



# River Basins of Afghanistan

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# River Basins

- A river basin is an area of land drained by a river and its tributaries.



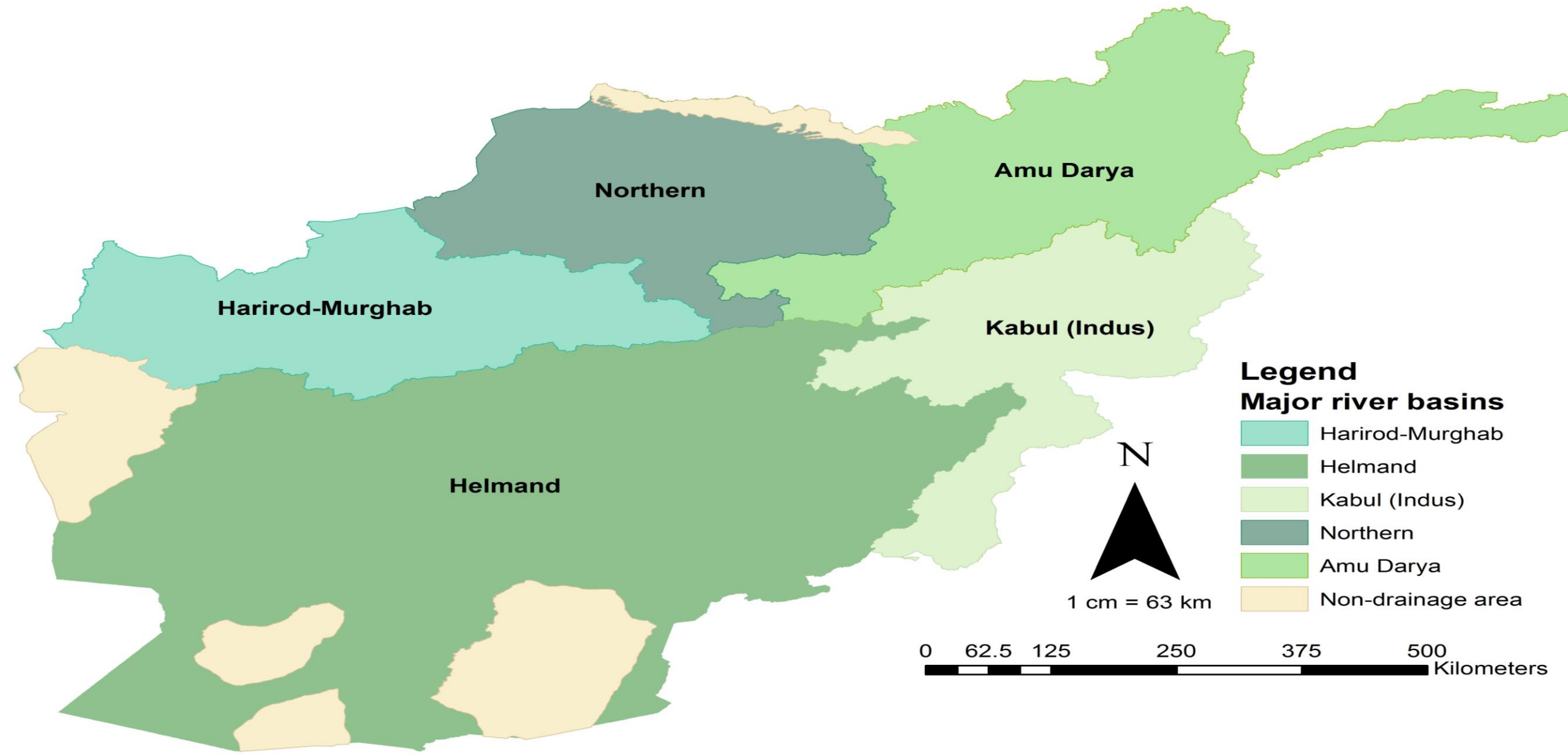
River basins have typical features, these include:

- Tributary – a smaller river or stream flowing into a larger river.
- A Watershed – an area of highland surrounding the river basin.
- Mouth – Where a river meets a lake, the sea or an ocean.
- Source – the start of a river.





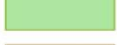



## There are five rivers basins defined in Afghanistan (Map).


- i. The Amu Darya river basin
- ii. The Northern river basin
- iii. The Harirod-Murghab river basin
- iv. The Hilmand river basin
- v. The Kabul (Indus) river basin



**Legend**  
**Major river basins**


-  Harirod-Murghab
-  Helmand
-  Kabul (Indus)
-  Northern
-  Amu Darya
-  Non-drainage area

N



1 cm = 63 km

0 62.5 125 250 375 500 Kilometers





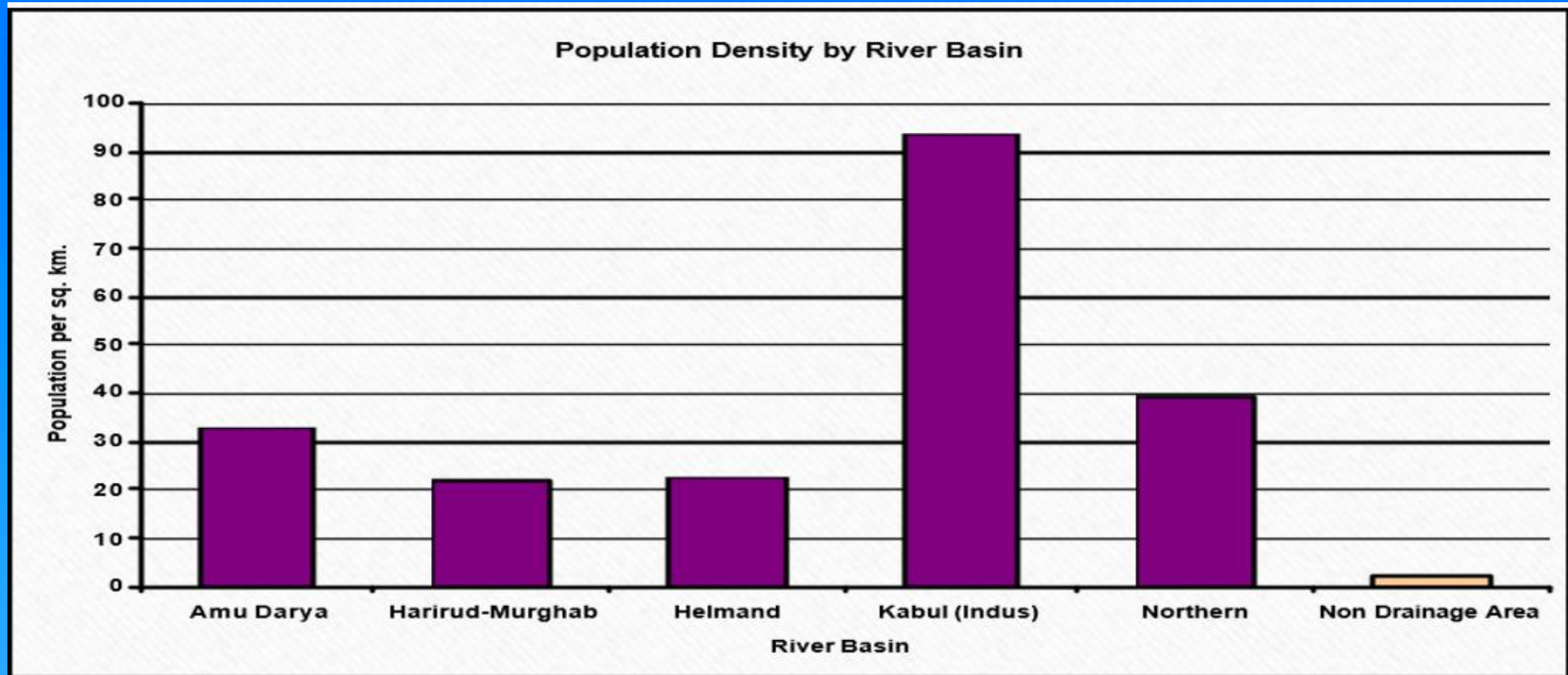
## Kabul (Indus) river basin

- Kabul River basin worn **77000 km<sup>2</sup>** Area.
- Kabul River sources 100 km far from Kabul city from Paghman Mountains (Awoni ghakhi)
- The **Major tributaries of** the Kabul River are the (Logar, Panjishir, Kunar, Alingar, Bara and Swat rivers)



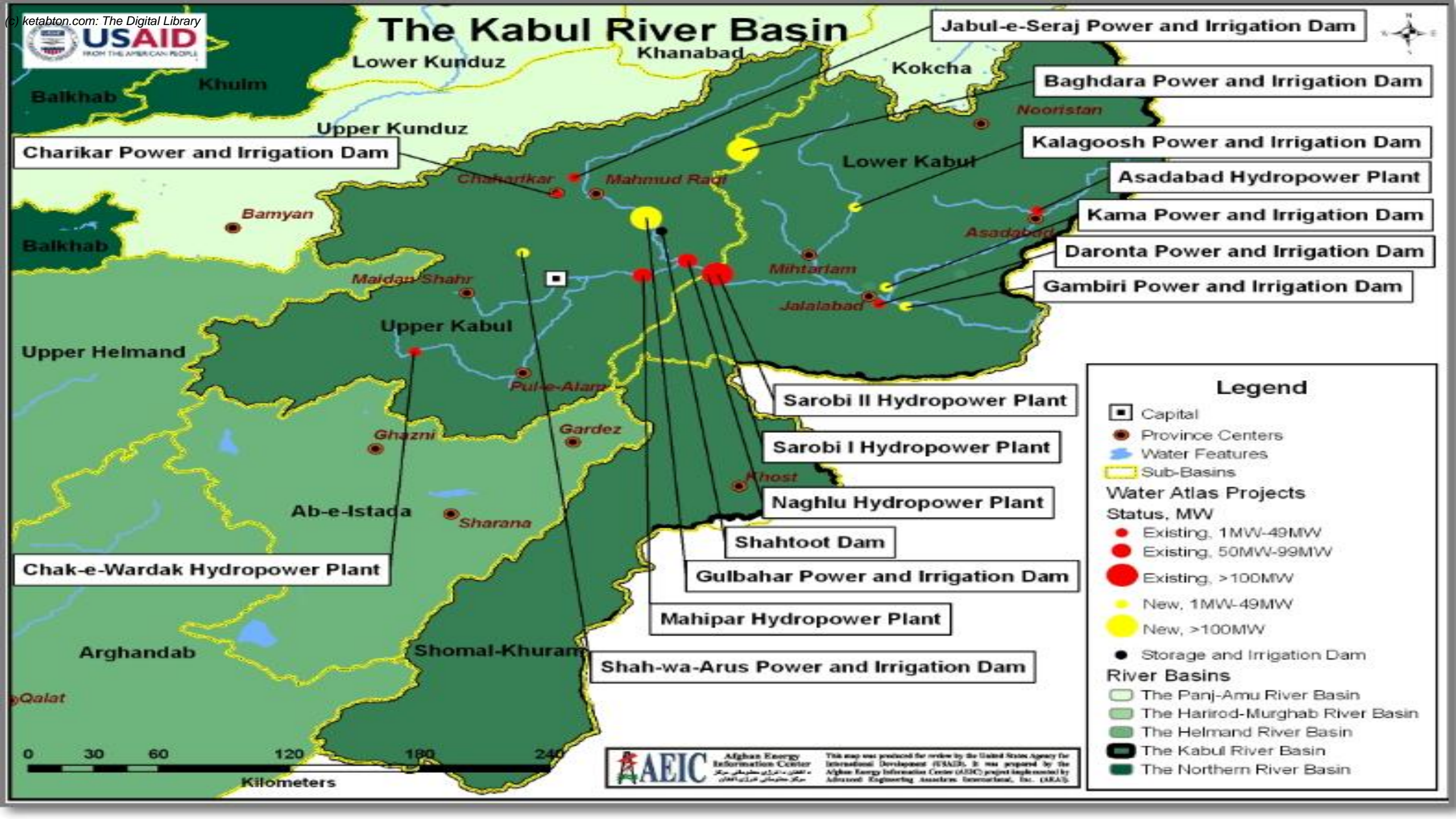
# GRAPHS

Graph 1 the largest settled population density is found in the Kabul river basin, (about 40% of all population) with 93 inhabitants/sq.km. The national average is 32 inhabitants/sq. km (nomadic population not included).





# The Kabul River Basin



Charikar Power and Irrigation Dam

Jabul-e-Seraj Power and Irrigation Dam

Baghdara Power and Irrigation Dam

Kalagoosh Power and Irrigation Dam

Asadabad Hydropower Plant

Kama Power and Irrigation Dam

Daronta Power and Irrigation Dam

Gambiri Power and Irrigation Dam

Sarobi II Hydropower Plant

Sarobi I Hydropower Plant

Naghlu Hydropower Plant

Shahtoot Dam

Gulbahar Power and Irrigation Dam

Mahipar Hydropower Plant

Shah-wa-Arus Power and Irrigation Dam

Chak-e-Wardak Hydropower Plant

## Legend

- ▣ Capital
- Province Centers
- ☪ Water Features
- ▭ Sub-Basins
- Water Atlas Projects**
- Status, MW**
- Existing, 1MW-49MW
- Existing, 50MW-99MW
- Existing, >100MW
- New, 1MW-49MW
- New, >100MW
- Storage and Irrigation Dam
- River Basins**
- The Panj-Amu River Basin
- The Harirod-Murghab River Basin
- The Helmand River Basin
- ▭ The Kabul River Basin
- The Northern River Basin



This map was prepared for review by the United States Agency for International Development (USAID). It was prepared by the Afghan Energy Information Center (AEEIC) project funded by USAID. Advanced Engineering Assistance International, Inc. (AAEI).



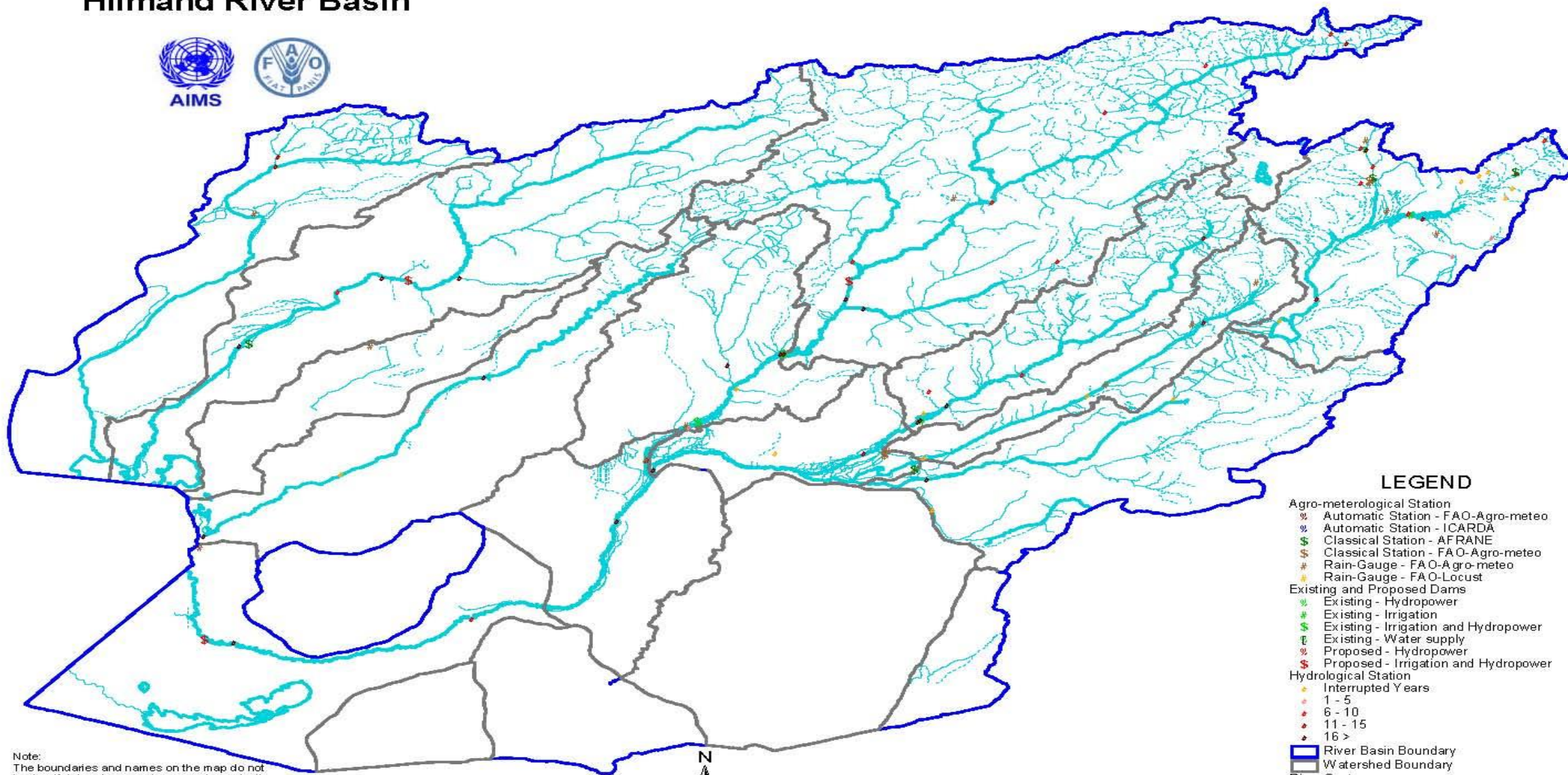


## Hilmand river basin

- The Hilmand basin is the largest in Afghanistan, covering almost half (43 percent) of the national territory.
- Helmand river basin has 1400 km Length. And cover 262000 Sq.km Area.
- Helmand River also sources from Paghman Mountains.
- After 1150 km going Cross the Afghanistan border and enter to Iran.
- The major tributaries of the H R B are the (Adraskan, Arghistan, Frah rod, Arghandab, MusaKala, Ghazni, and Tarank)



# Hilmand River Basin



## LEGEND

- Agro-meteorological Station
  - % Automatic Station - FAO-Agro-meteo
  - % Automatic Station - ICARDA
  - \$ Classical Station - AFRANE
  - \$ Classical Station - FAO-Agro-meteo
  - # Rain-Gauge - FAO-Agro-meteo
  - # Rain-Gauge - FAO-Locust
- Existing and Proposed Dams
  - % Existing - Hydropower
  - # Existing - Irrigation
  - \$ Existing - Irrigation and Hydropower
  - # Existing - Water supply
  - % Proposed - Hydropower
  - \$ Proposed - Irrigation and Hydropower
- Hydrological Station
  - Interrupted Years
    - 1 - 5
    - 6 - 10
    - 11 - 15
    - 16 >
- River Basin Boundary
- Watershed Boundary
- River System
  - River
  - Stream
  - Intermittent drainage

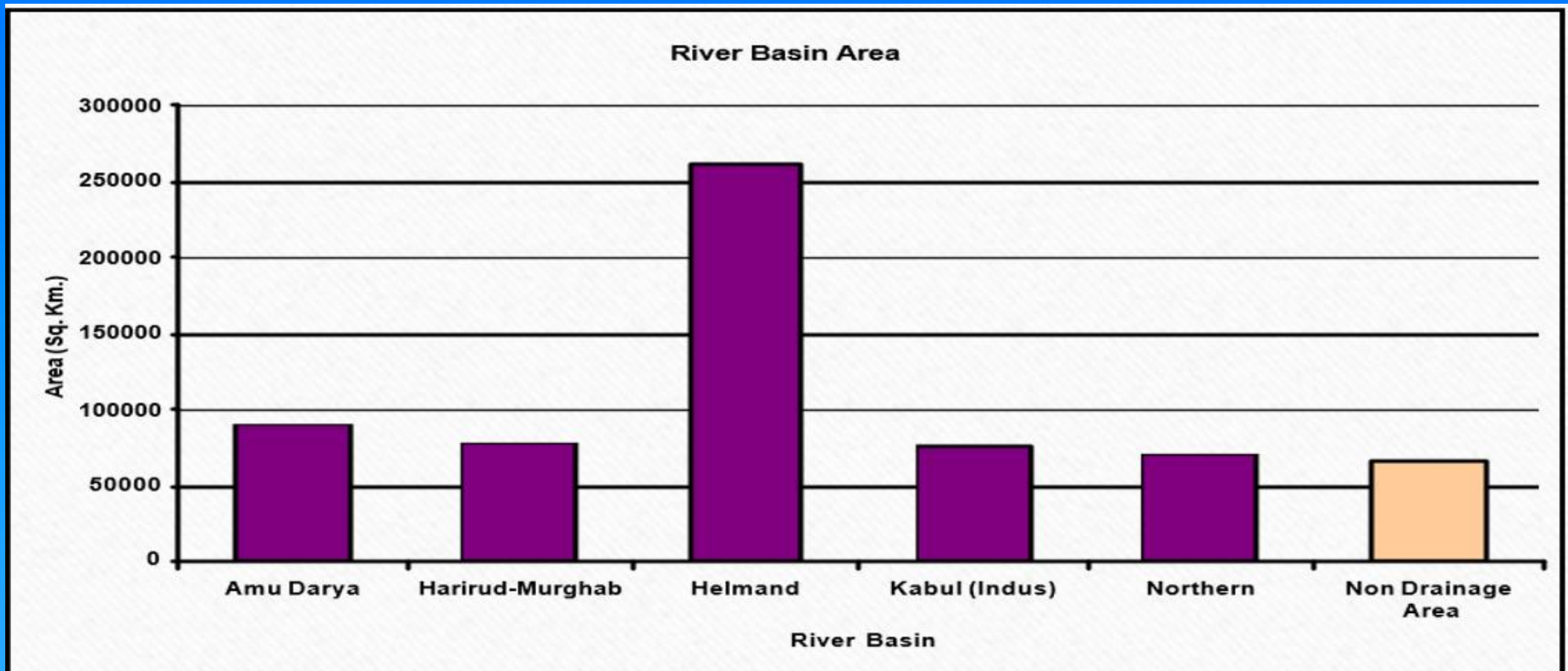
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100 0 100 200 Kilometers

# GRAPHS

Graph 2 show that the largest number of settlements are located in the Helmand river basin..





## Amu Darya basin:

- The Amu Darya basin has its **headwater** in the High Pamir Mountains of Afghanistan and Tajikistan.
  - The Amu Darya basin has total **227800 km<sup>2</sup>** Area. However 39% or (91000K<sup>m</sup><sup>2</sup>) of in Afghanistan.
- It has **2540** km length that **1200km** of this border between Afghanistan and Tajikistan, Uzbekistan, Turkmenistan.
- The **major tributaries** of the Amu River are the (Rustaq, KhanAbad, Kokcha, Kondozi) in AFG.
  - Also this basin has ability about **900 km** for shipping.
- **Therefore**, the basin has great hydropower potential that is largely **unused**.



# Amu Darya River Basin



## LEGEND

- Agro-meteorological Station
  - Automatic Station - FAO-Agro-meteor
  - Automatic Station - ICARDA
  - Classical Station - AFRANE
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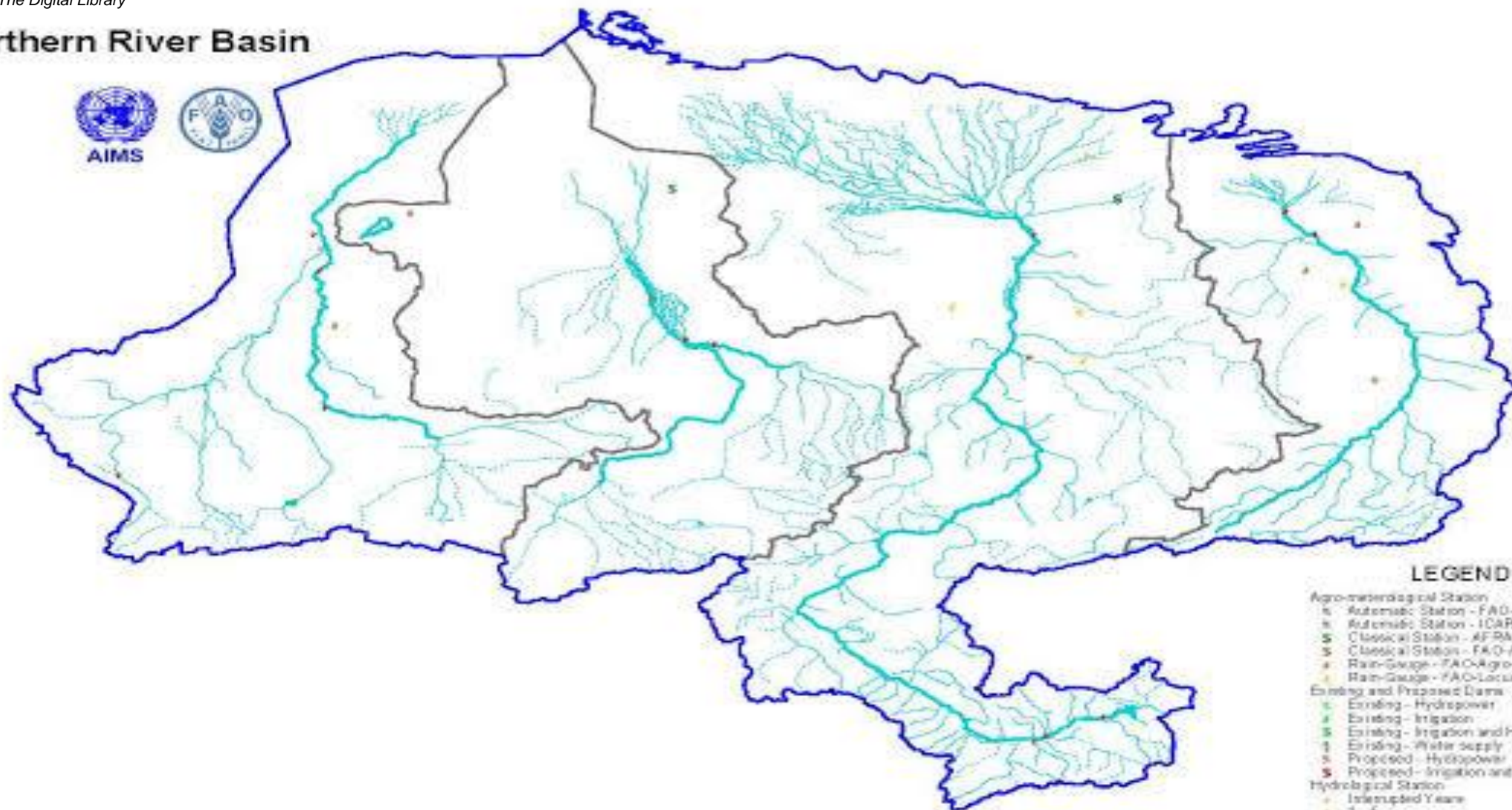




## Northern river basin

- The northern basin has the smallest annual flow contribution in Afghanistan
- The Northern river basin has total **71000 km<sup>2</sup>** Area.
- The major tributaries are the
- (Shirin Tagab, Sari Pul, Balkhab and khulam Rivers)
- This rivers **dry up** in irrigation canals or desert sands long before reaching the Afghan border and the Amu Darya River.

# Northern River Basin



## LEGEND

- Agro-meteorological Station
  - Automatic Station - FAO-Agro-metes
  - Automatic Station - ICARDA
  - Classical Station - AFRANE
  - Classical Station - FAO-Agro-metes
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100 0 100 200 Kilometers



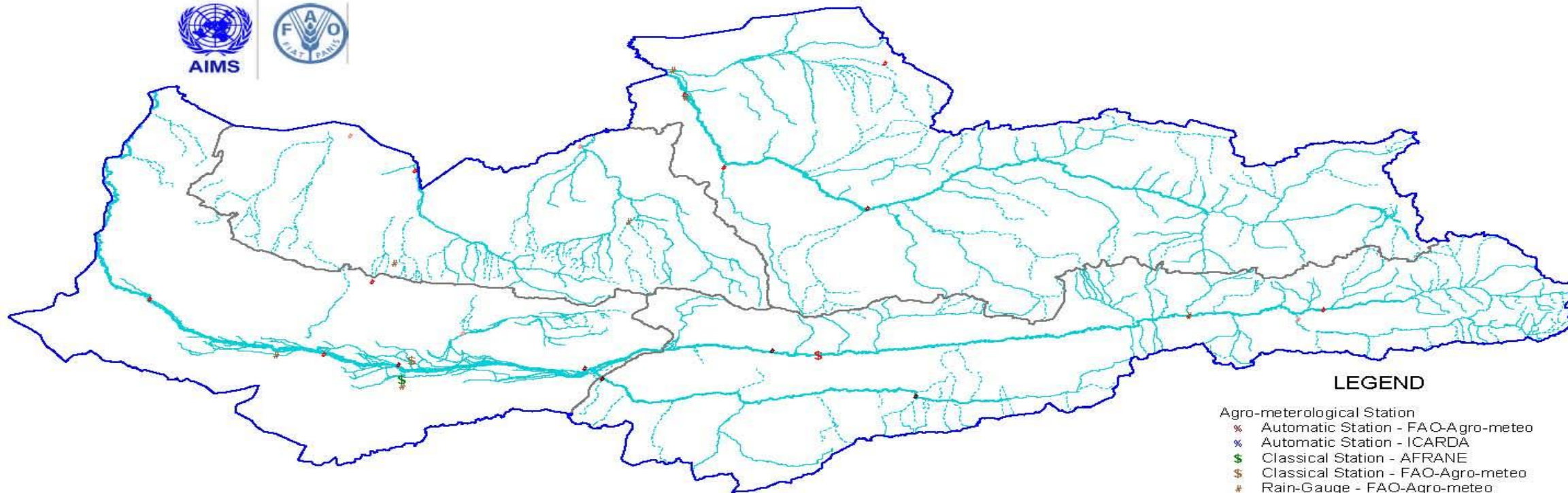




## **Harirod-Murghab river basin**

- This basin is made from the Murghab and Harirod rivers.
- And has about 80,000 Sq.km Area.
- The start from the Badkhash Mountains, and flows 650 km in Afghanistan, and makes a 100 km border between Afghanistan and Iran.
- And dries up in the Tashkurgan desert in Turkmenistan.

# Bala Murghab River Basin

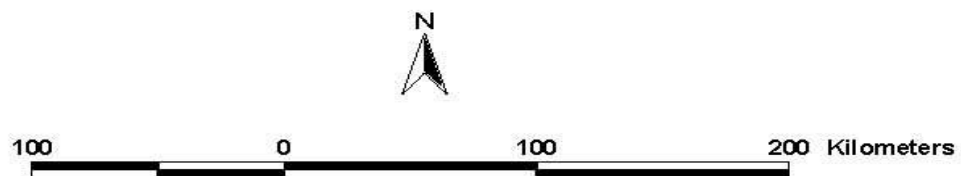


## LEGEND

- Agro-meteorological Station
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- River System
  - ▬ River
  - ▬ Stream
  - ▬ Intermittent drainage

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## In Hence:

- in collection water in Afghanistan almost Estimate (55% to 24% Milliard meter. Cube)
- In this situation 28% of Afghanistan water use at Economic activity (Like power and irrigation and other needs)
- And 72% of this water without any used and Cross the border.



*The End*





**Thank you**  
for your Attention



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For assignment of hydrology



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