

The Natural State of Gardez City

Abdul Hafiz Sulimankhil¹, Asmatullah Ziar² and Saifullah Gharwal³

¹Department of Geography, Faculty of education, Paktiya University, Paktiya, AFGHANISTAN.

²Department of History and Geography, Faculty of Social Science, Shaikh Zayed University, Khost, AFGHANISTAN.

³Department of History and Geography, Faculty of Social Science, Shaikh Zayed University, Khost, AFGHANISTAN.

¹Corresponding Author: abdul.hafiz1363@gmail.com



www.jrasb.com || Vol. 3 No. 2 (2024): April Issue

Received: 18-04-2024

Revised: 23-04-2024

Accepted: 06-05-2024

ABSTRACT

The present research has been investigated in relation to (the natural state of Gardez city, the center of Paktia province), which was used in the form of quantitative and qualitative research in the year 2021 in the Department of Geography. The city of Gardez is one of the highest centers of the provinces of Afghanistan, whose average height is 2,350 meters, after the center of Bamyan province, whose height is 2,550 above sea level. Therefore, Gardez is the second highest among all the centers in the provinces of Afghanistan. The existence of heights, low points and mountains around Gardez, such as Sulaiman Ghar and Spin Ghar Mountains, has affected the climate of this region. Gardez has an area of about (750) square kilometers. In terms of elevations and lowlands, Gardez can be divided into three parts: mountains, mountain slopes and low-altitude areas, and its famous mountains are Spin Ghar and Suleiman Ghar and other mountains around Gardez called. The local areas are mentioned; it consists of Spin Ghar and Suleiman Ghar Mountains, all these mountains contain 244, 3518 hectares of land in Gardez. Generally, in Gardez, the slopes of these mountains form grassland areas and the low areas are land. Agricultural areas, residential areas, urban areas and government facilities. The Gardez Sea continues its path from the northeast to the southwest of Gardez and has water in the winter and spring seasons, and at the end, after travelling 110 kilometers, the Gardez Sea passes through the Sardah Dam in Ghazni province and stands in the water. The seat falls.

Keywords- Paktia, Gardez City, Natural State, Formation of Gardez Topography.

I. INTRODUCTION

Man always needs planning in every part of his life to reach his goal and to meet his needs; he changes and changes his surroundings. From the point of view of natural features, Gardez has flat, hilly lands, its distant surroundings have high mountains, in the northeast, south, and southwest, there are mountainous lands. Its height is 3400 meters above sea level in the northeast part. In the western part of Gardez, a height reaches 1600 meters.

The climate and climatic conditions of each region are different from each other in terms of geographical location; therefore, it is important to determine the climate and climatic conditions of living areas from a geographical point of view. The climate of

Gardez is mild in summer and relatively cold in winter; any type of cold zone plants can grow here. In other months of the year, the weather is generally humid; the annual rainfall is between 36 and 68 cm, and the cold current of Siberia in winter causes snowfall in all parts of Gardez and the mountain range of the region.

Gardez River flows from Syed Karam local area towards Gardez. The mentioned river passes through the Baladah and Kochikhel area; then it continues its flow from near Balahesar from the south side of the city to the west towards Zurmat district and passes through the Zurmat valley and finally it passes through Band-Sardah in Ghazni Province and flows into the stand water of Moqar.

Currently, little research has been done on the mountains, grasslands, plains, agricultural lands, and

residential areas of Gardez. It is not enough because sufficient information is not known about the heights of most of the mountains and other areas of Gardez. Additionally, geological research in Gardez has not been done to find out what kind of deposits and geological strata the Gardez lands have, so more comprehensive research should be done in the future and such kind of research should be planned.

Currently, little research has been done on the mountains, grasslands, plains, agricultural lands and residential areas of Gardez. So this is not enough, because the information about the heights of the mountains are not clear and known and same the other areas of Gardez city. Geological research in Gardez has not been done before to find out what kind of deposits and geological mines and lands it has, so in the future comprehensive research must be done and such kind of research needs to be planned.

Revealing the natural, climatic, topographical, and geographical location of Gardez will help the people of science and profession to gain knowledge and information that is not yet available to them, and also gain full knowledge of the importance of these issues.

Study Objectives

- 1- Examining the low and high points of Gardez city
- 2- Identifying the grasses of Gardez city
- 3- Identifying the Deputies of Darya Gardez
- 4- Investigating the climate of the city of Gardez

Research Questions

- 1- What kind of lows and highs does Gardez have?
- 2- In what places are Gardez grasslands located?
- 3- How many tributaries does the Gardez Sea have and in which areas do they merge with this sea?
- 4- What kind of climate does Gardez have?

II. THE GEOGRAPHICAL LOCATION OF GARDEZ (THE CENTER OF PAKTIA PROVINCE)

The Paktia province is one in the 34 provinces of Afghanistan. Its area is about 6432 square kilometers and is located in the southeast region of the country. This province has a population of over one million people and including the center has 14 administrative units, the other 13 of which are: Ahmad Aba, Said Karam, Mirzaka, Ahmad Khil, Zazi Aryub, Laja Mangal, Jani Khil, Samakani, Dandiaptan districts. It is Shawak, Garde-Sayeri, Wazi Zadran and Zurmat. The four sides of Gardez is as follows: on the north side of Tirah Kotal, on the west side of Zurmat (Mamozai, Estogana) district, on the south side of Sapahi Khel and Kotal Sato Kandow, on the east side of it are Said Karam, Machalgho and Gharak district. Including the city of Gardez, the districts of Zurmat, Ahmad Aba, and Said Karam are located in plain areas and the rest are located in mountainous areas (Nariwal, 1385, p.142).

Gardez, the city is the capital of Paktia province; it is 122 kilometers south of Kabul, which is in the northern and eastern hemispheres of the globe, between 33 degrees 43 minutes and 33 degrees 27 minutes of northern latitude and 69 degrees 1 minute and 69 degrees and 29 minutes of eastern longitude. Has established its position (Sulimankhil, 3). In addition, its height is 2,289 meters above the sea level and its position has been confirmed (Mangal, 2010: 85).

Map of administrative units of Paktia province

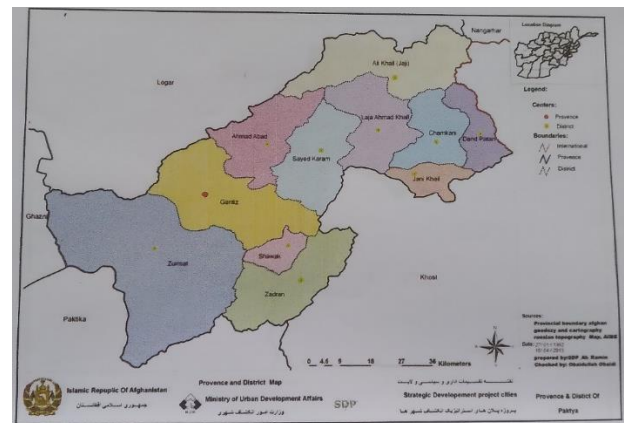


Figure 1. Administrative units of Paktia province

Gardez climate

The word climate originally has Latin roots and is adapted from (Klima), which presents the concept of **Milan**. This gradient is the inclination of the sun's rays, which shines at different angles in different parts of the earth's surface. On the other hand, the inclination of the earth's axis above the level of the orbit, which is currently "23 and a half degrees", has a significant effect. "Climate is the study of the average of all the atmospheric phenomena of a place, which acquires separate characteristics at a certain time and place (Ariz: 11).

The existence of the heights and deep points of Sulaiman Ghar and Spin Ghar mountains, the climate of Paktia, Khost and Nuristan provinces is under the influence of monsoon season (Hashmi, 37).

If we apply the monsoon movements in the small area, it can be clearly claimed that Paktia province and especially Khost area and its adjacent areas are humidified by the humid flow of the Indian Ocean in the summer and the cold flow of Siberia in the winter. The humid weather of this area has prepared the most favourable area for the growth of juniper, oak, and pine plants, but it has relatively dry weather in the month of October and November.

In particular, the climate of Gardez city is mild in summer and relatively cold in winter, any kind of cold zone plants can grow here. In other months of the year, the weather is generally humid; the annual rainfall is between 36 and 68 cm, and the cold Siberian current in winter causes

snowfall in the high places and mountain ranges of the region (Sulimankhil, 9).

The amount of rainfall in Gardez city, which was obtained from 2010 to 2019, was the lowest amount of rainfall in 2018, which was 307 mm, and the highest amount of rainfall was in 2019, which reached 678.4 mm. In addition, the average humidity of Gardez city in the aforementioned years has been calculated as 32.382% (2: Sulimankhil).

The air masses entering this region in different seasons of the year have a significant effect on the amount of rainfall. These air bubbles have different sources that have the following characteristics.

- 1- In the winter season, the cold front of Siberia enters Afghanistan from the north, accompanied by heavy snowfall.
- 2- In summer, the hot air masses of the Indian monsoon enter Afghanistan from the east and southeast, producing warm, humid winds in Jalalabad and the southeast plains, and the high places of Spinghar, Paktia and other high places cause rain (Ariz, 116).

In Gardez city, the wind flow corresponds to the same mechanism that at night, the wind flows from the northeast, which is a branch of the Spin Ghar Mountains. Furthermore, during the day most of the winds blow from Zurmat district, which has a relatively low altitude and is located southeast of Gardez city (Sulaimanakhil: 2).

Geographical location (latitude and longitude) plays a decisive role in the type of weather and the distribution of the precipitation element. Due to Afghanistan's location in the dry belt of the world, its average annual rainfall is 250 mm and less than one third of the average annual rainfall on the planet, i.e. 860 mm. Moreover, within the country, its different regions have different rainfall characteristics due to their specific geographical location. Like North Salang, 1236 mm is the rainiest area in Afghanistan, and the lowest annual rainfall is in Farah province with a height of 651 metres above sea level, 79.7 mm (Azimi: 178). And the average annual rainfall of Gardez city with an average height of 2,350 meters above sea level reaches 483.3 mm between 2010 and 2019 (Sulimankhil: 2). Gardez has a humid continental climate with dry and hot summers and cold and snowy winters (Ministry of Urban Development and Housing).

III. TOPOGRAPHY

The study of the earth's surface to determine natural features (mountains, valleys, rivers) and artificial features (roads, buildings, etc.) is called topography. From the point of view of topography (land features), Gardez city is one of the relatively high areas of Afghanistan, whose height is 2325 meters above sea level (Ministry of Urban Development and Housing). Gardez, the center of Paktia province, is one of the highest centers

of Afghanistan's provinces after the center of Bamyan province, whose height is 2550 above sea level. According to Gardez, it has the second place in terms of height among all the centers of Afghanistan's provinces (Arshad: 201). Shahr Gardez has flat land and its far surroundings have high mountains. In the northeast, south, and southwest parts of this district, there are mountainous lands. Its height in the northeast is 3400 metres above sea level. In the western part of Gardez city, there is a hill, whose height reaches 1600 metres. The area of Gardez district, according to the divisions of Afghanistan's administrative units prepared by the Department of Cartography and Geodesy, is calculated to be about (750) square kilometers (Ministry of Urban Development and Housing).

In terms of elevations and lowlands, all Gardez lands can be divided into three parts, as shown below:

- 1- High areas (mountains), 2- mountain slopes (grasslands and plains), 3- low-altitude areas (agricultural lands, urban areas, and residential areas), each of which is described below.

Topographic map of Gardez district

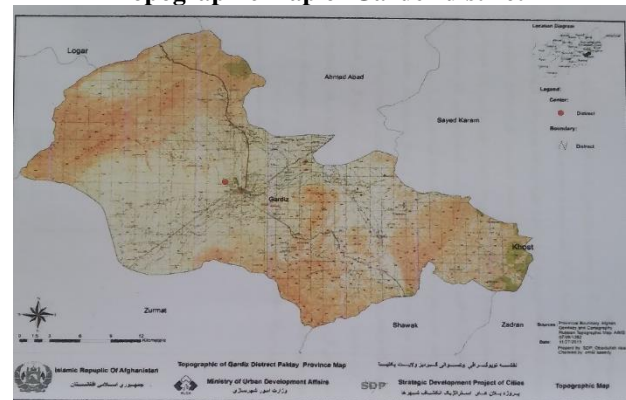


Figure 2: Topographic map of Gardez districts

High areas (mountains):

It is important in relation to the formation of unevenness in the region from the geographical and environmental point of view. The location of the area in the mountain valley between the gorge surrounded by the mountains of Vach Ghakh, Jahan Pahlavan, Kaihan, Ghogoray, and Sulaiman.

The existence of the Gardez River and the low lands on the south-west side of Zurmat has created an area with suitable climate and soil conditions. In addition, this area is located on the road of communication, which factors are important in the formation of settlement in the area. The city of Gardez is surrounded by high mountains, whose slopes are relatively flat towards the city.

No research has been done on the Gardez Mountains yet. Only mountain of Vach-Ghakh, Jahan Pahlwan, Sulaiman Ghar and Spin Ghar are mentioned in the sources. The rest of the mountains are referred to by local names, which include: the south side of Mount

Zadran and Sarouri, the east side is Sato Kandaw, Ghogoray, and Safidkoh or Spin Ghar, the west side is Mountain of Rabat and the smooth valley of Zurmat, the north side is Mountain of Kayhan, Kharwar, and Vach Ghakh. Vatirah has been located, Jahan Pahlawan, Vach Ghakh, and Spin Ghar which are located in the north and southeast part, the height of some of them is about 4000 to 3000 metres above sea level (Hashmi). According to the research that has been done, the Gardez Mountains cover an area of about 244; 3518 hectares in this district (Ministry of Urban Development).

The Gardez Mountains have provided a good base for the growth and development of agriculture and agriculture, a suitable climate, and underground water storage. From the east to the southwest, the land is relatively flat, which is suitable for planting next to the Gardez Sea, and dams and canals have been created to store water, but still, many lands are deprived of abundant water, in some seasons. Air, which causes severe dust. The Gardez Mountains have not yet been investigated or surveyed in terms of mineral and natural materials, which requires more research, and investigation in this regard.

Spin Ghar

This famous mountain range located at the eastern end of Afghanistan is famous for its steep and high points, which is always covered with snow and appear white (Ghulam Jilani Ariz 53). The length of Spin Ghar reaches 150 km. From a few kilometres northwest of Pivar Kotal, which has a height of 2450 metres, another mountain range extends to the southwest to the western areas of Gardez, where Kotel-Tira is also located in this part. That is, in the part of Kotel Kharpichak (north of Kharwar and Dawlat Khan), the height of this mountain range reaches approximately (3840) metres. On the south and north slopes of this mountain, there are many dense forests, and from the point of view of forest production, which contributes greatly to the country's national economy, it is considered one of the richest regions of Afghanistan (Nuristani, 62).

Its highest point is known as Sikaram (4755 metres). Alternatively, it is called (Camel Neck Kotel) at a height of (3720) metres between Logar and Paktia and is one of the famous Spin Ghar Kotels. Ghulam Jilani Arad 53 The northern and southern slopes of this mountain range are full of juniper, pinus, pine, pine nut, and oak trees, which unfortunately are being destroyed due to the lack of the government and the people attention.

Suliman Mountain

The Suliman mountain range is made up of several branches and large mountains. This mountain is in the southern part of Kotal Pivar, where the Kuram River passes through it; it is separated from Spin Ghar, first, in the south-west direction, the advanced land of Samakani, it surrounds Zadran and Argon in the west. The other luck followed the borderline between Afghanistan and central Pakhtunistan, first in the south and then in the south-west direction. Here, this mountain named Eastern Suliman

Dagh is mentioned. The average height of these two mountain ranges does not exceed (3200) meters (Nooristani, 62). The Suliman mountain range is one of the most important and large mountain ranges in the east, its length is about 600 km, and the western part of it is located in Paktia and Baluchistan. Winds and the rainy season have caused seasonal rains in this area, and lush forests will exist in this area (Azaimi, 139). In addition, there are several mountains and hills in Gardez, which have not been thoroughly investigated.

Sarwray Mountain

One of the mountains named Sarwray is located in South Gardez, the height of which is 3005 metres above sea level (Political Map and Information of Afghanistan). To the east of this mountain are the villages of Dawlatzai and Banuzi, and to the south are the mountains of Banuzi and Ghalgai. This mountain has trees like: Pine nuts, and Deleterious. All these mountains are one of the branches of Suliman Mountain. On the northern and western slopes of the mountain, temporary grasslands are used to feed animals and later form residential areas (Zadran).

Ghogoray Mountain

It is one of the mountains located in South Gardez, which is 2820 metres above sea level (Political Map and Information of Afghanistan). On the west side, there are residential areas and agricultural land, then the Gardez-Khost highway is located, on the north side there are residential areas, and on the southeast side of Mehlan, if it is connected to Gardez, there is this mountain. It continued to the south, and the chain of mountains connected to Suliman Ghar (Maroozfai).

Mahmoodyah Hil (No.1)

This hill is located two kilometres south-east of Gardez city in the domain of high Hill, area, which is located at 33 degrees and 35 minutes of north latitude and 69 degrees and 15 minutes of east longitude. Its height is 2371 meters above sea level (Hashmi, 291).

Nadria Hil (No.2)

This hill is located 225 metres southwest of the Chashma-e-Maran area, which is located at 33 degrees and 35 minutes of north latitude and 69 degrees and 13 minutes of east longitude, and its height is 2402 meters above sea level (Hashmi, 292).

Fields of hills (grasslands and arable fields)

In fact, if all the land had vegetation, some kind of food would be obtained from it and renewal of life would take place naturally; it is called "pasture". Sufficient amount of moisture, proper distribution of annual rain, moderate temperature, sunshine, non-desert area and poor soil are the factors for effective formation of meadows based on grass.

Paktia province and Gardez city, with areas suitable for the growth of plants on the slopes of mountains and hills, have a suitable bed for livestock (Ministry of Urban Development). Any land covered with grass and grass for one year or one season can be called pasture. It is called according to the definition above the

shores of the river, the green valleys and the plains, if it is naturally green even though there is little grass, it is called grass land (Taniwal: 327). According to research carried out by the Ministry of Urban Development, Gardez has 119,140 hectares of green areas and 2,251,415 hectares of plains (Ministry of Urban Development). The mountains in Gardez become green in the spring and summer, and residence of the area and Kuchi use these herbs to feed their animals. In Gardez, mountains and plains generally form the fields of agriculture and agricultural land. However, in some areas, if there are limited water sources, the people of these areas cultivate and cultivate their land. The majority of agricultural and agricultural fields are scattered in different regions of Gardez from altitudes of 2000 to 3000 metres above sea level. The names and geographical locations of these agricultural fields in the northern latitudes and eastern longitudes of Gardez are as follows: Awdakay or Niazi region. In longitude 69 degrees 11 minutes and 33 degrees 70 minutes' latitude. Rabat region in longitude 69 degrees 16 minutes 33 degrees 63 minutes' longitude. Mehlan region in longitude 69 degrees 31 minutes 33 degrees 60 minutes of latitude. Zaho region in longitude 69 degrees 31 minutes and 33 degrees 60 minutes of latitude. Banuzai region in longitude 69 degrees 26 minutes and 33 degrees 53 minutes of longitude and Sepahikhel region in longitude 69 It is located at 36 degrees and 33 degrees and 57 minutes of latitude (Falah).

Low-altitude areas (agricultural lands, urban areas, and residential areas)

According to the investigation carried out by the Ministry of Urban Development, the current situation and distribution of land in the center of Paktia province (Gardez) is as follows: unplanned areas 160126 hectares, government areas 16102 hectares, airport 6220 hectares, planned areas 8181 hectares, agricultural areas and Masjids 0.78 is estimated.

Jilga River (Gardez)

The presence of the Gardez River and the low lands in the south-west of Zermatt have created an area with suitable weather and soil conditions. In addition, this area is located on the road of connection, which factors are important in the formation of settlement in the area (Hashmi, 62).

The watershed areas of the Upper Jalgah Sea are fed and sourced from the head of Mirzakeh district, Said Karam district, Camel Neck or (Shator Gardan) mountains of Ahmad Aba district, Kotel Tirah, Rabat, and Sarkh Mountains, Drang, Geyan, and Seto Kondaw and towards the southwest of Paktia province. Ghazni province and finally Helmand province are in progress. The mentioned areas contain 1065 square kilometres. The water resources of Paktia Province are formed by the seas from atmospheric precipitation (snow and rain), springs and canals. In the Paktia area, snowfall usually forms from the end of Sagittarius to the end of Pisces, and the rain continues from Aries to Gemini. In the Paktia area,

except for the Khoram Sea, which has permanent water, there are other monsoon seas.

Darya Jalgah is 110 km long, starting from Khalilan in Marzke district to standing water in Ghazni province. Generally, Darya Jalgah have water in rainy and snowy months, and in the remaining months, its water dries up. The deputies of Darya Jalgah and of the positions that merge with this river are as follows. Ab Dara Chino, Said Karam district, Ab Dara Tshang, Ab Dara Tshang, Said Karam district, Ab Dara zaho, Gardez Center, Ab Dara Gaviyan, Zurmat district, Ab Dara Machalgho, district Ahmad Aba, Ab Dara Tirah, Center Gardez, Ab Red Dara, Center Gardez merge with this sea from the left side (Darya Jalga sea basin).

The Gardez Sea, which is also known as the Zurmat Sea, originates from the rivers Tira, Gharak, Machalgho and the high altitudes of Tepe and Kunderkhel Pass. This sea flows from the local area of Said Karam to Gardez. It passes, later it continues its flow near Bala Hesar from the south side of the city to the west of the Zurmat district and passes through the Zurmat valley. Ahmadzai and the Darang and Makavi waters of Zermatt, which have passed through the northern valley and join the Gardez Sea in the parts of Gul Dadkhil and Khandaki villages (Tinwal, 2009: 62).

The Gardez Sea prepares land for agriculture and irrigation in all parts and places it passes. There is no water in the summer, especially during the drought years. In different parts of Gardez Sea, dams have been built for irrigation, so that Baladeh, Mamori, Zargar Castle, and other enclosures can use seawater.

In Gardez city and its surroundings, there are clear and healthy water springs and wells, which are used to irrigation of agricultural and garden lands in addition to drinking water.

The only thing that City of Gardez is rich in terms of minerals is: surface drinking water and underground water, so that its analysis in the laboratory shows the amount of calcium, magnesium, potassium, cathode, and ions. There is no salt water.

One of the most important water dams of this province is the Machalgho dam, which is located 40 kilometers southeast of Gardez city in Ahmad Aba district. This dam has the capacity to irrigate 1800 hectares of land and produce 800 kilowatts of electricity. The government has pledged to repair this dam, but it has not yet been constructed (Hashmi, 63).

IV. CONCLUSION

In the current research, which was prepared and organized in relation to the natural condition of Gardez (the center of Paktia province), we came to the conclusion that Gardez is one of the high areas of Afghanistan. And in the spring and summer seasons, it is affected by the wet monsoon currents of the Indian Ocean, and the mountains that are located around Gardez affect the climate of

Gardez, and the weather in this city is moderate in the summer season and cold in the winter season.

The area of Gardez is calculated to be around (750) square kilometers, and from the topographical point of view, it has flat lands, hills, and in the far surroundings. There are rugged mountains, whose height is 2325 meters above sea level, and on the west, side of that district Zermatt has a location whose height in this area reaches 1600 meters above sea level. In terms of elevations and lowlands, all Gardez lands can be divided into three parts, which are:

1- High areas (mountains), 2- mountain slopes (grasslands and plains), 3- low-altitude areas (agricultural areas, urban areas and residential areas) mountains in Gardez with local names such as: Vach Chaakh, Soruthi, Ghogri, etc.,. All these mountains are extended from the Spin Ghar and Suleiman Ghar mountains. The slopes of these mountains generally create the grasslands, and most of the flatlands are agricultural lands, urban areas, and residential areas.²

REFERENCES

- [1] Sulaimankhil, Abdul Hafiz, (2018) Investigating the geographical situation of Gardiz city Scientific work for the rank of Associate professor.
- [2] Sulaimankhil, Abdul Hafiz, (2021), Scientific Journal of Communication and Journalism, Scientific work for the academic rank of Associate professor.
- [3] Irshad, Awrang Zaib, (2016), Afghanistan Provinces General Geography, Maihan, Publishing Society, Peshawar, Jalal Abad

- [4] Taniwal, Mohammad Zarif, (2010). General Geography, Karwan printing press and printing house, Kabul, Afghanistan
- [5] Ariz, Ghulam Jailani, (2011), The Natural Geography of Afghanistan, Mohmand Publications, Kabul, Afghanistan
- [6] Azimi, Mohammad Azim, (2011), An introduction to the natural geography of Afghanistan, Amiri Publications
- [7] Ami, Mohammad Wali (2008), Paktia Natural, Historical and Short Social Geography, Amiri Publications, Kabul, Afghanistan
- [8] Ministry of Urban Development and Housing, (2016), Strategic plan for the development of Gardez city
- [9] Hashimi, Sayed Ali Agha, (2020), Gardez's physiognomy in the mirror of history and culture, Second edition Kabul, Koti Sangi, Dahibori Road, Itifaq market, Tamadon printing press
- [10] Nooristani, Mohammad Akbar Shormach, (1970), Afghanistan General Geography, institute of Zarwari printing press, Kabul, Afghanistan

LIVE SOURCES (PEOPLE)

- [1] Interview with Haji Mohammad (Flah) Former employee of the Department of Agriculture and Livestock of Paktia province, Date, 13/01/2023
- [2] Interview with Mohammad Esa (Maroofzai), Lecturer at Paktia University, 07/02/2023
- [3] Interview with Hazrat Khan (Zadran) date, 10/02/2023