



RESOURCES IN GREATER CENTRAL ASIA



Afghanistan's Trans-Boundary Waters: An Overview

DURAN RESEARCH AND ANALYSIS

Kabul, Afghanistan
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HBS

The Heinrich Böll Stiftung (hbs) is a German foundation and part of the Green political movement that has developed worldwide as a response to the traditional politics of socialism, liberalism, and conservatism. Our main tenets are ecology and sustainability, democracy and human rights, self-determination and justice. We place particular emphasis on gender democracy, meaning social emancipation and equal rights for women and men. We are also committed to equal rights for cultural and ethnic minorities. Finally, we promote non-violence and proactive peace policies.

In Afghanistan we have established our work since 2003 and are currently focusing on the fields of democracy, ecology as well as peace and security policies. For detailed information on our work and our partners in Afghanistan, please visit: www.boell-afghanistan.org, to contact us please write to info@af.boell.org
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Forward

Afghanistan has entered a new chapter of its history with the first democratic and peaceful transfer of power from one elected President to another, and the formation of the National Unity Government. President Mohammad Ashraf Ghani has stated his government's commitment to water resource development and management repeatedly. The implications of this renewed commitment are significant for Afghanistan, a country with a high level of financial dependence on international support but willingness to transform its dependency to mutual inter-dependency with the neighbors, the regional countries and the world at large.

Regional Cooperation is the way forward. Trans-boundary water resource development and management offers an opportunity in this regard. The impact of efficient, effective, accountable, transparent and participatory trans-boundary water governance on regional stability cannot be over-emphasized. This sector has the potential to connect regional countries to each other through Afghanistan, offering the developing nation a significant source of revenue.

Duran Research and Analysis welcomes Afghan government's renewed political will through this informative working paper. As one of the first horizontal overviews of the issue of trans-boundary water resource development and management in Afghanistan, this awareness building work identifies a set of broad challenges and offers role specific recommendations to public, private, civil society and international stakeholders. With the aim of contributing to filling the knowledge gap, the paper paves the ground for future national discourse by civil society organizations and policy makers in Afghanistan and its neighboring countries. It is hoped that this paper sets the stage for future in-depth research on trans-boundary waters in Afghanistan.

Duran Research and Analysis also welcomes the increasing interest of the international community, and revered institutions like the Heinrich Böll Stiftung. This support is going to play a critical role in regionally sensitive and inclusive ripening of the issue of trans-boundary water resource development and management, in full alignment with international laws and ratified Conventions, and the region's and Afghanistan's strategic interests.

Duran Research and Analysis is grateful to the Heinrich Böll Stiftung for their continued support and feedback.

Duran Research and Analysis and the Heinrich Böll Stiftung remain grateful to Afghan Government officials, Afghan and international water technical experts, academicians, policy analysts and commentators for their time and input. This work would have not been possible without their contribution. This paper therefore, is a celebration of the commitment of the Afghan and international stakeholders of this sector.

Abaceen Nasimi
Executive Director
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Glossary of Local Terms

Jirga	Grand Assembly
Mirab	Head of the traditional water management system
Shura	Council

Acronyms

ADB	Asian Development Bank
AITF	Afghanistan Infrastructure Trust Fund
ANDS	Afghanistan National Development Strategy
ANRMN	Afghanistan Natural Resource Monitoring Network
ARD	Agriculture and Rural Development
ARTF	Afghanistan Reconstruction Trust Fund
ATTA	Afghanistan Transit Trade Agreement
AWARD	Afghanistan Water Resource Development
BCM/y	Billion Cubic Meter/ Year
CDC	Community Development Councils
CIDA	Canadian International Development Agency
DFID	Department for International Development
EU	European Union
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit, GmbH (German Society for International Cooperation Ltd.)
GWP	Global Water Partnership
hbs	Heinrich Böll Stiftung/Foundation
HSF	Hanns Seidel Foundation
IA	Irrigation Associations
ICIMOD	International Center for Integrated Mountain Development
IPRI	Islamabad Policy Research Institute
IWRM	Integrated Water Resource Management
JI	Jinnah Institute
JICA	Japan International Cooperation Agency
KFW	Kreditanstalt Für Wiederaufbau (German Development Bank)
MAIL	Ministry of Agriculture, Irrigation and Livestock
MDG	Millennium Development Goals
MoEW	Ministry of Energy and Water
MoFA	Ministry of Foreign Affairs
MoHE	Ministry of Higher Education

Mol	Ministry of Interior
MoJ	Ministry of Justice
MoM	Ministry of Mines
MoPH	Ministry of Public Health
MoTBA	Ministry of Tribal and Border Affairs
MoU	Memorandum of Understanding
MoUD	Ministry of Urban Development
MRRD	Ministry of Rural Rehabilitation and Development
NAS	National Academy of Sciences
NEPA	National Environment Protection Agency
NHCA	National Hydrology Committee of Afghanistan
NHDR	National Human Development Report
NPP	National Priority Programs
NSP	National Solidarity Program
PARBP	Panj Amu River Basin Program
PTRO	Peace Training and Research Organization
PWP	Pakistan Water Partnership
SCoW	Supreme Council of Water
SDPI	Sustainable Development Policy Institute
TAPI	Turkmenistan Afghanistan Pakistan India
UN	United Nations
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Program
UNESCO	United Nations Economic, Social and Cultural Organization
USAID	United States Agency for International Development
USIP	United States Institute of Peace
WAPDA	Water and Power Development Authority
WAU	Water User Associations
WB	World Bank

Executive Summary

According to the United Nations Food and Agriculture Organization, Afghanistan has substantial water resources, but the country's water infrastructure is inadequate to support rapid and substantial economic growth. While the water potential of Afghanistan is estimated to be 75 billion m³/ year on average, Afghanistan ranks lowest in water storage capacity.

Except for some of the tributaries of the Kabul River that flow from Pakistan's Chitral into Kunar River, Afghanistan is an upstream riparian country, comprising five major river basins and 36 sub river basins. Of these, three river basins (Kabul Indus, Helmand and Harirod-Murghab) flow to the neighboring countries of Pakistan (Indus River Basin), Iran and Turkmenistan and one river basin (Panj-Amu) marks the border with three Central Asian Republics (Tajikistan, Uzbekistan and Turkmenistan) in the north. Therefore, a large proportion of Afghanistan's waters either flow to or are shared with the neighboring countries.

Other than the water-sharing treaty on the Helmand River Basin with neighboring Iran, Afghanistan has no other water sharing agreement with any of its trans-boundary neighbors. Afghanistan is neither a party to international Conventions (1997 or 1992) on trans-boundary waters, nor it is part of the water-sharing agreements that the Central Asian republics entered into during Soviet times. Lack of technical capacity, the inability to effectively utilize water resources, weak water resource infrastructure development, lack of accurate and updated data, and lack of a clear policy characterize Afghanistan's current water resource development and management processes.

Water resource allocation is a long-ignored issue in Afghanistan that could well rival insurgency and drugs as a major problem in the country. As climate change and demographic shifts exacerbate shortages of natural resources, what has been a cause of long-simmering tensions has the potential to explode into violence in this increasingly volatile region. There has been a lack of investment in improving water development and management systems and mechanisms of efficient use of water. Lack of reliable hydrological, meteorological, geo-technical and water quality data is another challenge, contributing to insufficient hydropower generation infrastructure. Years of conflict and drought have disrupted government's capacity to focus on the issue, leading to the adoption of a donor-driven and project-by project approach for most of the past decade.

Afghanistan's failure in adequate water resource development and low efficiency management accounts for 20-30% of Gross Domestic Product (GDP) fluctuations; Afghanistan's per capita water resource can be sufficient if developed and managed properly.

Government of Afghanistan has taken important steps in improving water management, though not much on water resource infrastructure development. However, there is need to do more. The current context is marked by over-exploitation of ground water resources leading to increasing depletion of levels of water. Increasing rates of consumption caused by the increasing population growth rate and refugee population repatriation has led to severe competition for the already scarce water resources. Inadequate institutional, legislative and policy frameworks render the task of responding to the growing demands for water more difficult. The connection between water resource development and management on one hand and climate change on the other remain unexplored and thus climate change responsive and sustainable water resource development and management remain inadequately attended.

Sustainable social and economic development necessitates attending the development and management of Afghanistan's water resources infrastructure, for both agricultural and non-agricultural purposes, with increased efficiency.

The 2002 International Conference on Water led to the Kabul Understanding, followed by the establishment of the Supreme Council on Water, development of the Strategic Policy Framework for the Water Sector, the Afghanistan National Development Strategy, the Water Law of 2009, the National Priority Plans and the Draft Trans-boundary Water Policy, currently under review at the Ministry of Foreign Affairs.

A range of government institutions including the Ministry of Energy and Water, Ministry of Foreign Affairs and the Supreme Council on Water are mandated to address trans-boundary water issues. In the civil society sector, Afghanistan Natural Resource Monitoring Network and the Peace Training and Research Organization have engaged with the issue. There have been scattered one-time initiatives raising the issue and temporarily gaining media attention, without lasting impact on creating a national discourse on the issue.

Though attention to the trans-boundary water issue has remained fragmented over the years, primarily for reasons of the perceived political sensitivity associated with the issue, most major international contributors have had a trans-boundary water focused agenda, though with comparatively lesser degrees of coordination between different organizations. Nonetheless, several infrastructure development projects are ongoing or in the pipeline, which hopefully will offer great starting points for the new government under the leadership of President Ghani, who has made explicit statements on his government's commitment to the issue since his inauguration in September 2014.

Afghanistan is not a party to either of the Conventions that govern trans-boundary water resource development and management, has no bilateral or trilateral treaties with any of its riparian neighbors other than Iran, and is not part of most regional initiatives. The issue is perceived to be politically sensitive, and of strategic importance to Afghanistan and its neighbors, all of who carefully guard information, leading to a general spirit of competition rather than cooperation, both at the state level and within communities. Afghanistan's dependence on its neighbors, in particular Iran and Pakistan has depicted a weaker than real image of the country, discouraging any initiatives on trans-boundary cooperation. Lack of knowledge on international law and Conventions that govern the sector also contribute to lack of willingness to engage with the issue with the urgency that it deserves, both from national strategic interests and regional stability perspectives.

As Afghanistan prepares to move forward, the issue of trans-boundary water resource development and management is going to persistently create challenges that require immediate and sustained attention. The impact of climate change requires focus on the relevance of this issue with trans-boundary water resource development and management. The increasing population of the entire region and the increasing demand for water, require improved water resource management systems, conservation of underground water sources, and a regional approach to trans-boundary waters. Hydro-diplomacy gains increased significance given the political dimensions of this issue and the need to begin bilateral or regional dialogues. Insecurity in Afghanistan and in the region will continue to impede progress and thus remains at the heart of addressing this issue.

At the national level, the need for having an all-encompassing economic vision is more pressing than ever. The current water governance mechanisms are inadequate, do not offer clear directions and add to lack of clarity on institutional roles and responsibilities, in addition to

leading to harmful multiplicity of institutions with a mandate on water and lack of public sector and international organizations' coordination. While some capacity has been built in the past decade, Afghan knowledge of international Conventions and laws remain inadequate, leading to non-compliance of Afghanistan to these governance mechanisms, a situation that Afghanistan cannot afford to continue to remain in. And last but not the least, civil society, private sector, academia, media and research organizations' capacity and talent in the area remains untapped into and unexplored, and their voices unheard and undocumented.

Technically speaking, years of conflict have prevented proper data collection, leading to a 30 years data gap. Though since 2006, 125 hydrological (out of a target of 174 as per the ANDS) and 56 meteorological water stations have been installed to collect data, the Afghan government, like the governments of the neighboring riparian countries, is guarding this information as data vital to national security, preventing the access of the non-governmental sector to this information, and thus inhibiting the space that can facilitate increased knowledge and research. Infrastructural developments remain slow and inadequate and large portions of population suffer due to lack of access to water, despite Afghanistan's perceived rich status as an upstream riparian country.

The project driven approach of the past decade has had frustratingly negative impact on groundwater levels. Many rural and urban community development projects of most international organizations and the government of Afghanistan has adopted and acted upon short sighted approaches to the cause of improving people's access to water, by digging thousands of wells. These interventions, though useful in the short run, thus welcomed by the population, have led to a significantly dangerous increase in the extraction of groundwater levels, without adequate mechanisms for water conservation, both in rural and urban areas, also indicating towards weak and inefficient urban water resource development and management systems that lack adaptability with increased urban population and demand for water.

The years ahead are going to demand Afghanistan's focus on developing a national vision on economic growth that prioritizes the water sector, clarifies institutional roles and mandates, improves inter-ministerial coordination, devises strategies for coordination of international interventions in the area, establishes and strengthens Afghan knowledge base of the issue and existing international governance mechanisms, adopts a holistic approach to trans-boundary water resource development and management that combines strategies of climate change prevention, population control, poverty reduction and women's access to water, improves national policy and legal frameworks, adopts an inclusive approach by involving civil society, media, academia, private sector and research organizations in a national and regional discourse, promotes long term program approach as opposed to the current project driven style of work, and recognizing the benefit of regional cooperation, focuses on hydro-diplomacy and immediate compliance with international conventions on trans-boundary water resource development and management.

On the technical front, while addressing the 30 years data gap will take time, Afghanistan can begin to strengthen the knowledge base by promoting indigenous research on the subject extensively, and investing in preparing a cadre of water analysts and experts by facilitating their access to international institutions of prestigious standing on trans-boundary water resource development and management, and establishing educational connections between Afghan and international research organizations and institutions of higher education. The development of necessary infrastructure, a prime necessity, remains dependent on improved Afghan capacity to design, develop and implement long term programs.

Sustaining the gains of the past decade and building upon them with successful, practical and useful interventions will continue to require international technical and financial support. While Afghanistan remains indebted for the ongoing international efforts, there is need for improved coordination of these under Afghan ownership and leadership. International organizations' continued support to the Afghan government, civil society, academia, research organizations, media and the private sector will remain critical, as Afghanistan begins to move towards cooperation on trans-boundary water resource development and management.

Introductory Remarks

Afghanistan is located at the heart of the region's largest renewable source of fresh water: the Hindu Kush Himalayan region. Afghanistan is a partner to 4 out of the 276 trans-boundary rivers that make up 60% of the world's river flow.¹ It is one of the 148 nations that fall within trans-boundary river basins.² Afghans are part of the world's 90% population that live in a trans-boundary water country.³ Besides, trans-boundary water resource development and management, with potential to affect regional stability and conflict prevention, is a highly politicized concept throughout the world.⁴ Afghanistan therefore, though unique in its own way, is not alone in terms of trans-boundary water challenges. It is part of a global condition and therefore has the potential, and thus must have the capacity as well, to be part of a global effort that aims at improving water resource development and management.

Access to water is a fundamental factor affecting levels of poverty in all economies, in particular those where a majority of the population depends on agriculture. Land and water, the two elements that together form a watershed, affect each other and play a key role in climate change. Trans-boundary water management and development therefore, is linked to the larger climate context and its challenges must be seen in connection to the challenge of climate change.

This paper is a horizontal overview of the current status of trans-boundary water resource development and management in Afghanistan, and is hoped to serve as a starting point for continued engagement with this issue in an inclusive, regionally sensitive, transparent, accountable, effective and efficient way. It depicts a broad picture of the existing institutional, legal and policy frameworks, existing project portfolio of the sector, national and international stakeholders and their perspective on the issue, identifies a set of broad challenges and offers recommendations for post research engagement by the government, civil society, private sector and the international community.

The paper targets the Afghan government, civil society, private sector and international organizations with an agenda on trans-boundary water resource development and management in Afghanistan. It is decently referenced, for those with an interest in further in-depth vertical exploration of issues, since the paper offers a broad horizontal overview of the sector only.

Comprising of 3 main chapters, chapter 1 explores the Afghan context. It offers an introduction to the technical features of Afghanistan's River Basins, followed by an overview of the policy and legal frameworks, institutional structure, existing treaties, current project portfolio of the sector, including an outline of the engagement of the civil society, academia and political stakeholders with the issue.

Chapter 2 explores the regional context, focusing on Afghanistan riparian neighbors namely Iran, Pakistan and the Central Asian Republics, explores the existing regional knowledge base and introduces the two major conventions on Transboundary waters, followed by a comparative analysis of both.

Chapter 3 identifies key issues facing the sector, underlines challenges and puts forward a set of recommendations for future engagement of the Afghan government, civil society, academia, research organizations and international stakeholders with the sector.

Methodology

With the objective of contributing to internal followed by bilateral and regional discourse on trans-boundary waters, the paper's data collection methodology included a desk review of existing research on trans-boundary waters in Afghanistan and a primary qualitative research in the form of semi-structured interviews with a number of Key Informants in the Afghan Government, Afghanistan academic institutions, Afghan research, civil society and international organizations, identified on the basis of their experience and affiliation with trans-boundary water resource development and management. For reasons of political sensitivity of the issue, the list of Key Informants, as per their request, remains confidential.

This paper is not an academic research. It has a practical and positive frame of analysis, informed by the Approach of Appreciative Inquiry, which helps the process of inquiring into and identifying the best of what has happened on trans-boundary waters in Afghanistan so far, in order to help orient the future development of this *best*, through collective deliberations and action, bringing together the public sector with the civil society, research, private and media organizations in a public-private partnership. The basic idea behind the Approach of Appreciative Inquiry is that social collectives of human beings –organizations- develop in the direction of “what they study.”⁵ We hope that a positive take at some of the best work carried out in this sector so far can trigger more good work in the years to come.

Statement on Access and Content Limitation

The issue of trans-boundary waters is a politically charged and thus controversial topic in the region, with Afghanistan being no exception to it. This characteristic has led to certain limitations in access and thus content that we enlist below.

During the course of developing this paper, access to some government officials in Afghanistan and research organizations in neighboring countries, despite repeated attempts, remained restricted. All key informants interviewed expressed strict desire to remain anonymous for reasons of security and fear of threats to their life and work. In such conditions, it is highly probable that available information might have been withheld. Unavailability or inaccessibility of updated accurate data continued to impede the ability to offer inclusive analysis. Publicly available data sets were both outdated and did not confirm each other in some parts. Given that Afghan civil society, media and research organizations remain absent from trans-boundary waters discourse in Afghanistan with very few exceptions, lack of Afghan analysis of the issue has been a major pattern.

In the light of the above, this paper is an informative horizontal overview that aims at a broad status update, taking stock of what exists in terms institutional, legal and policy initiatives, major players involved with the issue and major projects with focus on trans-boundary waters in Afghanistan. With the aim to contribute to national conversations, initially internal, followed by bilateral and regional, the paper is positive in approach and relies on what is stated or written in official government documents. As given, the issue is controversial, but the act of not taking stock of the most controversial aspects is intentional, given the difficulty of providing solid evidence for each. Thus, the paper is not a critical overview of Afghan Government's shortcomings, but offers information on Government's prior commitment for later accountability by Afghan civil society, research organizations and media.

This paper is not an academic research. It has relied on desk reviews of available documents and key informant interviews in Afghanistan, the latter being subject to strict confidentiality terms, as stated. Given the objective of this paper –contributing to internal followed by bilateral and regional discourse on trans-boundary waters- the paper has a practical and positive frame of analysis, informed by the Approach of Appreciative Inquiry. The paper has tried to inquire into and identify the best of what has happened in the field so far, in order to help facilitate the future development of this best, through collective deliberation and action involving the missing players: civil society, research, private and media organizations. As a result, instead of focusing on problems, the paper has the approach that promotes discovering what has worked well. The fundamental premise of the Approach of Appreciative Inquiry is that organizations (societies, governments) can grow in the direction of “what they study.”⁶ This approach has the potential to help relevant organizations to remain perseverant and envision what it would be like if that best would happen more frequently and persistently, as opposed to the typical analysis of problem causes and subsequent solutions.

Our sense of purpose is oriented by the aspiration of contributing to improving standards of living for people through sustainable, inclusive and regionally sensitive water resource development and management in Afghanistan, a discourse that we aim at being part of and one that we believe can benefit from the positive approach of Appreciative Inquiry.

1. Afghan Context: Water Sector and Water Resource Development and Management

According to the United Nations Food and Agriculture Organization (2014), Afghanistan's water dependency ratio (the proportion of external water resources) is 28.7%⁷, meaning that Afghanistan has "substantial water resources,"⁸ 80% of which receive their runoff from snow melt⁹ at elevations above 2,000 meters¹⁰, but the country's water infrastructure is "inadequate to support rapid and substantial economic growth."¹¹ With average annual precipitation of about 165,000 million cubic meters, resulting in an annual surface water of 57,000 million cubic meters, the per capita water availability is reported to be at 2,280¹² – 2,775¹³ cubic meters/year, which, had it not been for the country's weak water storage capacity, would have qualified as adequate supply of water; while the water potential of Afghanistan is estimated to be 75 billion m³/year on average, Afghanistan ranks lowest in water storage capacity.¹⁴

Table-1.1 Estimated Water Balance in Afghanistan¹⁵

Water Resources	Water Resources Potential (BCM/y)	Present Use in Afghanistan (BCM/y)	Unused Water Resources (BCM/y)
Surface Water	57	17	40
Ground Water	18	3	15
Total	75	20	55

Table 1.2 Comparison of Water Storage Capacity in m³/capita¹⁶

Country/Region	Water storage capacity in m ³ /capita
USA	6,000
China	2,200
World	963
Iran	379
Asia	353
Pakistan	150
Afghanistan	140

One of the most immediate challenges put forward by this situation is "lack of access to clean drinking water"¹⁷. In addition to the damage caused to the sectors of health¹⁸ and economic welfare¹⁹, the agricultural sector, with an explicit link to water, which accounts for 95% of water consumption, faces serious irrigational shortcomings. From 3.3 million hectares in the 1970s, Afghanistan has come down to 1.8 million hectares of cultivated land in 2008, of which only 10% is irrigated using modern systems of irrigation, with the rest relying on traditional methods such as deep water wells that are degrading aquifers²⁰, in particular given the insufficient investment in improving watersheds recharge capacity.²¹ Of the total 29,000 irrigation schemes,

only 9,000 (31%) are functional, 13,000 (44%) are non-functional and 7,000 (25%) require repair.²²

There has been a lack of investment in improving water development and management systems and mechanisms of efficient use of water. "Lack of reliable hydrological, meteorological, geo-technical and water quality data"²³ is another challenge, contributing to insufficient hydropower generation infrastructure.

The 1960s and 1970s witnessed many interventions aimed at identifying potential water projects, including large-scale water projects. However, the following years of conflict disrupted the series, leading to the adoption of a donor-driven and project-by project approach for most of the decade of development 2002-2014.²⁴

Afghanistan's per capita water resource can be sufficient if developed and managed properly. Lack of adequate water infrastructure to regulate water use damages Afghanistan's capacity for economic growth and human development. Using only 25%-30% of its renewable water resources²⁵, Afghanistan's failure in adequate water resource development and low efficiency management accounts for 20-30% of Gross Domestic Product (GDP) fluctuations.²⁶

Government of Afghanistan has taken important steps in improving water management, though not much on water resource infrastructure development. Acknowledging access to water as a fundamental right²⁷ of the people, the Afghanistan National Development Strategy (ANDS) identified water infrastructure as one of the key priorities of the Government of Afghanistan in 2008²⁸. Target 10 (Ensuring Environmental Sustainability) of the Millennium Development Goals (MDG) is to halve the number of people without access to water by 2020.²⁹ The establishment of the Supreme Council of Water (SCoW) and its Technical Secretariat, adoption of the Integrated Water Resource Management (IWRM) System and conducting feasibility studies for small, medium and large water infrastructure projects have been amongst some of the major government interventions.

As a result of continued conflict and years of drought (1996-2002, 2005-2006, 2008)³⁰, the current context is marked by over-exploitation of ground water resources leading to increasing depletion of levels of water. Increasing rates of consumption caused by the increasing population growth rate and refugee population repatriation has led to severe competition for the already scarce water resources. Inadequate institutional, legislative and policy frameworks render the task of responding to the growing demands for water more difficult. The connection between water resource development and management on one hand and climate change on the other remain unexplored and thus climate change responsive and sustainable water resource development and management remain inadequately attended.

Sustainable social and economic development necessitates attending the development and management of Afghanistan's water resources infrastructure, for both agricultural and non-agricultural purposes, with increased efficiency. Improved water management and priority development of water resource infrastructure are critical components of efficient public service delivery.³¹ The need for practical adoption of the IWRM system targeting the country's five major river basins is more pressing than ever.

1.1 Natural Features of Afghanistan's River Basins

Afghanistan has 5 major river basins - and 36 sub-river basins - of which three river basins (Kabul Indus, Helmand and Harirod-Murghab) flow to the neighboring countries of Pakistan (Indus River Basin), Iran and Turkmenistan and one river basin (Panj-Amu) marks the border

with three Central Asian Republics (Tajikistan, Uzbekistan and Turkmenistan) in the north. Therefore, a large proportion of Afghanistan's waters either flow to or are shared with the neighboring countries.

Figure 1: Afghanistan Basin Map³²



The figures given in the tables below, though drawn from different sources, give an estimated understanding of natural features of Afghanistan's River Basins.

1.1.1 Panj-Amu River Basin³³

Also called Oxus by the Greeks and Jayhoon by the Arabs, the river basin has a catchment area of 90,692 km² within Afghanistan, occupies 14% of the total river basin area, covers 14% of the Afghan population and irrigates 23% of the total agricultural lands. Its annual discharge is estimated at about 20.76 billion cubic meters.

Figure 2: Panj-Amu River Basin



Panj-Amu, the name used for the Amu Darya River Basin in Afghanistan, has an estimated total area of about 227,800 km². The Panj-Amu River Basin originates from Pamir Mountains and has two main branches. The northern branch of the Pamir River originates in Zor Kul Lake, shared between Afghanistan and Tajikistan. The southern branch of the Wakhan River originates from Chakmatin Lake. These two rivers join each other west of Qala Panja, making one river named Panj until Ai Khanum, which becomes the Amu River when joined by the Kokcha River. Flowing northeast, after leaving Khum Ab, the river finally drains into the Aral Sea.

Though there are varied estimations, the annual average flow is 5.1 BCM in Uzbekistan, 49.6 BCM in Tajikistan and 1.5 BCM in Turkmenistan. The Kafernehan, Qizel and Wakhsh Rivers make sizable contribution to the Amu Darya though Panj, Kunduz and Kokcha of Afghanistan make the most of contribution.³⁴

Table 1.3 Panj-Amu River Basin

Panj-Amu	2004 Watershed Atlas of Afghanistan Data ³⁵		2008 Water Sector Strategy Data ³⁶		2011 NHDR/ UNDP Data ³⁷	
Provinces Badakhshan, Takhar, Kunduz, Baghlan, Bamian	Catchment area	90,692km ²	Catchment area	91,500km ²		
	% Of surface water	57	% Of surface water	39		
	% of whole river basin area	14				
					Water availability in m ³ / capita	7,412
					% of water use	24
	Annual water flow volume/ Discharge			22 billionm ³		
	Population covered	3 million	Population covered	3 million		
	Population density	32.73%/ km ²	Population density	32.73%/ km ²		
	Trans-boundary feature	Marks 1,200 - 1,800km border with Tajikistan, Uzbekistan & Turkmenistan ³⁸				
	Regulatory feature	1958 Protocol with the former USSR on the joint execution of works for the integrated utilization of water resources in the frontier sections of the Amu Darya. ³⁹ 2007 Protocol with Tajikistan on integrated and sustainable water management and implementation of joint water resources development projects on the Amu Darya with equal shares and bilateral benefits.				

The Panj-Amu River Basin is divided into five tributary basins within Afghanistan as shown in Table-1.1.1.2

Table 1.4 Tributaries of Panj-Amu River Basin⁴⁰

No	Name of Tributaries	Catchment Area (km ²)	%	Settled Population (per./ km ²)	Population Density (Per./km ²)
1	Ab-i-Rustaq	3,670	4%	358,749	97.75
2	Khanabad	11,994	13%	668,938	55.77
3	Kokcha	22,368	25%	715,236	31.98
4	Kunduz	28,024	31%	1,090,639	38.92
5	Panjaab	24,637	27%	134,560	5.46
Amu river basin Total		90,692	100%	2,968,122	32.73

1.1.2 Kabul-Indus River Basin⁴¹

The Kabul-Indus River Basin has a total length of about 500km of which 360km are in Afghanistan, with the remainder flowing in Pakistan. Making 12% of the whole Afghanistan river basin area, it covers 76,908 km² of area, 35% of the total population, and 20% of agricultural lands within Afghanistan.

The Kabul River Basin drains water from the Kotal-i Shibar pass to the Konar Valley in the north, the southwestern side of the Baba Mountains through the Unai Valley, passing to the northern slopes of Safed Koh. The Kabul River, passing through the center of Kabul city, is joined by the Logar River at Bagrami, Panjshir River at Naghlu, Alinegar River at the south of Qarghayee, and Kunar River at the Kama place. The tributary of Shamal River from the Sulaiman Mountains in Pakitika and Khost Provinces, as well as the Gomal River that drains water from numerous streams from the Sulaiman Mountains of the Gomal district in Paktika Province, and the small Pishin Lora River in the southeastern corner of Afghanistan are also parts of this basin.

Eventually, the River enters Pakistan, drains the Indus River, which flows into the Arabian Sea of the Indian Ocean, making a sizable tributary of the Indus River (6.33% of the total basin area of the Indus River 1,138,800km²) as compared to other riparian countries of Pakistan, Nepal, China and India.

Figure 3: Kabul River Basin

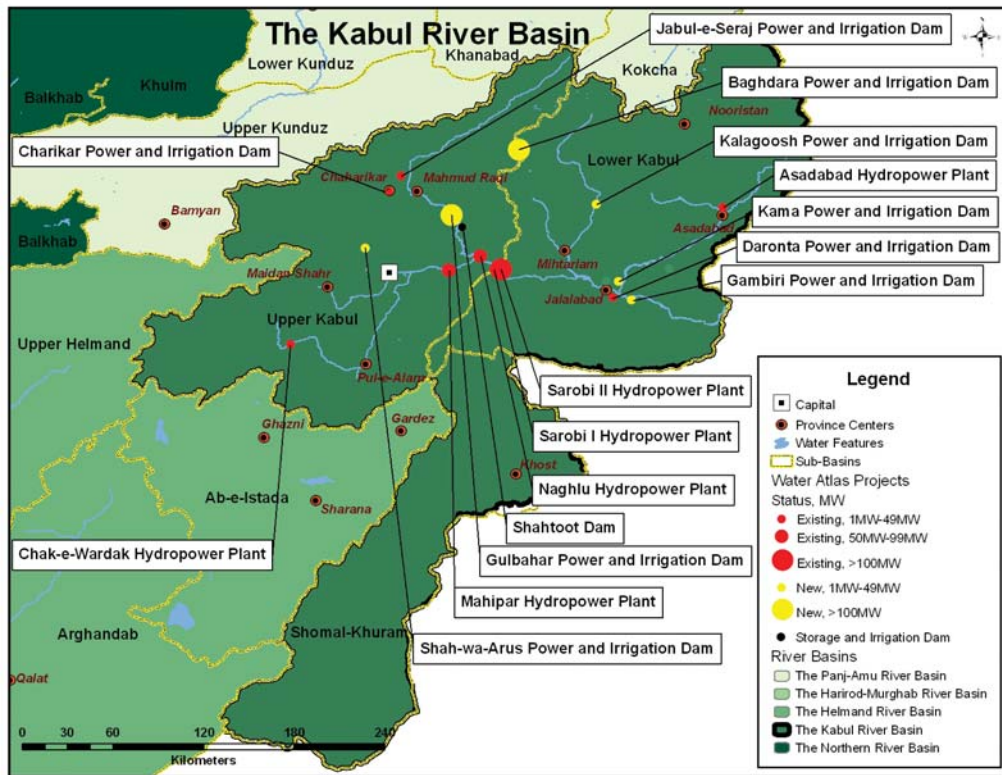


Table 1.5 Kabul-Indus River Basin

Kabul-Indus	2004 Watershed Atlas of Afghanistan Data ⁴²		2008 Water Sector Strategy Data ⁴³		2011 NHDR/ UNDP Data ⁴⁴	
Provinces	Catchment area	76,908km ²	Catchment area	77,700km ²		
Kabul	% Of surface water	26	% Of surface water	36		
Panjsher						
Kapisa	% of whole river basin area	12				
Parwan						
Laghman					Water availability in m ³ / capita	2,889
Wardak					% of water use	25
Logar						
Nangarhar	Annual water flow volume/ Discharge			20.76 billionm ³		
	Population	7 million	Population	9 million		

Nuristan	covered		covered			
Kunar	Population density	93.42%/km ²	Population density	93.42%/km ²		
Khost	Trans-boundary feature		Flows to Pakistan			
Paktia	Regulatory feature		None			
Paktika	Infrastructure		Name	Location	Status	
			Darunta	Kabul River	Complete	
			Naghlu	Kabul River	Complete	
			Mahipar	Kabul River	Complete	
			Sarobi	Kabul River	Complete	
			Shah o Aros	Shakardara	Ongoing	
			Shahtoot	Maidan River	Up coming	
			Gulbahar	Panjsher River	Up coming	
			Baghdara	Panjshir River	Up coming	
			Shal	Kunar-Chitral River	Up coming	
			Kunar	Kunar-Chitral River	Up coming	
			Sarobi II	Kabul River	Up coming	

The Kabul River entering Pakistan finally drains up at the Indus River, which flows into the Arabian Sea of the Indian Ocean. The total basin area of the Indus River is 1,138,800km², of which the Kabul River Basin makes a sizable tributary of about 6.33%. The Kabul River basin is divided into 8 tributaries' basins within Afghanistan as shown in Table 1.1.2.2.

Table 1.6 Tributaries of Kabul-Indus River Basin⁴⁵

No	Name of Tributaries	Basin Area (km ²)	%	Settled Population (per.)	Population Density (per./km ²)
1	Alingar	6,239	8%	287,089	46.02
2	Logar	9,968	13%	607,283	60.92
3	Ghorband and Panjshir	12,964	17%	1,440,757	111.14
4	Gomal	9,014	12%	16,316	1.81
5	Kabul	12,997	17%	3,591,820	276.36
6	Kunar	11,664	15%	600,237	51.46
7	Pishin Lora	4,206	5%	11,320	2.69
8	Shamal	9,856	13%	630,152	63.94
Kabul river basin Total		76,908	100%	7,184,974	93.42

1.1.3 Helmand River Basin⁴⁶

The largest and longest river basin of Afghanistan, the Helmand River basin, located in the southern parts of the country, has a catchment area of 262,341 km². Making 41% of the total Afghan river basin area, it covers 31% of agricultural lands and 28% of the population. With an estimated annual flow of 9.30 billion cubic meters, this river basin has significant irrigational and hydropower generation capacity. Contributing 10% of the Afghanistan's total water resources⁴⁷. Of this contribution, 97% is used for Afghan and 80% for Iranian agricultural uses.⁴⁸

Originating from the southern slopes of the Baba Mountains, the Helmand river has a normal east-to-west flow, leaving the western border of Maidan Wardak, entering into the south of Bamyan and Uruzgan Provinces. The river has a steep slope from Unai Valley to the Kajaki district in Helmand Province. Once past the Kajaki Dam, the river expands in width, offering suitable terrain for reservoirs of hydropower generation. Changing direction afterwards, the Helmand River turns northward in Kamal Khan Place, reaching the Afghan-Iranian border. The river divides into two while flowing along the border. The Sistan Rod turns left and enters Iran. The Nad-Ali branch turns right, forming the western boundary with Iran.

Figure 4: Helmand River Basin

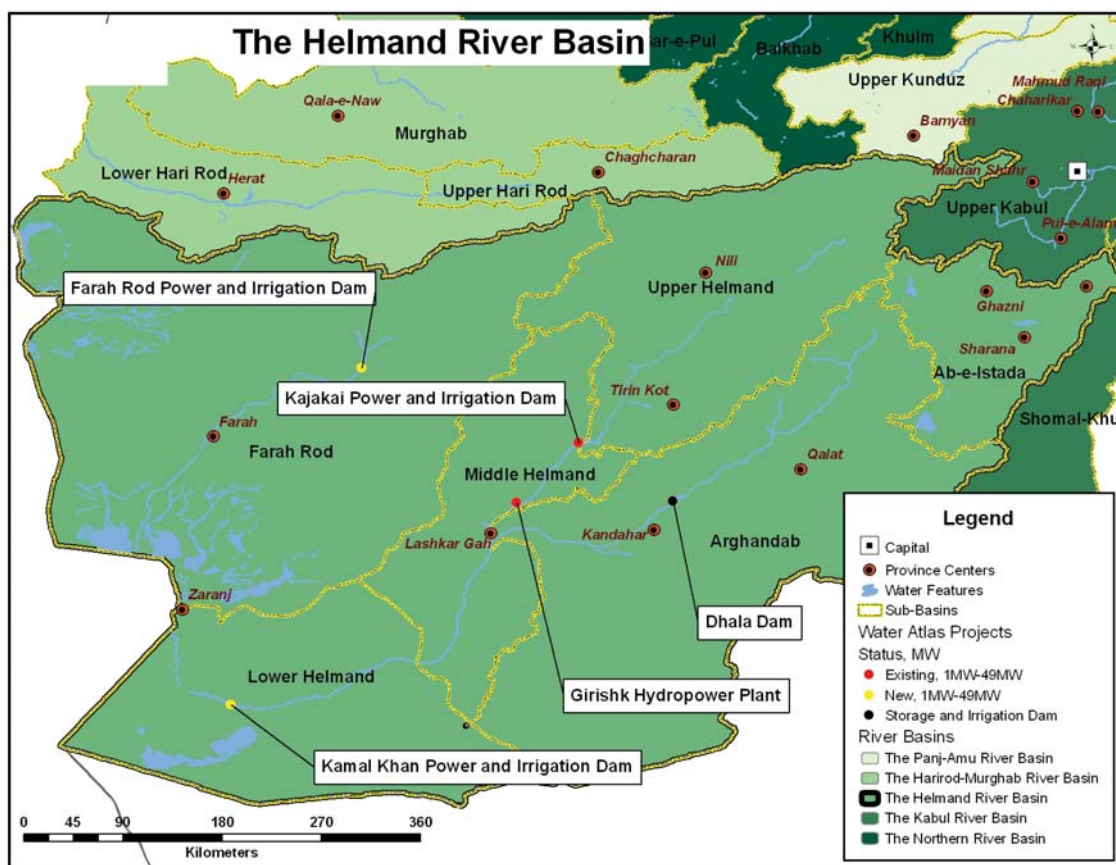


Table 1.7 Helmand River Basin

Helmand	2004 Watershed Atlas of Afghanistan Data ⁴⁹		2008 Water Sector Strategy Data ⁵⁰		2011 NHDR/ UNDP Data ⁵¹	
Provinces	Catchment area	262,341km ²	Catchment area	264,900km ²		
Nimroz	% Of surface water	11	% Of surface water	16		
Farah						
Helmand	% of whole river basin area	41				
Kandahar						
Zabul					Water availability in m ³ /capita	1,581
Uruzgan						
Daikundi					% of water use	58
Ghazni						
Herat	Annual water flow volume/ Discharge			9.30 billionm ³		
Ghor	Population covered	6 million	Population covered	7 million		
Bamian	Population density	93.42%/ km ²	Population density	93.42%/ km ²		
Maidan-Wardak	Trans-boundary feature		Flows to Iran			
	Regulatory feature		1973 Treaty: 22 + 4 m ³ / sec to Iran			
Paktika	Infrastructure		Name	Location	Status	
			Dahla	Arghandab River	Complete	
			Kajaki	Helmand River	Complete	
			Kamal Khan	Helmand River	Ongoing	
			Bakhshabad	Farah River	Ongoing	

The Helmand River Basin is divided into 15 tributary basins inside Afghanistan as given in Table 1.1.3.2

Table 1.8 Tributaries of Helmand River Basin⁵²

No	Name of Tributaries	Catchment Area (km ²)	%	Settled Population (per.)	Population Density (Per./km ²)
1	Adraskan Rod	21,266	8%	186,446	8.77
2	Arghistan Rod	20,219	8%	208,932	10.33
3	Chagay	9,319	4%	642	0.07
4	Dasht-i Nawur	1,618	1%	10,987	6.79
5	Farah Rod	32,809	13%	381,281	11.62
6	Khash Rod	21,840	8%	92,379	4.23
7	Khuspa Rod	9,428	4%	38,987	4.14
8	Lower Arghandab	7,300	3%	732,056	100.28
9	Lower Hilmand	14,147	5%	317,275	22.43
10	Middle Hilmand	16,441	6%	326,897	19.88
11	Sardih wa Ghazni Rod	17,252	7%	1,868,342	108.30
12	Sistan-Hilmand	21,575	8%	91,968	4.26
13	Tarnak Rod	9,076	3%	261,602	28.82
14	Upper Arghandab	13,170	5%	316,790	24.05
15	Hilmand Upper	46,882	18%	1,046,990	22.33
Helmand River Basin Total		262,341	100%	5,881,574	22.42

1.1.4 Harirod-Murghab River Basin⁵³

With an annual flow of about 3.06 billion cubic meters, the Harirod-Murghab River Basin has a catchment area of 77,604 km², covers 12% of total Afghan river basins area, 8% of the country's population and 11% of the total agricultural land in Afghanistan.

The two main rivers of the basin are Harirod and Murghab. Harirod River originates in the Baba Mountains, flows eastwards, taking sharp northward turn, forming the border with Iran from Islam Qala to Dahana Zolfiqar, and later the border between Iran and Turkmenistan up to Surkhas before ending at the Qaraqum Desert in Turkmenistan. Murghab River, sharing the same ending with the Harirod River, however, originates in the western slopes of Tir Band-i-Turkistan Mountains and northern slopes of Safid Koh and flows northward generally. Both Rivers drain the Mary and Tejen irrigation canals of the Oases region of the Qaraqum Desert in Turkmenistan.

Figure 5: Harirod-Murghab River Basin

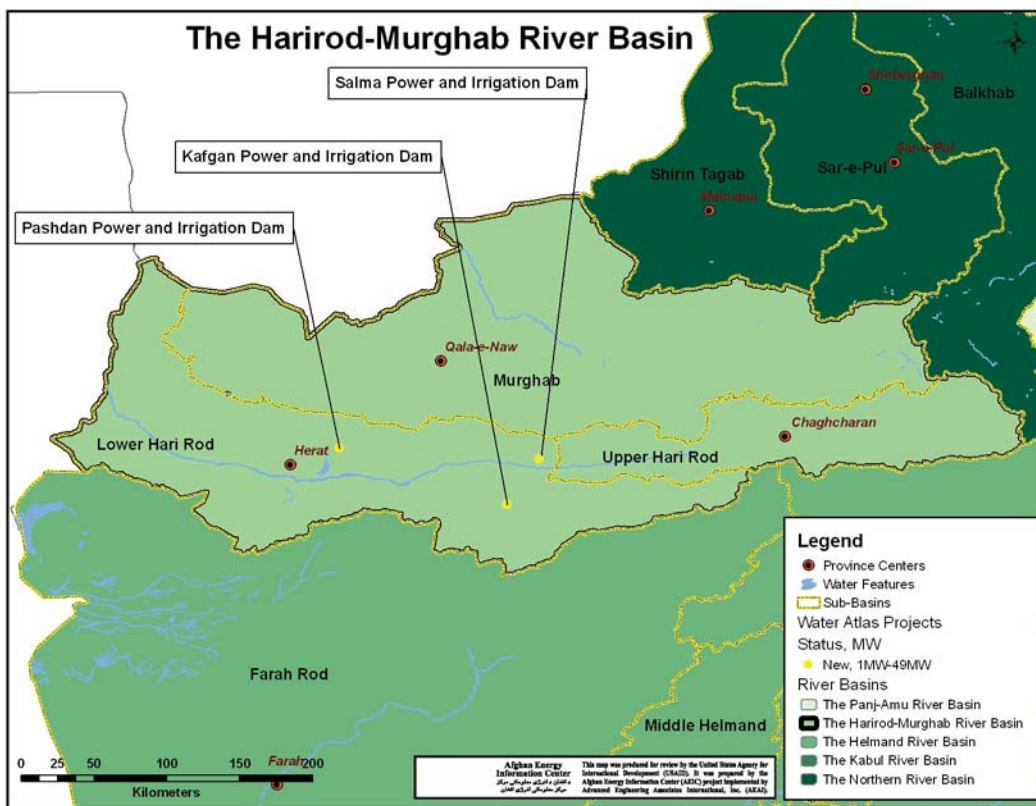


Table 1.9 Harirod-Murghab River Basin

Harirod-Murghab	2004 Watershed Atlas of Afghanistan Data ⁵⁴		2008 Water Sector Strategy Data ⁵⁵		2011 NHDR/ UNDP Data ⁵⁶	
Provinces	Catchment area	77,604km ²	Catchment area	78,400km ²		
Badghis	% Of surface water	4	% Of surface water	5		
Herat						
Ghor						
Faryab	% of whole river basin area	12				
Sar-i-Pul						
					Water availability in m ³ /capita	1,777
					% of water use	42
	Annual water flow volume/ Discharge		3.06 billionm ³			

	Population covered	2 million	Population covered	2 million		
	Population density	22.19	Population density	22.19		
	Trans-boundary feature	Flows to Iran and Turkmenistan				
	Regulatory feature	None				
	Infrastructure	Name	Location	Status		
	Salma	Harirod	Ongoing			
	Pashdan	Harirod	Ongoing			

The Harirod-Murghab River Basin is divided into four tributary basins inside Afghanistan as given in Table 1.1.4.2.

Table 1.10 Harirod-Murghab River Basin⁵⁷

No	Water Shed Name	Catchment Area (km ²)	%	Settled Population (per.)	Population Density (Per./km ²)
1	Bala Murghab	25,353	33%	301,380	11.89
2	Kushk wa Kashan Rod	13,191	17%	287,829	21.82
3	Lower Hari Rod	17,936	23%	824,456	45.97
4	Upper Hari Rod	21,124	27%	308,610	14.61
Harirod-Murghab River Basin Total		77,604	100%	1,722,275	22.19

1.1.5 Northern River Basin

⁵⁸

The outlier of the Afghan River Basins, the Northern does not flow to any other country, has the smallest annual discharge contribution to Afghan river basins of only 1.88 billion cubic meters, with most of its rivers originating in the high mountains of the central highlands. With a total catchment area of about 70,901 km², it covers 13% of the country's population, 11% of the entire Afghan river basin and 15% of the total agricultural land inside Afghanistan.

Table 1.11 Northern River Basin

Northern	2004 Watershed Atlas of Afghanistan Data ⁵⁹		2008 Water Sector Strategy Data ⁶⁰		2011 NHDR/ UNDP Data ⁶¹	
Provinces	Catchment area	70,900km	Catchment area	71,700km ²		
Balkh	% Of surface water	2	% Of surface water	3		
Jawzjan	% of whole river basin area	11				
Sar-i-Pul						
Faryab						
Samangan						

				Water availability in m ³ /capita	676
				% of water use	100
Annual water flow volume/ Discharge			1.88 billionm ³		
Population covered	3 million	Population covered	3 million		
Population density	39.25	Population density	39.25		
Trans-boundary feature		None			
Regulatory feature		None			
Infrastructure		None			

Figure 6: Northern River Basin

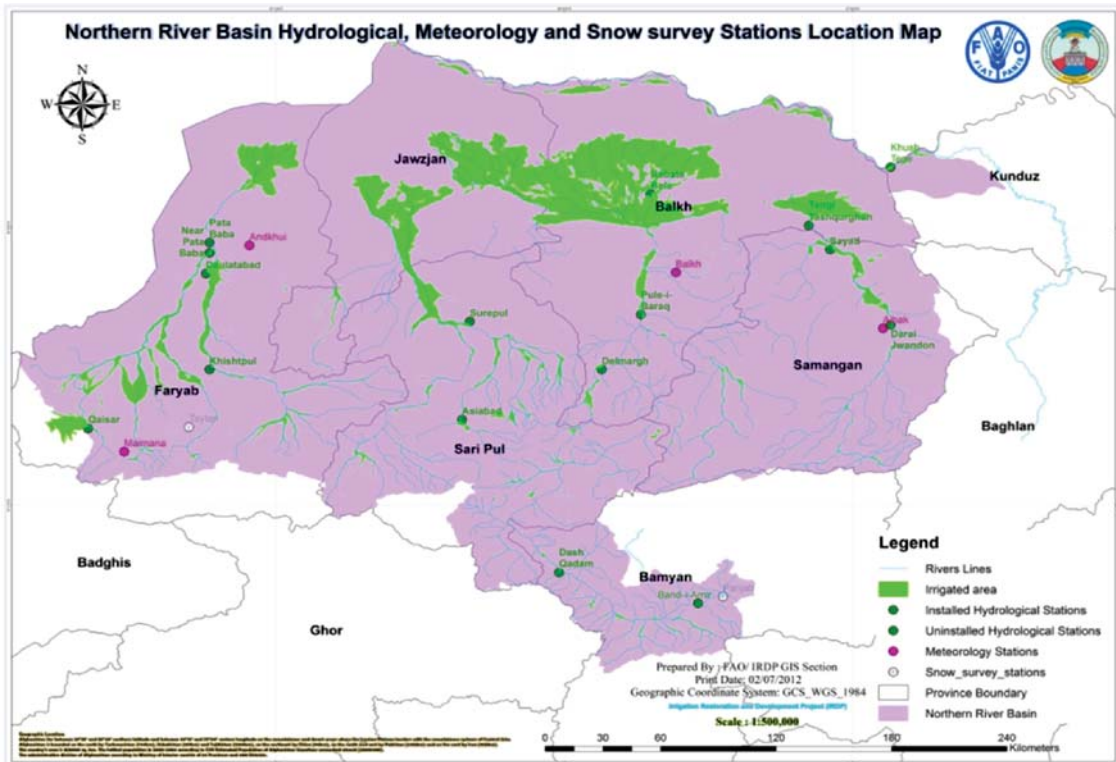


Table 1.12 Tributaries of Northern River Basin

No	Name of Tributaries	Catchment Area (km ²)	%	Settled Population (per.)	Population Density (per./km ²)
1	Balkhab	28,835	41%	1,344,202	46.62
2	Khulm	10,230	14%	259,410	25.36
3	Sari Pul	16,743	24%	573,449	34.25
4	Shirin Tagab	15,092	21%	605,972	40.15
Northern river basin Total		70,901	100%	2,783,033	39.25

1.2 Overview of Policy and Legal Frameworks

Despite the potential for the hydropower sector, as a cheap renewable energy resource, in gaining increasing significance in the context of the ongoing debate on the climate change and climate responsive water resource development and management, Afghanistan's investment in water infrastructure to date has focused primarily on irrigational uses.⁶²

The most recent foundations of the water sector in Afghanistan was laid in the 2002 International Conference on Water, the outcome of which, the "Kabul Understanding" led to a number of water-related policies, in particular the "Strategic Policy Framework for the Water Sector", approved by the SCoW in 2006, elaborating the way forward and orienting the sector towards specific policies, laws and regulations.

Since then, the sector, moving beyond the project-driven approach and on the basis of "positive enabling environment, effective water policy and actualized legislation"⁶³ adopted the holistic system of IWRM, in order for the satisfactory management of surface and ground water quantities and quality, including women's due participation in decision-making.⁶⁴

The Strategic Policy Framework for the Water Sector, a final draft of which was developed by 2004 and approved by the SCoW in 2006, underlining the principle of "equitable use of trans-boundary water resources for mutual benefit"⁶⁵ expressed its concern regarding the "absence of a general framework for institutionalized cooperation for the development of trans-boundary rivers."⁶⁶ The document emphasized the need to "appraise and understand the water needs of neighboring countries, pursue confidence-building measures and implement mutually beneficial development programs."⁶⁷ Describing the way forward, the policy document detailed progress indicators such as the development of the Water Law of 2009, Water Resource Management Policy and Regulations, Institutional Framework for Water Resource Management and the Hydropower Developmental Policy.

This was followed by the 2006 Afghanistan Compact, which identified ambitious benchmarks and timelines for water resource development and management. The following series of international conferences on Afghanistan held in Paris, London and Tokyo re-affirmed their commitment to support the implementation of ANDS (2008-2013).

Water resource development falls under Pillar III of the sector on Social and Economic Development of the ANDS. This nationally owned and internationally supported document emphasized increased investment in energy-related infrastructure⁶⁸, and reported on the

successful completion of the power sector master plan in 2003-3004.⁶⁹ The development of the Water Sector Strategy called for coordination and unification of a number of sub-sectors into one, including the hydropower sub-sector⁷⁰, with capacity to impact trans-boundary water development and management. The ANDS also outlined a list of ongoing and planned water sector projects that amongst others included the high priority programs of National Water Resource Development, Institution Development, Capacity Building, and the National River Basin Management.⁷¹ Ministry of Energy and Water (MoEW) was mandated to develop the plan of the National Water Resource Development Program, which amongst others was to cover preparations for discussions on trans-boundary water issues with the neighboring countries.

On the legal front, in Article 9, the Afghan Constitution obliges relevant government institutions to protect and manage Afghanistan's natural resources, as regulated by law. The 2009 Water Law helps build a clear understanding of ministerial roles in relation to the implementation of the ANDS, Water Sector Strategy, in addition to the establishment of the SCoW, mandated to "plan, coordinate and implement the development and management of essential sub-sector uses, and its Technical Secretariat serving as a coordinating body to avoid development overlap and duplication."⁷² The Water Law of 2009 in its Article 8, Para 9, mandates the MoEW to "plan and organize Afghanistan's trans-boundary affairs in coordination with the Ministry of Foreign Affairs (MoFA), Ministry of Interior (Mol) and Ministry of Tribal and Border Affairs (MoTBA). Despite the clear co-relation between trans-boundary water resource development and management, climate change and natural resource management, the Environment Law and the Natural Resources Law refrain from regulating the issue. This means that trans-boundary waters resource development and management is yet to come under legislative regulations and regional partnership protocols."⁷³

Of the National Priority Programs (NPP) developed between 2010-2013 for a period of up to 2017, the National Water and Natural Resources Development of the Agricultural and Rural Development (ARD) Cluster, National and Regional Resource Corridors Program and National Energy Supply Program of the Infrastructure Development Cluster engage with the issue of water and environment in general and the trans-boundary waters resource management in particular. The National and Regional Resource Corridors Program gains relevance to this issue only in relation to environmental risks associated with water infrastructure development. The National Energy Supply Program however focuses in greater detail on the hydropower generation aspects of trans-boundary waters resource development and management, underlines Afghanistan's great hydropower potential based on its topographical advantage of being the source to several major rivers in the region but emphasizes the need to arrive at trans-boundary waters agreements before making investments in building new power plants or rehabilitating existing ones.⁷⁴

The National Waters and Natural Resources Development Program is the most relevant NPP, which includes trans-boundary waters resource development and management as one of its key objectives, and highlights water's role as a natural resource in increasing agricultural yield, improving power generation in addition to its critical role in increasing national GDP. Underlining the institutional significance of the SCoW, this NPP offers a detailed overview of existing legal and policy frameworks on the water sector in general and trans-boundary waters in particular by emphasizing the need to arrive at regional partnership protocols for trans-boundary water development and management, on the basis of international regulations and after passing the principle of "no significant harm" and due consideration given to trans-boundary impacts of River Basin Management Programs.

MoEW has developed a draft Trans-Boundary Water Policy, which is currently under review at the MoFA and subsequently SCoW. This document is expected to determine the pace, nature

and orientation of the Afghan Government's engagement with the issue of trans-boundary water resources development and management.⁷⁵ While it is advised to await the finalization of this policy, the Afghan government, with technical support from GIZ's Water Sector Improvement Program (WSIP) and Food and Agriculture Organization (FAO) is currently working on collecting data on the current water balance at the national as well as individual river basin level. The national data collection, which is part of developing a National River Basin Master Plan, is complete, while the individual river basin data collection is underway for the Kabul and Northern River Basins. This process will take another 2-3 years.⁷⁶

While the Draft Trans-Boundary Waters Policy remains inaccessible at this point, it is hoped and expected that the document, in harmony with existing policy documents such as the ANDS and NPPs, will clarify institutional mandates and responsibilities⁷⁷, identify and underline the guiding principles of Afghanistan's engagement with the issue, orient Afghanistan towards the path of efficient and effective water resource development and management as well as regional cooperation aimed at equitable, fair and reasonable utilization of trans-boundary water resources, underline the principle of notification as the necessary guarantee of transparency and thus added certainty to bilateral and multilateral trans-boundary water relations, and emphasize the exchange of information between trans-boundary neighbors, as given in the 1997 UN Convention. Taking note of the effects of downstream use and water resource development on upstream countries, the Draft Policy should also underline the principle of international law that emphasizes the current and future usage of water resources as opposed to water balance variability blind principle of past usage, and thus question the continued usage of Afghanistan's trans-boundary waters by its neighbors as justified on the basis of records of past usage.

1.3 Institutional Structure on Trans-boundary Waters Management

1.3.1 Government Institutions:

Though the 2009 Water Law gives the MoEW the principal mandate in water resources and infrastructure development and management, in particular in relation to large and complex water infrastructure, the SCoW, given its structure and mandate to coordinate, is the most significant policy making, strategy developing, technically qualified and executively empowered institution when it comes to dealing with issues pertaining to Afghanistan's trans-boundary waters. Leading the multi-sectoral water resource governance, SCoW, established in 2005, has the mandate and the capacity to coordinate trans-boundary water resource management and development for not only technical ministries such as MoEW and Ministry of Agriculture and Livestock (MAIL), Ministry of Urban Development (MoUD) and Ministry of Rural Development and Rehabilitation (MRRD) but also for the MoFA that is mandated to manage the international dynamics of the process. Under the chairmanship of the Second Vice President, SCoW develops policies, reviews procedures and regulations, monitors and controls policy and legislative procedures' implementation and makes decision on all matters pertaining to trans-boundary water resource development and management.⁷⁸

Table 1.13 Water Sector Institutions and Mandate

No	Government Agency/ Ministry of	Mandate
1	Energy & Water (MoEW)	Development and management of water resources and infrastructure, including hydropower
2	Agriculture, Irrigation and Livestock (MAIL)	Development and management of irrigation systems and on-farm water management
3	Urban Development (MoUD)	Policy development and legislation of urban water supply
4	Rural Development (MRRD)	Rural water supply, rural micro-hydro-power projects, small scale irrigation
5	Mines (MoM)	Development, management, survey, investigation, discovery and control of underground water resources
6	Public Health (MoPH)	Regulating and monitoring quality of drinking water
7	National Environment Protection Agency (NEPA)	Regulating and monitoring all environment related activities, including water (the entire hydrologic cycle as it affects environment)
8	Supreme Council of Water (SCoW) ⁷⁹	“Facilitate the implementation of programs on the development and utilization of water resources” ⁸⁰ and “undertake a leadership role among government agencies in providing coordination with the international community.” ⁸¹
9	National Hydrology Committee for Afghanistan (NHCA)	Advisory, research activities and capacity building support to water sector
10	Meteorological Department	Data collection on precipitation
11	Academy of Sciences	Advice and research on the water sector
12	Foreign Affairs (MoFA)	All issues of the water sector related to international affairs
13	Interior (MoI)	All issues related to water conflicts and disputes
14	Justice (MoJ)	Clarification and elaboration of water laws and regulations
15	Finance (MoF)	Financing of water sector programs and projects

1.3.2 Civil Society Organizations

Given that Afghanistan's waters is an issue of relatively recent and weak focus from both the Afghan Government and the donor sector, not many civil society organizations have evolved into actors with a waters sector concentration. However, Heinrich Boll Foundation (hbs) has been overseeing a network of civil society organizations called the Afghanistan Natural Resource Monitoring Network (ANRMN), which has water as one of their thematic areas. The sudden mushrooming of non-governmental organizations in the post 2002 Decade of Development is also an indicator of the novice nature of the concept of civil society itself, doubling the lack of focus on the waters sector and thus underlining the need and urgency of engaging with the same.

After a series of deliberations and discussions between Afghan and international civil society organizations, ANRMN was formed in December 2012. It consists of 62 Afghan civil society organizations and tens of individual members and pursues the goal of promoting effective, transparent, environment-friendly and peaceful utilization of natural resources for the sustainable economic and social development of Afghanistan.

The Peace Training and Research Organization (PTRO) served as one of the partners⁸² for the Chatham House Report of June 2014 on Attitudes to Water in South Asia. The report, through in-depth interviews, online survey, literature review and field work, explored the dynamics of the South Asian discourse on water, and concluded that the current state of water management is poor across the region, there is lack of vision and coordination that affects Transboundary water relations, lack of accurate data remains to be a daunting challenge and that worsening water conditions must be addressed through cooperation rather than competition.

At the sub national level however, community participation, for ages, has been ensured through traditional community-based water management, forming the foundations of community water management. Called the Mirab system, where "Mir" means "head" and "ab" means water⁸³, the traditional Mirab system is almost 2000 years old, and has the intrinsic water resource infrastructure development and management focus. Mirab is the title given to an individual who then is authorized to decide water allocations. Approximately 60-70% of existing irrigation systems are managed by the Mirabs. According to some water analysts, the Mirab system, despite its age-old tradition, may have some inadequacies given the changing nature of community-level social dynamics. Nonetheless, Mirab's role remains critical. The source of the Mirab's authority has been the community, but in recent years and due to altering power dynamics, instances of manipulation by the powerful have been noted.⁸⁴ Despite these, the role of the Mirab, and other traditional mechanisms of decision-making such as Shuras (Councils) and Jirgas (Grand Assemblies) in preventing and resolving conflict at the local level cannot be ignored.

Article 18 of the Water Law governs the establishment and running of Water User Associations (WAU) as modified systems through which communities, as direct stakeholders, can participate in water governance. One must underline that WAUs do not contradict the traditional water management system of Mirabs. Given that a large proportion of the Afghan population continues to dwell in rural areas, the significance of the role that community water governance mechanisms can play cannot be over-estimated. Given their ownership of the systems of irrigation as given by Article 26 of the Water Law, Irrigation Associations (IA) together with the WAUs can play a significant role in Operation and Maintenance (O&M) of systems of irrigation. Community Development Councils (CDC) established as part of the National Solidarity Program (NSP) of the MRRD also lay a role in water conflict management and resolution.

1.3.3 International Partners and Donors in the Water Sector

As has been the tradition of extensive international participation in almost all development sectors in the past decade in Afghanistan, the Water Sector Strategy lists several international organizations and governments with a stake in the water sector, as given in Table 1.3.3

Table 1.14 International Partners and Donors in the Water Sector⁸⁵

No	International Partner/ Donor Agency	Role and Contribution
1	World Bank (WB)	Administering Afghanistan Reconstruction Trust Fund (ARTF), in addition to direct contribution to numerous water sector projects and consultancies, capacity building, irrigation rehabilitation, urban water supply and rural development.
2	European Union (EU)	Supporting Kunduz River Basin Program and the Amu Darya (Kokcha-Panj) River Basin, in addition to the rural development project of National Solidarity Program (NSP)
3	Asian Development Bank (ADB)	Supporting the natural resources sector. Western Basins and Balkh River Basin Projects are pilot Integrated Water Resource Management (IWRM) projects
4	Food and Agriculture Organization (FAO)	Research, consulting and capacity building support to the water sector
5	GIZ	Institutional and legislative support to the water resources management sector, strengthening of Kabul, Herat and Kunduz Water Supply, and Micro-hydropower and renewable energy.
6	KFW	Financial support to the rehabilitation and upgrading of water supply systems in Kabul, Herat and Kunduz, financial support to micro-hydro installations.
7	USAID	Supporting the domestic urban and rural water supply, hydropower, RAMP, Kajaki hydropower project, Helmand, LBG, IRD, DAI water projects, capacity development and knowledge base development through upcoming projects such as the Partnership for Enhanced Engagement in Research (PEER).
8	Japan (JICA)	Feasibility studies of different water resources, contribution to NSP, financial support to the IWRM activities in Balkh through ADB, study of water supply and discharge for Kabul Metropolitan Area and preliminary design of water supply and discharge systems for the New City at Dehsabz.
9	UNESCO	Contributing to the development of National Water Resources Development Plan through International Hydrology Program (IHP) and supporting the National Hydrology Committee of Afghanistan (NHCA) in addition to capacity building support.
10	Government of	Construction of Salma Dam, rehabilitation of Amir Ghazi and Qargha

	India	Dams and some of future feasibility studies, in addition to capacity building support.
11	Government of Iran	Support to capacity building and construction of research institute at the MoEW, in addition to technical assistance.
12	Canada (CIDA)	Co-funding the Western Basin Dahla Dam (with IDB), Support to rural water management through NSP
13	United States Geological Survey (USGS)	Research support on ground water quality to MoM.
14	UN-Habitat	Support to urban water management to MoUD
15	UNDP	UNDP's Small Grants Program (SGP) has international waters in its agenda.
16	International Center for Integrated Mountain Development (ICIMOD)	ICIMOD serves its member countries of the Hindu Kush Himalayas ⁸⁶ by supporting trans-boundary programs through partnership with regional partner institutions, facilitating the exchange experience and offering a regional hub.
17	DFID	Support to rural water management through NSP
18	Denmark	Support to rural water management through NSP
19	Norway	Support to rural water management through NSP

1.4 On Water Resources Infrastructure Development

Afghanistan has 75 billion cubic meters of surface water, of which it has the capacity to utilize only 30%; the remaining 70% flow to the neighboring countries, mostly unaccounted.⁸⁷ As a result, continued work on medium and large water resource infrastructure development is a major Afghan priority. Increasing population growth rate and water consumption rate, both for agricultural and non-agricultural uses, the urgency of socio-economic growth triggered by reduced dependence on international financial support, and the alarming signs of climate change are some of the convincing factors driving this priority. The Government has expressed its commitment to following international regulations when it comes to water resource infrastructure development. Passing the test of “no significant harm” bears equal importance. However, what comes first is gathering sufficient data, establishing a baseline of existing water resources, determining Afghanistan’s national irrigational and hydropower needs, finalization of feasibility studies of water resource development infrastructures, and the assessment of the environmental and trans-boundary impacts of these interventions, before any practical work is initiated.⁸⁸

The NPP on National Water and Natural Resource Development Program of the ARD Cluster highlights the importance of water resource and infrastructure development in its objective of Component 1, Sub-Component 4 by underlining the significance of “trans-boundary impacts”⁸⁹ of these interventions. The government of Afghanistan is working on improving its efficient utilization of water resources of the Harirod-Murghab River Basin through the construction of the Salma and Pashdan Dams, both of which will have significant impact on Afghanistan’s capacity to provide irrigational support to agriculture, as well as generate much-needed hydropower. Other ongoing infrastructure development projects include the construction of the Kamal Khan

Dam on the Helmand River, Bakhshabad Dam on the Farah River and the Shah o Aros Dam on the Shakardara River, with several in the planning pipeline.⁹⁰

The National Energy Supply Program of the MoEW underlines the need to consider the impact that Afghanistan's large-scale water infrastructure development can have on downstream countries and initiate "intensified and closer coordination and negotiation", by cataloguing Afghanistan's trans-boundary water resources alongside developing the inventory of water resources in general, in order to help "facilitate coordination and negotiation of trans-boundary water resources utilization, the joint construction of dams for hydropower and irrigation purposes, and also implementation of measures for conservation of the water resources in a manner that will benefit all participating states."⁹¹

1.5 Existing International Treaties

As mentioned, four of the five river basins of Afghanistan are either shared with or flow to the neighboring countries of Iran, Pakistan, Tajikistan, Uzbekistan and Turkmenistan. Of these, Afghanistan has only one treaty, with Iran, governing the sharing of the waters of Helmand River. The treaty, signed in March of 1973⁹² between the then Afghan President Musa Shafiq and Iran's Prime Minister Amir Abbas Huwaida, in 12 Articles and 2 Attached Protocols, clarified the terms and conditions under which Iran gets the right to use Helmand River water. It defined normal (water flow) years, as calculated by the readings of the Dehraout Water Station, under which Iran's share will be 828 million cubic meter or 22 m³/sec with additional 4 m³/sec to be purchased as a good will gesture. Both sides of the treaty agreed that the water flow would be subject to natural conditions in accordance with the ratio given.

Other than this treaty, Afghanistan has no treaties with Pakistan (Kabul-Indus River Basin) or the Central Asian Republics (Panj-Amu and Harirod-Murghab River Basins). Though Afghanistan signed a number of Protocols and Memoranda of Understanding (MoUs) with the then Soviet Union in 1946, 1958, 1968 and 1978, these deal with border and cooperation issues, joint management of issues such as flood warning systems, navigation, fishing, water quality, preventing water pollution and exchanging data in relation to the Panj-Amu River Basin and its tributaries, but do not address any specific water-sharing mechanisms.⁹³

1.6 Existing Project Portfolio of the Sector: National, Regional and International Interventions

The Afghan Government's Water Resource Management document or Water Sector Strategy identified a number of interventions with focus on institutional development, capacity building, national water resource development, rational river basin management, riverbank protection and small, medium and large infrastructure projects in 2008. Of these, not many seem to have been implemented, mainly due to lack of financial resources, continued insecurity, lack of data, trans-boundary issues, or lack of capacity in national staff.⁹⁴

When possible however, the government did make progress on the issue. Between 2001 and 2008, the SCoW and its Technical Secretariat were established, preparations were made for the revision and endorsement of the Water Law (2009) as well as the Environment Law (2007), the IWRM system was adopted, feasibility studies were initiated and rehabilitation and modernization of hydrological stations was started. This is in addition to the 125 hydrological (out of a target of 174 as per the ANDS) and 56 meteorological water stations that have been installed across the country.⁹⁵

On behalf of the German Federal Foreign Office, GIZ has been implementing the Trans-Boundary Water Management in Central Asia Programme since 2009, with the project's funding source expanding to include the European Union as well in 2012. The program's ongoing phase, ending in 2014, does not have the mandate to work on trans-boundary waters in relation to Afghanistan - Panj-Amu River Basin - but the program may manage to "integrate cooperation with Afghanistan in a potential phase III (to be implemented in case of a positive decision of the commissioning body, the German Ministry of Foreign Affairs from 2015 - 2017)."⁹⁶

Another ongoing GIZ intervention, the Water Sector Improvement Program (WSIP) focuses on water supply in Kabul as well as water management at the national level. Most particularly, this initiative has aided MoEW and MoFA in developing the (yet to be made available) draft Trans-Boundary Water Policy, in addition to their ongoing work focused on the development of the National as well as Kabul-Indus and Northern River Basin Master Plans. As a result of the contribution of this project, Afghanistan now has an improved understanding of its national water balance, but the individual river basin water balance estimates will take another one to two years.⁹⁷

In addition to developing Afghanistan's Watershed Atlas in 2004 and the National Human Development Report of 2011, and its background papers that remain unpublished and thus unofficial, United Nations Development Program (UNDP)'s Small Grants Program includes international waters as one of its focus areas. UNDP's Sustainable Development Unit with focus on environment protection and climate change prevention engages in improving its knowledge base of the issue and stockpiling completed, ongoing or up coming projects in this area.

The European Union (EU) has been providing extensive infrastructure and capacity building support to MoEW at the center, its line directorates in the provinces of Kunduz, Baghlan, Takhar and Badakhshan through its program called Panj Amu River Basin Program (PARBP) since 2003. The hard components of this support has included investments in infrastructure building, while the soft components, mostly implemented through non-governmental organizations have built the capacity of Water User Associations (WUA) and Irrigational Associations in the above-mentioned provinces. The EU's next intervention will commence in 2016, which will comprise some 50 million Euros to the Afghanistan Infrastructure Trust Fund (AIF) operated by the Asian Development Bank (ADB). This program will be kick-started by a feasibility study as well as an external evaluation of the PARBP. The River Basin Management Program, under the Sub-Sector of Agriculture-Water and Natural Resource Management, with a budget portfolio of €93million since 2004, supports the rehabilitation of irrigation infrastructure, water management by users, protection of catchment areas and the creation of River Basin Agencies. The EU has provided legislative support to the Afghan Government in the development of the Water Law and the implementation of subsequent institutional reforms, and is committed to remain fully involved in policy dialogues on water management in Afghanistan.

Japanese International Cooperation Agency (JICA) has a water portfolio office that works in close coordination with MoEW, and which has been providing technical assistance in improving Afghan Government's capacity on trans-boundary water resource development and management.

The International Center for Integrated Mountain Development (ICIMOD) has worked on fostering trans-boundary dialogue, in support of the integrated water and land management systems. It has, as a resource center for information on water resources, worked through partnerships on a range of issues including influence on policies on the water sector, effects of climate change on water dynamics and upstream-downstream linkages. ICIMOD will continue to analyze the future water availability, benefit sharing between upstream and downstream

communities, development of adaptive community level water management solutions and the water-energy nexus.⁹⁸

World Bank (WB) supported the development of the Kabul and Panj-Amu River Basins Investment Plans, finalized in January and June 2013. It was part of the Afghanistan Water Resources Development (AWARD) Technical Assistance Project, approved by the Afghanistan Reconstruction Trust Fund (ARTF) in December 2008. Though the Kabul River Basin Investment Plan did not include the trans-boundary aspects due to lack of data and long-term plans and merely offered some information on the impact of infrastructure development on the water flow, it recommended that the government of Afghanistan must initiate trans-boundary negotiations with neighboring Pakistan.⁹⁹

The Asian Development Bank (ADB), responding to the request of the Governments of the Central Asian Republics and Afghanistan, has been providing technical assistance aimed at improving management of water resources in the region. ADB has managed the project of Improved Management of Water Resources in Central Asia, which, given Afghanistan's more than 20% contribution to the Amu Darya, has involved MoEW and MoF from Afghanistan, during both the project design and implementation phases.¹⁰⁰

The East West Institute ran the 2009 initiative, a series of meetings in Kabul, Islamabad, Brussels and Paris, to promote alternative futures for Afghanistan and Southwest Asia, aimed at better water management, trust building and conflict prevention in the region. The reflection of these meetings is published in the form of a paper in partnership with the Gerda Henkel Stiftung in 2010. The paper, concluding that the "total absence of bilateral or regional cooperation on water between Afghanistan and its neighbors is a serious threat to sustainable development and security in the region," recommended data sharing systems, regionally sensitive and coordinated international support to Afghanistan's water sector, and underlined the urgent need of creating spaces for addressing Transboundary water issues through cooperation.¹⁰¹

United States Agency for International Development (USAID) has been active in building technical capacity of the Afghan civil servants at MoEW and MoFA, as well as technical teams of United Nations' Food and Agricultural Organization (FAO). Capacity building courses on Afghanistan's trans-boundary waters, its history and development, customary international law and the concept of notification for watercourse development have been held in 2010. Another training in 2013 followed this initiative, this time focusing on international law, organized at MoFA's Institute of Diplomacy with additional participation of teams from Ministry of Defense and the World Bank. The up coming Partnerships for Enhanced Engagement in Research (PEER) supports research ideas on trans-boundary waters in Central Asia, including Afghanistan. The initiative, implemented by the United States National Academy of Sciences (NAS) is in its initial stages and yet to produce any outcomes.¹⁰²

United States Institute of Peace (USIP) has been publishing random blogs and researches on Afghanistan's trans-boundary waters.¹⁰³ In addition, as part of its Annual Grant Competition, in 2013, USIP made a grant to the University of Nebraska at Omaha to "develop regional people-to-people dialogues and collaboration among faculty, students, government officials and community members in Afghanistan and Pakistan and throughout South and Central Asia to address the critical issue of trans-boundary water issues that are creating increased insecurity and the potential for natural resource conflict."¹⁰⁴ This project is still in its initial stages, and is yet to organize cross-border meetings on Transboundary waters.¹⁰⁵

Global Water Partnership (GWP) is an international network established in 1996, with from 85 country members excluding Afghanistan, though Ministry of Energy and Water (MoEW) and

Water and Environmental Engineering Department of Kandahar University are mentioned among its partner organizations involved in water resources management.¹⁰⁶ GWP's aim is to foster IWRM, through its group of internationally recognized professionals and scientists skilled in water management called Technical Committee (TEC), which also addresses the conceptual agenda by writing and commissioning research work.¹⁰⁷

1.7 Academic Institutions and the Research Context on Trans-Boundary Water Management

There is a no shortage of scholarly and technical research work on the concept of trans-boundary waters worldwide. Some of these works also deal with the issue as it pertains to Afghanistan's trans-boundary water resources. The Watershed Atlas of Afghanistan, developed through a joint international partnership with Afghanistan's then Ministry of Irrigation, Water Resources and Environment, is a major source of technical data developed in the last decade. UNDP's National Human Development Report of 2011, though unpublished and thus unofficial, is another extensive research that focuses on the water sector. However, indigenous Afghan research interventions on the issue are scarce. Except for the coverage given to Afghanistan's treaty on the Helmand River Basin with Iran in books outlining Afghanistan's international treaties and MoUs, one Dari book authored by Professor Najib Fahim in 2013, currently Director of Policy at MoFA, and some unpublished researches by Afghan students in the past couple of years, scholarly or technical work on this issue by Afghans researchers is unavailable.¹⁰⁸

The Center for Regional Studies at the Academy of Sciences organized a conference on Afghanistan's trans-boundary waters in early 2014, the purpose of which was to offer a platform to water analysts and technical experts to debate on the issue and exchange ideas.

An Afghan local newspaper has run three articles¹⁰⁹ on the subject in the past few months, all of which raise questions from an environmental, agricultural and climate change perspective and underline the importance of improving water resource infrastructure development and management, having little to say on regional cooperation in this regard.

The Institute of Diplomacy (IoD) at the MoFA has conducted a series of lectures by water experts on water diplomacy.¹¹⁰ Water researchers upon request can attend this ongoing effort, though it primarily targets Afghan diplomats of relevant departments within MoFA.

1.8 Political Parties And Water Agenda

Given the sensitive nature of this issue, political parties and their representatives refrain from making public statements. The only clear statement vis a vis the need for initiatives aimed at regional cooperation through equitable utilization of water resources of the Panj-Amu River Basin with the three Central Asian neighbors and in accordance with international rules and regulations was made in the Manifesto of the then Presidential Candidate and current President, Dr. Ashraf Ghani Ahmadzai's "Change and Continuity". The Manifesto highlights this as a major issue that requires immediate legislative attention.¹¹¹ However, following the popular policy, the document makes no remarks on the need to arrive at similar agreements with other neighboring countries such as Iran and Pakistan in relation to the Harirod-Murghab or Kabul-Indus River Basins.

In an interview with the BBC¹¹², after being named as Afghanistan's President-elect on September 21, 2014, Dr. Ashraf Ghani highlighted the significance of the Afghan role in climate preservation, underlined the role of water as an invaluable natural resource and emphasized the

need to develop this sector as one of his government's priorities. This spirit continues to be reflected in his public statements including his inaugural speech on September 29th.

2. Beyond Afghanistan: The Regional and International Context

The concept of trans-boundary waters development and management is a rather new phenomenon in the area of international regulations. It took the international community 27 years to finalize the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses.¹¹³ Given this concept's novice nature, it is not surprising that the developing world is beginning to engage with this issue, comprehend it and develop national and regional regulations.

Despite reported instances of skirmishes over trans-boundary water resources¹¹⁴, and several unfortunately successful life-threatening¹¹⁵ and life-taking attempts¹¹⁶, the Government of Afghanistan underlines that it works on the basis of the principle of mutual cooperation with neighboring countries with which Afghanistan shares its water resources.¹¹⁷ No doubt, Afghanistan is dependent on its neighbors for access to ports and support to its refugee population, but water resource development and management has the capacity and the potential to reshape Afghanistan's relations with its neighbors from one of one-sided dependence to interdependence.¹¹⁸

Afghanistan is Panj-Amu's second largest water source, necessitating its immediate integration into the existing or new Central Asian regional frameworks on trans-boundary waters. Besides, the key to Afghanistan's prosperity lies in cooperation over trans-boundary water resource development and management, the enabler for which is the political will of the government of Afghanistan in understanding the water context, i.e. the current status of water availability and consumption, the climate change impact, and international trans-boundary rules and regulations.

Trans-boundary water resource development and management is at the heart of improving Afghanistan's rate of human development.¹¹⁹ Having considered this, a participatory and consultative process of developing water usage mechanisms will follow the ongoing process of developing an inventory of water resources including trans-boundary water resources, with due consideration to international regulations, the principle of equity and interests of Afghanistan and neighboring countries.¹²⁰ Adherence to and application of international mechanisms has the potential to benefit Afghanistan, by considering Afghanistan's current needs and existing capacities, and adding transparency and thus certainty to the process.

Given the linkages between trans-boundary waters management and climate change and environment, Afghanistan foresees playing a key role in regional discussions on the issue.¹²¹ Being the source for regional trans-boundary waters, Afghanistan considers the environmental conservation of the Hindu Kush-Himalayan region and its capacity to feed Afghanistan's trans-boundary rivers critical, a process governed by international regulations and in coordination with international organizations such as the International Center on Integrated Mountain Development (ICIMOD), Global Water Partnership (GWP) and the United Nations Environment Program (UNEP).

2.1 Afghanistan and Iran

A Historical Overview: The question of water resource allocation has caused displeasure among Afghans since the start of the 20th century, with Afghans claiming that their vital national interests are being adversely affected by Iran's actions and policies. Nevertheless, little official attention has been devoted to this issue, at least in part of the Afghan government, where a

combination of instability, lack of professional capacity and extensive corruption has sapped the political will necessary to act.

The two countries share two rivers, the Helmand and the Harirod, as well as the Sistan Basin, a complex system of wetlands that stretches across southwestern Afghanistan and southeastern Iran. The Helmand River first became an issue in 1871, when General Frederick Goldsmid, the British boundary arbitration officer, established the border between Afghanistan and Iran across the delta of the Helmand River, without making any arrangements for water resource division. Goldsmid's nod to settling any possible disputes was a mere paragraph in the boundary agreement, stipulating that "no works are to be carried out on either side calculated to interfere with the requisite supply of water for irrigation on both banks of the Hirmand (sic)."¹²²

The Helmand River slowly changed its course over the years, and in the early 1900s the British once again intervened to settle border issues. In 1905 Colonel Henry McMahon, a British envoy, left the border pretty much as Goldsmid had envisioned, except for making a decision on water allocation. He gave two-thirds of the water resources to Afghanistan, and one-third to Iran. The agreement held, uneasily, until the 1930s, when drought and increased demand once again made the Helmand River a matter of concern between Iran and Afghanistan. The two states had established diplomatic relations in 1935, and in 1939 an agreement was signed between Afghanistan's Foreign Minister and Iran's Ambassador to Kabul, establishing that the two sides would share equally in the water of the Helmand River.

But lack of trust and goodwill negated any real implementation of the treaty, with each side charging that the other was building canals, dams and other structures that effectively rendered the agreement moot. By the 1970s water again became a hot topic in relations between the two countries, and in March of 1973 a major water treaty was signed between Prime Minister Musa Shafiq of Afghanistan and his Iranian counterpart, Prime Minister Amir Abbas Hoveida. This agreement gave Iran 26 cubic meters of water per second.

Tensions persist, however, and Iran views the erection of dams on the Afghan side of the border as a very serious issue for its own economic development, while Afghanistan complains that Iran is taking more than its share of water by building canals and reservoirs on its own side of the border. Accusations flow back and forth as easily as the river water, with Afghan officials hinting privately that Iran is trying to sabotage Afghanistan dam projects¹²³. Afghanistan insists that it is lack of sufficient water that forces its farmers into poppy cultivation, since the plant is a high income generator and can survive in the country's arid conditions.¹²⁴

Economic relations: Iran and Afghanistan have expanded their economic relations dramatically since the fall of the Taliban. Bilateral trade has increased ten-fold over the past five years, reaching \$5 billion in 2014. Afghanistan is heavily dependent on Tehran for energy, importing approximately 50 percent of the fuel for domestic consumption from Iran¹²⁵. Besides trade, Iran has also contributed to Afghanistan's development, pledging \$560 million in 2002 and an additional \$100 million in 2006, much of which has been spent on infrastructure projects, connecting Iran to Central Asian Republics. This is in addition to the 123 km road linking Herat Province to Iran and the effort to connect Afghanistan to the Iranian port of Chabahar on the Gulf of Oman, as an alternative to Afghanistan's dependence on the Karachi port of Pakistan.

Factors in Afghanistan-Iran Negotiations: Very little action has been taken by the Afghan government to prioritize water sector and to resolve the water issue with Iran in recent years, due to a variety of factors including the ongoing conflict, lack of institutional capacity, instability in the region, a mutual attitude of mistrust, and corruption.¹²⁶ However, with a new government in place in Kabul, there is now a possibility of moving forward to develop a more rational water

policy vis a vis Iran. Iran has several levers that it can use to put pressure on Afghanistan. Years of continued conflict in Afghanistan have caused 2-3 million Afghans to flee to Iran as refugees. Tehran's threat to expel the refugees is a potent one, since Afghanistan does not have the administrative or economic means to deal with such a sudden influx. Iran could also deny exports of food and fuel, severely damaging Afghan economy. Less officially, Iran could continue what Afghanistan insists is its support for efforts to sabotage the Salma and Kamal Khan Dams. These charges are never voiced publicly, but grumbling persists¹²⁷.

Efforts to Improve Trans-Boundary Water Development: Recent initiatives to improve trans-boundary water development and management include the establishment of a common Helmand River Commissioners Delegation, which seeks to facilitate cooperation with respect to flood control on the Helmand River.¹²⁸ There have also been joint efforts towards rehabilitating the Hamoun Lake, in partnership with the United Nations Environment Program and the Global Environmental Facility.¹²⁹

Harirod-Murghab River Basin: Afghanistan and Iran have no trans-boundary water treaty vis a vis the Harirod-Murghab River waters. Little has been done on this front, other than the construction of the Dostluk Dam on the Harirod River, a joint venture by the governments of Iran and Turkmenistan. Afghanistan was not consulted before the Dostluk was built in 2005, in violation of the 1992 Convention on the Protection and Use of Trans-Boundary Watercourses and International Lakes that consulting and reciprocating in good faith in its Article 10, an instrument that Turkmenistan is a party to since 2012.

2.2 Afghanistan and Pakistan

Afghanistan and Pakistan share a 2430 km long border on the south and east of Afghanistan called the Durand Line, determined in 1893 between the then Afghan King Abdul Rahman Khan and the British Government of India. The two major border towns are Torkham, which connects to Peshawar in the east, and Spin Boldak, which connects to Quetta and Chaman to the south.

During the decades of conflict in Afghanistan, Pakistan became the major destination for refugees, with 4-5 million Afghans seeking asylum. Although many have returned since the fall of the Taliban in 2001, more than 1.5 million are still living in Pakistan.

Afghanistan continues to have a dependent economic relation with Pakistan, with the Afghan Transit Trade Agreement (ATTA) being the key instrument, allowing the import of duty free goods through the Pakistani Port of Karachi on the Arabian Sea. Pakistan is the largest exporter to Afghanistan, with an annual rate of \$1.7 billion, accounting for 36.8% of Afghan imports and 8.4% of Pakistan's exports.

Afghanistan exports approximately \$71 million worth of goods and commodities to Pakistan annually, accounting for 21.8% of its exports. The bulk of Afghanistan's exports is in the form of raw materials, which, once processed or used in manufacturing in Pakistan.

Though a stable, secure and economically prosperous Afghanistan could help Pakistan's challenged economy, most particularly by connecting it to energy-rich Central Asia, Pakistan's rivalry with India and Iran creates waves of competition that are played out in Afghanistan.

The fate of the joint Afghanistan-Pakistan energy pipeline, TAPI (Turkmenistan-Afghanistan-Pakistan-India) remains vague for reasons of, most particularly, insecurity. However Pakistan signed an agreement with Afghanistan on electricity transit fees, a major step towards closer partnership between the two countries with transmission of Central Asian energy to Pakistan.

Joint trans-boundary water development and management by Afghanistan and Pakistan remains untouched in this larger regional context. The potential for conflict is also largely ignored, and the need for bilateral cooperation on equitable, fair and reasonable utilization of water resources, as well as for technical information exchange, water planning and flow monitoring remains unaddressed.¹³⁰

The Kabul River Basin flows to Pakistan with no water-sharing agreements between the two countries. Given the increasing demand for water in Afghanistan, and the increasing damage the flow of water does in Pakistan in the form of floods, there is an overwhelming necessity for water agreements, building water infrastructure on the river basin to manage the flow and utilize its hydropower potential.¹³¹ However, the lack of information on the current and future water demand must be addressed first and foremost.

The government of Pakistan is planning at least 10 dams in the Indus Basin over the next few years, hoping to generate a total of 20,000mw of energy. It is estimated that river flows will decrease by up to 40% by 2050, due to reduced snowfall and glacier melting. A cycle of heavy monsoons and worse droughts is predicted, which will adversely affect food security and dam safety.¹³²

The Indus River in Pakistan, feeding from the glaciers of the Himalayas, the Karakoram and the Hindu Kush, supports its agricultural sector's irrigational needs. Today, however, these sources are threatened by climate change, underlining the need for climate-sensitive water resource development and management through regional cooperation.

While the two main riparian countries on the Indus River are Pakistan and India, the Kabul River, a sizeable tributary of the Indus, should not be overlooked. Despite tensions created by border and ethnic claims there seems opportunities for regional cooperation on trans-boundary water development and management.

There have been efforts to cooperate over the Kabul-Indus River Basin Water, such as the nine-member technical committee of 2003 led by Pakistan, that attempted to draft a water-sharing treaty, which failed due to lack of current data. This was followed by the World Bank's attempt at mediation in 2006, which again was unsuccessful.¹³³ The 2009 Islamabad Declaration remained ineffective at facilitating water dialogue.

The World Bank is now trying to establish the Kabul-Indus River Basin Management. In addition, the hydropower development initiative on the Kunar River, which is supported by the World Bank, may open avenues for effective dialogue and discussion.

In 2013 an agreement was made between the two countries to jointly pursue the construction and utilization of a hydroelectric dam on the Kunar River as part of a larger conformity of moving towards joint management of common rivers starting with construction of this 1,500MW hydropower project on Kunar River.

2.3 Afghanistan and the Central Asian Republics

The three Central Asian Republics of Tajikistan (1,206km), Uzbekistan (137km) and Turkmenistan (744km) fall along the northern and northwestern border of Afghanistan.

Given northern Afghanistan's huge potential for agriculture and irrigation, mutual agreements between Afghanistan and its Central Asian riparian neighbors are of great significance. The political and economic ties between the republics and Afghanistan have been fairly strong in the

past few years, resulting, for example, in railway construction and discounted energy supply by Turkmenistan to Afghanistan, transit route for US supplies through Tajikistan, the US-funded construction of a bridge on the Panj River, the establishment of the Economic Council of the Persian-Speaking Union between Tajikistan, Afghanistan and Iran, and the long-pending Turkmenistan-Afghanistan-Pakistan-India (TAPI) Gas Pipeline.

But little of this activity has translated into trans-boundary water-sharing mechanisms or discussions, as evident from Afghanistan's absence from the water-sharing agreements that the Central Asian Republics entered into during Soviet times.¹³⁴ The only regional governance mechanism is the 1958 protocol between Afghanistan and the then USSR on the joint execution of works (preventing water pollution, the exchange of information and data, the adoption of a flood warning system, the prevention of changes in the course of frontier rivers) on the Panj-Amu River Basin.

2.4 Overview of Institutional Linkages and Knowledge Base

Water relations are viewed as a zero-sum game in the South Asia region. The civil society and its work in Pakistan, especially in relation to the Afghan trans-boundary waters is small and under-reported, with the exception of discussion related to natural disasters, such as floods.¹³⁵

There has been more water-related discussion with India, but the segments of work with a focus on Afghanistan have not gone beyond deliberations on the nature of legislative frameworks needed to govern Pak-Afghan relations on the Kabul-Indus River Basin. These frameworks may modify the rather outdated Indus Water Treaty that Pakistan has with India, which was signed in 1960, before terms like "water stress" had been coined, and when the combined India-Pakistan population was only a third of today's 1.4 billion.

Public sector institutions with a mandate in water resource development and management include the Ministry of Water & Power, Water and Power Development Authority (WAPDA), Ministry of Environment, Planning Commission and Provincial Agriculture and Irrigation Departments.

Pakistan's regional and international presence is maintained through its public and private sector institutions' membership in forums such as the ICIMOD and the Global Water Partnership. Pakistan Water Partnership (PWP), established in 1999, works towards promoting "the concept and principles of IWRM in the country in order to meet the growing scarcity of water resources, increasing deterioration in water quality, and the looming threat to environmental sustainability and also create awareness at the grassroots level about the need and potential of adopting IWRM techniques and solutions to solve water and environment-related problems on a community basis."¹³⁶

Trans-boundary water discussions in Pakistan fall within the subset of the larger and mostly volatile Af-Pak relations, which, given political priorities and the pace of policy and legal reform in Pakistan, makes it very difficult to expect any major developments in the next few years. The lack of technical capacity on both sides adds to the challenge.¹³⁷

Though water journalism has improved in Pakistan, still it remains mostly confined to discussions in relation to India. Civil society organizations and research think-tanks would welcome discussions of this issue, and can serve as good partners for Afghan civil society and research organizations that would like to collectively raise awareness of water management issues and build the technical capacity of relevant government institutions in their respective countries.¹³⁸

There are, however, a number of research and civil society organizations that have engaged with the issue. The Jinnah Institute contributed to the Chatham House Report of June 2014 on Attitudes to Water in South Asia (Afghanistan, Pakistan, India, Nepal and Bangladesh) that considered water discussions in the region to be “antagonistic and increasingly associated with national security,” leading to more of a blame game than genuine conversations aimed at regional cooperation. The report confirmed the pattern of decreasing water availability per capita in the region, and underlined the lack of vision on regional water-sharing, and thus the absence of regional mechanisms for water governance. The report further added that the few bilateral agreements that exist are inadequate due to their lack of conflict-resolution mechanisms and the absence of climate-sensitive features, as well as the absence of any plan for community engagement.

The Islamabad Policy Research Institute (IPRI) and Hanns Seidel Foundation (HSF) jointly organized a seminar in November 2006 in Islamabad, titled “Problems and Politics of Water Sharing and Management in Pakistan.” The main output of the seminar was a collection of 12 presented papers, published in the form of a booklet in 2007. Though primarily focused on national issues, the papers made passing references to Pakistan’s dependence on its upstream neighbor’s sources, and the need for the country to improve its agricultural production capacity, in order to cater to both her own food needs and those of the neighboring Afghanistan,¹³⁹ a recommendation that seems to be based on the assumption that Afghanistan will remain dependent on Pakistan’s supply of food items for good.

Lead Pakistan is another institution that focuses on water and climate change as its two major programmatic focus areas, aiming to consolidate research and knowledge, as well as foster policy engagement.

Sustainable Development Policy Institute SDPI has also engaged with research on the trans-boundary issue, although little exact data is available at this juncture.

2.5 International Governance Frameworks on Trans-Boundary Waters

International governance frameworks on trans-boundary waters serve to support trans-boundary water resources development and management in situations where there is an absence of national or regional governance mechanisms, or the existing governance mechanisms are weak or operate in exclusivity, leaving some water-course countries out. The international governance frameworks on trans-boundary waters do not replace national or regional arrangements.

Of Afghanistan’s neighbors, Uzbekistan has acceded to the both Conventions in Sep 2007¹⁴⁰ while Turkmenistan is only a signatory to the 1992 Convention since 2012.¹⁴¹ Afghanistan however, is not a party to either of the conventions discussed below. It is anticipated that the draft Trans-Boundary Water Policy will make headways in this direction.

2.5.1 The 1997 UN Convention

The Convention on the Law of the Non-Navigational Uses of International Watercourses adopted by the United Nations General Assembly on May 21, 1997 is a major international document that governs the use, management, protection and development of international watercourses. After ratification by 35 countries, it entered into force on August 17, 2014.

It underlines the challenges of pollution and the increasing demand for water and “affirms the importance of international cooperation and good neighborliness in the field”. The Convention recommends that watercourse states enter into one or more agreements, as necessary, in order

for equitable and fair sharing of trans-boundary waters and their protection, preservation and management.

The Convention permits watercourse states to consult for the purpose of concluding a watercourse agreement, should there be need to adjust or apply the provisions of this Convention (Article 3). It entitles watercourse states to be part of the entire negotiation process, in particular when such a watercourse state will be significantly affected by a watercourse agreement, a particular project or program (Article 4).

The convention emphasizes the principle of “equitable and reasonable utilization and participation” (Article 5) with due consideration given to the interests of all watercourse states, consistent with adequate protection of the watercourse itself. According to the Convention, the right to utilize the watercourse and the duty to cooperate in its protection and development defines the role of each watercourse state (Article 20-23). Factors such as geography, hydrology, climatic effects, hydrography, ecology, socio-economic needs of water course states, dependent population, the effects of the use of watercourse by one state on another, conservation, protection, development and economical utilization of the watercourse, and the availability of alternatives of comparable value to the existing planned intervention all must factor in when deliberating and deciding about initiatives aimed at the utilization of the watercourse (Article 6).

The convention obliges the watercourse states to give timely notification (Article 12) of the implementation of planned measures to other watercourse states, share information and data on the status of the watercourse (Article 9)¹⁴², and not cause significant harm (Article 7) to other watercourse states in their utilization of the watercourse. In the case of significant harm caused by one watercourse state, it must, through due consultation with the affected state, take measures to eliminate or mitigate the harm or explore compensations options where appropriate. For the purposes of regional cooperation, the Convention proposes the establishment of joint mechanisms or commissions (Article 24). While no use of an international watercourse enjoys inherent priority over other uses, in the absence of an agreement, and in the case of conflict, watercourse states must attempt resolution with due consideration given to the requirements of vital human needs (Article 10). Article 33 addresses the measures through which disputes can be settled between watercourse states.

2.5.2 The 1992 UN Convention

Another international instrument governing the utilization of international watercourses is the Convention on the Protection and Use of Trans-Boundary Watercourses and International Lakes. Adopted on March 17, 1992 and entered into force on October 6, 1996, the Convention was initially open to member states of the UN Economic Commission for Europe (ECE) and regional economic integration organizations constituted by European States. Currently however, this Convention is open to all UN member states, pursuant to the November 28, 2003 amendment to articles 25 and 26, which entered into force on February 6, 2013. Of the regional trans-boundary countries, Turkmenistan (Aug 2012) and Uzbekistan (Sep 2007) have acceded to the Convention.

The Convention obliges the Parties to take appropriate measures to prevent, control and reduce trans-boundary impact (Article 2) facilitated through the development, adoption and implementation of legal, administrative, economic, financial and technical measures (Article 3); establish programs for monitoring the conditions of the trans-boundary waters (Article 4); cooperate in the conduct of research into and development of techniques serving the above purposes (Article 5); exchange information (Article 6); support the principles of responsibility and

reliability (Article 7); consult and reciprocate in good faith (Article 10); jointly establish communication, warning and alarm systems (Article 11); duly consider the protection of information related to national security (Article 8); enter into bilateral and multi-lateral agreements leading to the establishment of joint bodies (Article 9) and resolve disputes through negotiations (Article 22).

2.5.3 International Conventions At a Glance

The 1997 Convention recommends harmonizing existing water agreements (Article 3) and creating future watercourse agreements and institutions (Article 8 and 24), while the 1992 Convention obliges (Article 9) its signatory Party States to do the above. The 1992 Convention makes explicit mention of the public's right to information on the "conditions of trans-boundary waters, measures taken or planned to be taken to prevent, control and reduce trans-boundary impact, and the effectiveness of those measures" while the 1997 Convention remains silent on this issue. On the other hand the 1997 Convention offers a detailed and inclusive list of factors affecting the equitable and reasonable utilization of water resources, which the 1992 Convention totally disregards. The 1992 Conventions offers added clarity on the institutional structures while the 1997 Convention gives no formal structural guidelines.

The 1997 Convention was developed over a 27year period and adopted by a significant majority of the UN General Assembly in 1997. It entered into force in August 2014 and thus is, by virtue of recent entry into force, still a young instrument. The 1992 Convention however, has been in force since 1996, thus has been the basis for the facilitation of trans-boundary water development and management for a longer period of time, though was developed exclusively for the European member states in 1992.

To some legal analysts, both conventions, as a package of norms, reinforce and complement each other, also evident from the fact that a number of states have joined both Conventions, as the difference between the two is mainly one of emphasis and detail. Both deal with the same subject matter, the 1992 Convention rather stringently, with the 1997 Convention underlining the "non-navigational uses of water". It is important however to consider that the 1997 Convention was developed keeping in mind universal conditions, while the 1992 Convention was developed based on the less heterogeneous conditions of the European trans-boundary issues.¹⁴³

3. The Way Forward: Key Issues in Trans-Boundary Water Resources Development and Management

Land and water are connected to each other naturally in a watershed, which is an area that catches rain and directs it to a river, lake or stream. Water shapes the land and is the product of the land that it inhabits. The shape of the land, the type of soil, the amount of rainfall, the human use of the land, the infrastructure built and the type of vegetation affects the percentage of ground and surface water availability. Land and water together, including all living beings that inhabit a watershed, determine the nature and pace of climate change.

The impact of climate change on Afghanistan's river basins, such as the Kabul-Indus River Basin is already visible. Afghanistan's water table has dropped by 12 meters in the past 20 years¹⁴⁴, and the mean annual discharge in Panjsher River, as recorded at the Shukhi hydro-meteorological station, decreased by 20% between 1960-1980.¹⁴⁵

Access of an increasing number of people to a decreasing level of water resources has the potential to drive both conflict and cooperation. The outcome depends on water-resource development and management practices at the national and regional level, and the degree of awareness and nature of involvement of communities. Regional cooperation carries the promise of positive impact of water on national revenue generation¹⁴⁶, but only if the process is one that involves not only national but also international stakeholders, and necessitates systemic inter-institutional coordination of roles in a way that leads to increased international institutional coordination¹⁴⁷ and improvements in the current institutionally fragmented international context on trans-boundary water resource development and management.¹⁴⁸

The existing scenario, however, should not direct us towards an exclusivist approach that denies the role that water diplomacy can play. Water is fundamental to our lives at all levels and connects us beyond man-made boundaries, creating social, political, economic and climatic interdependencies.

The concept and practice of water-resource development and diplomacy therefore are tied to each other, and warrant concentration of resources, with the aim of improving existing national, regional and international capacities in the technical as well as diplomatic spheres.¹⁴⁹ The need to understand, internalize and act upon the synergy between the technical and political aspects of the trans-boundary water issue is critical in facilitating institutional complementarities, as opposed to conflict.

Improved security is a pre-requisite for sustainable water resource development and management. The challenge of insecurity impedes progress in an overwhelming manner and across all sectors, including the water sector, restricts government's reach and discourages public and private investments,¹⁵⁰ undermining most opportunities for engagement with the water sector, and thus requires immediate and long-term solution.

3.1 Challenges¹⁵¹

3.1.1 Institutional Deficiencies in Approach and Coordination

i. Inadequate Economic Mechanisms: Afghanistan's overall lack of an all-encompassing economic vision¹⁵², represents itself in "lack of economic mechanisms regulating water use and investments for water supply and hydropower generation" and a shared vision for river basin development and management. While the past 12 years have seen some focus on improved management practices, the development aspects remain unattended for the most part.¹⁵³

ii. Disconnect with the Larger Context: Water sector activities have been mainly detached from the larger environmental and climate change, poverty reduction, population control, revenue generation and employment creation, urbanization and refugee repatriation debates.¹⁵⁴ There are clear linkages between water and land, their effects on each other and the role they together play in climate change. Population growth, in the next 2-3 decades, in particular in urban areas and as a result of refugee repatriation is going to heavily add to the already existing high demand for water, requiring increased system efficiency and capacity for adaptability. There is huge potential in the water sector for job creation and revenue generation, both of which remain untapped, for the most part and for reasons of political sensitivity of the trans-boundary issue.

iii. Inadequate Governance Mechanisms at National Level: The Water Law of 2009, though now in place, is the only national legal document regulating the water sector. It places almost no emphasis on trans-boundary waters, however. The Government's major policy documents, such as the Strategic Policy Framework for the Water Sector, ANDS, and the Water Sector Strategy, inadequately address the issue of trans-boundary waters. Though the ANDS Monitoring and Evaluation Framework required semi-annual reporting on improved water sector governance frameworks and institutions¹⁵⁵, progress in this area has been rather slow. Currently, MoFA is reviewing a draft Trans-boundary Waters Policy prepared by the MoEW.

iv. Dispersed Institutional Support and Poor Coordination: There is a multiplicity of institutions with a mandate on water, leading to complicated planning processes due to "unclear delineation of responsibilities between ministries." Despite the establishment of the Supreme Council of Water (SCoW), coordination among water-related institutions and agencies remains weak. A major feature of this lack of coordination is the absence of integrated media for communication, information sharing and exchange of ideas between organizations. This however, should not undermine the technical progress that the Technical Secretariat of the SCoW has made since its establishment.¹⁵⁶

v. The – Contested - Challenge of Capacity: "Shortage of skilled human resource with experience in water management" has long been raised as a major challenge in this field. However, some water technical experts and analysts are increasingly contesting this statement. They point instead to the unnecessarily politicized nature of this issue, which has restricted water technical experts' access and their capacity to contribute.¹⁵⁷ This is evident also from the fact that ANDS had set an unrealistic deadline of the end of 2010 for completion of data collection on socio-economics, geology/groundwater, environment, as well as hydrological, meteorological factors.¹⁵⁸ What most water experts agree on is very low knowledge and understanding of international laws and regulations in Afghanistan, by both public and private sector practitioners.¹⁵⁹

vi. Non-Compliance to Conventions and the Gap of Regional and Bilateral Frameworks: Afghanistan is currently member to none of the conventions on international watercourses. Despite evident interdependencies, there exist limited bilateral water agreements and no regional frameworks for cooperation.¹⁶⁰ There persists, to a greater extent, a spirit of competition, as opposed to cooperation indicating towards absence of an internalized understanding of the shared nature of the challenges in this sector.¹⁶¹ Given this, the chances that bilateral or regional negotiations fail, should they begin, are high.¹⁶²

vii. Lack of Coordination and Project Driven Approach of the International Community: The focus of the donor community on emergency projects and short-term tactical individual capacity building initiatives have encouraged a project and fund seeking behavior at government ministries without proper long-term programmatic integration. In addition, except for a few cases, most international organizations' work on the water sector is not conducted in a coordinated manner, with almost no to minimum knowledge of other international organizations' area of focus.

viii. Absence of Public-Private Partnerships: Civil society, Afghan media, academia and the Afghan private sector are detached from debates on trans-boundary water development and management and their existing capacities remained untapped into. Attempts at creating regional civil society bridges between riparian states and with the aim of building shared understanding of a set of shared challenges are not widely observed.

3.1.2 Technical Deficiencies

i. The Data Gap: Water stations either did not operate or were not monitored for data collection between 1980 and 2005.¹⁶³ Though since 2006, 125 hydrological (out of a target of 174 as per the ANDS) and 56 meteorological water stations have been installed,¹⁶⁴ the Afghan government, like the governments of the neighboring riparian countries, is guarding this information as data vital to national security. In any case, there is lack of long-term data of at least 30 years, a pre-requisite for appropriate water-resource planning and development.¹⁶⁵ Lack of hydrological, meteorological, geo-technical and water data remains a serious challenge, impeding Afghanistan's capacity to engage in regional dialogues.¹⁶⁶

ii. Inadequate Infrastructure: An obvious challenge caused mainly by lack of resources and years of continued conflict is "lack of infrastructure and equipment needed to efficiently conserve and utilize water resources that result from seasonal runoff with the snow melt." Progress on this front has been insufficient despite the Water Sector Strategy's explicit emphasis on the construction of storage dams and protection of underground water resources.¹⁶⁷

iii. Inadequate Investment in Ground Water Recharge Capacity: There is a lack of hydro-geological investment in enhancing the ground water resource recharge capacity. There is very little awareness about the concept of water conservation in rural as well as urban areas. Access to clean drinking water is a component of major development interventions of most stakeholders, which has been addressed by digging thousands of deep wells in villages, without due consideration given to the long term affects of this practice on water extraction and ground water conservation. There is widespread agreement on the fact that groundwater is being extracted at a significantly dangerous rate.

iv. Urbanization and Water Management: Urbanization is an emerging challenge not only in Afghanistan, but also across the region. Considering the current population growth rates

in Afghanistan and neighboring countries, urban water management systems are not prepared to adapt to the rapidly shifting life patterns, leading to increased dependence on temporary solutions with adverse affects in the long run, such as excessive reliance on the extraction of groundwater. Lack of policies on groundwater usage that focuses on monitoring the recharge of groundwater resources exacerbates this problem.

3.2 Recommendations: Opportunities for Intervention

3.2.1 Institutional

i. Develop a National Economic Development Vision and Prioritize the Water Sector: Afghanistan lacks a cohesive cross-sectoral national economic vision, resulting in low resource absorption capacity and spending talent, though with the new government, there is hope this challenge will be addressed, and hopefully driven by the spirit that prioritizes the water sector. Currently, water is a subsector and thus is inadequately addressed and attended.¹⁶⁸ It is imperative for the Afghan government to elevate the water sector from a subsector to a main sector¹⁶⁹ and to focus on *water development* in addition to continued focus on *water management*, anchoring Afghanistan in international trans-boundary regulations put forward through the 1997 UN Convention.¹⁷⁰

ii. Clarify Roles and Improve Coordination: The Water Law of 2009 mandates several ministries granting them a stake in water resource development and management. Though the law gives a broad division of labor, the practice remains, for the most part, uncoordinated and confused.¹⁷¹ Strengthening the Supreme Council of Water¹⁷² through systematic integration of sufficiently experienced water and economic development experts can help systemize decision-making and improve coordination.

iii. Establish and Strengthen Knowledge Base on Water Resource Development and Management: There is widespread agreement on lack of knowledge and understanding of international laws and conventions in Afghanistan, both within public and private sectors.¹⁷³ Though some steps have been taken, there is space and need to do more. The ANDS had tasked MoEW, MAIL, MRRD, Ministry of Higher Education and Mines to develop curriculum on water resource management by end 2009.¹⁷⁴ In line with this assignment, courses have been developed at Kabul University and Kabul Polytechnic University. These efforts must continue but in a more integrated manner. The Water Sector Strategy emphasized the need to merge scientific theory with empirical and practical knowledge.¹⁷⁵ This requires special focus on the capacity of independent research organizations and think tanks, through strengthened research processes and exchange programs with regional and international research organizations, focusing on trans-boundary water management and development.¹⁷⁶ Another avenue worth exploring is a regional partnership for universities in watercourse states in the region, based on the existing examples.¹⁷⁷

iv. Address Water within the Broader Context: Climate change is affecting lives with disastrous consequences, such as floods and droughts. Water and land are connected to each other, in a way that water shapes the land and in return is affected by the land that it inhabits. What we do with the land and on the land affects our surface and underground water levels. Human life, and its nature of reliance and usage of land and water therefore, determine the pace of climate change. Water levels have dropped significantly in the past 20 years,¹⁷⁸ and mean annual discharge of our rivers has decreased by a rough estimate of 20% between 1960 and 1980 alone.¹⁷⁹ Water resource development and management therefore, has to be seen within and as part of the larger challenge of climate change.

v. Improve National Water Governance Mechanisms: Afghanistan's existing legal and policy context does not address the issue of trans-boundary water resource development and management sufficiently and efficiently. Policy development on trans-boundary water development and management must become strategic in nature, positive in approach and futuristic in orientation. Strengthening institutional capacities and creating an environment that encourages information sharing, civil society national discourse and regional geo-strategic discussions for cooperation would make the building blocks of such a policy approach. Specifically speaking, the finalization of the draft trans-boundary water policy must be treated as a national priority, facilitating the pace and nature of consequent efforts.

In addition, the increasing rate of refugee return may increase the potential for conflict over access to natural resources such as water.¹⁸⁰ Given the already existing dynamics of conflict over trans-boundary water resources, this may require increased legal, policy and institutional capacity on the part of the public as well as private and civil society sectors. The need for developing an "adaptive, integrated water resource management plan for Afghanistan, with focus on trans-boundary and regional issues"¹⁸¹ has gained more urgency than ever.

vi. Recognize the Benefit of Regional Cooperation, Hydro-Diplomacy and Compliance with International Conventions: Regional cooperation is pertinent to effective water resource management and development.¹⁸² In order to facilitate the rationalization of use by all relevant watercourse states, moving towards regional cooperation is a must. Also, improved regional cooperation has the potential to improve trade and facilitate economic development by connecting land-locked Afghanistan to energy-rich Central Asia and energy-deficient South Asia. Facilitating Afghanistan's entry into the Interstate Coordination Water Commission of Central Asia can be a useful step. As the transit country, this can earn Afghanistan valuable revenue, reduced trade impediments and lowered trade barriers, harmonization of standards and regulations to enhance cross border initiatives, improved border management and security and regional customs cooperation at regional level.¹⁸³ Despite the ANDS deadline of end 2009¹⁸⁴, serious work on this front is yet to commence.

Afghanistan's compliance with the 1997 Convention on Non-Navigational Uses of International Watercourses must no longer be delayed. It is critical to institutionalize and understand the synergy between regional stability, conflict prevention and water development and the significance of the role of diplomacy in improving trans-boundary water development and management. MoFA must orient its capacities towards exercising political leadership that fosters trans-boundary cooperation and integration, facilitates public and private institutional exchanges, coordination and engagements aimed at improving its knowledge of international mechanisms of trans-boundary water governance, regional conflict resolution, and of the national technical ministries' knowledge of joint climate crisis response mechanisms such as water monitoring systems, information sharing mechanisms, scientific fact finding researches and risk assessments.¹⁸⁵ These gain added significance in the light of the rapidly changing climatic conditions and variability of water, which necessitate stronger relations between trans-boundary water countries based on mutual trust and shared understanding.

vii. Promote Long-term Region Program Approach: Afghanistan is going to remain in need of international support and investment in the years to come. However, this support must be coordinated and long-term in nature, avoiding the project driven approach of the past decade. Sustained international technical and financial support to Afghanistan's water sector, with a focus on trans-boundary water resource development and management is a critical element of stability beyond Afghanistan, affecting the entire region.

viii. Engage Civil Society, Media, Academia and the Private Sector: Capacity building, information sharing and cooperation on technical aspects of trans-boundary water resource development and management can offer a great starting point for regional or bilateral cooperation. Mutual cooperation through civil society organizations, media, academia and the private sector can help build trust and confidence in addressing concerns of both downstream and upstream countries.¹⁸⁶ Bilateral or regional information centers can help facilitate eventual state level relations and ensure people's participation in water governance and ownership of the process. This necessitates tapping into and improving capacity of civil society, academia, research organizations, media (water journalism) and the Afghan private sector¹⁸⁷ through engaging them in national and regional debates on trans-boundary water resource development and management. Luckily the development and endorsement of the Right to Information Law remains a key priority of the new government¹⁸⁸, which can be counted upon as one of the cornerstones of people's and their representative institutions' participation in debates of national significance. Also, measures should be taken to strengthen government research capacity¹⁸⁹ and encourage independent Afghan research and civil society organizations.¹⁹⁰

3.2.2 Technical

i. Address the Data Gap: Study the use of innovative technologies in the collection, analysis and presentation of hydrological and meteorological data, a process, which must be extensively supported by the international community as well.¹⁹¹ A major intervention can be the development of a Resource Center on Trans-Boundary waters, facilitating online and offline access to information, knowledge and international, regional and national researches on the issue. Establishing institutional connections between Afghan and international academic institutions, leading to a highly educated cadre in water resource development, management, international water law and water diplomacy could be another practical and useful intervention.

ii. Develop Necessary Infrastructure: Improve Afghanistan's water storage capacity. Have a grand approach, but start small by building small dams¹⁹² that may cause less of a concern to the riparian neighbors.¹⁹³ Equip all river basins with water flow and consumption measurement systems, joint monitoring systems, bilateral systems of investment and protection and mechanisms for sustained flow of information at the regional level, to also help address the data gap, a process that must be mutually owned by Afghanistan and its riparian neighbors and supported by the international community. The need to adapt the urban water management system in order to enable it to meet the increasing demands of the urban population requires water resource infrastructure development.

iii. Improve Groundwater Conservation: Improve underground water recharge capacity, and systems of evaluation of infrastructure potential. This is an area that must be the focus of scientific and technical research that also looks into adverse affects of the unsustainable and harmful practices of facilitating access to water through digging wells in the absence of water conservation systems. Research on and promote, where feasible, rain-water harvesting projects to improve supply of water, including underground water. This can aid rural and urban water management systems alike.

3.2.3 Recommendations for Civil Society and International Organizations

Given the highly political nature of the issue of Transboundary in the region, including Afghanistan, civil society organizations, media, academia and the private sector are going to be the forerunners of facilitating an enabling environment for technical debates, researches and

cooperation to initiate. International community's role will be critical in providing technical and financial support to Afghanistan's trans-boundary water knowledge base development and sustained initiation of alternative bilateral and regional tracks of negotiation, dialogue and cooperation. Most major government documents such as the ANDS, Water Sector Strategy, and NPPs identify a number of interventions focusing on institutional development, capacity building, national water resource development, rational river basin management, riverbank protection and small, medium and large infrastructure projects, of which many remain to be implemented, and all can offer useful orientation for future engagement of the non-governmental sectors with this issue, with the aim to expand and strengthen Afghanistan's knowledge base and initiate and maintain a constant national dialogue on Afghanistan's trans-boundary waters.

Most particularly, as post research steps, the international community should provide technical and financial support to the Afghan civil society, media, academia and the private sector to study, understand and analyze, through a gender sensitive lens, the adverse effects of lack of attention to Afghanistan's trans-boundary water issues on women, and to engage with the following areas of intervention, which have the potential to improve the prospects of establishing a regional civil society, academia, research organizations and media alliance on trans-boundary water management involving Afghanistan, Pakistan, Iran and Central Asian riparian states, and initiate, facilitate and sustain regional geo-strategic discourse leading to regional agreements:

i. Advocate for increased engagement of civil society, media, academia and the private sector in the debate on Afghanistan's trans-boundary water resource development and management, and bilateral and regional technical initiatives aimed at cooperation, confidence building and knowledge sharing.

ii. Support and facilitate continued indigenous Afghan research to enhance Afghan ownership of the process, develop knowledge base on Afghanistan's trans-boundary waters within the country and contribute to addressing the data gap, on all relevant areas, including the impact of trans-boundary water issues on women's access to water.

iii. Advocate for improved legal and policy context on Afghanistan's trans-boundary water resources, in particular for speedy but collective and inclusive –with proper involvement of the civil society, research organizations, and academia, finalization and public sharing –through media- of the Draft Trans-Boundary Water Policy currently under review by the MoFA.

iv. Expand Afghanistan's knowledge base by contributing to building in depth knowledge of international regulations, laws and in particular conventions on international watercourses.

v. Advocate for immediate collective (government and civil society, research organizations and academia) **review of both Conventions (1997 and 1992)** and offer expert advice to the Afghan government by drawing comparisons between the current state (non-compliance to international conventions) and the possibility of ratifying either, as well as a comparative analysis of outcomes of ratifying the 1997 or the 1992 Convention.

vi. Advocate for strengthened executive and coordination role of the SCoW in order to improve coordination of the water sector activities, in particular the trans-boundary water resource development and management initiatives among relevant government ministries, donors and international partners and between government agencies and donors.

vii. Advocate and strongly push for establishing linkages with international and regional entities, such as ICIMOD, East West Institute, Global Water Partnership, Lead, Jinnah Institute and SDPI in Pakistan. These organizations have years of experience, functioning resource centers and already established knowledge bases, and thus can offer useful guidelines on expanding and strengthening Afghanistan's knowledge base on trans-boundary water resource development and management.

viii. Considering President Ghani's explicit focus on the water sector, most particularly as a major source of revenue generation, **advocate for government's immediate action aimed at prioritizing the water sector** by elevating it from a sub-sector to a proper sector, allocating substantive budget to it, and underlining the relevance of water resource development and management with the larger debate on and fight against climate change.

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³¹ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Water Resource Management (Water Sector Strategy) Kabul, 2008, p. 4

³² The maps were prepared for review by the USAID, by the Afghan Energy Information Center as part of a project by Advanced Engineering Associates International Inc. 2014 <http://www.afghaneic.com/library/maps/Water%20Atlas%20Map%20Book/Afghanistan%20Water%20Atlas%20Map%20Book.pdf>

³³ Sources: 2004 Watershed Atlas of Afghanistan, 2008 Water Sector Strategy, National Geography of Afghanistan (Dari Version) by Professor Zarif Taniwal, National geography of Afghanistan (Dari Version) by Prof. Arez with cooperation from Dr. Andreas Dittmann, and Masood Ahmad and Mahwash Waseq, Water Resource Development in Northern Afghanistan and Its Implications for Amu Darya Basin, World Bank working paper 36, 2004.

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³⁶ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Water Resource Management (Water Sector Strategy) Kabul, 2008, p. 8

³⁷ National Human Development Report, United Nations Development Program, 2011

³⁸ Different sources give different figures.

³⁹ Afghanistan and the former USSR are party to one agreement, one treaty (on frontier issues) and one protocol on the joint execution of work for integrated utilization of water resources. There are ten other agreements, to none of which Afghanistan is a party, signed between 1992-2001.

⁴⁰ Based on 2003-2004 Central Statistics Office figures. Nomadic population not included.

⁴¹ Sources: 2008 Water Sector Strategy, National Geography of Afghanistan (Dari Version) by Professor Zarif Taniwal, National geography of Afghanistan (Dari Version) by Prof. Arez with cooperation from Dr. Andreas Dittmann, and Masood Ahmad and Mahwash Waseq, Water Resource Development in Northern Afghanistan and Its Implications for Amu Darya Basin, World Bank working paper 36, 2004.

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⁴⁴ National Human Development Report, United Nations Development Program, 2011

⁴⁵ Based on data from 2004 Watershed Atlas of Afghanistan and 2003-2004 Central Statistics Office figures. Nomadic population not included.

⁴⁶ Sources: 2004 Watershed Atlas of Afghanistan, 2008 Water Sector Strategy, National Geography of Afghanistan (Dari Version) by Professor Zarif Taniwal and National geography of Afghanistan (Dari Version) by Prof. Arez with cooperation from Dr. Andreas Dittmann.

⁴⁷ United Nations Environment Programme (UNEP). 2008. "Afghanistan's Environment 2008", UN Environment Programme, p. 11

⁴⁸ Dehgan, A., Palmer-Moloney, J. 2009. "Water Security and Scarcity: Potential Destabilization in Western Afghanistan", p.2

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- ⁵¹ National Human Development Report, United Nations Development Program, 2011
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- ⁶⁰ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Water Resource Management (Water Sector Strategy) Kabul, 2008, p. 8
- ⁶¹ National Human Development Report, United Nations Development Program, 2011
- ⁶² Government of Afghanistan, Afghanistan National Development Strategy ANDS, Water Resource Management (Water Sector Strategy) Kabul, 2008, p. 24
- ⁶³ Ibid, p. 21
- ⁶⁴ Ibid, p. 20
- ⁶⁵ Government of Afghanistan, Strategic Policy Framework for the Water Sector, Kabul, 2004, p. 15
- ⁶⁶ Ibid, p. 10
- ⁶⁷ Ibid, p. 29
- ⁶⁸ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Kabul, 2008, p. 79
- ⁶⁹ Ibid, p. 78
- ⁷⁰ Ibid, p. 85
- ⁷¹ Ibid, p. 86
- ⁷² Government of Afghanistan, Agriculture and Rural Development Cluster, National Priority Program1, National Water and Natural Resources Development Program, Kabul, 2013, p. 38
- ⁷³ Ibid, p. 133
- ⁷⁴ Government of Afghanistan, Infrastructure Development Cluster, National Priority Program3, National Energy Supply Program, Kabul, 2011, p. 29
- ⁷⁵ Key Informant Interview, August 31, 2014.
- ⁷⁶ Ubald Koch, Country Director, Water Sector Improvement Program (WSIP) GIZ, September 14, 2014.
- ⁷⁷ Given that the Water Law of 2009 identify the Ministries of Energy and Water, Foreign Affairs and the Supreme Council of Water as key stakeholders on trans-boundary water resource development and

management, it would be ideal if the trans-boundary water policy, once finalized, mandates MoEW to lead the technical aspects of the process such as information collection (with cooperation from other ministries as needed) and MoFA to draft bilateral and multilateral agreements and conduct negotiations, both under the overall supervision of the SCoW, technical inputs of SCoW's Technical Secretariat, and with the participation of other ministries as necessary.

⁷⁸ Government of Afghanistan, Agriculture and Rural Development Cluster, National Priority Program1, National Water and Natural Resources Development Program, Kabul, 2013, p. 35

⁷⁹ Members, appointed by the President, include MoEW, MoFA, MoUD, MRRD, MoPH, MAIL, Kabul Municipality

⁸⁰ Government of Afghanistan, Water Law, Article 9, 2009, p. 21.

⁸¹ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Kabul, 2008, p.87

⁸² Source: <http://www.ptro.org.af/completed-projects.html>

⁸³ Mirabs also go by the titles of Wakil, Mirab Bashi, Mirab, Kok bashi (O&M), Chak bashi (water distribution), and Abdar.

⁸⁴ hbs, in conversation with Khwaga Kakar, <http://www.boell.de/en/2014/03/10/civil-society-could-independently-provide-analysis-and-information-policy-makers>

⁸⁵ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Water Resource Management (Water Sector Strategy) Kabul, 2008, p.13

⁸⁶ Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.

⁸⁷ Government of Afghanistan, Ministry of Energy and Power, quoted in Afghanistan's Water Resources in Need of Sound Management, Nabila Horakhsh, Daily 8AM, 20 August, 2014, <http://8am.af/1393/05/29/environment-afghanistan-water/>

⁸⁸ Government of Afghanistan, Agriculture and Rural Development Cluster, National Priority Program1, National Water and Natural Resources Development Program, Kabul, 2013, pp. 53, 68.

⁸⁹ Ibid. pp.10, 45.

⁹⁰ Sub-section 1.1 on natural features of Afghanistan's river basins gives an outline of major completed, ongoing or up coming infrastructure projects.

⁹¹ Government of Afghanistan, Infrastructure Development Cluster, National Priority Program3, National Energy Supply Program, Kabul, 2011, p. 72

⁹² The final exchange of documents after ratification by the Parliaments of both countries happened in 1977.

⁹³ Afghanistan and the former USSR are party to one agreement, one treaty (on frontier issues) and one protocol on the joint execution of work for integrated utilization of water resources. There are ten other agreements, to none of which Afghanistan is a party, signed between 1992-2001.

⁹⁴ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Water Resource Management (Water Sector Strategy) Kabul, 2008, p. 33

⁹⁵ Government of Afghanistan, ANDS Completion Report, Dari version, June 2014, p. 61

⁹⁶ Management team of the Trans-boundary Water Management in Central Asia Program, September 12, 2014

⁹⁷ Ubald Koch, Country Director, Water Sector Improvement Program (WSIP) GIZ, September 14, 2014.

⁹⁸ Source: <http://www.icimod.org/?q=9128>

⁹⁹ Investment Plan for Kabul River Basin, January 2013, p. 12

¹⁰⁰ Source: <http://www.adb.org/projects/41316-012/details> For additional information on ADB's approved and proposed projects in Afghanistan, see

<http://www.adb.org/projects/search/524,21303?ref=countries/afghanistan> and <http://www.adb.org/projects/search/524,21304?ref=countries/afghanistan>

¹⁰¹ Matthew King and Benjamin Sturtewagen, Making Most of Afghanistan's River Basins: Opportunities for Regional Cooperation, East West Institute, 2010

¹⁰² At the time of writing this report, PEER is accepting pre-proposal for the 2015 cycle. Source: http://sites.nationalacademies.org/PGA/PEER/PGA_147205

¹⁰³ Some references can be found through these links: <http://www.usip.org/olivebranch/water-problems-pakistan-s-overlooked-security-issue>, <http://inec.usip.org/blog/2012/aug/13/water-and-energy-planning-afghanistan-mitigating-security-threats-through-sustainab>

¹⁰⁴ Thomas Gouttierre and John Shroder have been awarded \$110,000, source: <http://www.usip.org/grants-fellowships/grants/2013-annual-grant-competition>

¹⁰⁵ Based on update on project received from the head of the project Mr. Thomas Goutthierre

¹⁰⁶ source: <http://www.gwp.org/en/About-GWP/Partners/Partner-Search/>

¹⁰⁷ Patrician Wouters, International Law – Facilitating Trans-boundary Water Cooperation, Global Water Partnership Technical Committee, Background Paper # 17, Elanders 2013, [http://www.gwp.org/Global/ToolBox/Publications/Background%20papers/17%20International%20Law%20-%20Facilitating%20Transboundary%20Water%20Cooperation%20\(2013\)%20English.pdf](http://www.gwp.org/Global/ToolBox/Publications/Background%20papers/17%20International%20Law%20-%20Facilitating%20Transboundary%20Water%20Cooperation%20(2013)%20English.pdf)

¹⁰⁸ Professor's Fahim's book triggered an article published at a local Afghan magazine called Afghan Zariza (Afghan Millennium) on 12 June 2014, underlining the need to improve national water management and address trans-boundary water issues with the neighbors. Abdul Sanay Amanpoor, Will the Next War be Fought Over Water? Afghan Zariza, 12 June 2014, <http://www.afghanzariza.com/2014/06/12/will-the-next-war-be-fought-over-water>

¹⁰⁹ Nabila Horakhsh, Daily 8AM, Afghanistan's Water Resources in Need of Sound Management , Environment in Afghanistan: A victim of Water Conflict, Lack of Water Storage: A Major Agricultural and Environmental Challenge, August 20, 2014, May 27, 2014 and July 16, 2014, <http://8am.af/1393/05/29/environment-afghanistan-water/>, <http://8am.af/1393/03/07/environment-afghanistan-water-war-victims/> and <http://8am.af/1393/04/25/environment-afghanistan-wather/>

¹¹⁰ Professor Najib Fahim Director Policy at MoFA, and Ambassador Nabel, Advisor to the Directorate of Borders

¹¹¹ Manifesto of Change and Continuity Electoral Team led by Dr. Ashraf Ghani Ahmadzai, 2014, pp. 193, 194, 198.

¹¹² In conversation with BBC, accessed through Dr. Ashraf Ghani's Facebook Page Upload, available at: <https://www.facebook.com/video.php?v=10152476464538292&set=vb.34246523291&type=2&theater> accessed on September 22, 2014.

¹¹³ Key Informant Interview, August 31, 2014.

¹¹⁴ Afghanistan Trans-boundary Water Resources: Regional Dimensions, Civil Military Fusion Center, July 2011 www.cimicweb.org

¹¹⁵ Water management experts and engineers have faced serious physical threats, including hours of torturous detention at the Pakistan-Afghanistan border for their involvement in the sector.

¹¹⁶ Khan Wali was executed for defending the Machelgho dam in the eastern Paktia province of Afghanistan, planned to irrigate 16,000 hectares of land and produce 800 KW of electricity once built. Mujib Mashal, What Iran and Pakistan Want from the Afghans Water, Times, December 2, 2012, <http://world.time.com/2012/12/02/what-iran-and-pakistan-want-from-the-afghans-water/>

¹¹⁷ Key Informant Interview, August 27, 2014.

¹¹⁸ Key Informant Interview, August 31, 2014.

¹¹⁹ Afghanistan National Human Development Report, United Nations Development Program, 2011

¹²⁰ Government of Afghanistan, Agriculture and Rural Development Cluster, National Priority Program1, National Water and Natural Resources Development Program, Kabul, 2013, pp. 20, 69.

¹²¹ Ibid. p. 89.

¹²² Pirouz Mojtahed-Zadeh, Boundary Politics and International Boundaries of Iran: A Study of the Origin, Evolution, and Implications of the Boundaries of Modern Iran, (Universal Publishers: 2007), p. 226

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¹²⁴ Government of Afghanistan, 2007b. "Appendix to the Transboundary Water Policy of Afghanistan: Transboundary water issues", p. 5

¹²⁵ Sumitha Narayanan Kutty, Iran's Continuing Interests in Afghanistan, June 2014, http://twq.elliott.gwu.edu/iran's-continuing-interests-afghanistan#web_tx1_3

¹²⁶ Key Informant Interview, September 15, 2014.

¹²⁷ Ibid.

¹²⁸ Afghanistan National Human Development Report, United Nations Development Program, 2011, p 63.

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¹³⁰ Paula Hanasz, The Politics of Water Security in the Kabul River Basin, Future Directions International, Nov 2011.

¹³¹ Key Informant Interview, September 15, 2014.

¹³² Source: <http://www.internationalrivers.org/programs/climate-change-and-rivers> and https://mapsengine.google.com/map/u/0/view?mid=zfITZgJevyTo.klUTmc_xcOrM

¹³³ Afghanistan National Human Development Report, United Nations Development Program, 2011, p. 63

¹³⁴ These initiatives include the establishment of the Interstate Commission for Water Management Coordination (ICWC), International Fund for the Aral Sea (IFAS), Interstate Council on the Aral Sea Basin (ICAS), the March 1995 Resolution of the Heads of States of Central Asia on the work of the Executive Committee of the ICAS, the March 1993 Agreement on joint activities in addressing the Aral Sea and the zone around the sea focusing on environment protection and social and economic development, and others.

¹³⁵ Key Informant Interview, August 27, 2014.

¹³⁶ Source: <http://pwp.org.pk>

¹³⁷ Key Informant Interview, August 27, 2014.

¹³⁸ Ibid.

¹³⁹ Cheema, Khan and Malik, Problems and Politics of Water Sharing and Management in Pakistan, Islamabad Policy Research Institute, 2007, p. 72.

¹⁴⁰ Source: http://www.internationalwaterlaw.org/documents/intldocs/watercourse_status.html and https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5&chapter=27&lang=en

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- ¹⁴⁶ Key Informant Interview, August 20, 2014.
- ¹⁴⁷ Matthew King and Benjamin Sturtewagen, Making Most of Afghanistan's River Basins: Opportunities for Regional Cooperation, East West Institute, 2010
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- ¹⁵² Aarya Nijat, Governance in Afghanistan: An Introduction, Afghanistan Research and Evaluation Unit, March 2014, p. 49.
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- ¹⁵⁸ Government of Afghanistan, Afghanistan National Development Strategy ANDS, Kabul, 2008, p.219
- ¹⁵⁹ This has been a common theme of the majority of the Key Informant Interviews conducted with both public sector and independent water analysts.
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- ¹⁶⁴ Government of Afghanistan, ANDS Completion Report, Dari version, June 2014, p. 61
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