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**NEED FOR A PAK – AFGHAN TREATY
ON MANAGEMENT
OF JOINT WATER COURSES**

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Introduction

Pakistan, Afghanistan and the countries of Central Asia face severe resource driven problems related to rapid population growth, systemic drought, economic growth demanding resources - factors leading to social unrest and destabilization. These issues add up to a formidable challenge to the orderly progress of these countries. Our primary focus is on Pakistan and Afghanistan two countries which are not only neighbours, but share a common history, joint Pukhtun identify and common interest in some of the region's fresh water courses.

Pakistan and Afghanistan despite these commonalities have not had the best of relationship. Afghanistan's initial objection to Pakistan's entry into the U.N in 1947 and her support for Pukhtun irredentist claims later, drove the two countries apart; it ultimately led to an Afghan tilt towards the USSR, which culminated in the 1979 USSR intervention in that unfortunate nation. [1] Six million Afghans became refugees and a large number lost their lives. [2]

Pakistan, for various reasons supported the cause of Afghan freedom, which was attained with generous U.S. assistance. During this war for Afghan liberation, Pakistan also hosted hundred of thousands of Afghan refugees. They were provided assistance by the Pakistan government and the people of NWFP and Baluchistan; two Pakistani border provinces which have common ethnic links to the Pukhtun refugees. Many of the refugees have remained behind.

Pakistan continued to play a pivotal and controversial role first in supporting the Taliban government and later in its removal from Afghanistan in 2002; subsequently Pakistan supported Afghanistan's transition towards democracy. Pakistan paid a heavy price for its involvement in Afghanistan; it inherited the drug and gun culture during

the war against the USSR from 1979 to 1992. [3] It severely damaged Pakistani society and politics. Its later support in the removal of the Taliban government in Afghanistan has engulfed her in a continuous counter insurgency war against the Talibans in the tribal areas and southern districts of NWFP. [4] Both these interventions retarded Pakistan's own transition towards real democracy.

Nature has now served a loaded dice inviting both Afghanistan and Pakistan to cooperate in combating the persistent drought which is not only affecting Afghanistan but also large region in the Central Asian Stans. It is now apparent that the drought is not a solitary phenomenon but is endemic and has blighted large area in Afghanistan, since the 1970's. The political and security implication of the drought is examined in the context of climate change. The impact on livelihoods of the increasingly impoverished region is studied from the perspective of niche theory borrowed from ecology. Convention and rules on management of joint waterways stress the need to concentrate on the ecology of these resources.

Data from various studies of the region conclusively prove that the drought has affected lives of millions belonging to Afghanistan, and nearby Central Asia. [5] Pakistan's water availability tables indicate rising water scarcity, which will increase to dangerous levels, after the glacier melt supplying water to the Indus basin stabilize to an annual flow of about 65-70 MAF by 2040 [6], instead of the existing average annual canal diverted flow of 104-96 MAF; see annexure-1 for more comparisons.

The extent of the difficulties facing this part of the world calls for immediate decisions in a host of areas; especially in the joint management of fresh watercourses shared by Pakistan and Afghanistan. It calls for the signing of a bilateral treaty on the use of waters of Kabul river, following the pattern of the Indus Basin Treaty, signed with India in 1960; the new proposed treaty is not of the same magnitude but equally

important in the context of NWFP and dwindling supplies of water in the Indus. It will also reduce the chance of future conflict on water. Afghanistan's deputy irrigation minister has categorically demanded assistance in better and sustainable management of their rivers. [7]

forced to sell their livestock and their livelihood was threatened. [11] It led to a 75% reduction of livestock composed mostly of sheep and camels. [12] It forced some middle class and educated Ghilzai & Durrani to mount a coup against Sardar Daud in 1978. It is conjectured, that once the communist leaning elite elements from these tribes were defeated in 1992, the rustic Ghilzai and Durrani took their turn to mount a second revolution, this time under the Islamists garb of the Taliban. This ecological hypothesis may also explain the presence of so many Uzbek and others in Pakistan's tribal areas. They are the environmental refugees fleeing the extremely water stressed region of Uzbekistan, Kazakhstan, Kyrgyzstan and Turkmenistan and seeking a new life. Map 2

Extent of water scarcity

Map 1 indicates a part of the region which is severely affected by drought resulting in large scale poverty, deprivation and mass migration of humans who number more than 100 million inhabitants, spread over parts of Pakistan, Afghanistan and Central Asia. [8]

Map 1: Drought regions of Asia [9]



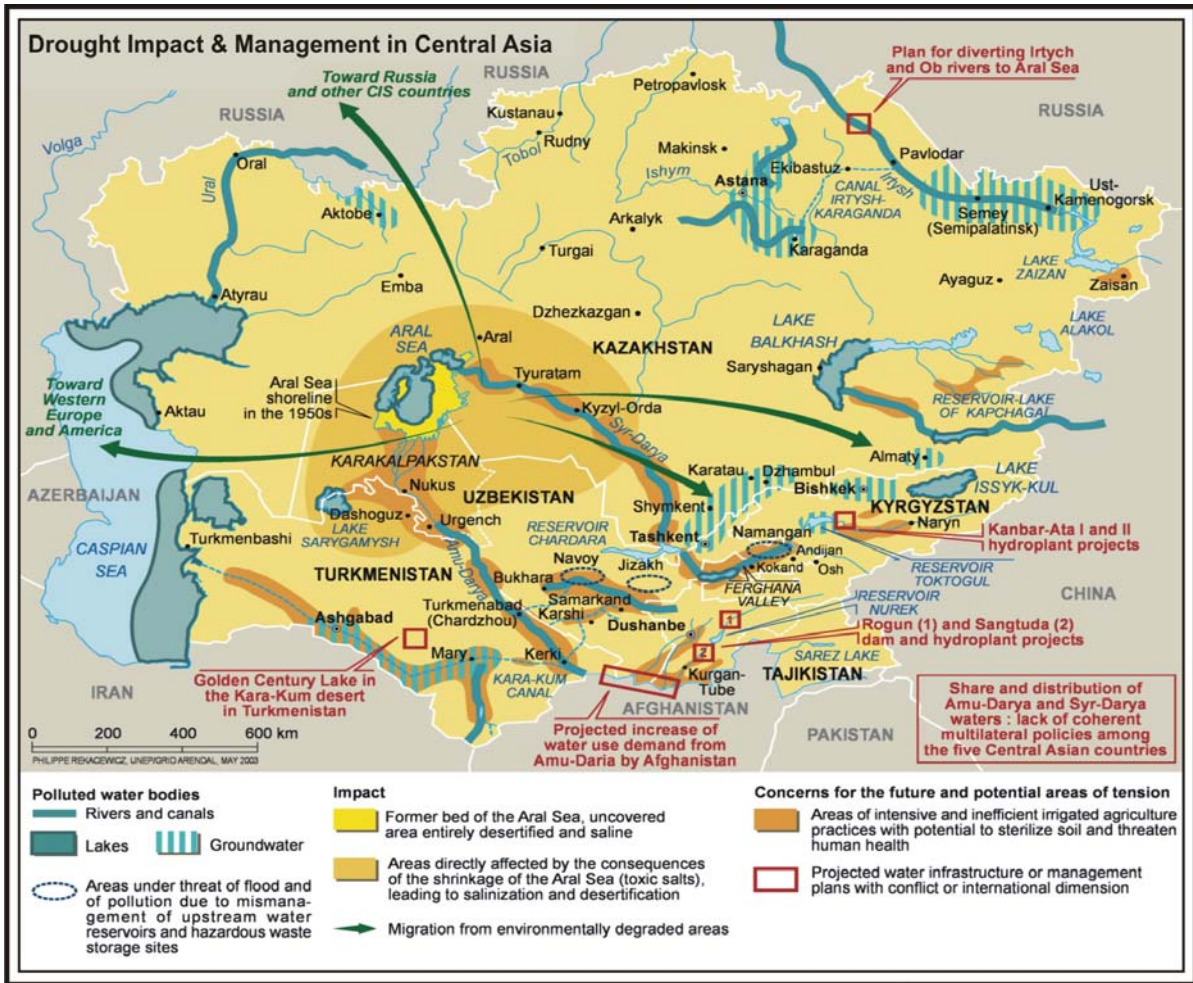
Water scarcity as cause of Afghan unrest

An ecological interpretation of upheavals in Afghanistan since 1970's would have us believe that owing to persistent droughts, the nomadic Ghilzais, and Durrani farmer who number about 15 million [10] were severely marginalized, when their grazing lands and underground water sources became dry. They were

shows the distressed region of Central Asia, which is generating the refugees; this dislocation has security implications for all the countries of the region.

Map 2: Drought impact & management in Central Asia *

and when she does, will it not reduce those



* <http://www/centralasia-maps-and-graphics-at-UNEP-GRID-Arendal.htm>

If further research leads to a confirmation of this hypothesis, then the foundation of received wisdom regarding the resurgence of Islamic fundamentalism as the primary cause of disturbance of international order, will be challenged; we will return latter to this theme to note briefly why history happens as conceived by the ecologist. [13]

The discussion so far has at the minimum indicated that owing to scarcity of water, there has been widespread impoverishment of families in Afghanistan. If water can be provided, the problem could be mitigated. However, the flip side is that if water is a rare commodity for Afghanistan, could it not force her to use more of it? If

waters which are received by Pakistan from Afghanistan and used by its irrigation system? Taking this line of reasoning further would not such an extraction of water by Afghanistan threaten the water “rights” of Pakistan? Juxtapose shrinking water availability in river basins due to global warming and one reaches a high degree of probability that such an eventuality will lead to conflict. Yet another question is that can we not take steps now so that future conflict is avoided and water from the joint common sources is used under institutional arrangements? Thus ensuring that the resource is protected and used in a mutually beneficial manner in the best interest of all stakeholders living in the command area of the joint water courses?

This paper examines these and other related questions in the context of

international experience, international law governing the non-navigational use of fresh waterways, the reason behind having institutional arrangements and how the presence of such organizations can lead to peace. The paper will highlight some relevant findings of the Intergovernmental Panel on Climate Change issued in their report of 6th April, 2007, regarding global warming. If further persuasion to act is required, the findings leave no choice but to immediately undertake joint management of common waterways. [14] By focusing on the hydrological difficulties of the region, we may transcend the security driven compulsions which dominates the discourse in this part of the world and shift the paradigm of analysis to focus on the root cause of discontent in South and Central Asia, which is water shortage and poverty. Pre-emptive conflict reduction through a water treaty with Afghanistan will help in mitigating future suffering.

Hydrological situation of Afghanistan

According to 2004 figures, Afghanistan had a population of 22.2 million, of which 85% are directly dependent on agriculture. [15] This population is expected to increase to 53 million by 2030. It has 19 million acres of land, which is arable. Out of this, 12.7 million acres are suitable for farming. Before 1978, 10.8 million acres of land was cultivated. [16] Even after the Soviet war, when a major portion of the irrigation infrastructure was damaged, irrigated land totaled 7.7 million acres. By 2002, it was reduced to only 4.6 million acres due to drought and Taliban incompetence in re-building the irrigation system. Compare this with the fact that before 1978, Afghanistan was self sufficient in food production and an exporter of agricultural produce. [17]

Afghanistan is suffering from serious social dislocation caused by a shortage of rainfall with a consequential reduction in the quantity of flows in its acqafiers and rivers. It is this drought more than anything else that is giving birth to social unrest and a return to

millenarian panaceas for solving problems of poverty and livelihood. Regional long term data indicates a country wide reduction in precipitation in Afghanistan. The peaks of such droughts were in 1898-1905, 1944-45, 1970-72, and 1998-2004 without a continuous downward trend. [18]

As a result of the decline in water availability, irrigation water has reduced by 70% in canals, and in turn has led to the reduction of irrigated land by 60%. More than 36% of the underground springs (Karez) have dried up and the discharge in the remaining reduced by 83%. It has decreased Karez watered land by 84%; 300,000 families who were dependent on Karezes had to leave their villages or are struggling to eke out an existence. 800,000 other families are receiving some Karez water but are reduced to impoverishment. [19] If the average household size is projected at a conservative 6.3 members per household, shows that about 7 million people are facing economic dislocation and maybe extinction.

Another research finds that all 30 Afghan provinces have water shortage problems. Out of these, 28 provinces are suffering from drought. [20] FAO comparative data for 1998 and 2003 shows a drastic decline in the absolute number of livestock and the availability of water for them. [21] If the data concerning decline in agriculture due to drought and water shortage is extrapolated, then one gets a horrific figure of approximately 20 million people affected economically by water shortage.

Certain plausible deductions can be reasonably arrived at from the above facts. Firstly, that the shortage of water in Afghanistan has assumed the shape of a calamity for more than 20 million people. Secondly, both the farmers and herders have been badly affected. These assumptions indicate that the herders and farmers mostly composed of Pukhtun tribes have been badly hurt and their niche of economic survival obliterated. According to ecological historians, under such

circumstances, people will take recourse to radical solutions. [22]

[24] It is not clear how the decline of 72% has occurred in the flow of river Kabul because it should have a normal flow of about 17.2 MAF below Jalalabad.

Water audit of Afghanistan

Afghanistan, according to a report had a total potential of 58.7 MAF of water in 2003. [23] Surface water flows in the rivers and main streams accounted for 46.19 MAF and ground and spring water accounted for 12.5 MAF, Table 1 below gives the figures:

Data from Pakistan sources show in Table 3, that the flow of river Kabul before it receives the waters of river Chitral and river Kunar is 14.6 MAF, because at Warsak, which is the first water measuring point of river Kabul in Pakistan, the flow is recorded at 17 MAF. Therefore, this study will place

Table 1: Estimated surface and groundwater potential & consumption in Afghanistan 2003

Type of water resources	Potential	Present used in MAF				Total	Balance
		Agriculture	Live stock	Water supply	Industry		
		MAF	MAF	MAF	MAF		
Surface Water/canals	46.19	15.89	0.04	0.12	0	16.01	30.18
Ground water	12.55	1.45		0.02		2.53	9.98
		0.77		0.01			
		0.14		0.14			
Total	58.74	18.25	0.04	0.29	0	18.54	40.16

Agriculture used about 16 MAF of water leaving a balance of approximately 30.18 MAF for further development; it is a considerable amount and deserves a re-think by the Afghan authorities how this can be used? Obviously, in the face of the existing dire circumstances, development of this sector will pay dividends. However, the ground water/spring/wells potential and its usage does not appear to be correct.

the discharge of river Kabul in Afghanistan at 17 MAF. One reason for the Afghan confusion about river flow data is that the country lost all its 167 hydrological measurement stations during the wars, which is why reliable data is not forthcoming. [25]

Table 2: Water available in Afghan canals and command area in 2002-03 and decline as compared with the past [26]

River basins	Accumulated Discharge in 2002 (MAF)	% decline of discharge (2004)	Command area of discharge (h/a)	% decline of irrigated area (2004)
River basin I-Kabul	10.04	72%	328,434	48%
River basin II- Helmand	19.04	62%	734,088	61%
River basin III-Western	2.31	69%	69,148	69%
River basin IV-Northern	4.82	69%	241,891	61%
River basin V-North-eastern	9.97	60%	266,425	49%
Total all basins	46.19	66%	1,638,986	58%

Table 2 below shows the decline in the discharge in the 5 main Afghan river basins as compared with the previous years. However, there is disagreement regarding the decline of 72% shown for river Kabul, which is jointly shared with Pakistan.

Table 3: Volume of Kabul river *

S. No	Subject	MAF
1	Flow at Jalalabad	14.60
2	(Addition from R. Chitral/Kunar)	02.40
3	Flow at Warsak	17.00
4	(Addition of R. Swat / Kalpani)	05.30
5	(Total) Flow at Khairabad	22.30

*** Pakistan sources**

Data provided in 2002 by the Afghan Deputy Minister of Irrigation, estimated total availability of surface and sub surface water to be 58.74 MAF. [27] This confirms the surface flow availability figure in table 1 amounting to 30.18 MAF, after existing usage. It confirms the earlier assertion that enough additional water is available in Afghanistan to battle the drought in certain parts. Its problem is the absence of management capacity and damage to existing irrigation infrastructure.

How much water is available in river Kabul for use by Pakistan after deducting its usage in Afghanistan? To answer this question we find the existing and new projected usage of river Kabul water. There are reports of two new storages coming up on this river. [28] One of the projects being developed by Afghanistan on this river is the multi-purpose Kama hydel and irrigation project which aims to provide water to 14,000 acres of new land; it will use about 0.1 MAF of water from river Kabul. [29] The Afghan irrigation strategy as reported by the Asian Development Bank projects a trebling of its existing water storage from 10% to 30% in the next few years. [30] This will reduce the flows into the Indus Basin and more specifically into NWFP’s civil and lift canals based on river Kabul flows. No data of additional water usage from new projects is available. However, whatever the additional usage of water of river Kabul by Afghanistan, it will reduce the water for Pakistan storages. We look at water availability in the context of Pakistan next.

Pakistan’s irrigation water situation

Pakistan has the world’s largest contiguous irrigation system, which irrigates 45.2 million acres of land (2005). [31] Its population will be 209 millions in 2015 and approximately 300 million by 2030. Agriculture accounts for 23% of its GDP and provides jobs to 55% of the labour force. Agriculture provides 90% of the country’s wheat needs and 100% of cotton, sugar cane, rice, fruits and vegetables. It plays a major role in the nation’s industry by providing commodities for processing. [32]

However, this secure picture is beset with threats and worry. The irrigation marvel of Pakistan is organized around a single river basin of the Indus and its water regulation through storages and regulators, controlling an annual average water flow of about 104 MAF. Construction of irrigation infrastructure enabled Pakistan to double its irrigated acreage from 1947 to 2005, to 45.2 million acres.

Currently, Pakistan is classified as water short, but by 2016 it is projected to become water scarce. [33] Habib has found that river inflows decreased by 20% after 1947. This shortage is further compounded by faster glacial melt while rainfall has become unpredictable. The aquatic and environmental assets like wetlands, rangelands and forests are receding. At the same time water mismanagement shows losses of 50 MAF annually in canal diverted water and 10-30 MAF loss of floodwaters in the absence of storages. Salinity and water logging add to Pakistan’s growing woes of irrigation problems. [34]

NWFP’s use of river Kabul waters

The limited irrigated agriculture in northern NWFP is heavily dependent on the waters of river Kabul as shown in Table 4 below: [35]

Table 4: Irrigation in NWFP from Kabul river waters *

S. No	Project [Irrigation Department]	Water utilization [NWFP]
1	Warsak canal system	0.40
2	Kabul river canal	0.32
3	Joe Sheikh + Mian Gujjar canals	0.28
4	Kheshki lift irrigation scheme	0.03
5	Private canals / kathas	0.08
	Total	1.11

* Irrigation department NWFP

In the south of the province 1, 57,000 acres of land is flood irrigated by the Gomal River. This river has its headwaters in Ghazni in Afghanistan. Its chief tributary is the Zhob river in Baluchistan. Pakistan is building the Gomal dam on this water way which is likely to use about 0.75 MAF of water annually.

Pakistan is likely to increase the capacity of irrigation works on river Kurram, which rises in the Afghan province of Paktia. It is planned to build the Kurram Tangi dam in Bannu. Rivers Kurram and Kaitu rivers which have a combined average flow of about 1.1 MAF annually will provide additional water for the new storage. It will provide water to the existing Bannu canal system as well as irrigate new lands in N. Waziristan spread over 16,000 acres in the Sheratella plain and 68,000 acres of new land in Tall plain, Bannu.

The precipitation in NWFP and the adjacent tribal areas is also falling rapidly as in Afghanistan. In the tribal areas of Pakistan water scarcity has reached dangerous levels with a rapidly declining water table. Water scarcity will increase problems here also. Thus new irrigation water supplies will be essential for providing security to livelihoods in this dry region of NWFP and tribal area of Pakistan.

The NWFP and tribal areas with a combined population of 24 million inhabitants depend on four Afghan rivers, which empty into the Indus; these are Kabul, Kurram, Kaitu and Gomal rivers. Secondly, it may also be noted that water of the Kabul river includes within it the flow of

river Chitral, which joins her near Jalalabad and provides about 2.5 MAF of water annually; this is the contribution by Pakistan to river Kabul flows.

After river Kabul enters Pakistan, it flows through a diversion dam at Warsak near Peshawar, which though silted, still produces some power besides diverting water for irrigation into the Kabul river canal system. The Swat river and other small tributaries join river Kabul near Khairabad with a flow of 5.30 MAF; it increases her volume to about 22 MAF annually. Afghanistan should recognize that it receives water from the Pakistani Chitral river basin and hence there is a need to develop the uses of river Kabul jointly.

If the flow in river Kabul is reduced it could have the following adverse effects:

- a. If Afghanistan unilaterally decides to build upstream storages, it would have repercussions on the present usage of these waters as the entire flow of the Kabul river that enters Pakistan, is being utilized by its irrigation system. The impact of shortages on NWFP will be marginal. However, one does not foresee construction of Afghan diversions on the Kurram, Kaitu or Gomal rivers; therefore Pakistani projects on these rivers are currently safe from threat of water reduction.
- b. The adverse affect on incomes and livelihoods in Pakistan will be large in the context of net reduction in river Kabul flows; they will become more critical with global warming. In a calculation conducted by the author

during the negotiations of the Indus Water Accord in 1991, where the waters of the Indus were apportioned amongst the four provinces of Pakistan, it was found that 1 MAF of water generated more than Rs.1 billion in incomes, after the land was developed.

- c. But what will happen if there is gradual global warming? In this scenario the present trend of dislocation of populations will continue to occur and social disturbance and chaos will be recurring at a much faster rate. As the weather warms, disease and pestilence will increase. There will be a pressure to move to freshly discovered land becoming available after the glaciers recede. This will happen gradually but would generate pressure on the fragile livelihoods already threatened by scarcity of water.
- d. The report on global warming states that the Himalayas and its westernmost extension the Hindu Kush will warm up. It is projected that Himalayan glaciers will reduce by 35-40%. [36] This will reduce the flows in the Indus and diversion into canals will be approximately 65-70 MAF or less. Agriculture in the Indus will be reduced to about 28 million acres from the existing 45 million acres! This is likely to happen by 2040; however the process has already started. And to compound the difficulties further, Pakistan by 2030 is expected to have a population of 300 million. The negative trend of this projection is obvious.

Impact of water scarcity

Environmentalists, policy makers and system experts are unanimous in reaching the following conclusions related to shortage of water and the likely effect on state and society generally:

- a. Scarcity of water contributes to violent conflict, more so in societies where population is growing rapidly. Scarcity can be an important force behind

changes in politics and economics relating to resource use and can lead to clashes between ethnic groups or to civil strife and insurgency. [37] In societies where livelihoods are based on availability of water, as in agriculture or livestock rearing on pastures, a reduction of water can cause widespread unemployment; shortage of water can thus be the cause of unemployment in countries like Pakistan and Afghanistan, where a majority of the population is dependent on agriculture. Water scarcity can therefore endanger national security of such countries. It is thus posited that water security is as important as national security. [38]

- b. McPherson, the U.S AID administrator recognized in 1987, that the development of water resources is a critical foreign policy issue for the U.S. Multilateral organizations like the UNICEF, found that in 1990, 40,000 children died worldwide – a majority in Africa – due to hunger (food shortage) or disease caused by lack of water or use of contaminated water. Water resource management is thus integral to security and international stability. [39]

Evidently, it is not as much bin Laden or the Taliban, who are behind the present unrest in Afghanistan, but a major contributory factor of unrest, is shortage of water, which is driving the inhabitants to seek extreme solutions to create livelihoods through alternate employment. Shortage of water and reduction of livelihood has forced the dispossessed, that number in thousands, to seek violent change; al-Qadea and the Taliban are the instruments supported by the people to deliver that result. We now examine the ecological perspective because in developing countries like Pakistan or Afghanistan water is the critical resource in the economy leading to livelihood and employment outcomes.

An ecological perspective on water scarcity

Water scarcity in South and Central Asia will unleash forces of historic proportions in decades to come. The human mind is constructed to respond to attention arresting events. If you look at the average human response to dangers, we are quick to react, when the threat is present and clear. However, there is a policy deficit in those cases where there is a long gap between cause and effect; this is the reason why we have failed to react to global warming and pollution threats to this planet.

In the present instance too we are relaxed in our appreciation and policy responses to the impending water famine. What will be the long term historical impact on society of this coming change? Global events have occurred in the past too, for instance the large scale movement of people after the last ice age, when the Aryans peopled Central Asia and the sub-continent or the advent of agriculture, which replaced the hunter societies and similar many other long term historical movements.

All of these were epochal events with a very long generational gap between cause and effect; these events occurred over a period of many generations; the gradualness permitted societies and individuals to adjust and find “niches” under the new organizing principle ushered by ecological change; two new concepts have been introduced and they need a definition. “Niche” is defined as a sphere with its own rules and social norms in which individuals participate to provide some form of service or utility to society. In exchange for this service society and individual pay a premium; this could be in kind or cash. It creates a livelihood. The closest parallel to a niche is a profession. [40]

The advantage in occupying a niche is that it permits the fulfillment of two major evolutionary drives of the human species; food and procreation. Niche occupiers tend to engineer the introduction of their offsprings into the niche occupied by their parents or other sub-niches connected to

the main niche. Another attribute of the niche is that it is conservative and self replicating; it is in the larger societal sense a closed system with barriers against new entrants.

These barriers are mostly rule based and laws and regulations are affected to enforce them. The largest niche space is for example a country; you cannot occupy a niche space within a defined boundary of a country unless you are born there; the rules for preventing others to share the niche are contained in the Immigration or Citizen Act Laws.

At the bottom end there are qualifying rules for entering a trade or profession, for instance if you wish to be a doctor you must abide by the rules of the Pakistan Medical and Dental Council. Niche guardians at the apex always support claims of fellow niche members by providing a favourable edge to the selection of new entrants into niches of those whose parents are already niche members.

Amongst all the main theories of historicism, the ecological one is perhaps the most compelling since it is built on the recognition that humans are basically a species within the larger complex of what is defined as ‘animals’; we are driven by evolutionary drivers and society is a collective construct how the drives are to be collectively fulfilled without damaging or killing one another.

The march of society in achieving the desired results is what history is all about. Hobbes thought that history was nothing more than the progress of the supra state or king for domination, and the state was called the Leviathan; Rousseau measured it in terms of society of humans progressing because of the social contract reflected in the General Will; Locke witnessed history as the march of law by keeping state power balanced amongst its various organs. Hegel thought history as the development of ideas through the process of competing dialecticism. Marx saw history as the progress of capital to its ultimate goal of a classless society. Schopenhauer

considered it as the story of domination by the Will. And Toynbee saw history as the narration of the struggle of civilizations against challenges.

Water scarcity in South and Central Asia has removed the old niches of farming and connected trades. It has prevented millions of people to maintain their livelihood; due to water stress large group of people have seen their niches disappear. Hopelessness under such circumstances creates conflict and upheavals. Resolving the distribution of water issues with Afghanistan will soften future conflict and lead to better management of water scarcity.

Joint management of international rivers

Water is necessary for human existence and thus for civilization. Since water is such a crucial element, mankind has been constantly involved in evolving ways for its cooperative use. Water treaties are the preferred option and are thus as old as civilization. The earliest water treaty on record dates back to 2500 B.C between two Sumerian cities of Lagash and Umma relating to Tigris River. The FAO has documented 3600 international water treaties from AD 805 to 1984. [41]

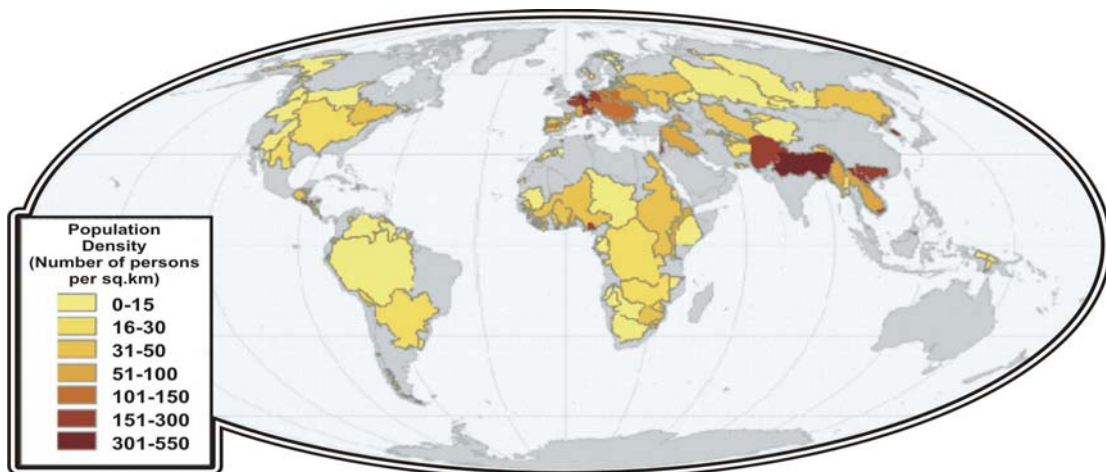
There are 263 international basins

basin management operates within a complex physical, political and human set of circumstances; it involves issues such as water scarcity, degrading water quality, pressure from rising population, unilateral water development and comparisons of development levels between two negotiating states.

Evidence since 1948, documents only 37 incidents of acute conflict over water and where force was used. 30 of these conflicts involved Israel and one or another of its neighbours. During the same period 295 water agreements or treaties were signed. Many regional groups such as OECD and SADC have accords regarding the use of joint river basins. [42]

Map 3, shows the population density of river basins. The region of Afghanistan and Pakistan has the 2nd highest population density amongst the world’s river basins; 151-300 persons p/sq km, which is next only to India and the densely populated parts of Europe. It is natural that where population density is high, there will be stress on water resources. The second axiom is that where there is water stress the chances of conflict are high. [43]

Map 3: Population density per international river basin*



* www.transboundarywaters.orst.edu

which are common to two or more nations. These 263 basins generate 60% of the global fresh water and are home to 40% of the world’s population. International river

On September 9th, 2003 the government of Pakistan formed a nine member technical committee under the

chairmanship of the Federal Flood Commissioner to formulate a draft water treaty with Afghanistan; the committee failed because according to it, the Afghan authorities did not provide the river flow data. [44]

Later in 2005, a technical committee formed by the government of Pakistan and headed by AGN Abbasi, recommended to the government to enter into a water treaty with Afghanistan, so that the rights of Pakistan as the lower riparian are protected. [45] It is obvious for whatever reason that matters between the two states are not cordial on this issue; it is unfortunate. This needs to be addressed at the highest technical and bi-lateral level under the auspices of a 3rd party like the World Bank or the UN, or other interlocutors which would facilitate the drafting of a treaty. Otherwise this issue too will regress into inter-state bitterness and further compound the problem of the people of both nations.

Growth of international law on joint waterways

As elaborated earlier a lot of work extending over centuries, has been conducted in codifying law to establish principles of sharing international fresh waters for non-navigational use.

In the current times the first landmark was the Madrid Declaration of 1911, on International Regulation Regarding the Use of International Water Courses. It:

- a. Discouraged unilateral basin alteration where the rights of a lower riparian were involved.
- b. It proposed creation of joint water commissions to settle issues of joint usage between two states amicably.

The International Law Association an NGO formed in 1873 completed in 1966 the Helsinki Rules, which is the best study of customary international law on transboundary water resources.

Key concepts under Helsinki Rules

River basins extending over two or more states were considered as an indivisible hydrological unit to be managed as a single unit to ensure maximization of use. It included all tributaries including tributary ground water within the definition of “drainage basin.”

It formulated the phrase, “equitable utilization” to express the rule of restricted sovereignty as applied to fresh waters. It stated that each basin state is entitled within its territory, to a reasonable and equitable share in the beneficial uses of waters of an international drainage basin. This principle has also been supported by the American Law Institute and said that states should take measures to avoid injury to neighbouring state. [46]

The biggest lacuna however remained the failure to work out the relationship between the no “harm rule” and the “equitable utilization” rule. [47]

Dallapona finds that customary international law is too weak an instrument by itself to modify behaviour of states, “relying alone upon an informal legal system to legitimate and limit claims to use shared water resources is inherently unstable. It becomes unstable when.....one or more states consider that it is so militarily dominant that it can disregard the interest of its neighbour”. [48]

Cooperative management will occur if states through treaties, agree to create regional institutions for making and enforcing their decisions jointly. [49] Otherwise conflict is inevitable.

When the Helsinki Rules reached the General Assembly of the U.N, it requested the International Law Commission to prepare draft articles. The Commission after working for 23 years produced the final draft in 1994. [50] The UN General Assembly finally adopted the “Convention on the Law of the Non-Navigational Uses of International Watercourses”, in 1997 by a vote of 104 -3.

[51] There were 27 abstentions including Pakistan. [52]

Approval of a convention in the General Assembly does not mean that a country has accepted it. This happens when a country has ratified, accepted, approved or acceded to the Convention. To date Pakistan, Afghanistan, India, China, U.S., U.K., France and Britain are amongst the 21 states that have not ratified the UN Convention. [53]

Important principles contained in the U.N Convention of 1997

Article 3 understands that the Convention can only be implemented if states have agreements or treaties covering arrangements on the use of waters of joint water courses. The Convention provides the principles to be contained in such treaties. [54]

Article 5 read with Art: 6 is the heart of the convention Art 5 recommends to states to use joint waterway in an equitable and reasonable manner so that when watercourses are developed it is done on the basis of sustainable development. It exhorts the adequate protection of the water course.

Art 6 clarifies issues concerning definition of equitable and reasonable utilization. Its main principles are;

- a. Equitable and reasonable utilization includes the geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character.
- b. The social and economic needs of the water course states.
- c. The population dependent upon such water courses.
- d. Usage impact of one state upon another.
- e. Rationalizing existing and potential uses.

- f. The availability of comparable alternatives to a planned or existing usage for optimisation.

Art 7 enjoins users of transboundary water to take all measures to prevent significant harm to other users of a watercourse where such harm is caused in the absence of any agreement; the harm causing state must take steps to mitigate or eliminate such harm and where appropriate to discuss the question of compensation.

Art 8 enjoins water sharing states to cooperate on the basis of sovereignty, equality territorial integrity, mutual benefit and good faith for achieving the objectives of this convention. In order to implement the provisions of this convention states may establish joint commissions or other joint mechanisms.

Art 9 is important because even when there is no agreement or treaty between joint users, the states sharing the water courses will exchange hydrological, meteorological, hydrogeological and ecological data related to water quality. This article also permits a joint watercourse using state to request river data from another state. The request receiving state is obliged do its best to comply and could demand reasonable costs, if such data is not readily available.

Under Art 10 (1) in the absence of any specific treaty, no user of an international water course enjoys inherent priority over other users. This article also says that in any dispute over the usage of waters the principles contained in Art 5 to 7 will prevail. It also prioritizes human use of water over other usages; thus drinking water has a higher priority than irrigation or industrial use.

Art 11 and 12 stipulate that adequate information and notification regarding new projects and additional usage of water from a joint water course must be conveyed to users of the same waters. Both Afghanistan and Pakistan have not informed each other about new usage of waters from river Kabul and other rivers.

Under Art 35 regional economic organizations like SAARC or ECO can ratify the convention after which its principles will be applicable to all members of that regional group.

The Berlin Conference Rules 2004

It is gratifying to note that the International Law Association has been working on improving the water law and to help in dealing with emerging challenges. It has tried to fill the gap and otherwise streamline the 1997 U.N Convention. It recognized that the chances of conflict arising out of water shortages will increase in view of global warming. [55] The ILA exhorts states using join waterways to reach agreements for cooperative management before conflicts on waters become inevitable. It lamented the slow progress by states in ratifying UN International Waterways Convention of 1997. It recognized the slow progress of new water treaties amongst joint users. All these and additional problems that needed to be addressed were included in the Berlin Water Conference Rules, 2004. The attempt is to make relevant changes for addressing international water management issues better.

Some of the main features of the Berlin Conference Rules are:

- It clarified definitions concerning ecological integrity, environment, sustainable use and vital human needs.
- It recognized that persons had human rights and could become a party to deliberations concerning water usage [ART1]
- States were enjoined to manage waters comprehensively and in an integrated manner [ART: 2-6]
- It stressed that water must be used sustainably [ART: 7]

- It stated that basin states have the right to participate in management of waters [ART: 10]
- Basin states were also enjoined to cooperate for their natural benefit [ART: 11]
- ART 12 defined more clearly than the earlier articulation of equitable utilization.
- ART 13 read with ART 12 lists the various variables to be considered while concluding equitable utilization. This has made comparative analysis much easier.
- ART 16 laid down the principles of not undertaking development of a river basin which could cause transboundary harm.
- ART 17 provides an individual the right of access to water as a human right and allows him to challenge state acts which may be in conflict with the principles of these rules.
- ART 18 provided the right of information to an individual. Therefore all water data must be readily available.
- ART 19 enjoined states to undertake public advocacy to educate the people so that they knew their rights under these rules.

The Berlin Conference Rules are futuristic, human right oriented and address issues of development of water resources in the context of dwindling water assets. ART 35 for example, lays down elaborate rules on dealing with drought in the context of river basins.

Essential principles of a water treaty

The dynamics of international river basin management like Kabul river, includes complex physical, political and human aspects which can make such management problematic. To address such multiple

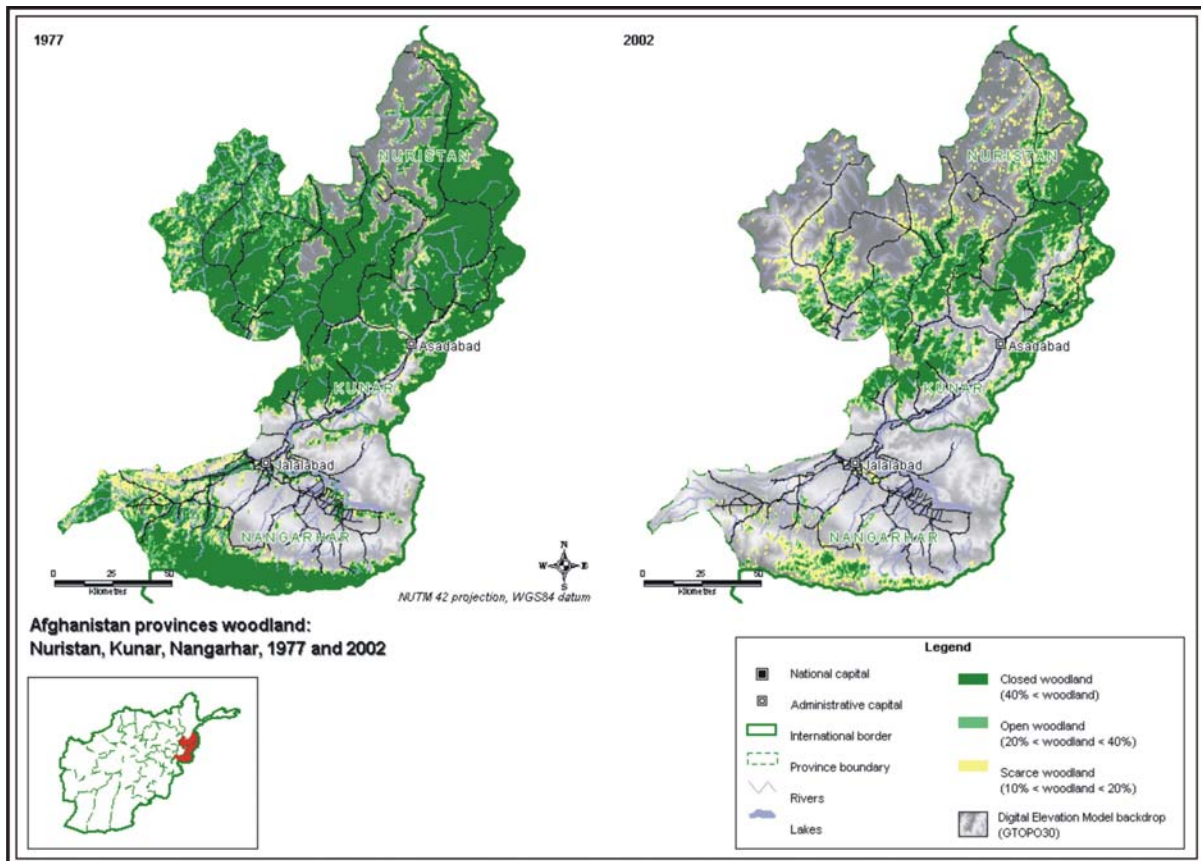
problems international experience of water treaties indicates the necessity of inclusion of the following principles within the treaty.

Firstly, the institution created for management must be flexible. It must permit public participation and be open to changing basin needs.

Secondly, a treaty must contain clear and flexible criteria for water allocation and quality. It must indicate a priority of use

annually. He thought that demand to use wood for fuel was the main cause. However, loss of livelihoods based on deteriorating pastures due to drought is a better explanation. [56] It may be the catalyst driving people to seek alternate livelihoods by selling trees. If there was a management structure for protecting river Kabul's watershed such damage could be mitigated.

Map 4: Environmental degradation *



* <http://unosat.web.cern.ch/unosat/>

principle in case of basin shortages. Additionally, the treaty must include catchment wide environmental and ecological standards for protection of water quality.

The two satellite images that follow in Map 4 compare the environmental degradation caused by unchecked logging of forests in Nuristan from 1977 and 2002 leading to degradation of water quality of river Kabul basin. Pir Aziz, the Afghan Deputy Minister for Irrigation, reported illegal deforestation over 72,000 acres

Thirdly, a treaty must shift focus to total water use in a basin. There should be an equitable distribution of benefits from different uses of a river like hydropower, agriculture economic development, tourism or protection of aquatic ecosystems.

Fourthly the treaty must include a detailed conflict management mechanism. This will insure the effectiveness of the treaty. [57]

Lessons from the Indus Basin Treaty with India, 1960

The ongoing pre-independence water dispute between the British Indian provinces of Sindh and Punjab became internationalized in 1947, with the Independence of Pakistan and India. Since no agreement could be reached on sharing shortages, the governments of India and Pakistan signed a “Stand Still” agreement until 31st March 1948, which allowed river discharges from headworks in India to flow into Pakistan, according to the previous quantities.

When the agreement expired on 1st April 1948 and in the absence of a new agreement, India stopped delivery of water to the Dipalpur canal and the main branches of the upper Bari Doab Canal.

Regardless of the motives and politics of this decision, the two states were ready for a war. Elaborate discussions were started by the World Bank based on David Lilienthal’s technical solution to water sharing. In August 1957, the World Bank organized a consortium to fund replacement works in lieu of the loss of irrigation waters of the eastern rivers Ravi, Beas and Sutlej to India, Pakistan got all the flows of the western rivers. The total cost of the replacement and development works which included the construction of the Tarbella and Mangla dams was \$ 1.74 billions. [58]

The Indus Basin treaty was signed between Pakistan and India on 19 September 1960. Besides obtaining the irrigation advantage, both countries benefited from, the treaty and it fostered remarkable bi-lateral cooperation between them despite two wars. The creation of an institution composed of Pakistan and India to oversee the Indus Basin Treaty played a vital role in conflict mitigation.

Some of the other lessons learnt are:

- Power inequities may delay the pace of negotiations. India had both a stronger upper riparian position and

relatively more military strength thus India delayed an early resolution.

- Positive and active 3rd party involvement is vital to reach a settlement, which in this case was managed by active World Bank support.
- Provision of financial assistance to undertake physical works on the basin can help reach an agreement.
- Sensitivity to the parties’ hydrological concerns can speed up an agreement.
- As water stress increases the chances of reaching agreements between riparians lessen. [59]
- Historical evidence points towards a conflict outcome in basins lacking institutions, which can accommodate political, hydrological and other basin stressors.
- The creation of joint water institutions plays a vital role in conflict mitigation. Water management by definition is conflict management. [60]

Designing a treaty for river Kabul

As far as designing a treaty for the joint management of river Kabul based on optimal and equitable use is concerned, it can be easily accomplished, if both the countries have the foresight and the will to solve their problems concerning the waterways.

The following recommendations are made for accelerating the formulation of a water treaty with Afghanistan and dealing with the challenges of global warming and water scarcity.

The first inhibiting and dangerous factor standing in the way of having a treaty with Afghanistan is the power asymmetry. Pakistan, despite its current problems has more military and institutional strength. However, there is danger for it to become

blinkered and use other levers to manipulate matters, rather than dealing with Afghanistan as an equal partner. Pakistan must exhibit statesmanship in this matter if progress is to be achieved.

Secondly, Afghanistan unfortunately raises the issue of the Durand line whenever any substantive matter is discussed with her. If Pakistan and India could sign the Indus Basin Treaty in the presence of so much hostility in 1960, why can't Pakistan and Afghanistan undertake the designing of a water treaty despite Afghan fixation with the Durand Line?

Thirdly, given the situation of less than friendly inter government relationship other interlocutors like the World Bank, the Asian Development Bank or / and the bilateral friends of both could intervene to get a water treaty on the anvil soon. The more it is delayed the worse the prospects of a treaty.

Fourthly, pending the drafting of a treaty between Pakistan and Afghanistan, they should begin the exchange of data on river Kabul and the additional water needed for the proposed new projects.

Lastly, it is proposed that Pakistan may wish to recommend and support that SAARC or ECO ratify the UN Convention of 1997 on Joint Waterways. In the last meeting of the SAARC between its foreign ministers in April 2007, it was decided to seek World Bank's assistance to help draft a SAARC wide joint waterways treaty for the member states. This is an excellent move and must be pursued with vigour. [61]

Conclusion

This report has provided grounds to believe that the endemic water shortage in Afghanistan is one of the main reasons for its long term instability. Water scarcity, which is also affecting Central Asia and Afghanistan, has caused misery for millions in this water stressed region. Pakistan too is affected but has withstood the pressure better because of a robust irrigation base.

Water shortage is a principal contributory cause of the political upheaval which is engulfing the region because of the instability caused by diminishing niches; thousands have become environmental refugees with dwindling livelihoods. Unless this aspect is considered in depth we will be producing partial solutions because of incomplete analysis.

If we superimpose the findings of the IPCC regarding global warming, the equation becomes more worrisome. It is not without reason that global warming has recently been placed in the ambit of the UN Security Council. [62]

This report projects that by 2040 global warming and water scarcity in the Indus Basin would reduce irrigated land by half. This will have disastrous consequences for a population which would have reached the 300 million mark; any reduction in the flows of river Kabul will aggravate a bad situation.

Pakistan needs to undertake an immediate review of its water management strategies to avoid these dismal projections; it will require investment in new storages and introduction of water saving demand base irrigation. [63]

Both the Pakistan and NWFP governments are advised to create two essential organizations to deal with problems arising out of global warming and water scarcity. One organization should monitor global climatic change and the Pakistan Metrological Department is best placed to handle it; it should begin the modeling of the global weather as it will affect this country.

The other new organization should combine the government's hydrological related departments and the Ministry of Food and Agriculture; the latter should have the lead role in this combined institution; after all water is required for irrigation and not vice versa, which is the case now. This institution will prepare contingency plans to manage both global warming and water scarcity. It will also initiate crop and pest

research when the weather cycle shifts or we have rising temperatures with enhanced glacier melting. The main objective of this organization will be to find ways to feed the increasing population with reduced water supplies from the Indus basin.

Peshawar University may wish to create a centre of excellence to deal with the emerging global trends related to water law in the context of conflict mitigation.

Failure to reach an agreement with Afghanistan on joint management will force her to continue developing additional uses on river Kabul. This will reduce the availability of water in NWFP, since the province has no viable alternatives to replace river Kabul water shortages, its limited agriculture will be damaged and will cause economic and social dislocation.

The water scarcity issue is the most serious potential problem for Pakistan. Reaching either a bilateral or multilateral solution via regional organizations, culminating in a water treaty with our neighbour Afghanistan, could avoid conflict and mitigate suffering in the future. Let us deal sanely with the situation and grasp the opportunity, while there is still time. The more the delay the harder it will be reach a settlement with Afghanistan.

Annex 1: Mean average annual flows in Indus basin before & after global warming *

S. No	Item	(MAF) (2007)	After global warming (MAF) (2040)
1	Total average annual surface flow in Indus Basin	142	80 – 85
2	Average annual perennial diversion to canal system	104	65 – 70
3	Average annual water losses in the Indus bed	23	15
4	Average annual perennial diversion into canal system of surface water after the silting of Tarbila, Mangla & Chashma reservoir.	97	50
5	Average flood water flow to sea	15	4 – 5
6	Average annual water available for diversion into canal system	100	65 – 70

* Data obtained from two papers written by Khan, Fatehullah, “Water Problem, its Causes and solutions,” written for the National Seminar on Problems and Politics of Water Sharing and Water Management in Pakistan, Nov 7-8, 2006, Islamabad, organized by International Policy Research Institute, Islamabad, and an unpublished paper, “Global warming to trans from Pakistan into a desert,” (2006), Peshawar.

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