rivers in 10 years time period while during this period Pakistan will construct link canals and mega dams to replace the water lost by Pakistan due to the treaty.[8]

The treaty also gave limited upper riparian rights to India over the waters of the three western rivers. The contemporary water issues between the two countries are due to this right which India is using on western river waters.

After the conclusion of Indus Waters treaty, India practically stopped the waters of the Sutlej and Beas while Ravi was diverted by link canals. At the same time the construction of minor and mega dams on river Chenab and Jehlum was also launched. On river Chenab, the Salal dam was constructed. Later on another

project upstream of Salal dam, the Baghliyar dam construction began. While on river Neelum, the Kishenganaga dam has been completed. Another project that was abruptly stopped due to Pakistani objection, the Wullar barrage (Tulbal navigation project) on river Jehlum was recently restarted. India is also planning a river linking project on the western rivers. The new multimillion project would divert the waters of Chenab to Beas which would have profound impacts on Pakistan.

A list compiled by PICW revealed that 'India had constructed 41 hydropower projects and 12 hydropower plants were under construction, in addition to the 155 projects planned on the Western Rivers. India has completed the construction of 6 hydropower plants on River Chenab, including 450-MW Baglihar 1 and 690-MW Salal 2. Construction of two projects was under way, including the 450-MW Baglihar 2 and 15MW Ranja-Ala-Dunadi. Furthermore, India has planned an additional 56 hydropower projects on River Chenab, including some big projects such as the 1200-MW Sawalkot (1 and 2), 715-MW Seli, 1000-MW Pakaldul (1 and 2), 1020-MW Bursar (1 and 2), 690-MW Rattle (1 and 2) and 600-MW Kiru. India has completed 15 projects on River Jhelum, including the 480-MW Uri-1, 105-MW Lower Jhelum and 105-MW Upper Sindh. Six projects are under construction, including the 240-MW Uri 2 and 330-MW Kishenganga. India also plans to initiate 74 projects on River Jhelum, including a few big projects such as the 165MW Sonamarg Storage, 100MW Gangabal Storage and 280MW multipurpose Ujh Storage'.[9]

Importance of the Indus basin

Both Pakistan and India are dependent on the Indus basin rivers. Dependence of the two states are different in nature except the common dependency of agriculture since agriculture of this entire region heavily relies on waters of the Basin rivers. The dependence of Pakistan on river water is enormous even much more than India, since India has some other sources of water which extends to the eastern parts of India as well.

Of the many river systems in the world, the mighty Indus with its tributaries is of striking and unmatched importance. The Indus basin has the largest irrigated area on any one river system. It is comprised of the main river Indus and its major tributaries: the Kabul, Swat, and Khurram from the west and the Jhelum, Chenab, Ravi, Beas, and Sutlej from the east. There are three distinct physical features of the basin that must be noted. First, the Greater Himalayan ranges, with their lofty peaks, snow, and glaciers form a natural storehouse from which

the rivers draw perennial supplies of water. The impact of climate change on the glaciers is therefore critical to the future flows in the rivers.

Second, given the physiography of the Lesser Himalayas and the Shivalik hills or range, they have great potential as a source for development of hydroelectricity. This is because the rivers of the Indus system receive all their waters only in the upper parts of their mountainous catchments and have maximum flow when emerging from the foothills.

Third, the basin also includes Tibet from where the Indus and Sutlej originate and Afghanistan from where the river Kabul begins. China as an upper riparian has the capability and capacity to change the hydrological dynamics of the basin. While Afghanistan is less significant as an upper riparian but it remains an important aspect of this basin system.[10]

River system for Pakistan

Pakistani dependence is many fold:

1) The foremost is Pakistani agricultural dependence.
2) The dams constructed en-route the rivers are the largest source of water supply for irrigation
3) The river water is used for hydroelectric power generation
4) The water is used for drinking.
5) Less importance is that the river water is used as source of sweet water fish in Pakistan.

Pakistan agriculture

Water is essential for sustenance of life in all forms and fresh water is a finite resource, progressively becoming scarcer due to the persistent increase in competing demands. The world's largest contiguous irrigation system, the Indus Basin Irrigation system covers an area of about 14.3 million hectares (35 million acres). In Pakistan the system includes three large reservoirs (Tarbela, Mangla and Chashma), 23 barrages/ headworks /siphons, 12 inter-river links and 45 canal commands extending for about 60,800 km to serve over 140,000 farmer operated watercourses. Irrigated agriculture is the backbone of the national economy. The level of agricultural production is directly related to the availability and effective use of water as a major input.[11]

The agricultural sector plays a central role in Pakistan's economy. It is the second largest sector, accounting for over 35 percent of GDP, and remains by far

the largest employer, absorbing 60 percent of the country's total labor force. Nearly 62 percent of the country's population resides in rural areas, and is directly or indirectly linked with agriculture for their livelihood. The agricultural sector's strong linkages with the rest of the economy are not fully captured in the statistics. On one hand, the sector is a primary supplier of raw materials to downstream industry, thus contributing significantly to Pakistan's exports, on the other, it is a large market for industrial products such as fertilizer, pesticides, tractors and agricultural implements.

Pakistan's agricultural performance is closely linked to the supply of irrigation water.

Despite its critical importance to growth, exports, incomes, and food security, the agricultural sector has been suffering from a decline. Growth in the sector, particularly in the crop subsector, has been falling for the past three decades. Land productivity is constantly declining with yield gaps rising.

Pakistan's agricultural performance is closely linked to the supply of irrigation water. It is one of the world's most arid countries, with an average rainfall of under 240 mm a year. According to the benchmark water scarcity indicator (the Faulken mark Indicator), Pakistan's estimated current per capita water availability of around 1,066 M3, places it in the "high water stress" category.

In Pakistan the total water supplies for the agricultural sector come from three sources, rainfall, surface water, the river Indus and its tributaries and ground water. Unfortunately due to few reservoirs and storage dams, Pakistan could not store a large amount of water despite heavy rains and flood in the last two years. And the entire burden of agricultural irrigation fell on river water. The normal surface water availability at canal heads of 103.5 million-acre feet (MAF), the overall (both for *Kharif* as well as *Rabi*) water availability has been less in the range of 2.5 percent (2005-06) to 20.6 percent (2004-05).

Actual Surface Water Availability (Million Acre Feet)				
Period	**Kharif**	**Rabi**	**Total**	**%age incr/decr Over the Avg.**
Average system usage	67.1	36.4	103.5	-
2003-04	65.9	31.5	97.4	-5.9
2004-05	59.1	23.1	82.2	-20.6

2005-06	70.8	30.1	100.9	-2.5
2006-07	63.1	31.2	94.3	-8.9
2007-08	70.8	27.9	98.7	-4.6
2008-09	66.9	24.9	91.8	- 11.3
2009-10	67.3	26.0	93.3	-9.9

Source: http://finance.gov.pk/survey/chapter_10/02_Agriculture.pdf

Hydro-electric power generation and irrigation

Pakistan dependence on the Indus basin system is also due to hydroelectric power generation. Two major dams, the Tarbela and Mangla dams are on Indus and the Jehlum respectively.

The Mangla Dam, the 12th largest dam in the world, constructed in 1967 is on the River Jhelum, about 60 miles southeast of the federal capital, Islamabad. The main structures of the dam include 4 embankment dams, 2 spillways, 5 power-cum-irrigation tunnels and a power station. Since its first impounding in 1967, sedimentation to the extent of 1.13 MAF has occurred, and the present gross storage capacity has been reduced to 4.75 MAF from the actual designed capacity of 5.88 MAF. The live capacity has reduced to 4.58 MAF from 5.34 MAF. This implies a reduction of 19.22 % in the capacity of the dam.

The Mangla dam project was designed primarily to increase the amount of water that could be used for irrigation from the flow of the River Jhelum and its tributaries. Its secondary function was to generate electrical power from the irrigation releases at the artificial head of the reservoir. The present hydropower generation capacity of the dam is 1000MW.However due to the construction of dams on river Jehlum the water flow in the river is reducing. The project was not designed as a flood control structure, although some benefit in this respect also arises from its use for irrigation and water supply.[12]

Another major dam, the Tarbela Dam is the largest earth and rock fill dam of the world. It was constructed as part of the Indus Basin Settlement Plan. The primary function of the Tarbela project was also to regulate the Indus River flows for the benefit of irrigation. A secondary function is the generation of electric power, while incidental benefits include limited flood control of the Indus River, a substantial contribution to tourism, commercial fishing possibilities and added employment opportunities during and after construction.[13] In addition to fulfilling the primary purpose of the Dam i.e. supplying water for Irrigation, the Tarbela Power Station has generated 341.139 Billion KWh of cheap hydel energy since

commissioning. A record annual generation of 16.463 Billion KWh was recorded during 1998-99. Annual generation during 2007-08 was 14.959 Billion KWh while the Station shared peak load of 3702 MW during the year which was 23.057% of total WAPDA System Peak.[14] Wapda has several other hydel stations constructed all along the route of Indus, Jehlum and Chenab

WAPDA hydel stations

Station	Water Way (River/Canal)	Units No.	Capacity of Each Unit (MW)	Installed Capacity (MW)	Date of Commissioning
Tarbela	Indus (Reservoir)	1~4	175	700	Jul. 1977
		5~8	175	700	Dec. 1982
		9~10	175	350	Apr. 1985
		11	432	432	Feb. 1993
		12~14	432	1296	Nov.1992
			Total	**3478**	
Barotha	Indus (D/S Tarbela)	1	290	290	July. 2003
		2	290	290	Aug. 2003
		3	290	290	Oct. 2003
		4	290	290	Dec. 2003
		5	290	290	April. 2004
			Total	**1450**	
Mangla	Jhelum (Reservoir)	1~4	100	400	1967 - 1969
		5~6	100	200	Mar. 1974
		7~8	100	200	Apr. 1981
		9	100	100	Sep. 1993
		10	100	100	Jul. 1994
			Total	**1000**	
Warsak	Kabul (Reservoir)	1~4	40.0	160	Jul. 1960
		5~6	41.48	83	Mar. 1981
			Total	**243**	
Chashma	Chashma (Barrage)	1	23	23	Jun. 2001
		2~3	23	46	Apr. 2001
		4~5	23	46	Mar. 2001
		6	23	23	Feb. 2001
		7~8	23	46	Dec. 2000
			Total	184	
Rasul	UJC*	1~2	11.0	**22.0**	Jul. 1952
Dargai	Swat**	1~4	5.0	**20.0**	Dec.1952
Nandipur	UCC***	1~3	4.6	13.8	Mar. 1963
Shadiwal	UJC*	1~2	6.75	**13.5**	Jan. 1961
Chichoki	UCC***	1~3	4.4	**13.2**	Aug. 1959

Renala	LBDC****	1~5	0.22	**1.1**	Mar. 1925
K/Garhi	Kachkot*****	1~4	1.0	**4.0**	Feb. 1958
Chitral	Ludko	1~2	0.3	0.6	1975
		3~4	0.2	0.4	1982
			Total	**1.0**	

Source: WAPDA, http://wapda.gov.pk/htmls/pgeneration-salient.html

Finally the water of the Indus basin is the only source of drinking water in Pakistan.

Indian dependence

Indian dependence is also as substantial as Pakistan's.

Indus basin in India

The Indus basin extends over an area of 11,65,500 sq. km and lies in Tibet (China), India, Pakistan and Afghanistan. The length of the river in India is 1114 km and the drainage area lying in India is 321289 sq. km, which is nearly 9.8% of the total geographical area of the country. It is bounded on the north by the Karakoram and Haramosh ranges, on the east by the Himalayas, on the west by the Sulaiman and Kirthar ranges and on the south by the Arabian sea. The upper part of the basin lying in Jammu and Kashmir and Himachal Pradesh is mostly mountain ranges and narrow valleys. In Punjab, Haryana and Rajasthan the basin consists of vast plains which are the fertile granary of the country. The culturable area of the basin is about 9.6 M.ha which is 4.9% of the total culturable area of the country.

The Indus River system rises from Mansarovar in Tibet at an elevation of about 5182 rn and flows for about 2880 km up to its outfall into the Arabian Sea. The water resource development in the Indus basin is governed by various provisions of the Indus Water Treaty. According to this Treaty, the water of the Eastern Rivers, namely, the Ravi, the Beas and the Sutlej, shall be available for unrestricted use by India. India has also been permitted to make domestic non-consumptive uses, uses for run-of-the river hydroelectric plants and specified agricultural use and construction of storage works from the Western Rivers.[15]

Indian agriculture

Indian agricultural reliance on water from Kashmir is similar to Pakistan.

Indian agricultural reliance on water from Kashmir is similar to Pakistan. Previously an agrarian economy, India still is the major exporter of agricultural products. Despite India's economic development, over 70% of the population still lives in rural areas. Agriculture is the key employer with around 60% of the labor force, down from 70% in the early nineties' and its share in overall GDP fell from 30% in the early nineties, to below 17.5% in 2006.[16]

Hydropower potential

Most of the projects which India has planned on Jehlum and Chenab aim to generate electricity which will be supplied to the occupied areas of Jammu and Kashmir.

The Indian Water ministry has identified 190 schemes out of which 18 schemes with a total installed capacity of 3517 MW are in operation and 14 schemes with a total installed capacity of 5626 MW are in various stages of construction and all these 32 schemes together account for nearly 28% of the assessed potential of the basin.

A Study on the Hydroelectric Schemes by the Central Electricity Authority of India suggests that the Indus basin has a potential capacity of 19,988 MW at 60% load factor, which is the highest in India. In Pakistan, hydropower is the second largest source of electricity, contributing 33.1% of total power generation. While Pakistan's hydroelectric generation potential is estimated to be 46,000 MW, only 14% has been exploited. Unlike India, Pakistan is a one-river-basin country and all of its hydroelectric power projects come from the Indus.[17]

Indian dependence on the newly launched projects is two fold. Firstly the cost on planning, site survey, data collection design and tenders for the proposed projects along with the construction building and implementation of the project all adds to the costs. Secondly, the cost further multiplied especially for the projects which are still not completed due to Pakistani objection like the Kishneganga project. Although the work started over Kishenganga river in Bandipore district of Jammu and Kashmir in October 2009 and was to be completed in five years but due to objections raised by Pakistan, which has been protesting against the diversion of river waters for the hydroelectric project citing provisions of the Indus Water Treaty, the project will get completed only by

2016, say power department officials. That has increased the cost of the project, which has gone up from the original Rs.2,238 crore (nearly $490 million) to Rs.3,642 crore ($800 million), according to statistics provided by the power development department.[18]

Indian investments

India has also invested a very sizeable amount of money on the diversion of river projects. After the signing of Indus Water Treaty, it has practically diverted the Sutlej and the Beas to the plains of East Punjab by constructing a network of canals. Now India has many principal Projects on the Indus Basin. Some of the important projects are:

a. Bhakra-Nangal Project: The Bhakra Dam taps water from the River Beas which is used for the purpose of irrigation by the north Indian states of Punjab and Haryana. The Dam is at the height of 226 meters and is 90 km long. [19]
b. Beas project: The Beas Project, comprising two units namely, Unit-I – BSL Project and Unit-II – Beas Dam, is a part of the Master plan for the utilization of the waters of the three eastern rivers i.e. the Sutlej, the Beas and the Ravi for irrigation and power-generation in an integrated manner.[20]
c. Harike barrage
d. Rajasthan canal
e. Ranjit Sagar dam
f. Sutlej-Yamuna Link canal
g. Ravi-Tawi lift irrigation

Indian water planning is highly advanced and supervised by the Central Water Commission Network (CWNC). There are 13 Gauge and Discharge sites in the basin maintained by CWNC. The state governments have also established around 79 G&D sites in this basin. However CWC have no Flood forecasting station in the basin. Efforts are ongoing to establish a flood forecasting stations on the river Sutlej.[21]

Irrigation

The Basin rivers irrigate vast areas of the Punjab and Rajhastan. The basin lies in the States of Jammu and Kashmir, Himachal Pradesh, Punjab, Rajasthan, Haryana and the Union Territory of Chandigarh. The State-wise distribution of the drainage area is:

State	Drainage area (sq. km)
Jammu and Kashmir	193,762
Himachal Pradesh	51,356
Punjab	50,304
Rajasthan	15,814
Haryana	9,939
Chandigarh	114
Total	**321,289**

The covered area of agriculture reflects Indian dependence on the river water from Kashmir. Agriculture production from Kashmir contributes a substantial portion of the Indian economy including Saffron, Apple and Timber.

Political and strategic

It is the geography of the rivers that gives India strategic dominance over Pakistan especially when the issue of water is discussed. All the six rivers of the Indus basin rise in Kashmir and except for the Indus, all are routed through India to Pakistan. India after the construction of dams would be in a position to cause both drought and floods in Pakistan. The last two years of flood in Pakistan had some linkages to the excessive release of water in the Jehlum and Chenab since the monsoon equally hit the upper part of the region. On at least at two occasions, Indian politicians have expressed the desire to use water as a tool against Pakistan. In 1957, Indian irrigation minister Mr. Patel had declared that India would not wait for more than 5 years before withdrawing waters from the three eastern rivers irrespective of the resolution of the water dispute.[22] In December 2001, following the terrorist attack on the Indian Parliament, India openly raised the possibility of revoking the 1960 Treaty, as part of a strategy of coercive diplomacy with Pakistan. It was reported that the Indian Cabinet Committee on Security identified the cutting of major water supply as a threat to use against Pakistan. For its part, Pakistan began to argue that India had already effectively suspended the Treaty that same month, when the Indian Commissioner for the Treaty reportedly severed all contacts with his Pakistani counterpart and cancelled a visit by Pakistani engineers.[23]

Conclusion

The Importance of water is undeniable as human survival is reliant on it. The presence of water cannot be ignored while deciding the territorial dispute of

Kashmir. Both Pakistan and India are heavily dependent on Indus basin System. In fact, Pakistan is much more dependent than India since India has some other sources of water as well.

Pakistan is an agriculture country and agriculture constitutes nearly 60% of Pakistani economic activity. River water is essential for irrigation, drinking and hydro electric power generation. The situation in India is similar since its agriculture, hydropower generation and irrigation are almost the same in nature as Pakistan's. Jammu and Kashmir holds the centric position in the entire river water dispute between India and Pakistan due to its strategic location as well as the dependency factor. Pakistan's position becomes much more vulnerable due to Indian control of the area. Pakistan considers it as disputed territory and disregards Indian occupation. Pakistan also has to jealously guard its interests as the lower riparian and does not want to disconnect the water issue from the Kashmir dispute considering that the water crisis in Pakistan is the direct result of Indian control of its source. As expressed by President Asif Ali Zardari, "The water crisis in Pakistan is directly linked to relations with India. Its resolution could prevent an environmental catastrophe in South Asia, but failure to do so could fuel the fires of discontent that may lead to extremism and terrorism".[24]

Due to the heavy reliance of Pakistan on river water from Kashmir, India is unwilling to resolve the dispute since the resolution of the issue would ultimately reverse the situation and Pakistani dependence would be converted into India dependence.

Notes & References

1 JK integral part of India: Antony, *Greater Kashmir*, February 28, 2012 at http://www.greaterkashmir.com/news/2012/Feb/28/jk-integral-part-of-india-antony-83.asp,

2 Pakistan says Jammu and Kashmir not integral part of India, *India Today*, October 11,2011 at http://indiatoday.intoday.in/story/pakistan-says-jammu-and-kashmir-not-integral-part-of-india/1/154476.html

3 Aloys Arthur Michel, The Indus Rivers, (New Heavens: Yale University Press, 1967), PP. 31-35

4 Ibid, p. 190.

5 Sir Muhammad Zafrulla Khan, Foreign Minister of Pakistan, United Nations Security Council debate, March 6, I951, as reprinted by the Pakistan Delegation to the United Nations in a pamphlet entitled "Verdict on Kashmir."

6 Article III, Indus Waters Treaty 1960, World Bank, at http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf

[7] Ibid.
[8] Ibid.
[9] Water wars: India is planning 155 hydel projects on Pakistan rivers', Express Tribune November 15, 2011 at http://tribune.com.pk/story/292021/water-wars-india-planning-155-hydel-projects-on-pakistans-rivers/
[10] Uttam Kumar Sinha,Water and Energy: A flash point in Pakistan and India Relations', Journal of Energy Security, 14 December 2010, at http://www.ensec.org/index.php?option=com_content&view=article&id=271:water-and-energy-a-flashpoint-in-pakistan-india-relations&catid=112:energysecuritycontent&Itemid=367
[11] Omer Farooq, "Agriculture" , *Pakistan Economic Survey 2009-10,* Ministry of Finance, at http://finance.gov.pk/survey/chapter_10/02_Agriculture.pdf
[12] Mangla dam , *Pakistan Water Gateway* , at http://cms.waterinfo.net.pk/pdf/md.pdf
[13] Tarbela Dam, *Pakistan Water Gateway* , at http://cms.waterinfo.net.pk/pdf/md.pdf
[14] Tarbela Dam, *Water and Power Development Authority*, at http://wapda.gov.pk/htmls/pgeneration-salient.html
[15] Article III, Indus Waters Treaty 1960, *World Bank*, op.cit.
[16] India's role in World agriculture, Monitoring Agro-trade policy, *European Commission*, No. 03-07, December 2007 at http://ec.europa.eu/agriculture/publi/map/03_07.pdf
[17] Uttam kumar Sinha, Water and Energy: A flash point in Pakistan and India Relations', op.cit.
[18] India Pakistan water dispute escalates water project costs, *Sify Finance*, November 18, 2010 at http://www.sify.com/finance/india-pakistan-water-dispute-escalates-power-project-costs-news-default-klsputcaiii.html
[19] Bhakra nangla Valley, *Eco India* at www.ecoindia.com/valleys/ bhakranangal.html
[20] Development History of the Beas Project, *Bhakra Beas Management Board*, at http://bbmb.gov.in/english/history_bsl_development.asp
[21] (Indian) Central Water Commission, http://www.cwc.nic.in/regional/chandigarh/welcome.html
[22] *The Hindu* (New Delhi), August 2, 1957.
[23] Harun-ur- Rashid, Possible Indo-Pak tension on Indus water sharing? , *The Daily Star* (Dhaka), vol. 4: no. 80, http://vakindia.org/pdf/indo-pak-water.pdf
[24] Uttam Kumar Sinha, 'Water and energy: A flash point in Pakistan India Relation', op.cit.