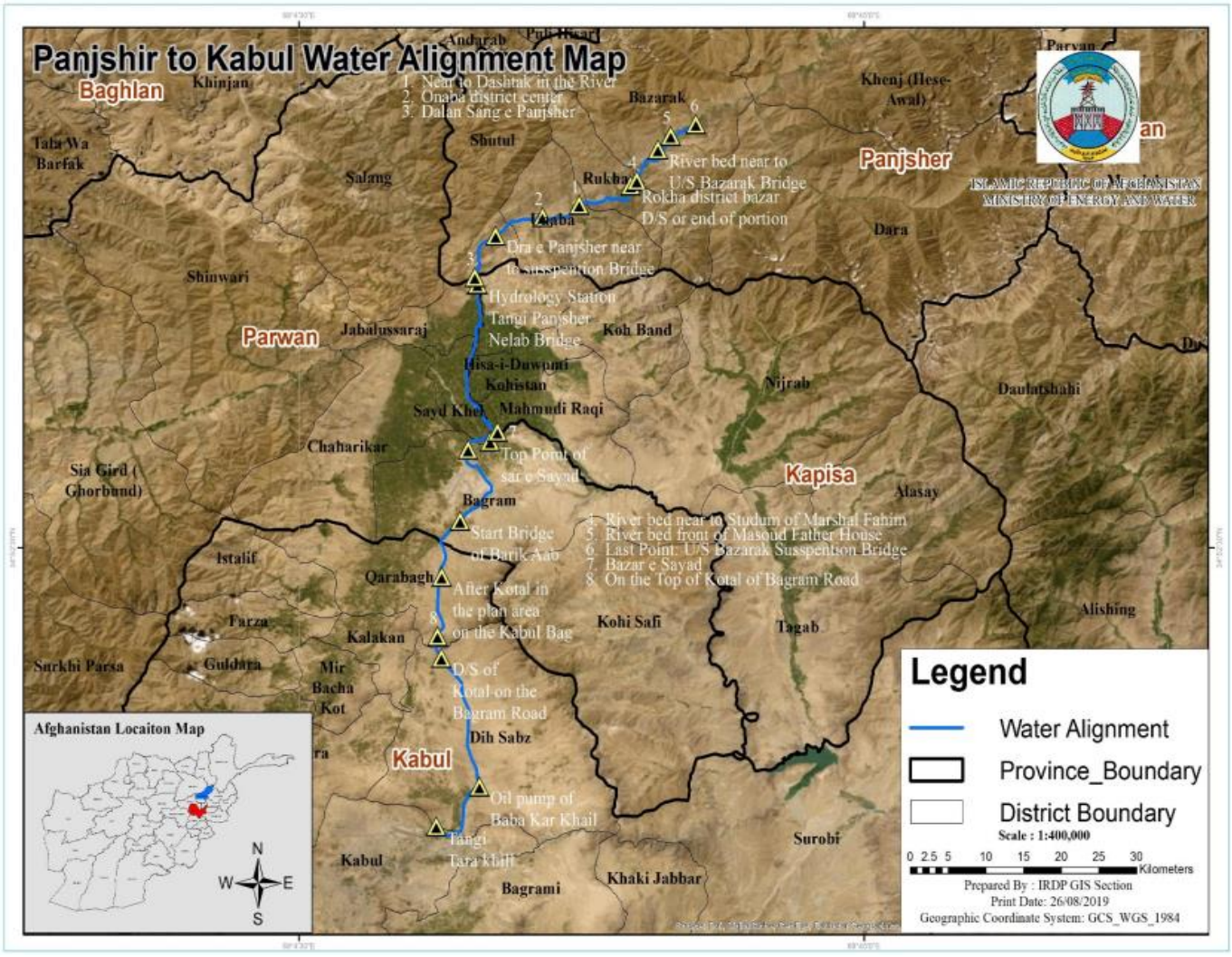
Investment Opportunity in Panjshir-Kabul water supply Project



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Acronyms

GoA: Government of Afghanistan

MEW: Ministry of Energy & Water

PPP: Private Public Partnership

CPA: Central Partnership Authority

HEC: High Economy Commission

Ha: hectare

HP: hydropower

CuM: Cubic Meter

MCM: Million cubic meter

BCM: Billion cubic meter

MEW

Abstract

Recently due to rapid advancement of the population in the capital city of Kabul and destructive effects of climatic changes which limited the surface water resources, groundwater has been the main water resource to supply the demands of all active sectors (drinking, domestic, industrial, agricultural, environmental and etc.,) and the water is being over extracted.

The change in land use, urban development, restriction of the agrarian lands and conversion of dirt roads to the asphalt and concrete have extremely lowered the natural infiltration process of surface run-off, rain, and snowmelt water for recharging the groundwater resources. therefore, the groundwater table has severely declined.

Considering the results acquired, the MEW has planned some projects for the management of groundwater resources in the Kabul City one of them is PJR-KBL Water supply project and intends their implementation with the help of Investors/partners (donors) organizations.

to supply surface water to the Kabul city and prevent excess usage of groundwater.
Water resources in Afghanistan are stressed because of poor management, inadequate infrastructures, and water shortages.

This substance (water) is the second most important substance in a human's life after oxygen, but millions of Afghans still lack access to sufficient quality water for drinking, irrigation, livestock, and livelihoods. Even though the country has a sufficient supply of safe drinking water per capita.

The Panjshir-Kabul water supply project main goal is to provide clean, hygienic and drinkable water to the residences of Kabul city, to improve the region's water storage capacity and to remain ground water table sustained. as the ground water table of Kabul city is shrinking down day to day and access to clean and healthy water is getting restricted and price full in Kabul city.

by completing the proposed project **5** million residences of Kabul city will have access to clean, hygienic and drinkable water. project estimated budget is approximately 150-200 MUS $.

The main aim of this proposal is to propose investment opportunity to domestic and international Investors in Panjshir-Kabul water supply project, which would have significant benefits in terms of clean drinkable water supply, the ground water table will remain stable and food security will enhance.

Introduction

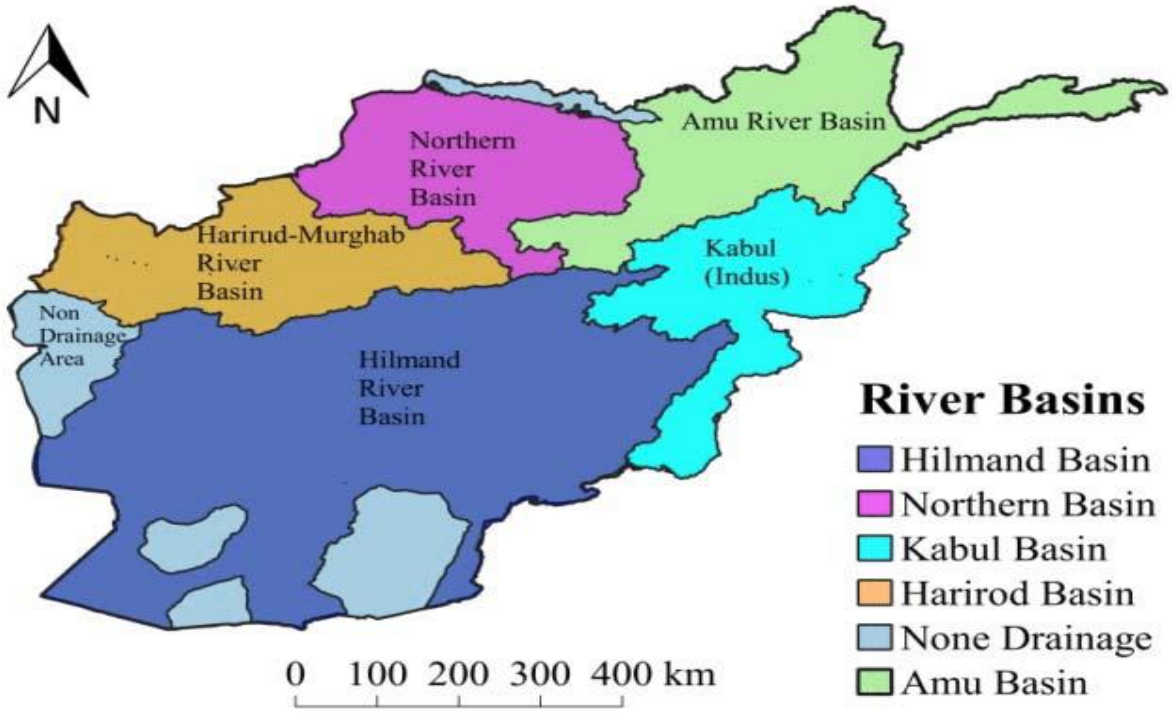
The Ministry of Energy and Water (MEW) is a government-based organization and has the mandate of Water Resources management, water Supply, Water regulation and Energy issues in the country. The Vision of the ministry of Energy and Water is to reduce Poverty and Unemployment, Economic, Social and public welfare through the protection and management of Water and Energy resources and their proper and sustainable use and regulation that ensures safe access to water and energy for present and future generations. The targeted population of this Ministry (MEW) are all Afghans over the country and has the honor of serving this vulnerable community for years.

In order to achieve goals and objectives, the Ministry of Energy and Water has developed following programs:

- Formulation of Policies, Strategies, related Laws and Regulations and Capacity building
- Clean and hygienic water supply
- Improving and Construction of Water Infrastructures
- Flood control and River bank protection
- Water Resources development
- Energy generation
- Energy transmission
- Electricity distribution

In Afghanistan, Water Resources are managed through five main River Basins; Amu River Basin, Northern River Basin, Kabul River Basin, Helmand River Basin and Harirud - Murghab River Basin as shown in below (figure-1).

PJR-KBL drinking water supply project is located on Panjshir river in Kabul Main River Basin. The Kabul River Basin is the most populated river basin, which covers 12% of the national territory, but alone it drains 26% of the total annual flow of Afghanistan. Therefore, the basin has major hydropower and water supply potential that is already partly developed.

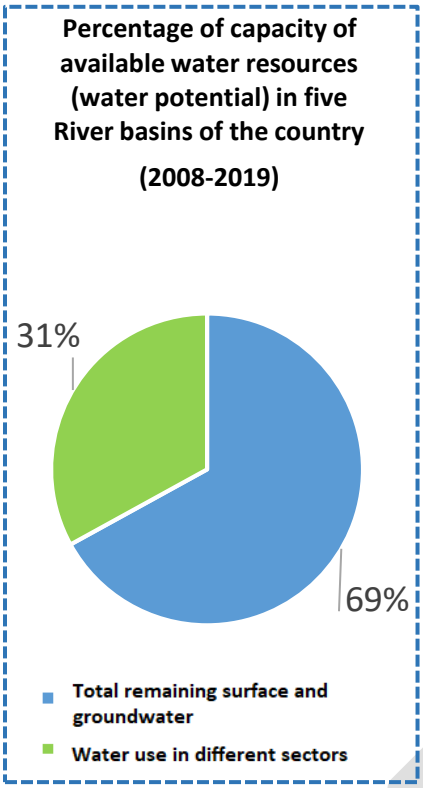


Five major river basins of Afghanistan (Figure-1)

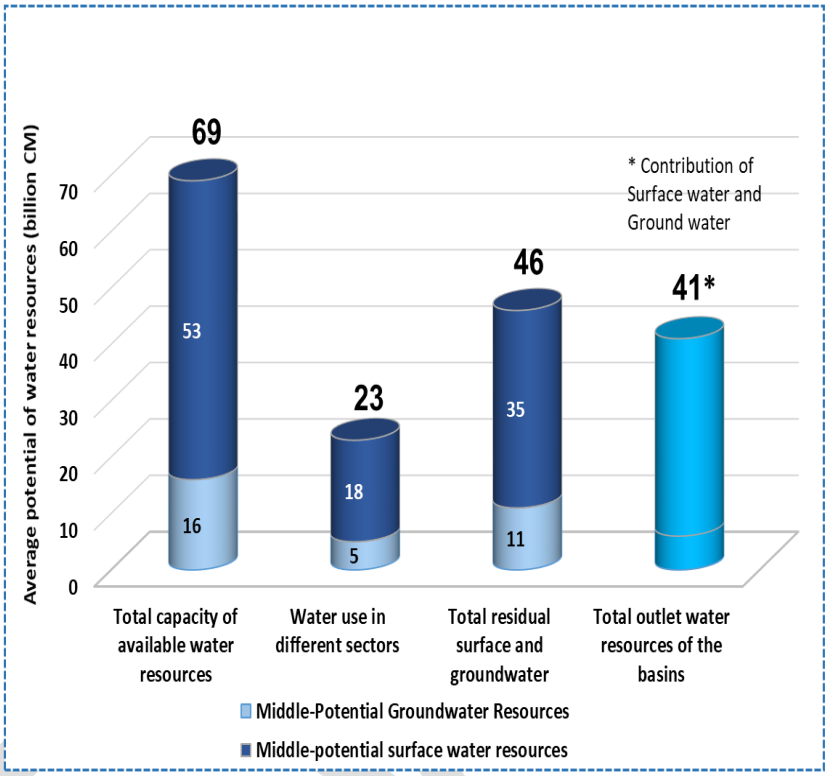
Water resources in Afghanistan

Afghanistan is located in half deserted atmosphere, although it is still rich in water resources mainly due to the series of high mountains such as Wakhan, Hindukush and Baba covered by snow. Over 80% of the country's water resources have their origin in the Hindu Kush Mountain ranges at altitudes above 2,000 m which function as a natural storage of water in form of snow during winter and thus support perennial flow in all major rivers by snow melt during summer. Discharges are rising continuously form March onward caused by snowmelt culminating in June/July before receding to a minimum in Dec/Jan. Most disastrous floods occur after heavy rainfall in March/April, especially when snowmelt is already well advance.

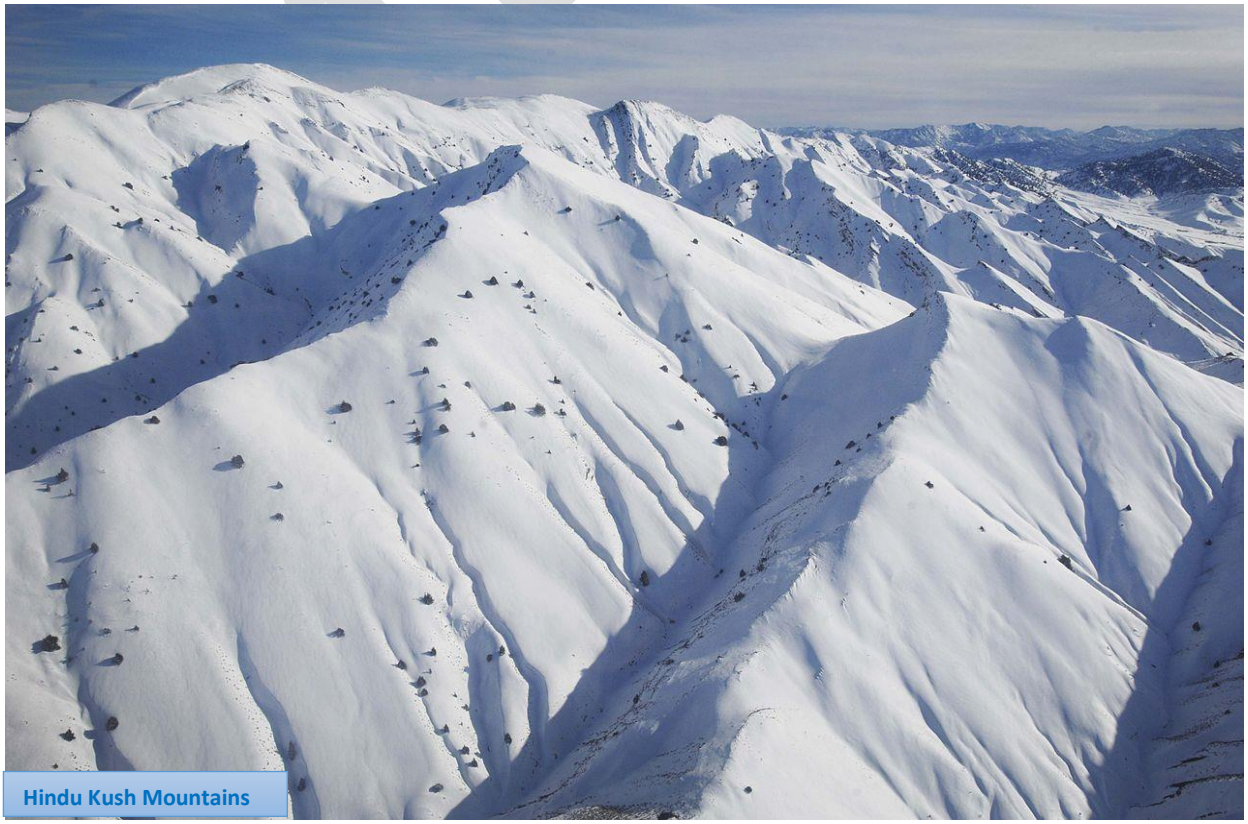
Recent estimates indicate that the country has 69 BCM of annual potential water resources of which 53 BCM is surface water and 16 BCM is groundwater. According to a comprehensive survey of the ministry, only 31% of total annual potential is used in various sectors which is shown in the (figure-2). The Survey shows that from total available 69 BCM potential, 46 BCM is residual surface and groundwater as shown in (figure-3).



(Figure-2)



(Figure-3)



Hindu Kush Mountains

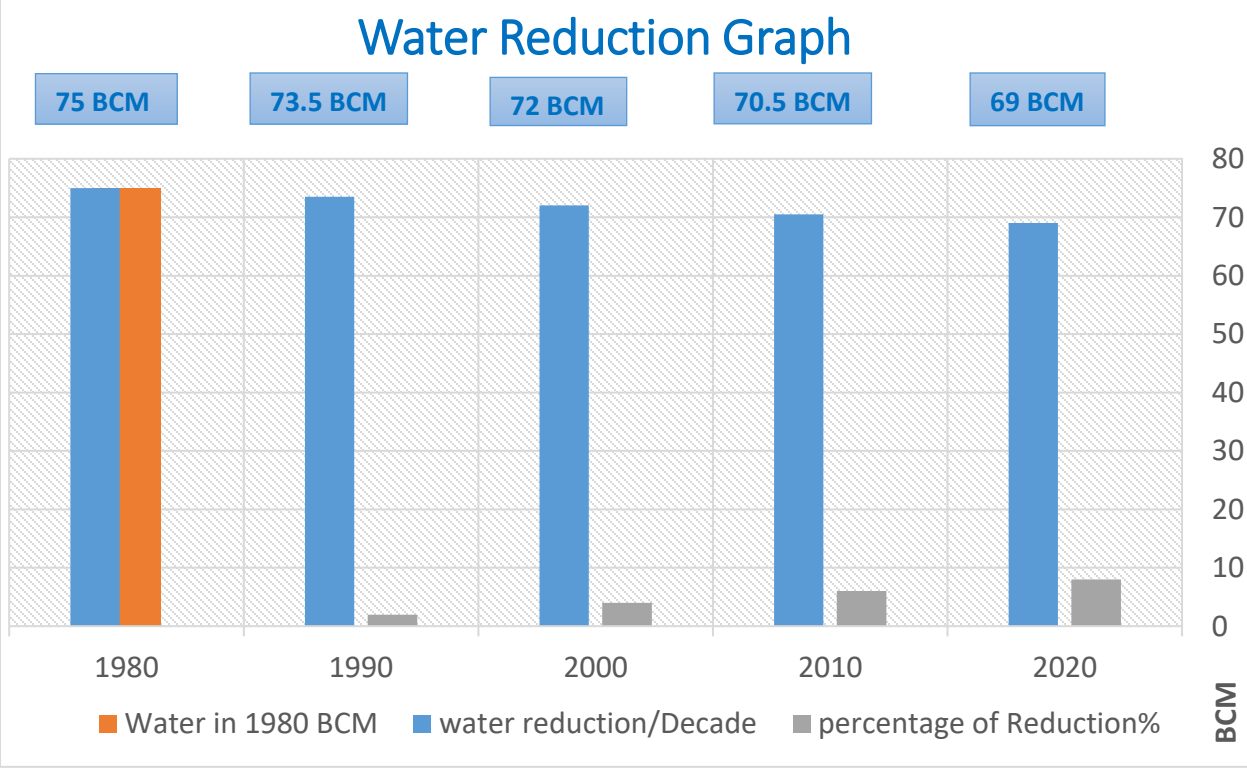
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Scarcity of water in Afghanistan

The population is in high growth in Afghanistan despite the amount of water is reducing day by day. The rapid increase in the demand for water for generating energy, drinking, livestock, and other sectors led us to substantial investment and contribution in the water sector of Afghanistan. In year 2018, the total Renewable Water Resources per capita decreased to 1758 cubic meters in a year and the Dam capacity per capita in year is calculated 45 cubic meters in a year.

The graph shows the scale of water downing per decade in the country, The dramatic decline in water resources capacity over the past four decades reflects global warming, the negative effects of climate change, human activities, rapid population growth and increasing demand for country's various water sectors (Domestic, Agriculture and Livestock, Electricity generation and Industry use).



(Figure-4)

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Needs

Water is the second most important substance after oxygen for a human beings' life but Millions of Afghans still have low access to enough quality water either for drinking, irrigation, livestock, or their livelihoods, and also the ground water table is declining day to day specially in Kabul city even though the country has an adequate amount of clean water per capita. Almost 70% of Afghanistan's water is flowing to the neighbouring countries and not being used.

This is primarily due to the low storage capacity and poor water supply and Irrigation systems. International communities have contributed significantly to the development of the water sector, their performance is highly appreciated.

Pressures on Water resources are increasing in Kabul due to increase in population, Urbanization , impacts of Climate Change, change in landcover, standards of living, lack of social awareness, furthermore, the demand for water resources is also increased. Water management have become a crucial issue and Investment opportunities should be given priority and well facilitated for addressing water scarcity problems in Kabul city.

Afghanistan has a wide range of natural resources (Water and Land) potential to be developed sustainable development of the country. Among natural resources of Afghanistan, Water has special economic value and there are a lot of opportunities to be developed. Moreover, Water is easily accessible and do not need huge effort and cost for development. In addition to underground water resources, Afghanistan has 25 long and short rivers, which has good technical and economical axis for infrastructures development. investing on surface water and supplying it to the populated cities like Kabul will not only remain ground water table stable but will also have numerous benefits in terms of drinking water supply for residences of populated cities.

PJR-KBL water supply project is one of the most feasible sites for development. The project will supply 4 CnM/sec drinking water to Kabul city through gravity flow system.

The country has been suffered a few decades war and couldn't able to has a strengthened, self-sufficient and stable economy based on industry, transportation, agriculture, and exportation the only way of putting a permanent end to this situation is to control, regulate and store our water and use it for drinking, energy, electricity, industry, agriculture, and multipurpose.

Therefore, MEW proposes to the domestic and international investors for investing in this important and essential project (PJR-KBL Drinking water supply Project).

General Information of PJR-KBL water supply Project			
SUMMARY OF THE PROJECT		**TECHNICAL & ECONOMIC INFORMATION**	
Location	Bazarak district of Panjsher Province	Pipe length	127 Km
River Basin	Kabul Main River Basin	Difference of elevation from PJR to KBL 200m	
Purpose	Drinking water supply	GPS points	N/A
Duration	Will respondent for upcoming 40 years	Supply Capacity	4 CuM/sec
Opportunity for investment	PPP modality	Water supply type	Gravity flow
Status of the project	Needs FS and DD	Type of supply pipe	1300mm Mild steel pipe
Company	PFS was done by MEW Team	Beneficiaries	Drinkable clean water supply for **5** million residences of KBL city

(Table-1)

Objectives

The overall objective of the proposed project is to supply clean, hygienic and potable water for Kabul city and to sustain ground water table of Kabul city.

Below are the specific objectives of this project

- To provide opportunities to private investors for investment in the water sectors.
- To put up ample opportunities for private firms to invest in energy and water sectors.
- To minimize the impact of various droughts in the project area.
- To increase access to water for various purposes (drinking, livestock, etc.).
- To sustain groundwater level stability.
- To improve food security.
- Socio-economic improvement.
- To provide job opportunities.

Proposed Intervention

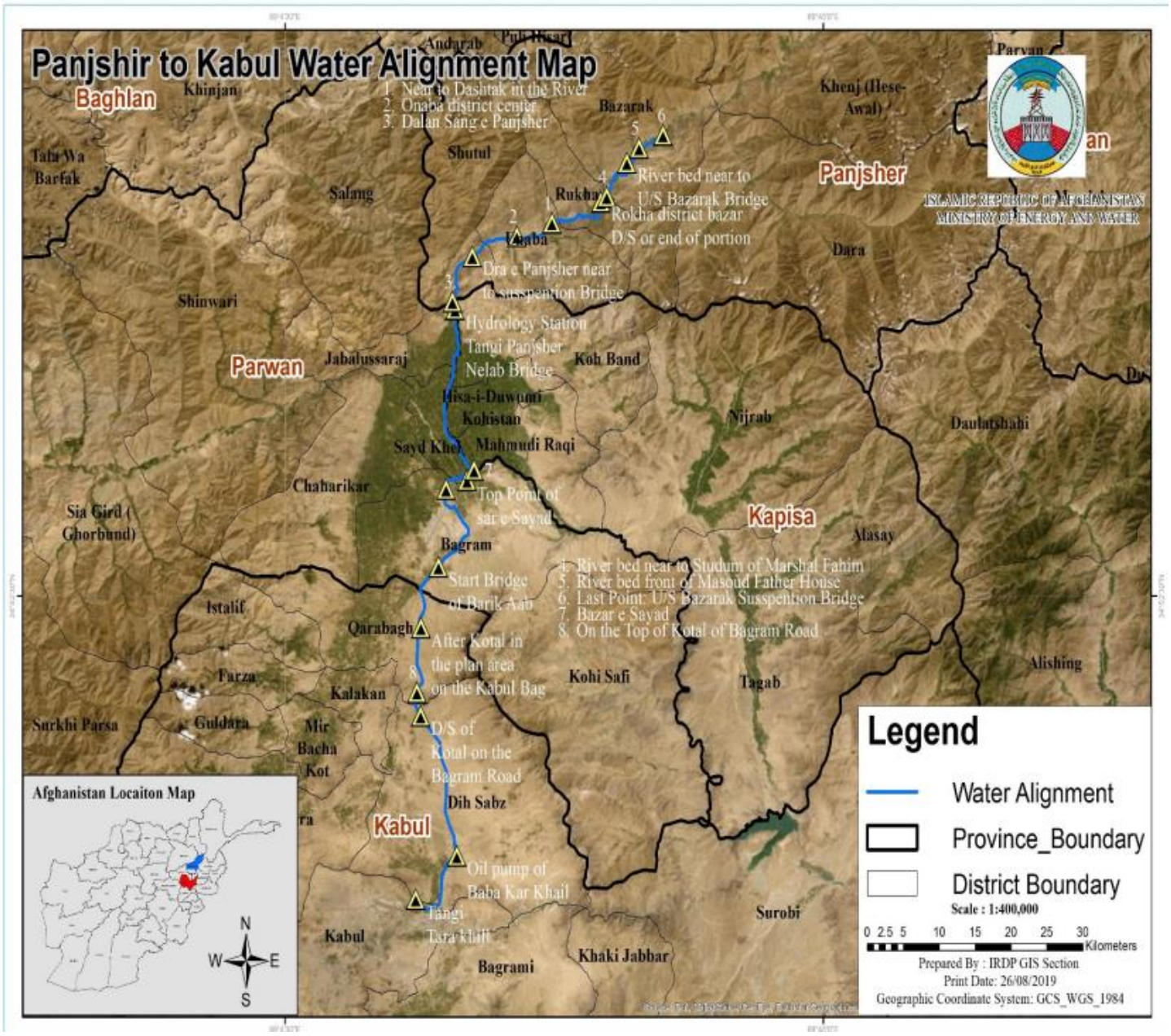
According to the Ministry of Energy and Water, effective management of water resources, especially avoiding the flow of water to the neighboring countries and using that water for drinking, produce energy and agriculture and is an important factor in converting the economic condition of the country. Due to the above, the ministry proposing Panjshir- Kabul water supply project to build water diversion on Panjshir River to divert water and supply it through pipes for drinking and other purposes to Kabul city.

The project has durable investment in drinking water supply, Livestock, Improvement of Environment and increase in job opportunities and income, Contribution to the national food security.

NEW

Location of Panjshir-Kabul Water supply influential and essential project is shown in the (Figure-5)

The diversion point of this project is located on the Panjshir river in Do-Aab village in bazrak District of Panjshir Province in Kabul Main River Basin.

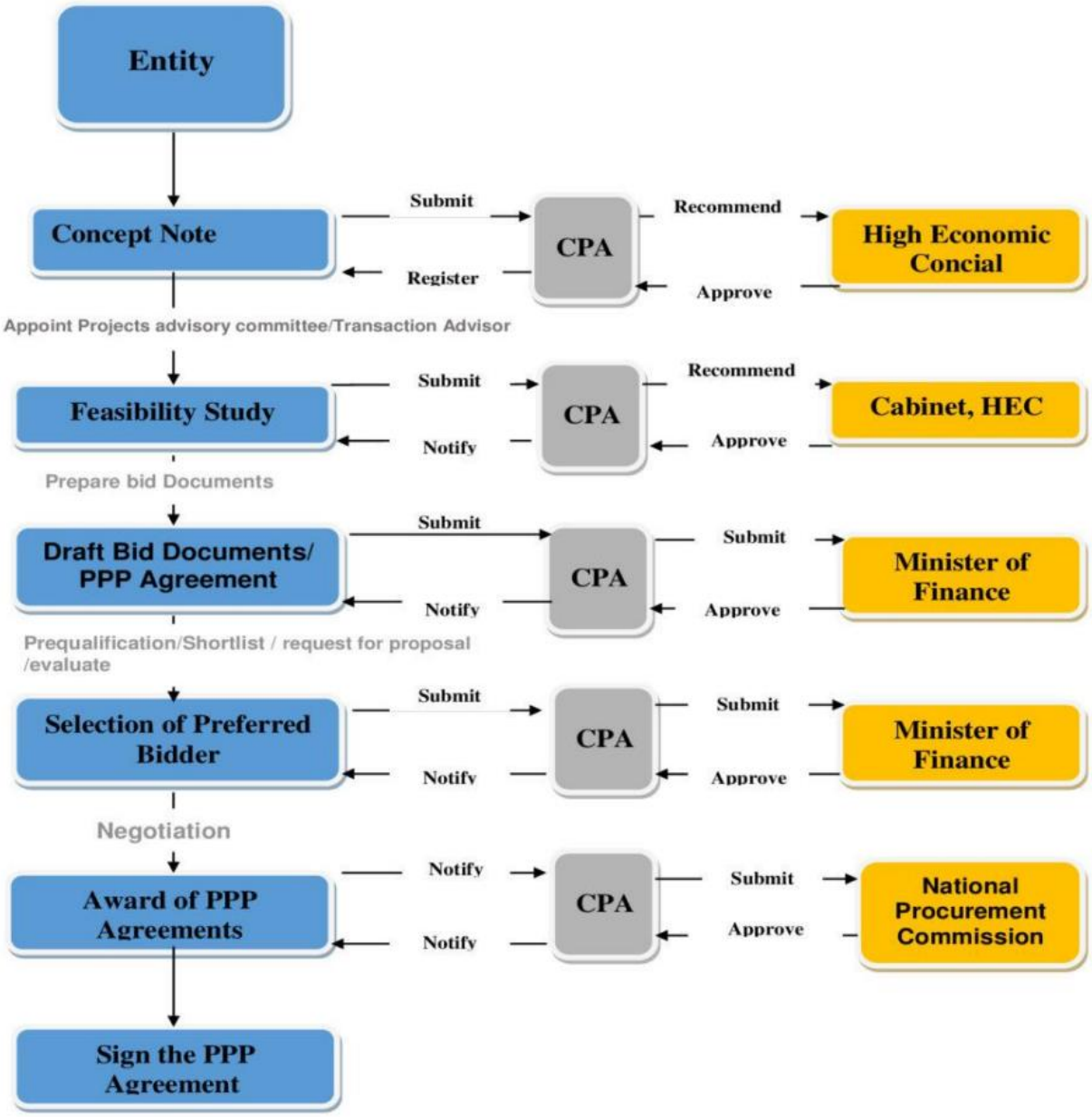


(Figure-5)

Implementation Procedure

The Ministry of Water and Energy proposing the project to be invested through PPP modality And has completed several large projects through Private Public Partnership (PPP) modality which is a best practice of implementing projects.

PPP modality put up ample opportunities to domestic and international investors to invest through this modal with much amount of revenue and prosperous and transparent way of investing PPP models in which investors can implement projects by sharing with government that have long lasting economic benefits which will insure business development as a corporation for long period.



Past experiences

Ministry of Energy & Water has considerable irrigation and hydropower large projects pervious experiences through the implementation of large dams and numerous irrigation canals where it is fully aware of the complexity of dams, water supply system, irrigation canals in energy and water sector

infrastructures, construction, and associated risks which is why the process of construction of these structures has been carried out in the light of internationally accepted standards and parties based on solid science and engineering principles.

The Ministry of Energy and Water with the contribution of technical and financial support of international donors completed countless large, medium, and small projects related to water sector, where the Kajaki Dam is through PPP modality under construction.

S.N	Name of project	location	Storage capacity	Power capacity	Irrigational area (Ha)	Beneficiary	Completion date
1	Kamal khan Dam	Nimruz	52 MCM	9 MW	174,000	East southern provinces	2021
2	Salma Dam	Herat	630MCM	42 MW	45,000	East northern provinces	2016
3	Kajaki-II	Helmand	2,700 MCM	160 MW	250,000	Southern provinces	Under construction

(table-2)



Economic analysis of this project

The development plan for Panjshir-Kabul Water supply project is planned by MEW through PPP models in which investors can implement projects by sharing with government that have long lasting economic benefits which will insure business development as a corporation for long period.

By constructing this major project about **4 CuM/**sec clean and drinking water will be provide to Kabul city Which would have an influential effect on the reliability drinking water, sustainability of ground water table, food security, social development, and overall economy of this area.

Economic analysis

Kabul-Panjsher Pipeline Water Supply Project	
Economic Income of the Project	
NPV:	Value US$
Net Present Value ($)	194,044,000
IRR:	%
Internal Rate of Return	17
B/C	
Benefit	0.9

The price level of CBA:	**2022**	**prices**
Investment cost:	150-200	MUS $
Start of investment:	2023	
Duration of investment:	3	years
The lifetime of the project:	40	years
Maintenance cost Per Year 5%	11,000,000	US $
Domestic water supply for Kabul city	0.4	$/CM
Annual inflation rate:	4	%
Discount rate:	9	%

Budget

Afghanistan is one of those 12 twelve landlocked Asian countries which has no access to the international ocean and have been suffering from pervious wars, therefore it affects the different sectors in the country which the water resources development is severely impact for civil war. In this aspect the country doesn't has a strengthened and stable economy to even fulfill their residence prime needs.

The economy of this country is based on foreign aid and cannot fund the large indispensable projects without the contribution of international communities. Therefore, we benevolently propose you the Panjshir-Kabul drinking water supply project for investing.

Project type	Location	Estimated Budget (MUSD$)
Drinking water supply	Panjshir to Kabul	**150-200 M$**

(Table-3)

Expected outcomes

The government of Afghanistan is unconditionally ready and will warmly welcome the contribution and investment of this project with all national and international investors, donors, private sectors, firms, and privet companies.

Water sector potential infrastructure project opportunity is available to be invested with an excessive number of incomes and beneficiaries.

Expected outcomes:

- Put an end to various diseases through access to enough healthy water and food.
- Give assistance to prevent climate changes through greening lands and planting trees.
- Water storage capacity of the region will be increased.
- Resilience of water resources to climate change has been increased.
- Access to safe and healthy drinking water.
- Improve the livelihood of backward communities in the region.
- Enrich and sustain groundwater of this region.
- Sustain groundwater levels higher.
- Assist to reduce global warming.
- Prevent pollution of air through greening and planting.
- Supplying 4 CuM/sec to Kabul city
- Contribution to the national food security.
- Jobs Opportunity & Increasing Revenue.

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