

## **KABUL RIVER AND PAK-AFGHAN RELATIONS**

*Suliman Yousaf\**

### **Abstract**

*Kabul River which originates in the mountains, North West of the city of Paghman, flows east and a few miles short of the Pak-Afghan border is joined by River Kunar. Later on it flows into Pakistan near Warsak. River Kunar which feeds most of the water to river Kabul has more water than the original Kabul River. River Kunar flows from Chitral to Afghanistan near Arandu in Chitral, and it becomes River Kunar. Kabul River is a life line of Peshawar Valley. Areas of Daudzai, Do Aba, and areas south of Peshawar all depend on water from River Kabul. Kabul River after entering Pakistan, divides into four tributaries that is why it irrigates a vast area of Peshawar Valley. With global warming, and rapid climate change the water level is decreasing rapidly, whereas population is increasing in both Afghanistan and Pakistan. With the increase in population demand for food is also increasing, more land needs to be brought under cultivation to produce more food so the demand for water is also increasing. There is pressure on land and water in both Pakistan and Afghanistan to get more food and feed their people. And for this both countries require water. Afghanistan with Indian assistance is building 12 dams on Kunar River (Kabul River). This would affect the flow of water to Pakistan, which would affect irrigation in Peshawar Valley. Since a large section of the population in Peshawar valley depend upon irrigation from Kabul River, this could lead to political unrest and could affect relations between Pakistan and Afghanistan. In order to avoid this diplomatic crisis, Pakistan and Afghanistan should sit together and sign a treaty on Kabul River so they both can get the benefit of this river and maintain good relations.*

### **Introduction:**

The Kabul River Basin on Pakistani side is a lifeline for the people of Peshawar valley; this valley grows fruits, vegetables, other cash crops and

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\* Ph.D. Research Scholar, National Defence University, Islamabad

also has industries which provide jobs to local people. As the world gets warmer, the glaciers around the world are melting and population is increasing at a faster rate which is affecting the quality and quantity of water in the river basins around the world. Pakistan is a riparian state and receives water from both river basins i.e. Afghanistan and India. Indus River Basin is the second largest basin in Asia after Yangtze River Basin, with an estimated area of 1,116,086 km<sup>2</sup>, and area with in Hindu Kush-Himalaya is nearly 555,450km<sup>2</sup>. This river basin is further divided into three basins: (1) Kabul River Basin (2) Upper Indus Basin and (3) Panjnad River Basin. Pakistan receives water from Kabul River in Afghanistan, which is a major source of irrigation in NWFP (now Khyber Pakhtunkhwa). To protect the precious agriculture land, to control pollution, protection of bio-diversity of the area and sharing water by each riparian state, both countries must have a joint mechanism, to monitor the quality of water as to safe guard the health of the people in this region. This water agreement between Pakistan and Afghanistan will ensure that the water is equally shared among these states. Water pollution is a major problem for Peshawar valley, chemical waste from industrial estate adds to the water channels which affect the productivity of agriculture, and it contaminates water reservoirs which cause harmful diseases.

Kabul River irrigates the agriculture lands of both Pakistan and Afghanistan, but this river is fed by river Chitral which originates from Chitral in Northern part of Pakistan. The total length of river Kabul is nearly 700 km, 560 km is in Afghanistan which flows through Jalalabad and enters Pakistan and finally joins with River Indus at Attock district. This river is a lifeline for Peshawar valley; entire valley is dependent on this river system which provides water for agriculture. Agriculture is the main livelihood of Peshawar valley, if there is less water available for the farmers than it will create shortage of food and unrest among its population. The total capacity of River Kabul is 21 billion cubic meters of water which flows from Afghanistan, it also included the flow of River Kunar which originates from Pakistan and is contributing nearly 15 billion cubic meters of water. That means Pakistan's water share is nearly 71 percent which is more than Afghan's total share. As the population increases in the Kabul river basin so the need of water for irrigation and drinking purposes also increases. Both countries including Pakistan and Afghanistan are heavily dependent on the rivers of Kabul River Basin. Pakistan's major concern is about construction of 12 dams on Kabul River by Afghan government with the help and assistance from Indian government.

On the other side Chitral River which flows from Pakistan then enters Afghanistan and it becomes Kunar River which later flows into Kabul River. Chitral valley has hundreds of glaciers and glacier lakes which are

threatened by global warming will increase flooding and also reduce the length of glaciers in Chitral Valley. On Pakistani side Kabul River has different tributaries including Panjkora, Swat, Gomal, Kurram, Zhob, Shah Alam, Naguman, Bara, Sardaryab and Tochi or Gambila are the major rivers of Kabul River Basin which flows into Indus River System.

### **Kabul River Basin**

Kabul River basin which is a part of larger Indus River Basin, is located in Pakistan and Afghanistan; the people of this basin constitute Pashtuns and Non-Pashtuns who are living along the Kabul River. Kabul River Basin is Afghanistan's fourth largest basin after Helmand, Amu Darya, Harrirud and Murghab river basins, this (Kabul) river irrigates 11% of Afghanistan's total area which has a population of 7 million which is 34% of Afghanistan's total population<sup>1</sup>. As their population increases the Afghans will need more water for their crops and also to produce more electricity for future generations to come. Kabul River is spread over an area of 76908 square kilometers it total was 7 million as it was reported in 2004<sup>2</sup>. There are three major rivers which irrigates the Afghan side of Kabul River Basin including Logar River, Paghman River and Kabul River.<sup>3</sup> As the population grows in Kabul River Basin so the need for electricity and water for irrigation increases, Afghanistan faced many problems related to climate change including floods, droughts and less snowfall. It has been reported that Afghanistan has the potential to produce nearly 23,000 Megawatts of hydroelectric power from its rivers including Kabul River which can produce up to 3,100 megawatts of electricity.<sup>4</sup> Kabul River System irrigates 300,000 hectares of land in Kabul River Basin, as the population increases so it needs more dams to control the flow of water supply and management of the river<sup>5</sup>. Like Pakistan, Afghanistan has also glaciers which provide water to all five river basins including Kabul River Basin and some the rivers including Kabul River, Gomal and other rivers which irrigates fertile

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<sup>1</sup> Golam Monowar Kamal, *River basins and Watersheds of Afghanistan*, ( Kabul: Afghanistan Information Management Service (AIMS) , May 10, 2004)

<sup>2</sup> Ibid

<sup>3</sup> Torge Tunnermeier, Dr Georg Houben and Dr Thomas Himmelsbach, *Hydrogeology of the Kabulbasin Part1: Geology, aquifer characteristics, climate and hydrography (Project)*,( Germany: Federal Institute for Geosciences and Natural Resources (BGR) funded by Foreign Office of the Federal Republic of Germany, August 31, 2005).

<sup>4</sup> P. Abeygunawardena, *Technical Assistance to the Islamic Republic of Afghanistan for Preparing the Small to Medium-Sized Hydropower Development Project*, (Asian Development Bank (ADB) October 2005)

<sup>5</sup> "Appendix to the Transboundary Water Policy of Afghanistan:?" Trans boundary Water Issues Draft 26 April 2007.

valleys inside Pakistan. According to United Nations Food and Agriculture Organization and ground water studies, Afghanistan has 95 billion cubic meters of water available in the country which includes 88% or 84 billion cubic meters of surface water and 12% or 11 billion cubic meters of ground water<sup>6</sup>. This estimate was given by FAO as there is no reliable estimate available in the country because the water flow measuring instruments was destroyed by the prolong war in Afghanistan.<sup>7</sup> Indus River Basin is the second largest river after Yangtze River Basin which is located in People's Republic of China, with an estimated area of 1,116,086 square kilometers and area within Hindu Kush-Himalaya is estimated to be nearly 555,450 square kilometers.<sup>8</sup> Similarly Kabul River Basin along other two river basins including Upper Indus Basin and Panjnad River Basin are a part of larger Indus River Basin, but the Kabul River Basin is located inside Pakistan and Afghanistan.<sup>9</sup>

### **Pakistan's Concerns**

Pakistan's major concern is, if the Afghan government constructs dams on river Kabul it will reduce the flow of water to Peshawar valley which will greatly affect the agriculture production. Kabul River irrigates areas of Khalsa, Douaba, Daudzai and other regions of Peshawar valley, some areas have fruits orchards in which locals earns millions of rupees annually. Other than fruits, vegetables, corn, rice and maize are also grown in this area. With the assistance both India and the World Bank, Afghanistan plans to construct 12 dams with the total capacity of 4.7 million acre feet water. Pakistani concern is that these dams will affect the flow of water of Kabul River which joins the River Indus at Attock.<sup>3</sup> This will be the source of food insecurity for Pakistan especially for Peshawar region, there will be crises and people's income will be lost. Another biggest concern is of global warming; fast melting of glaciers will affect the River Kabul's tributary the Kunar River. These dams will reduce the flow of water to Peshawar valley which will affect the relations between Pakistan and Afghanistan; also there will be greater resentment amongst the local population. River Kabul is also a major supplier of water to the River Indus, but the supply of water is decreasing and increasing on yearly basis. As the historical record shows

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<sup>6</sup> Bob Rout, *Water Management, Livestock and the Opium Economy. How the Water Flows: A Topology of Irrigation Systems in Afghanistan*, (Afghanistan Research and Evaluation Unit Issue Paper Series on June 2008)

<sup>7</sup> Ibid.

<sup>8</sup> Samjwal Ratna Bajracharya and Basnatha Shretha, *The Status of Glaciers in the Hindu Khush-Himalaya Region*" (Nepal: International Center for Integrated Mountain Development Kathmandu Nepal November 2011), available at: [www.icimod.org/publications](http://www.icimod.org/publications)

<sup>9</sup> Ibid.

that the flow of water from the lowest to the highest annual flows are 13.82 cubic km and 42.94 cubic km during the period from 1937-2007.<sup>10</sup>

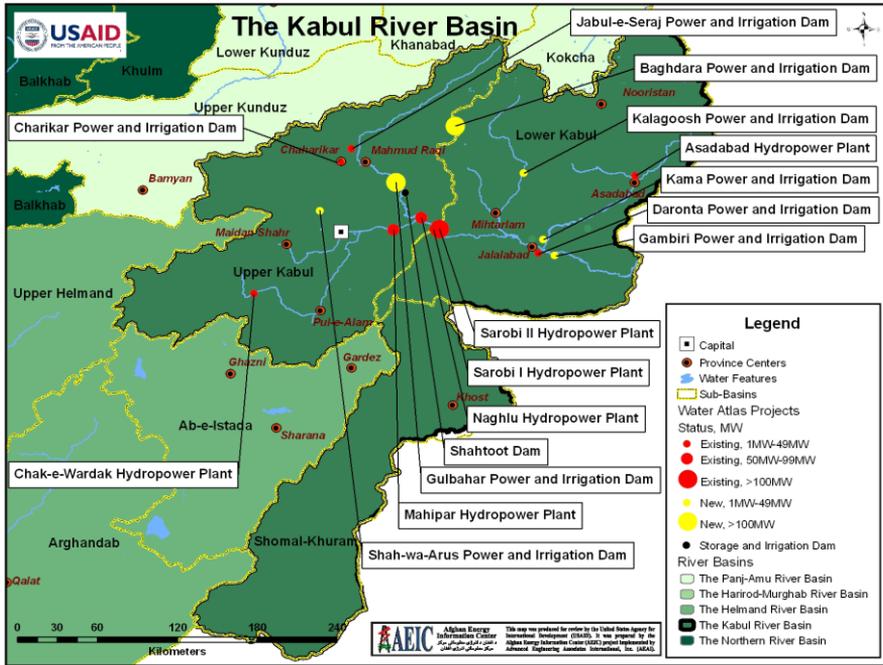


Figure 1: The Kabul River Basin AEIC (Afghan Energy Information Center)

Pakistan constructed a dam on River Kabul near Warsak, under the Colombo Plan in 1960 with the help of Canadian government this dam produces 240 MW of electricity and provides water for irrigating nearly 120000 acres of land in Peshawar Valley. If dams are built on Afghan side this will make the Warsak Dam dry up, and no water will be available for irrigation. Pollution is another problem for Pakistan especially in the area where Kabul River and its tributaries flows; it already has created problems for farmers.

### Afghanistan's View on Kabul River

Afghanistan has only one water agreement with Iran on Helmand River, and other than that no agreement have been signed with other neighboring

<sup>10</sup> Shahid Ahmad, *Towards Kabul Water Treaty: Managing Shared Water Resources- Policy Issues and Options*, (Karachi: IUCN Pakistan)

countries like Pakistan, Turkmenistan, Uzbekistan and Tajikistan, on Kabul River, Amu Darya, Harrirud and Murghab River and the Northern River basin. This was an estimate given by the FAO as there is no reliable estimate available in the country because the measuring instruments were destroyed by the prolong war in Afghanistan. These dams might lower the flow of water to Pakistan, which will create future tension among the two countries. Three rivers which are contributing to the flow of Kabul River Basin, these rivers like River Kabul, Logar and Paghman which has an enormous range and size of the catchment area of these rivers.<sup>11</sup> Afghanistan's agriculture sector relies considerably on irrigation of both modern and traditional, which tap water from rivers and streams<sup>12</sup>. Afghanistan's major population is dependent on agriculture sector, so they need water to irrigate land to produce crops and fruits for their own consumption and to export it to their neighboring countries. As the population of Afghanistan increases so their need for energy and food increases and in near future they have plans to construct new water reservoirs which produce both electricity and providing water for agriculture. As the population of Kabul increases from 1.2 million in 2002 to 3.7 million in 2010, so their demand for water consumption will increase. But only 20% of the population has access to portable water, they use ground water for drinking and for house hold purposes<sup>13</sup>. These irrigation and water projects will irrigate vast areas of Afghanistan's river basin and will also provide electricity for the local population of these areas. Afghanistan has not only the lowest water storage and capacity in the region but also has lowest in the world.<sup>14</sup> So with the help of India and the World Bank, Afghanistan has plans to construct 12 dams on River Kabul with the total storage capacity of 4.7 million acre feet of water and can produce electricity of about 2,092.5 MW with the total cost of nearly \$6.847 billion.<sup>15</sup>

The feasibility studies of these projects were already being conducted, the World Bank had offered to give Afghanistan more than 7 billion dollars for the water infrastructure of these projects on the Eastern Kabul River and the remaining foreign assistance will sought in future from either US or Canada for the construction of these dams.<sup>16</sup> The population of Kabul the capital and the largest city of Afghanistan has an estimated

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<sup>11</sup> Torge Tunnermeier and Dr George Houben, *Hydrogeology of Kabul Basin Part 1: Geology, aquifers, characteristics, climate and hydrography*, (Germany: official client Foreign Office of the Federal Republic of Germany)

<sup>12</sup> Abdullah Aini, *Water Conservation in Afghanistan*, (Afghanistan: Swedish Committee for Afghanistan (SCA)

<sup>13</sup> Khibar Rassul, *Water Scarcity, Livelihood & Conflict*, (Kabul: Cooperation for Peace and Unity (CPAU), 2011), available at: [www.cpau.org.af](http://www.cpau.org.af)

<sup>14</sup> Gitanjali Bakshi and Sahiba Trivedi, *The Indus Equation: Indian Support for Afghan Dams on the Kabul River*, (Strategic Foresight Group, 2011), available at [www.strategicforesight.com](http://www.strategicforesight.com)

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

population of about 3 million as of 2005 and is considered one of the fastest growing cities in Asia.<sup>17</sup> This increase in population will further multiply the problems including sanitation, pollution, more demand for drinking water, food security etc. Water shortage is a big problem for Afghanistan, it has world's lowest water storage and had constructed few dams which provide them electricity and to use water for agriculture, Kabul River Basin is a part of the Indus River Basin; it contains 1601 glaciers spread over an area of 1722 square km and estimated ice reserves of 183 km<sup>3</sup>. It is divided into four glacier sub-basins including Panjsher-Ghorband, Alingar-Alishing-Nuristan, Kunar and Swat.<sup>18</sup> These are major source of fresh water for the people of this river basin, as the population increases the demand for consumption of water will increase.

### **Bilateral Treaty under International Law between Pakistan and Afghanistan**

Pakistan and Afghanistan needs to sign a bilateral treaty on the sharing of Kabul river water so that, in future relations between Pakistan and Afghanistan do not suffer as it is among India and Pakistan. Pakistan is both upper and lower riparian state, so according to international law Pakistan has the right to utilize the Kunar river and Afghanistan is a middle riparian state it has the responsibility to share information on its future hydel power projects. This water treaty needs to reflect on major issues like pollution control, protection of flora and fauna, sharing of water etc. Kabul River is very important for both Pakistan and Afghanistan for it provides water for irrigation, drinking water for the population of Peshawar valley and also supports the Indus River system. The increase in population of Peshawar valley and also the refugee from areas which are affected by the war on terrorism had greatly affected the water level in Peshawar Valley.

The increase in population is also affecting agriculture land, more lands are used for unplanned housing schemes this had badly affected the agriculture production of the valley. Bilateral treaty will boost confidence and reduce suspicion among Pakistan and Afghanistan, as mistrust already exists between both the countries. In near future water dispute between Pakistan and Afghanistan will rise it is time for both countries to come towards the negotiation and to formulate a treaty on Kabul River Basin. The average of over 140 million acre feet (MAF) or 17.27 million hectare meter

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<sup>17</sup> Sanjay Pahuja, *Planning and Prioritizing Water Resources Investment: The Example of Kabul River Basin, Afghanistan*, (The World Bank, South Asia Region)

<sup>18</sup> Samjwal Ratna Bajracharya and Basanta Shrestha, *The Status of Glaciers in the Hindu Kush-Himalayan Region*, (Nepal: International Centre for Integrated Mountain Development Kathmandu Nepal 2011), available at: [www.icimod.org/publications](http://www.icimod.org/publications)

(MHM) of water flows annually in the Indus River System.<sup>19</sup> Additionally, precipitation is over approximately 80,000 square miles (207254 square km) of the Indus Plains and Peshawar valley contributes nearly 40 MAF (4.93 MHM), out of which 25 million acre feet (3.084 MHM) fall in the canal command system.<sup>20</sup> Peshawar valley is contributing nearly 28.57% of the total water to Indus River Basin, if Afghanistan constructs dams that mean Pakistan might lose some portion of water from the Kabul River. This Kabul River water sharing should be resolved through international law no doubt in future it will become an issue for both the countries. Both countries are facing water crisis due to climatic changes which had occurred around the world and the most affected region will be the South Asian Region.<sup>21</sup>

A number of cases which relates to water sharing have occurred in Europe and also in Asia where different treaties were signed between states including the (1)Kushk River Case in 1893 between Afghanistan and Czarist Russia and (2) Arbitral awards on Helmand River of 19 August and 10 April 1905.<sup>22</sup> Similarly Indus Water Treaty is a comprehensive document which covers articles related to provision of both eastern and western rivers, data exchange, financial provisions, emergency provision and settlement of both differences and disputes.<sup>23</sup> Pakistan needs to sign a comprehensive Kabul River Treaty with Afghanistan and it should contain all articles related to the flow of water from different rivers including Gomul, Kabul and Kunar rivers, data about the water catchment areas of future dams being built in Kabul River Basin. Articles related to environment should also be included so rivers, streams and artificial lakes could be protected from industrial waste. Last but not least a commission under this treaty should be created so it could check glaciers and glacier lakes that are formed after melting of a glacier.

### **Environmental impact and Local Conflict on Kabul River Basin in both Pakistan and Afghanistan**

Both Pakistan and Afghanistan is facing multiple problems including increasing population, drought, floods, demographic changes and internal conflicts. Since 2001, Afghanistan had faced problems including low snowfall, drought, deforestation, over-population and also the breakdown of Mirab (Is a respected member of a community who is responsible for controlling of water for irrigation) system which caused the

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<sup>19</sup> 'Water Resources Development'

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

<sup>22</sup> International Tribunals' Food and Agriculture Organization , *Summary of Decisions by International Tribunals including Arbitral Awards: 4:1*, available at: [www.fao.org](http://www.fao.org)

<sup>23</sup> "Indus Water Treaty, available at: [waterinfo.net.pk](http://waterinfo.net.pk)

shortage of water.<sup>24</sup> In 2008, it was estimated that Kabul River Basin has nearly 20.76 billion cubic meters of water per year for an estimated population of about 8.9 million which means 2333 cubic meters of water would be distributed among its population.<sup>25</sup> The climate change has affected the lives of the people of Pakistan and Afghanistan; this climate change had caused the shortage of water because rising of temperature, melting of glaciers, drought and shifting precipitation patterns.<sup>26</sup> Global warming had reduced the larger glaciers in the Pamir and the Hindu Kush Mountains by 30% and the smaller glaciers have virtually disappeared. The melting of glaciers in the Hindu-Kush-Karakoram-Himalayan region will have a bad effect on the lives of millions of people and another major concern is the changing monsoon patterns which would decrease the precipitation by 20% in the Kabul River Basin.<sup>27</sup>

Pakistan is also a victim of climate change it was hit by many natural disasters including floods, drought, low rainfall and changes in weather pattern had affected the agriculture sector in Khyber Pakhtunkhwa province especially in Peshawar valley. Pakistan is having more than 5,000 glaciers which flow into Indus River from 10 Sub-basin through different small rivers and streams ranging from few meters to more than 70kms.<sup>28</sup> These glaciers are the life line for Pakistani rivers which includes Kabul River and Indus River as well; these glaciers are located in the provinces of Khyber Pakhtunkhwa, Azad Kashmir and Gilgit-Baltistan. Another concern for Pakistan is that due to climatic changes it had formed nearly 2500 glacier lakes because of glacier melting water and 52 out of 2500 glacier lakes have been potentially declared dangerous for Glacial Lake Outburst Flood (GLOF).<sup>29</sup> In 2010 almost all of Pakistan had faced the biggest floods in its history; this flood had caused destruction to the economy worth Rs 855 billion which had killed 1985 people and 20 million people were affected throughout Pakistan.<sup>30</sup> This flash flood also affected Khyber Pakhtunkhwa

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<sup>24</sup> Khibar Rassul, *Water Scarcity, Livelihood and Conflict*, (Kabul, 2011), available at: [www.cpau.org.af](http://www.cpau.org.af)

<sup>25</sup> Ibid.

<sup>26</sup> Paula Hanasz, *The Politics of Water Security in the Kabul River Basin*, (Strategic Analysis Paper Independent Strategic Analysis of Australia's Global Interests, 10 November 2011)

<sup>27</sup> Ibid.

<sup>28</sup> Rasul, G. Q Z Chaudhry, A. Mahmood, K. W. Hyder and Qin Dahe, "Glaciers and Glacial Lakes under Changing Climate in Pakistan" *Pakistan Journal of Meteorology* , 8(15), 2011

<sup>29</sup> Ibid (2011)

<sup>30</sup> Aziz, A., "Rainfall-Runoff Modeling of the Trans-Boundary Kabul River Basin Using Integrated Flood Analysis System (IFAS)". *Pakistan Journal of Meteorology* ,10 (20), 2014

which had killed 1156 people and displaced 3.8 million including families.<sup>31</sup> As Pakistan's population increases so it also increases demand for fuel including natural gas for cooking and petrol or diesel fuel for automobiles which causes carbon emissions increases the temperature which melts glaciers and this creates massive floods which destroys houses, crops and other infrastructures including bridges and dams. In 2015 another massive flood hit the largest district in Khyber Pakhtunkhwa the Chitral district, this flash flood was caused by glacial lake outbursts and cloudbursts which had destroyed the infrastructure in Chitral and cutoff the district from rest of the country leaving nearly 200,000 people trapped.<sup>32</sup> Chitral valley alone has nearly 542 glaciers that feed 187 glacial lakes, some of these glacial lakes became unstable and causes massive flooding not only in Chitral but also in plain areas. Because of global warming these glaciers are reducing at a rate of 40-60 meters per decade which is slowly increasing water level of glacier lakes.<sup>33</sup> Kaitu, Tochi and Gomal rivers irrigates agriculture lands of Tank, D.I Khan, Bannu and North Waziristan.<sup>34</sup> Kabul River is a life for the people of Khyber Pakhtunkhwa in particular and the people of Pakistan in general. Urbanization is also another factor for the both countries including Pakistan and Afghanistan where people from rural areas migrate to cities where they find jobs so the demand for water increases. Kabul River System irrigates 85% of Afghanistan and 70% of Pakistan are dependent upon agriculture as a major source of livelihood especially in Khyber Pakhtunkhwa.<sup>35</sup> The major rivers which are contributing to the water flow of Kabul River System in Pakistan; especially in Khyber Pakhtunkhwa are Chitral, Panjkora, Swat, Jinday and Bara rivers.<sup>36</sup> Pakistan had already constructed five small and one large dams to store and provide water for agricultural lands.<sup>37</sup> The water inflows from Afghanistan to Pakistan is nearly 17.5 million acre feet (MAF) in the Kabul River Basin and water outflow from Pakistan is 8 million acre feet which is utilized by all four provinces of Pakistan including Khyber Pakhtunkhwa and Baluchistan.<sup>38</sup> On one side Afghan population will also

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<sup>31</sup> Ibid. (Aziz, A.)

<sup>32</sup> Muhkamuddin, "Natural calamity: Flash floods leave trail of destruction in Chitral", *The Express Tribune* (July 21, 2015)

<sup>33</sup> Iftikhar Firdous, "When nature falls apart: What really happened in Chitral" *The Express Tribune* (July 24, 2015)

<sup>34</sup> Khalid Aziz, "Apocalypse on the Indus", *Criterion*, 10 (4), (October-December 2015)

<sup>35</sup> Mohammad Nafees, Shabir Ahmad Khan and Zahidullah, "Construction of Dam on Kabul River and its Scio-Economic Implication for Khyber Pakhtunkhwa, Pakistan" Paper presented in Seminar on "Pak-Afghan Water Sharing Issue" (SASSI February 23, 2016)

<sup>36</sup> Ibid.

<sup>37</sup> Ibid.

<sup>38</sup> "Hydro-diplomacy between Pakistan and Afghanistan" (Islamabad: Leadership for Environment and Development (LEAD) Pakistan, March 2016)

increase especially in Kabul Metropolitan Area (KMA) from 4.5 million in mid-2014 to 8 million in 2050 for this growing population Afghanistan would need more water reservoirs to supply water to Kabul.<sup>39</sup> Kabul City is now considered as fifth fastest growing city in the world and is also one of the most water stressed city.<sup>40</sup> Latest estimate shows Afghanistan plans to build 2406.3 megawatts of hydel power plants which will reduce water flow to Kabul River and will affect the agriculture growth in Khyber Pakhtunkhwa especially in Peshawar Valley.<sup>41</sup> Similarly the Pakistan's province of Khyber Pakhtunkhwa may face crop failures by 2080 including maize and wheat because of climate changes, and it will sever effect on population of this province.<sup>42</sup> This type of crop failures will create both economic and refugee crisis in Pakistan by 2080.<sup>43</sup> Pakistan is also among the water stressed country, where demand for water is greater than supply because due to lack of water storage reservoirs in Pakistan.

India and Afghanistan had completed the feasibility studies of 12 dam projects which will be built on River Kabul or Kunar River. These dams will cost \$7.079 billion, which will store 4.7 million acre feet of water and will generate 1177 MW of electricity, these funds will be provided by the World Bank.<sup>44</sup> India wants to squeeze Pakistan from two sides by building dams on Rivers of Chenab, Jhelum and Indus on Eastern side bordering India and also building dams in Afghanistan so it could reduce the flow of water entering into Pakistan.<sup>45</sup> Among 12 dam projects, four more dams which are located in the Lower Kabul sub-basin including, Sarobi project which will produce 210 MW of electricity and will store 324,400 acre feet of water and the dam is estimated cost is \$442 million; the second hydel power station is the Laghman project which produces more electricity and its water capacity is less than the Sarobi power project. It is estimated that it will produce 1251 MW electricity and it has the capacity to store

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<sup>39</sup> Mohsin Amin and Elnaz Hassanpour, "Water Crisis in Kabul Could be Severe If not Addressed" *The SAIS Review*, (International Affairs Foreign Policy Institute, August 22, 2017)

<sup>40</sup> Ibid.

<sup>41</sup> Raza Ullah, *Transboundary Water Issues between Pakistan and Afghanistan*, (Faisalabad: University of Agriculture Faisalabad, Pakistan, July 13, 2017 ) available at: [www.iasc2017.org](http://www.iasc2017.org)

<sup>42</sup> "K-P is likely to face crop failures by 2080: study" *The Express Tribune*, (Sunday October 9, 2016)

<sup>43</sup> Ibid.

<sup>44</sup> Khalid Mustafa, "India out to damage Pakistan's water interests on Kabul River" *The News International*, June 5, 2016, available at: [www.thenews.com.pk/print/125490-India-out-to-damage-Pakistan-water-interests-on-Kabul-river](http://www.thenews.com.pk/print/125490-India-out-to-damage-Pakistan-water-interests-on-Kabul-river), retrieved on May 12, 2018.

<sup>45</sup> Ibid .

233,568 acre feet of water and the project will cost \$1.434 billion.<sup>46</sup> Pakistan and Afghanistan shares nine rivers includes Gomal, Kurram, Shamil-Kaitu and Kabul river in Khyber Pakhtunkhwa and in Balochistan is Kand, Kundar, Jujroi Killi, Turwa, Tirkha and Abdul Wahab rivers with Afghan Bordering Afghan provinces which has an annual flow of 18.3 million acre feet or 22.57 billion cubic meters of water, from which Kabul river contributes 16.5 million acre feet or 20.352 billion cubic meters of water which is 90% of the total annual flow and Kunar or Chitral river contributes nearly 8.5 million acre feet or 10.484 billion cubic meters of water which is 46.44%.<sup>47</sup> Chitral River which starts from Chitral Valley which is located in Pakistan and enters Afghanistan where its name changes to Kunar River which joins Kabul River near Jalalabad and re-enters Pakistan above Torkham border.<sup>48</sup> According to experts Afghanistan's 90% of its fertile land is located in its five river basins which include Panj-Amu Darya River Basin, Kabul River Basin, Helmand River Basin, Harirud-Murghab River Basin and Northern River Basin. These 12 dams will store a total of 4.7 million acre feet of water to irrigate fertile lands located in three sub-basins which include Logur Upper Kabul sub-basin, Punjshir sub-basin and Lower Kabul sub-basin. It has been estimated that these planned dams will further utilize 0.5 million acre feet of water which will irrigate additional 14000 acres of land.<sup>49</sup> So far Pakistan is concerned, we are facing energy shortage due to increase in population and also imbalance between demand and supply of electricity to rest of the country. If the major dams are not built, then it is feared that Pakistan will be forced to buy electricity from Afghanistan.<sup>50</sup> According to Syed Mehr Ali Shah, Joint Secretary (Water Wing) in the Ministry of Water and Power had said that Pakistan is using 100% of Kabul River water up to Kotri Barrage. Similarly Pakistan is facing water shortage and total water flow from its rivers and dams are nearly 137 million acre feet of water or 168.98 billion cubic meters and these water uses have been developed for the last 50 years, and no upper riparian state like Afghanistan, to utilize Pakistan's committed share of its water resources.<sup>51</sup> According to the Pakistani water expert, Afghanistan could utilize its share of 2.5 million acre feet of or 3.08 billion cubic meters of water for irrigation purposes. He said Pakistan had committed the water flow of Kabul River

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<sup>46</sup> Ibid .

<sup>47</sup> "Orphan River" *Water management of the Kabul River Basin in Afghanistan and Pakistan*, available at: [www.mict-international.org](http://www.mict-international.org),

<sup>48</sup> Khalid Mustafa , "India out to damage Pakistan's water interests on Kabul River" *The News International*, June 5, 2016, available at: [www.thenews.com.pk/print/125490-India-out-to-damage-Pakistan-water-interests-on-Kabul-river](http://www.thenews.com.pk/print/125490-India-out-to-damage-Pakistan-water-interests-on-Kabul-river), retrieved on May 12, 2018.

<sup>49</sup> Ibid

<sup>50</sup> Ibid

<sup>51</sup> Ibid

from 16-17 million acre feet out of which Chitral River has contributed 8-8.5 million acre feet of water.<sup>52</sup> But unfortunately the political leadership hasn't constructed any dam like Kalabagh or Munda dam, but if these dams are not built still Pakistan has right over Kabul River water and Pakistan case is very strong if referred to any international forum.<sup>53</sup> During flood season 36 million acre feet or 44.4053 billion cubic meters of water passes through Pakistani rivers which could not be stored. In the dry season where Pakistan faces water shortage, so Pakistan uses 100% of Kabul River water during this season.<sup>54</sup> The water treaty between Pakistan and Afghanistan does not exist, so under the international convention Pakistan has the right to utilize 17 million acre feet or 20.969 billion cubic meters of water in Kabul River as it is the right of the lower riparian state.<sup>55</sup> Afghanistan has the right to use its 1.8 million acre feet or 2.22 billion cubic meters of water for its agriculture. So under the international convention both countries are bound to utilize its own developed water uses. To a question Mr. Shah said that Munda dam is being developed on Swat Basin which is Pakistan's own territory.<sup>56</sup> Mr. Shah further commented on the water storage of the 12 dams being planned for by Afghanistan with the help of India, by saying initially it will store 4.7 million acre feet of water than its storage capacity will be reduced to no more than 2 million acre feet.<sup>57</sup> If Afghanistan tries its best, it can utilize 2.5 million acre feet of water from River Kabul to irrigate its agriculture lands on plain areas.<sup>58</sup>

## **Conclusion**

Pakistan and Afghanistan both needs a comprehensive water treaty so in future any conflict or skirmishes shouldn't a rise, similarly India has an agreement with Pakistan on Indus water which had already created problems. Both countries need to follow the Helsinki Convention, UN Watercourses Convention 1997 etc. In future the war will be on the distribution of water resources because as the global temperature increases, in some areas of the world where there is prolong drought they will face water shortage. Both countries will face water shortages in near future and

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<sup>52</sup> Khalid Mustafa, "India out to damage Pakistan's water interests on Kabul River" *The News International*, June 5, 2016, available at: [www.thenews.com.pk/print/125490-India-out-to-damage-Pakistan-water-interests-on-Kabul-river](http://www.thenews.com.pk/print/125490-India-out-to-damage-Pakistan-water-interests-on-Kabul-river), retrieved on May 12, 2018.

<sup>53</sup> Ibid

<sup>54</sup> Ibid

<sup>55</sup> Ibid

<sup>56</sup> Ibid

<sup>57</sup> Ibid

<sup>58</sup> Ibid

also both countries needs to take measures to control the flow of industrial waste into the Kabul River System.

Both Pakistan and Afghanistan is facing multiple challenges including climate change, floods, droughts and mass migrations due to lack of understanding these challenges hasn't been addressed. Pakistan has more than 5000 glaciers and nearly 3000 glacier lakes which were formed due to high temperature which had reduced the length of a glacier and among them 52 glacier lakes have been considered as dangerous. In 2010 Pakistan had experienced the worst flood in its history when it affected 20 million people and killed more than 1000 people. This flood cost Pakistan more than Rs 800 billion and destroyed millions of acres farmland in provinces of Sind, Khyber Pakhtunkhwa and Punjab. Another reason for flash floods is the creation of Glacier Lakes Outburst Floods which has created havoc in Chitral in 2015.

Similar kind of situation can also happen in Afghanistan, because a country like Afghanistan is facing droughts, floods, low rainfall and rising of population. Afghanistan needs to sign an agreement with Pakistan especially on Kabul River and should mention every detail about 12 hydel power plants building on Panjsher Sub-basin, Logur Upper Kabul Sub-basin and Lower Kabul Sub-basin and all the rivers that enter Pakistan from Afghanistan. Kabul River is not only a major water resource for Afghanistan but it is also provides water for irrigation of agriculture lands in Pakistan especially in Peshawar Valley in Khyber Pakhtunkhwa Province.

Afghanistan and Pakistan are neighbors, and one can have a choice of friends, but not of neighbors. As neighbors one has to live in close coordination and cooperation with each other. Afghanistan and Pakistan have not only historic, cultural and religious affiliations but in fact were over part of the same empire under the Moghuls and then under the Durrani Empire. Afghan and Pakistani economies are almost integrated now, and a large population of the bordering provinces depends upon trade between the two countries. Concerning the distribution of water of River Kabul between the two countries, i.e. Pakistan and Afghanistan, it should be settled in such a manner that both the countries should benefit and any reservoir or dam built by Afghanistan should lie with the mutual consent of Pakistan. International law on water distribution should be respected, and the interest of the both countries should be safeguarded so that it benefits both the countries in the long run.

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