Groundwater natural resources and quality concern in Kabul Basin, Afghanistan

Scientific Investigation Report in Afghanistan

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Abstract

Historical groundwater level and water quality data in Kabul Basin were reviewed and compared with the data collected recently. The results suggest that the groundwater quality and water level have been improved progressively with urban development, land use, climate change, socio - economic development and frequent drought events. The main impact of these events include; 1) most of the springs and karezes have dried up; 2) decreased annual precipitation; 3) increased serious deterioration of water quality; 4) increased water logging and salinization; 5) declining of water level in excess of recharge trend; 7) increased evaporation and; 6) marshes dried up in several areas of the Basin, leaving salt crust at the surface.

The above impacts have resulted in the replacement of surface water by groundwater resources to support socio-economic development. This, however, is basically not possible because of low thickness and productivity of the aquifers. We have done very little to tackle water quality deterioration and serious lowering of the groundwater level due to fragmented institutional arrangements and poor formulation of effective water policies, strategies and regulation for integrated groundwater resources management, development, protection and sustainability.

Groundwater natural reserves have been depleted and water quality has deteriorated due to over-exploitation. There is also increasing demand due to population growth, agricultural needs, industrialization and socio-economic improvement. There are urgent needs to identify significant water relate problems and find solutions rather than waiting for further deteriorations.

Key words: **Natural groundwater resources depletion; water quality deterioration**; **overdraft and socio-economic and environmental concern**

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List of Abbreviations and Technical Terms

Aquifer: Aqua=water,fer=bearing A rock formation, group of formations, or part of a formation that is water bearing.
AGS: Afghan Geological Survey.
Aquiclude: A geologic formation so impervious that for all practical purposes it completely obstructs the flow of groundwater (although it may itself be saturated with water)
Contaminant: Any substance that when added to water (or another substance) makes it impure and unfit for consumption or use.
DACAAR: Danish Committee for Aid to Afghan Refugees.
Depletion: The loss of water from surface water reservoirs or groundwater aquifers at a rate greater than that of recharge.
Evaporation: The conversion of a liquid (water) into a vapour (a gaseous state) usually through the application of heat energy during the hydrologic cycle; the opposite of condensation.
Evapo-transpiration: The loss of water from the soil through both evaporation and transpiration from plants
GMWs: Groundwater Monitoring Wells.
Groundwater Discharge: Groundwater discharges include: evaporation, transpiration and groundwater flow to the surface as drainage, springs, karezes and pumping for irrigation and water supply.
Groundwater Level: Indicates the position where the atmospheric pressure and hydraulic head are at equilibrium (balance) in the aquifer
Groundwater Level Fluctuation: Any event that produces a change in pressure on ground water level causing the groundwater level to vary. Differences between supply and withdrawal of groundwater cause level to fluctuate.
Groundwater Management: Groundwater management is defined as the ongoing performance of coordinated action related to groundwater withdrawal and replenishment to achieve long-term sustainability of the resource without detrimental effects on other resources.
Groundwater movement: The movement of groundwater in an aquifer. The movement of ground water through an aquifer is extremely slow, generally in the order of centimetres per day or meters per year.
Groundwater Recharge: Groundwater recharge is defined as the downward flow of water recharging the water level forming an addition to the groundwater reservoir.
Hydraulic conductivity: The water- transmitting characteristic of geologic media in quantitative terms.
Infiltration: The process whereby water enters the soil and moves downward toward the water table.
Long Term Groundwater Level Dropping: In Basins where the groundwater extraction exceeds recharge, a drawdown trend in groundwater level may continue for many years. The water level continuously declines (dropping dynamic water level) due to over extraction and low recharge, then the groundwater level dropping will be permanent.
Overdraft: Overdraft of groundwater reservoir is the maximum average annual pumping draft (plan) which can be continually withdrawn for useful purposes under a given set of conditions without causing an undesired result.In case of overexploitation caused heavy drawdown and undesired results
An “undesired result” is commonly interpreted to mean a progressive lowering of groundwater level leading eventually to depletion of the supply. Undesired results also include long-term

depletion groundwater storage, depredated water quality and land subsidence (Mann 1961, Todd 1980).
Precipitation: The part of the hydrologic cycle when water falls, in a liquid or solid state, from the atmosphere to Earth (rain, snow, sleet)
Porosity: Porosity is the ratio between the volumes of the pores and volume of the rock.
Sustainable yield is the groundwater extraction regime, measured over a specific planning time frame that allows acceptable levels of stress and protects development, economic, social and environmental values.
Run-off: Precipitation that flows over land to surface streams, rivers, lakes and under the ground surface.
Storage coefficient: The volume of water that an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head.
Transmissivity: The product of hydraulic conductivity and aquifer thickness.
Safe yield: Safe yield is defined as the net annual supply (net recharge) of groundwater that may be developed without persistent lowering of groundwater levels (Lee 1914).
Seasonal Fluctuation: Seasonal fluctuation usually results from influence of precipitation, irrigation canal and ditch leakages, pumping for drinking water or for irrigation purposes, all of which influence seasonal cycle or seasonal fluctuation of groundwater.
Short-term Fluctuation: Short-term or monthly fluctuation of groundwater level is measured in alluvial aquifer for any special purpose (municipality water supply and pumping for irrigation).
Sustainability: Sustainability encompasses the beneficial use of groundwater to support the present and future generations, while simultaneously ensuring that unacceptable consequences do not result from such use
Undesired Result: An undesired result is commonly interpreted to mean a progressive lowering of groundwater table, leading eventually to depletion of supply (recharge).
USGS: United States Geological Survey.
Water quality: The chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.
Water quality standard: Recommended or enforceable maximum contaminant levels of chemicals or materials (such as nitrate, iron and arsenic) in water.
WSP: Water and Sanitation Program
WASH: Water, Sanitation and Hygien

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1. Introduction

A large percentage of people living in Kabul (more than four and half million) depend on groundwater as their primary source of domestic/drinking water. Kabul Basin, especially Kabul city, has encountered a scarcity of surface water due to the unequal and timely distribution of precipitation. The Kabul River flows only for three months and is extremely contaminated, therefore groundwater resources have played the lead role in the development of social - economic growth. Approximately only 20% of the inhabitants of Kabul city have access (intermittently) to the central water supply system. The rest depend on shallow wells equipped with hand pumps which are mainly from groundwater.
At present, in Kabul Basin there is a depletion of natural groundwater storage and increase in concern of overdraft of groundwater due to over-abstraction, low recharge and high evaporation.

The depletion of water storage has occurred due to the lowering of groundwater level in excess of the low recharge trend. This is a real threat to the depletion of the aquifer's natural storage and perhaps a cause of land subsidence.

The groundwater quality has progressively deteriorated with following parameters of salinity, water hardness, coliform bacteria, nitrate and boron concentrations, which potentially can become a real threat for the health of Kabul's inhabitants and agricultural activities. Kabul's inhabitants have frequently been affected by contaminated water-born related diseases and children are the most vulnerable.

As Kabul population continues to grow up, there is increasing pressure to further exploit groundwater for various purposes which are basically not possible because of low thicknesses and low productivity of the aquifers. This trend will cause further negative consequences on the groundwater quality and quantity that will challenge our socio-economic development and environmental security. This vulnerability of the aquifer may not be reversible and the city of Kabul will face a severe shortage of drinking water and most probably increased water contamination in future .

The results of all investigations show that the quality and quantity of groundwater in Kabul Basin will not be recoverable, if this trend continues.

Current institutional arrangements and management tools may not meet the emerging need. It is urgently required to prevent all processes and activities that cause degradation of water quality and depletion of natural water storage.

2. Objectives

The main objectives of this report include:

1) Assessment of Kabul Basin hydro geologic structure and natural groundwater systems.
2) Assessment of the main factors which affect Kabul Basin's water quality.
3) Assessment of Kabul Basin groundwater levels and salinity variation with time data, based on the comparison of historical data with data recently collected.
4) Assessment of Kabul Basin water quality data, based on the water samples analysed by DACAAR water quality laboratory.
5) Focus on Kabul Basin groundwater quality and quantity concerns.

6) Specify undesired results which are threatening security and sustainability of groundwater.

3. Main Concern

The main concerns of groundwater of Kabul Basin are:

1) Poor understanding of groundwater use and sustainable yield in Kabul Basin.
2) Lack of coordination among various water supply stakeholders (practical knowledge, sharing experiences, lessons learning, dissemination and exchange information).
3) Poor groundwater quality and quantity monitoring system.
4) Poor groundwater data collection, database and information system.
5) No practical alternative for water sources investigation and development.
6) Large city without a sewerage system.
7) Poor encouragement of public participation for household sanitation and hygiene practices.
8) No practical responses regarding groundwater quality and quantity degradation.
9) Fragmented institutional arrangements.
10) Poor formulation of effective water policies, strategies and enforcement of water legislation.

4. Challenges

1) Need to improve institutional and technical capacity for integrated water resources management, development, protection and sustainability.
2) Response required regarding insufficient groundwater storage and very high degree of urbanization.
3) Climate change, variability of precipitation, and severe events like drought and flooding.
4) Response required regarding over-abstraction and degradation of water quality and quantity.
5) Improvement of poor sanitation system.
6) Setting of primary and secondary National Drinking Water Standard
7) Improvement of policies, strategies, legislation and action for sustainable ground water use and development.
8) Centralized database for ground water and data management system.
9) No unti degradation policy.
10) Prevent negative balance between groundwater recharge and groundwater discharge.
11) Finding groundwater protection area and balance of groundwater recharge and discharge.
12) Encourage research to determine availability of alternative water sources.
13) Centralized or systematic ewerage system is needed.

5. Main factors of groundwater contamination

The main factors affecting groundwater quality are:

1) Sharp urbanization without sewerage system and poor solid waste management.
2) Poor land use resultingin contamination of ground water.

3) Poor sanitation and hygiene practices.
4) Groundwater overexploitation- resulting in lowering groundwater level
5) Insufficient waste treatment and disposal.
6) Permeable characteristic of overlying layers (overlyingcover) of aquifers.
7) Poor efforts for water quality monitoring, management and protection system.
8) Poor legislation and regulation for groundwater quality protection.
9) Lack of awareness about water quality.
10) Cross contamination in wells due to poor construction.
11) Contamination by Kabul and Logar rivers.

6. Data/information collection

Required data are mainly collected from:

1) Production wells which were drilled by Ministry of Water and Power (1970-1990).
2) Exploration wells which were drilled by Ministry of Mine and Industry (1973-1981).
3) Shallow drilled wells equipped with hand pump drilled by Rural Water Supply (1978-1986).
4) Shallow drilled wells equipped with hand pump drilled by DACAAR (1996-2004).
5) Measured physical parameters (water level, electrical conductivity, pH and temperature) of 1124 hand pump installed wells by DACAAR Kabul hand pump inspection team.
6) Exploration wells drilled by JICA.
7) MUMTAZ Construction Group: drilling wells date for extension of the water supply system of Kabul 2008.
8) Kabul Basin GMWs network water quality and quantity data which were monitored by DACAAR (March 2005 - June 2009).
9) Kabul Basin water quality data (physical, bacteriological and chemical) analysed by DACAAR water quality laboratory (2005-2009).

7. Methodology

A national groundwater monitoring wells (GMWs) network of 120 stations has been operated by DACAAR groundwater monitoring program. The network was established in 2005 in 19 provinces of Afghanistan. 11 GMWs network stations out of the 120 are located in Kabul province. The wells' locations were geo-referenced by GPS (Global Position System) for establishing groundwater monitoring wells database that can be accessed through GIS (Geographic Information System) maps (Figure.1).

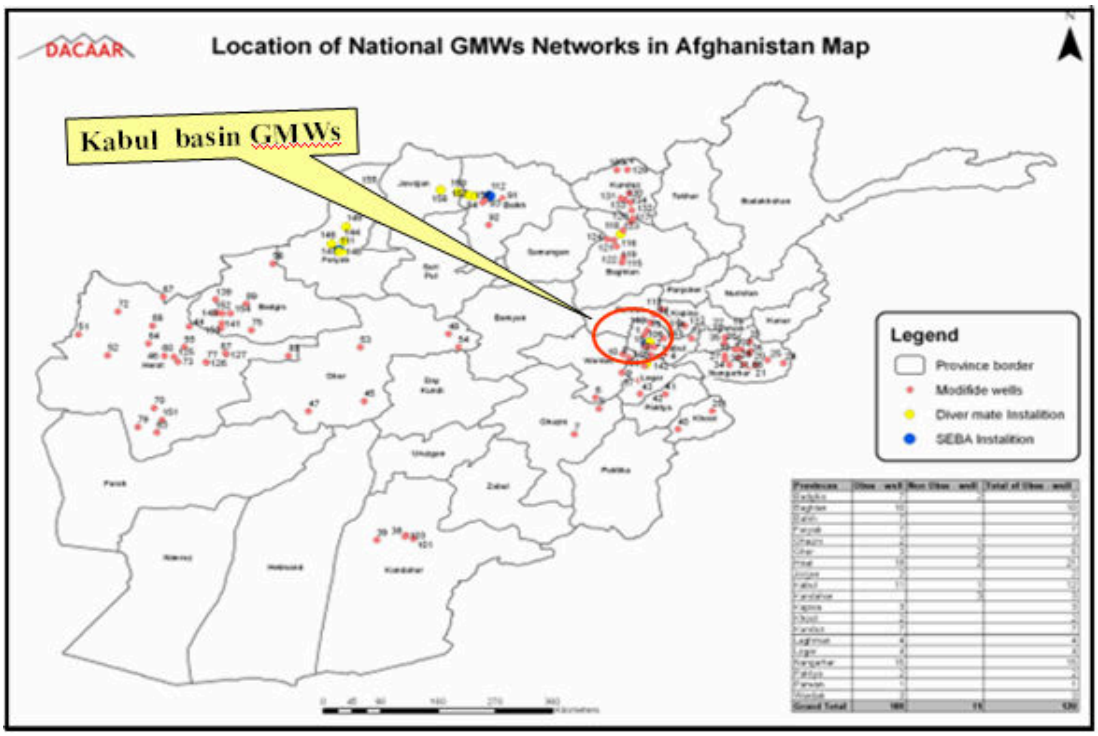


Fig. 1: Location of National groundwater monitoring wells (GMWs) network in Afghanistan

The water level and physical parameters like electrical conductivity, tempreture and pH are measured on site on a monthly basis using pH/conductivity meter and water level indicators such as SEBA and Diver devices (Fig.2).

Fig. 2: Water level and physical parameters measurement devices

The bacteriological properties of groundwater monitoring wells have been obtained on a yearly period on site using a micro bacteriological field test kit (Fig.3).

Fig. 3: Bacteriological analysis devices

The chemical properties (parameters) of groundwater monitoring wells have been obtained/recorded every six months according to the water quality procedures using a Photometer 8000 (Fig.4).

Fig. 4: Chemical analysis measurement devices

The water quality data (from GMWs, DACAAR water projects and private sector projects) were recorded, managed and analysed by DACAAR water quality laboratory.

The AquaChem and HydroGeo Analyst (flexible and customizable database structures) were used for integrated water quality data (physical and chemical parameters) and water quantity data (bore hole log design, production well data, observation well data) recording, management, analysis, interpretation and reporting.

Fig. 5: GMWs network data management cycle

8. Physical setting

8.1 Climate

The climate in Kabul is semi-arid and strongly continental. The data made available for this study covered a period from 1956 to 2007 and showed major fluctuations in the level of temperature and precipitation.

The average annual precipitation during the observation period (1957-1977) was 330 mm (Fig.6).

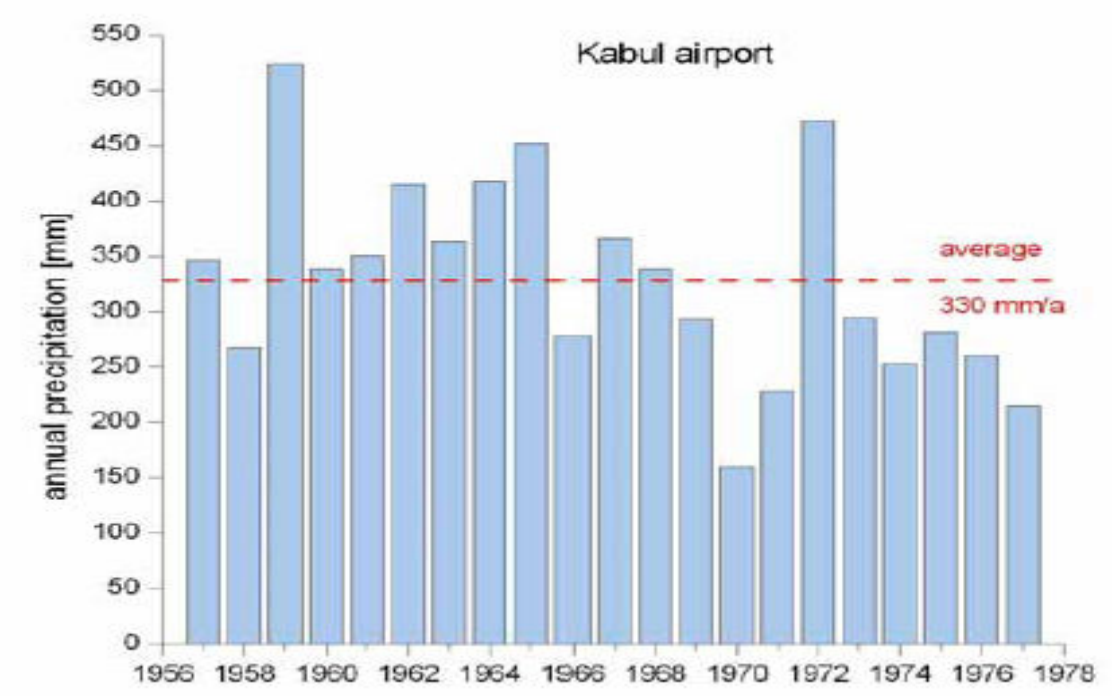


Fig. 6: Precipitation data from Kabul airport as annual average between1956-1978(BGR)

Recent precipitation data (2006-2007) from various meteorological stations show that precipitation levels have decreased considerably (Fig.7).

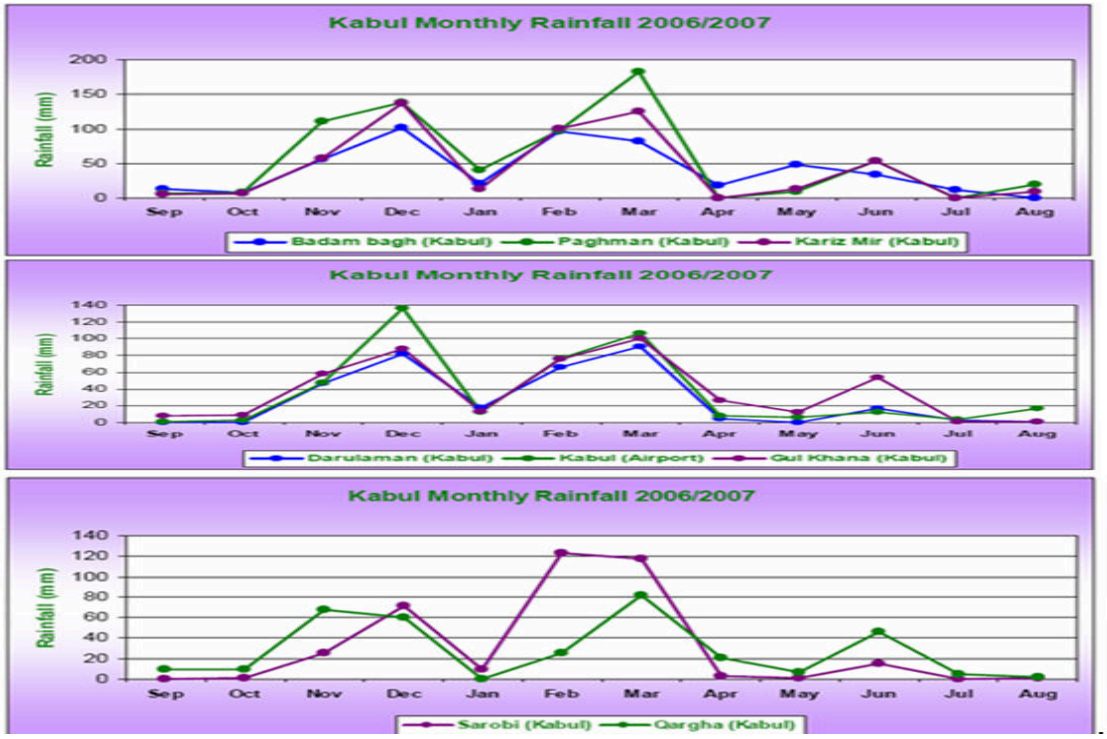


Fig. 7: Recent precipitation data (2006-2007) from various meteorological stations

Figure 8 shows that evaporation is naturally at a maximum in the months with the highest average temperature.

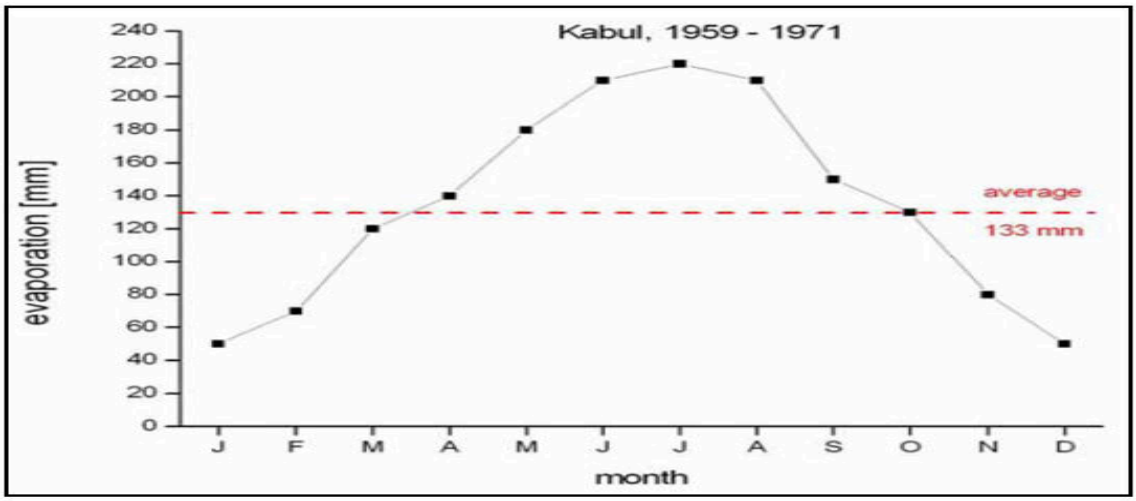


Fig. 8: Estimated monthly evaporation for 1957-1971 (Bockh, 1971)

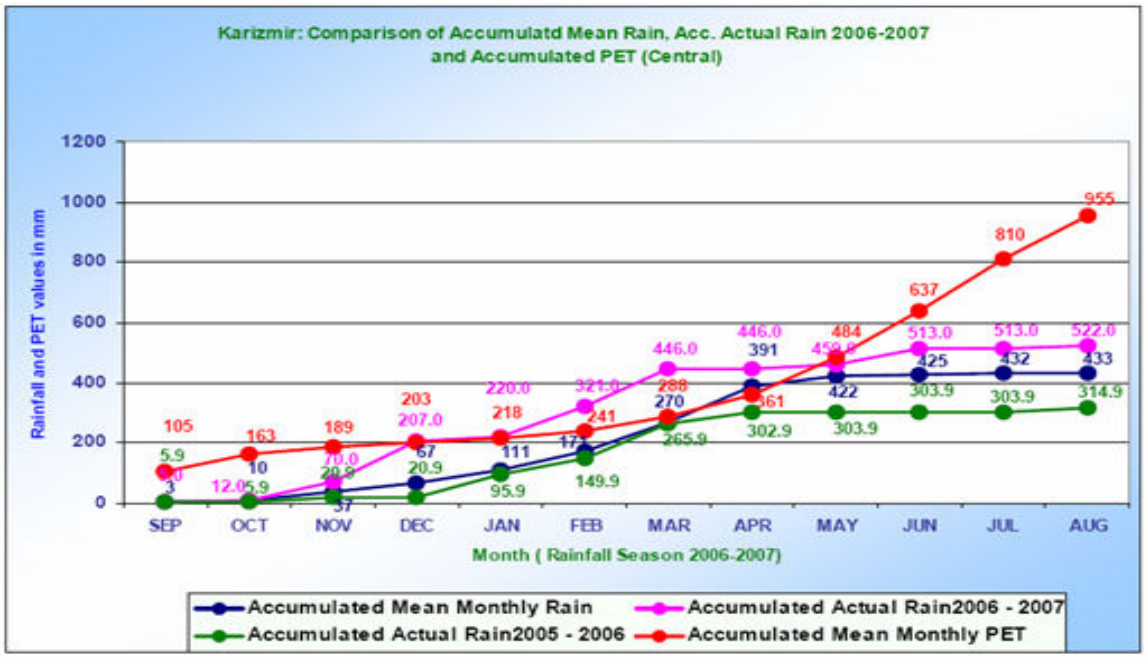


Fig. 9: Comparison of accumulated mean rain accumulated actual rain and accumulated potential evapotranspiration.

The average annual temperature during the observation period (1956-1977) varied between 10 to 13 ^{0}C (Fig.10).

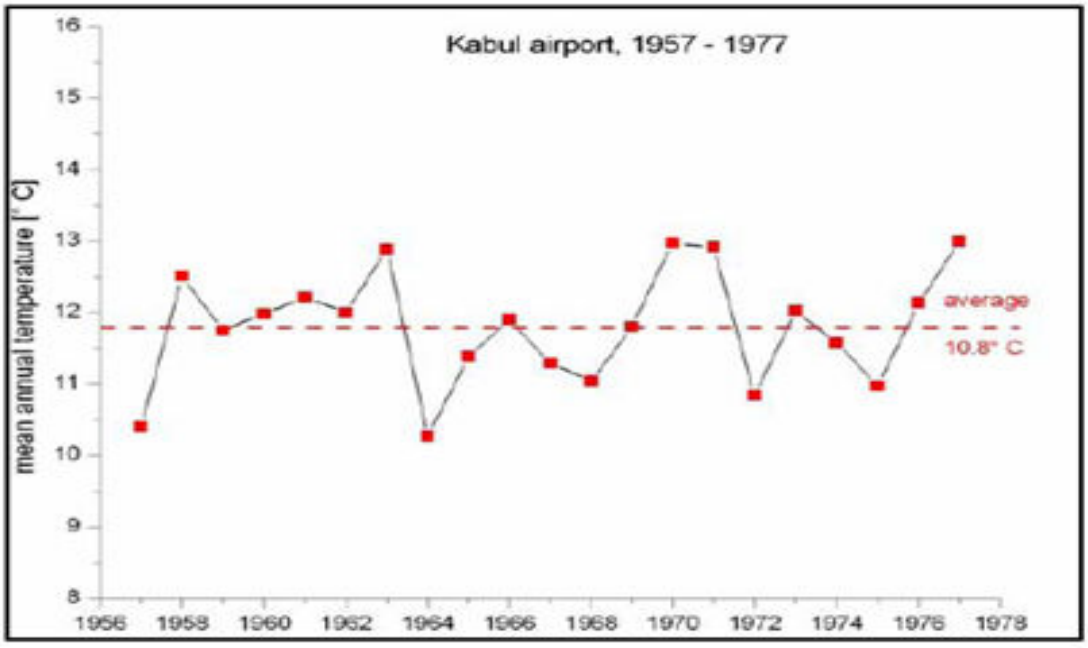


Fig. 10: Temperature data from Kabul airport as annual average (1956-1978)

Recent temperature data (2006-2007) from Kabul Basin showed that the temperature levels have increased considerably (Fig.11).

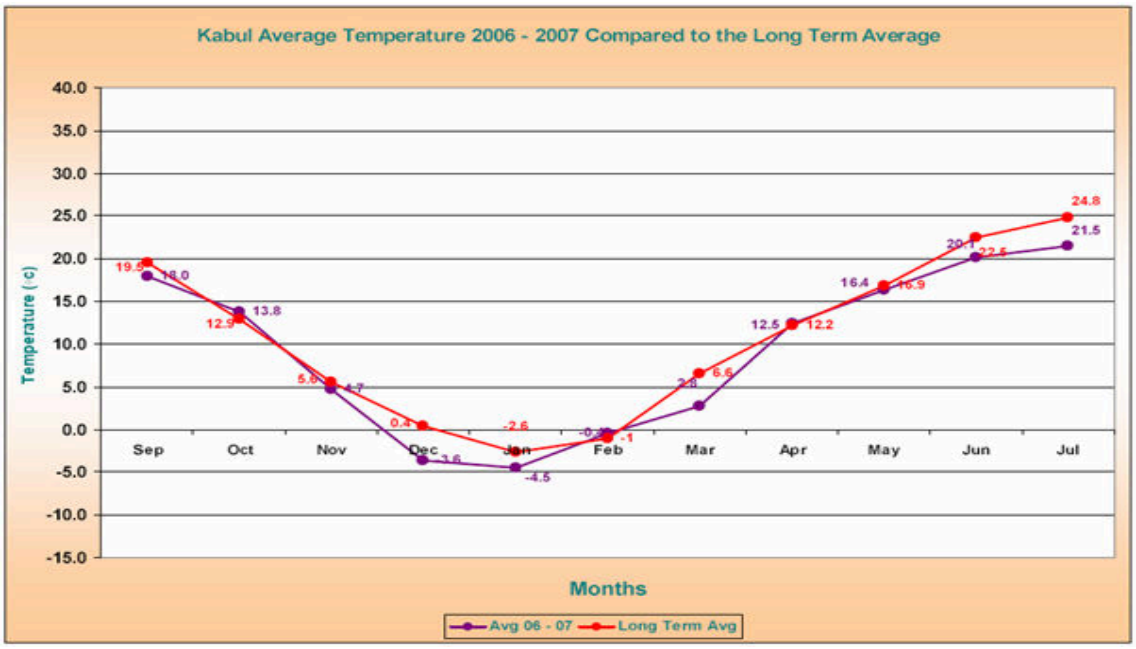


Fig. 11: Recent temperature data (2006-2007) from Kabul Basin

8.2 Surface water

In the Kabul Basin the surface waters are Kabul, Logar and Paghman rivers (Fig.12). These rivers flow only for a few months during snow melt and rainfall.

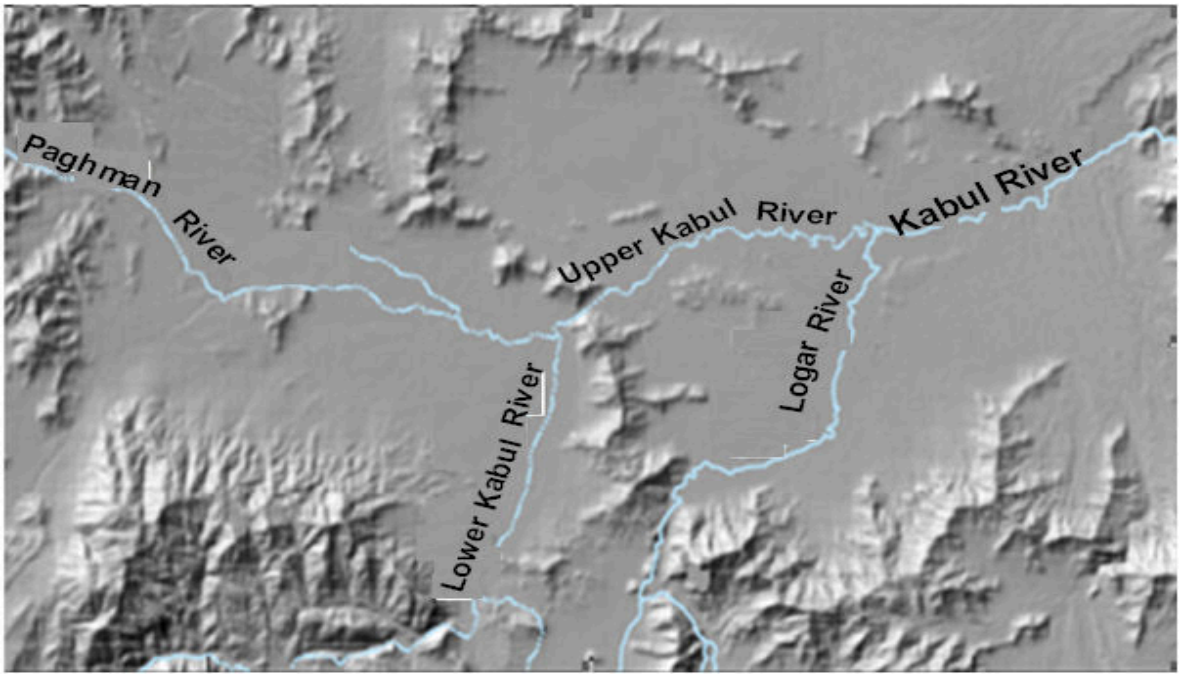


Fig. 12: Kabul, Logar and Paghman Rivers (USGS, 2005)

Kabul River originates from the eastern side of the Paghman Mountains from Jalrez, Daryai Maidan takes its source from Kotal-i Onay pass and is supplemented by Darah-i Sanglakh water at Jarlez district centre, Darra-i Jabor and finally the Darra-i Sadmardah water from Nirkh district in Maidan Shar. The Darya-i Maidan changes its name to Kabul River after Tangi Lalandar southwest of Kabul before it flows Darulaman place in Kabul.

From Paghman district, numerous small streams gather west of Kabul and join the Kabul River near Deh Mazang. Some of these streams refill the Qargha reservoir.

Logar River drains water from the Day Mirdad district of Wardak province. The main stream in Logar River is the Chak Rod, which changes its name to Logar River in Baraki Barak district of Logar province, after the Pengram stream joins from Charkh district. The Logar River flows towards Kabul and joins the Kabul River east of Kabul, close to Pule Charki.

The mean monthly run off of Kabul River (Kabul, Logar and Paghman) recorded in the Tangi Saydan, Sang-i- naweshta, Pul-e-Sukhta and Tangi Gharu gauges are indicated in Figures 13, 14, 15 and 16.

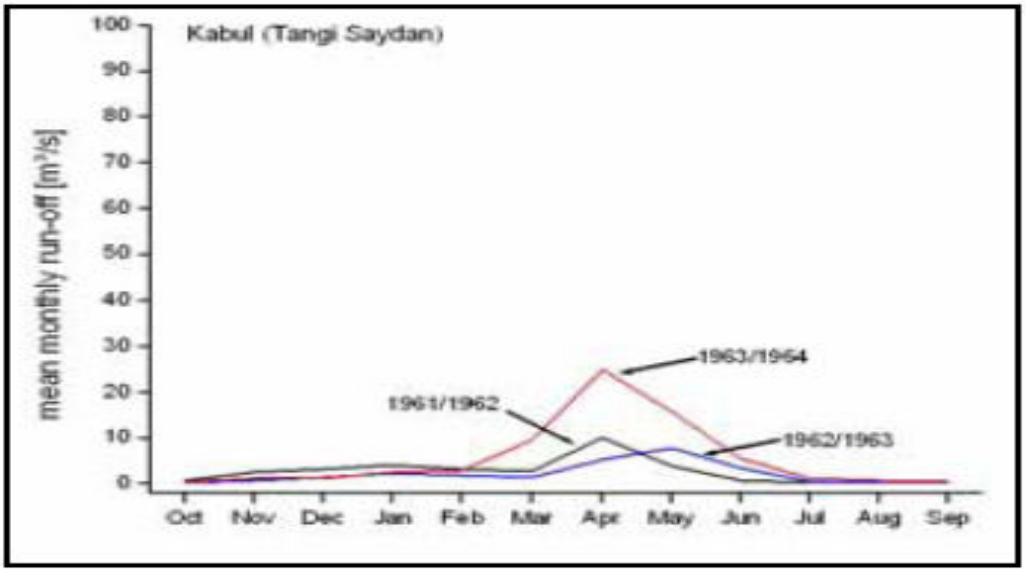


Fig. 13: Discharge of Upper Kabul River in Tangi Saydan gauge (Bockh, 1971)

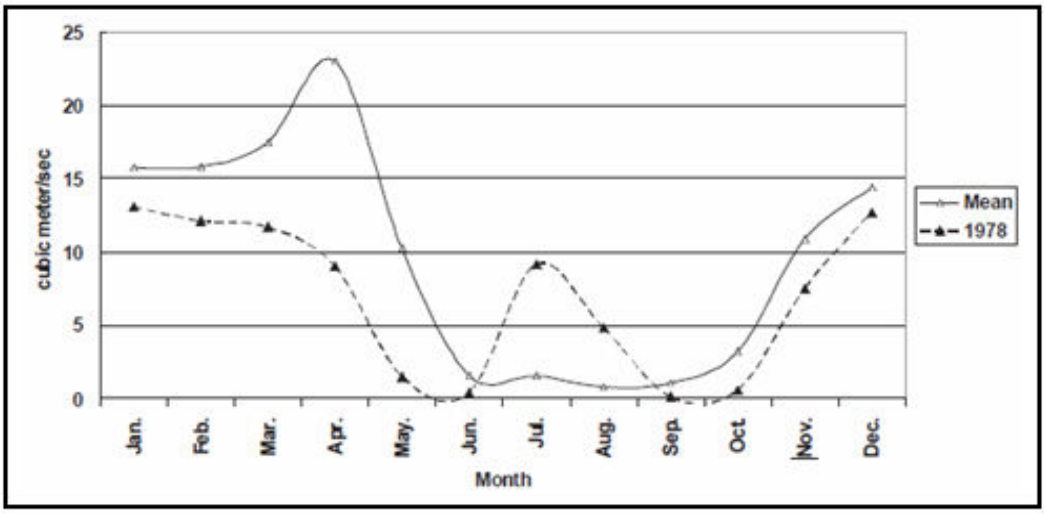


Fig. 14: Discharge of Logar River in Sang-i- naweshta gauge (Ministry of Water and Irrigation, 1978)

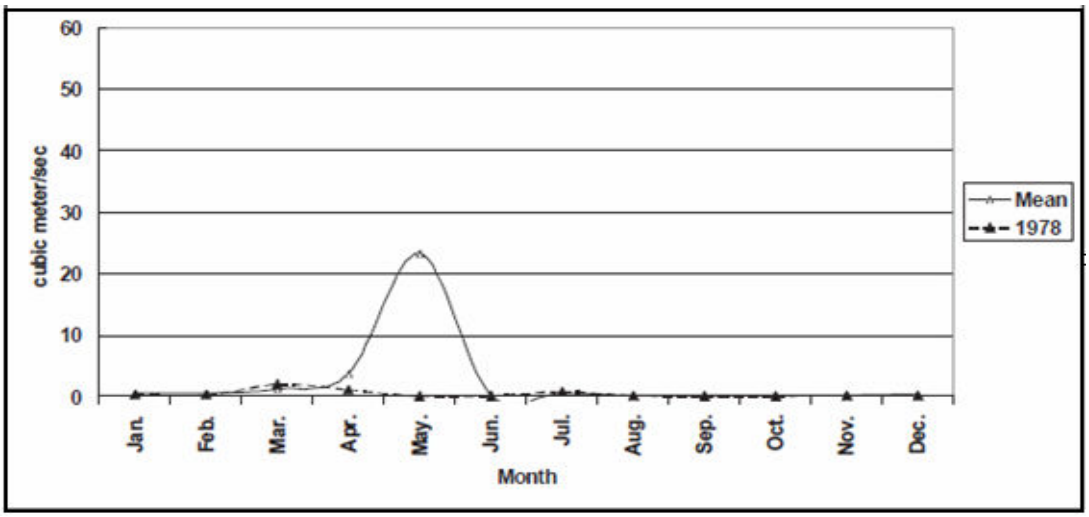


Fig. 15: Discharge of Paghman River in Pul-e-Sukhta gauge (Ministry of Water and Irrigation, 1978)

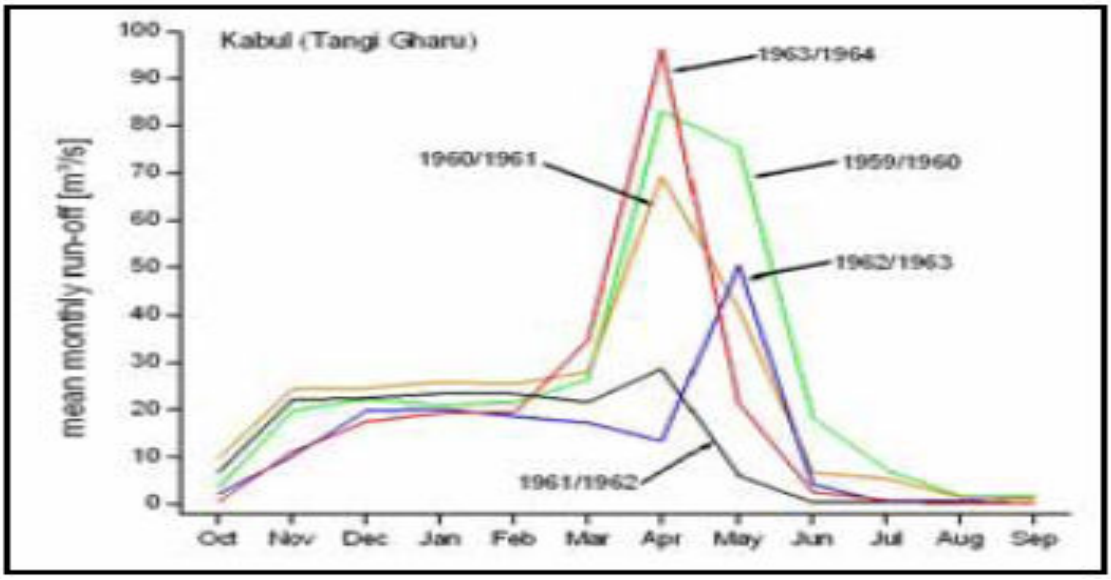


Fig. 16: Discharge of Kabul River in Tangi Gharu gauge (Bockh1971)

8.3 Geologic setting

Kabul Bain as an intermountain Basin surrounded and underlain by Precambrian metamorphic basement (gneisses, granitic-gneisses, amphibolites, mica, shiest, quartzite and marbles) with some younger (upper Paleozoic - Mesozoic) limestone and marl in the south and east margin. The Basin is filled with consolidated and unconsolidated clastic and alluvial sediments of upper Tertiary (Neogene) and Quaternary sediment which mainly consists of clay, sand, gravel, pebble, and conglomerate.

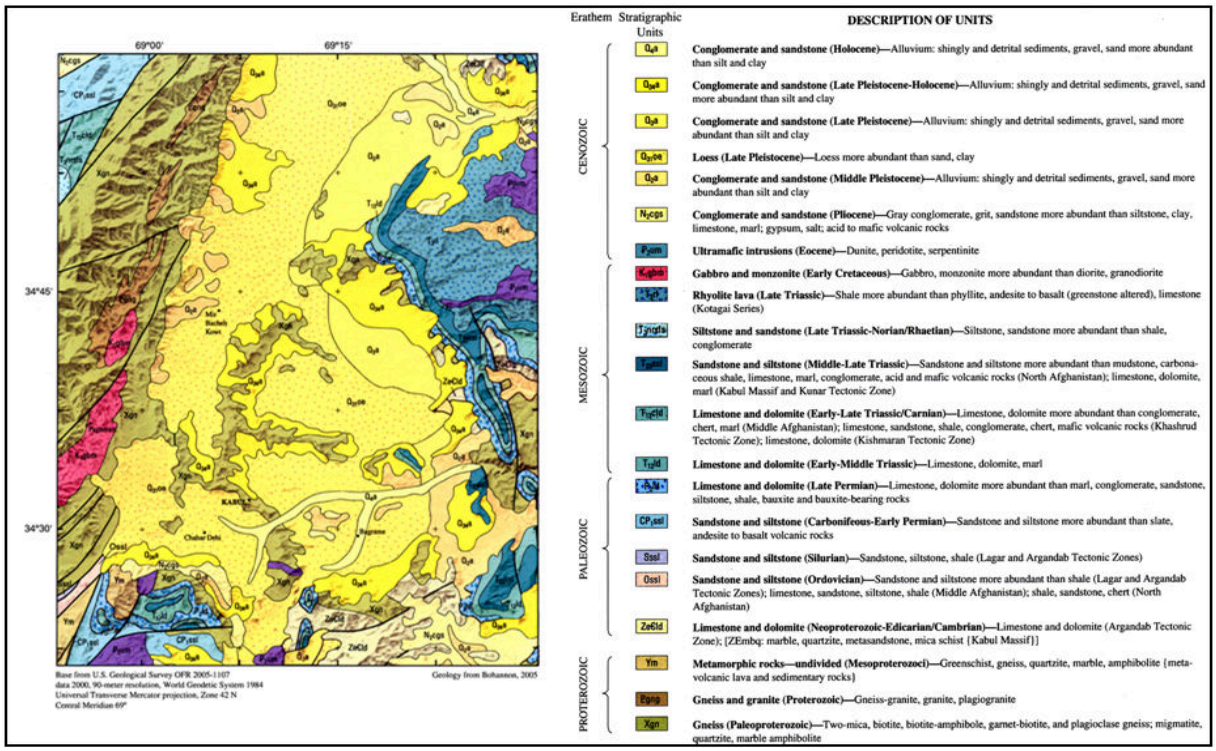


Fig. 17: Geologic setting of Kabul Basin (USGS 2005)

8.4 Hydrogeologic setting

Kabul Basin is divided into upper and lower parts by the Guzarga-Asmai mountain of Precambrian age. The upper Kabul sub Basin (to the south west) is drained by two rivers - the upper Kabul and Paghman. These join together as the lower Kabul River before passing through a narrow gorge “Sher Darwaza” that connects the upper Kabul sub Basin to the lower Kabul sub Basin. The lower Kabul sub Basin (to the north east) is drained by the Kabul and Logar Rivers which join up before passing out via another narrow gorge “Tangi Garu”.

8.4.1 Kabul Basin natural groundwater systems

Kabul Basin natural groundwater systems is characterized by three hydro geologic units: 1) crystalline rocks; 2) upper Tertiary (Neogene) aquifers and aquitards system; and 3) Quaternary sediments (Myslil and others, 1982)

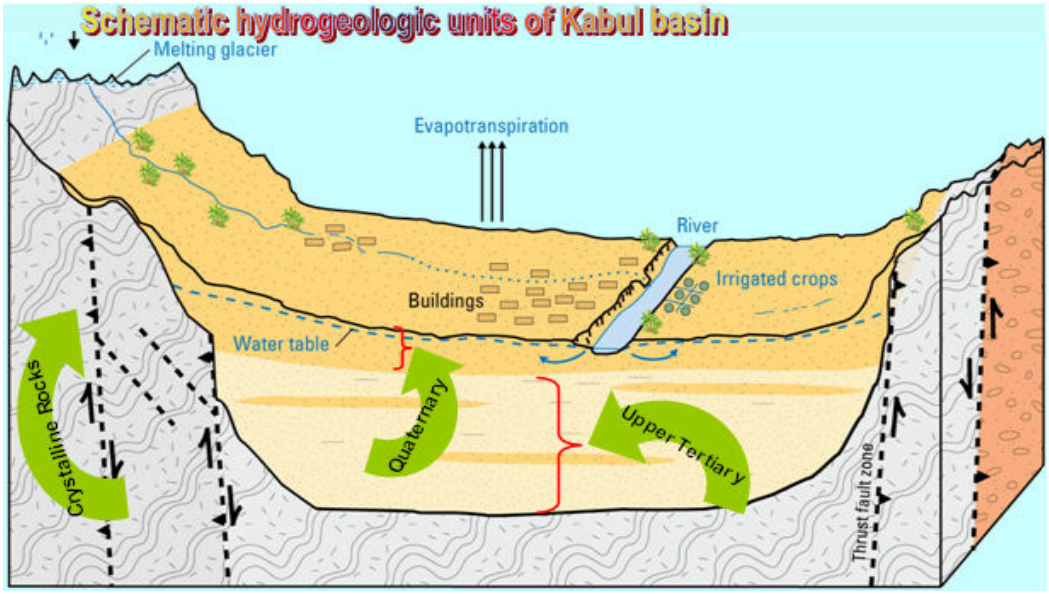


Fig. 18: Schematic horizontal hydrogeologic profile of Kabul Basin (USGS, 2008)

The crystalline rocks are Precambrian metamorphic basement. Secondary fracture permeability in these rocks resulting from faulting and weathering could make these rocks potentially important water bearing systems. In the absence of primary fracture, the crystalline rocks act as a barrier to the groundwater flow.

Upper Tertiary (Neogene) aquifer-aquitard systems underlain by an aquiclud (Bed rock) which mainly consist of clay (mud stone) and inter bedded silt, sand and gravel. These sediments originally filled the Basin to an elevation above that at present, but were subsequently eroded into valleys. These valleys in turn were filled with alluvium of Quaternary age. The upper Tertiary deposits are seen today as low level hills in the lower Kabul Basin (Tapa-i- Maranjan, Bibi Mahroo).

Geophysical survey revealed the total thickness of Neogene sediments in Kabul Basin as up to 600 meters (Proctor, 1972). The Afghan Geological Survey (AGS) report (Myslil and N.Eqrar, 1982) indicates that the thickness of Neogene sediments in Kabul - Logar sub Basin (lower Kabul sub Basin) is 647 meters, however the thickness of Neogene sediments in Darulaman - Paghman sub Basin (upper Kabul sub Basin) is 690 meters. This report also explains that the Neogen sediments are not considered a major aquifer in Kabul Basin**.**

Exploitation wells which were drilled by JICA in the lower Kabul Basin also reveal that the thickness of Neogen sediments ranges between 534 and 640 meters and are not considered a major aquifer in the Kabul Basin.

Quaternary deposits consist of conglomerate, sand and gravel with loam, sandy loam on the surface. The coarse grained material generally follows the course of rivers without exception the burried valley which runs south-east from the old city joining the alluvium of Kabul River with that of Logar River.

8.4.2 Natural groundwater storage of Kabul basin

There is not existing recent information on Kabul basin groundwater natural storage and annual renewable storage. Shevchenko and others (AGS 1983) determined the natural and annual renewable storage of alluvium Quarternary aquifer for lower and upper Kabul basin. The **natural storage** of alluvim Quarternary aquifer is shown in table 1 and the annual renewable storage is shown in table 2.

Tab. 1: Natural storage of alluvim Quaternary aquifer in Kabul Basin

Name of Sub Basin	Area (m^2)	Thickness of aquifer (m)	Storage coefficient	Natural Storage (m^3)
Lower Kabul basin	129.10^6	36.1	0.25	113.10^9
Upper Kabul basin	53.10^6	48.1	0.25	637.10^8

Tab. 2: Annual renewable storage of alluvim Quaternary aquifer in Kabul Basin.

Name of Sub Basin	Area (m^2)	Δh (m)	Storage coefficient	Δt	Removable Storage (m^3)
Lower Kabul basin	129.10^6	1.04	0.25	365	91890
Upper Kabul basin	53.10^6	1.85	0.20	365	67620

Δh is the piezometric variation of storage in time (Δt). The recent GMWs data from Kabul Basin shows that the naural storage change (Δs) is negative due to over-obstruction, low precepatation and high evapotranspiration.

8.4.3 Main aquifers of Kabul city

Generally Kabul Basin has four main Quaternary interconnected aquifers. The upper Kabul Basin (Darulaman-Paghman sub Basin) has two aquifers lying along the course of the Paghman River and the upper course of Kabul River. The lower Kabul Basin (Kabul-Logar sub Basin) has two aquifers lying along the course of Logar River and lower course of Kabul River.

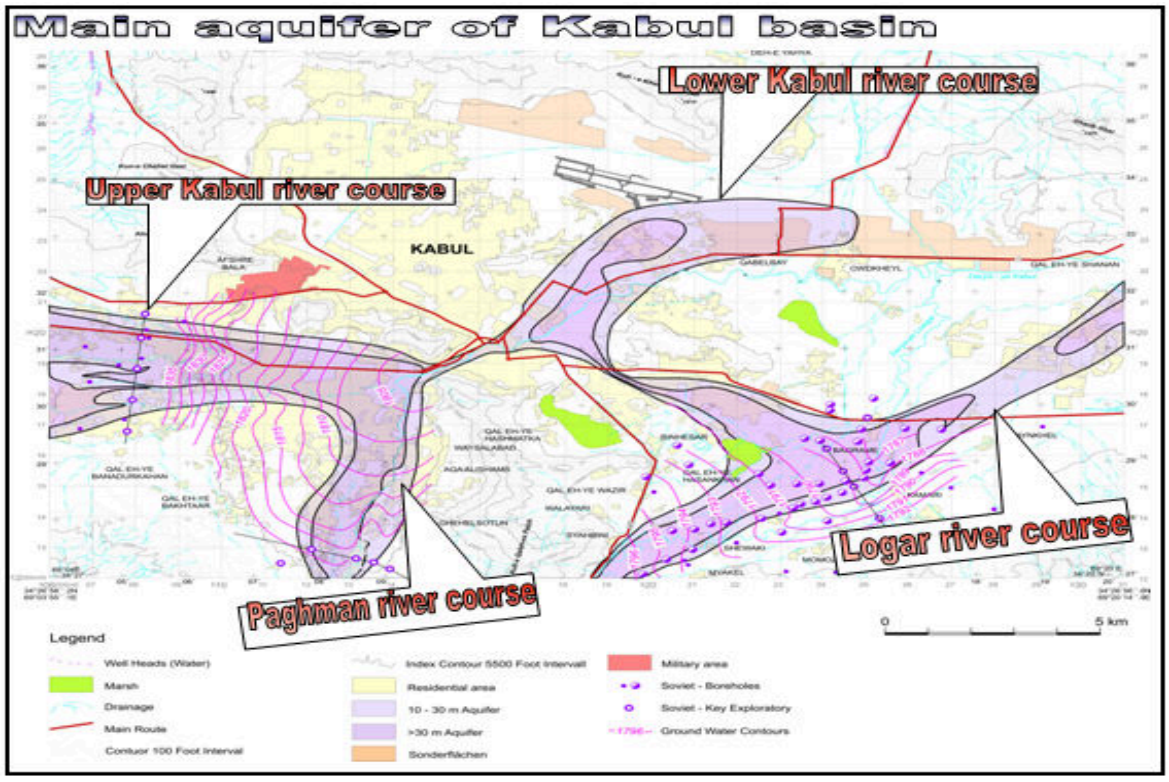


Fig. 19: Main aquifers of Kabul Basin (Bockh.E.G, 1971)

8.4.4 Recharge condition

The recharge condition of the flow system is characterized by: 1) recharges from river beds; 2) direct recharge from precipitation; 3) foot hill recharge from snow melts; 4) recharge from irrigation channels; and 5) recharge from percolation of sewage, leakage from septic tanks, cess pit and pit latrines. The main recharge occurs from river beds and irrigation channels during high peak flow of Kabul and Logar rivers. The highest discharge occurs in April-May after snow melts, which is the most likely period for recharge.

8.4.5 Groundwater flow

The general groundwater flow direction is from the western or southwestern of Kabul Basin through the Basin center, to the Eastern Basin.

The over saturation of Kabul Basin with respect to calcite and dolomite explains the presence of conglomerates in the aquifer (most of the aquifer consists of gravel). Over a long period of time, the over saturation leads to a reduction in pore space and the productivity of aquifer yield.

8.4.6 Cross-section analysis

Two dimensional (2D) cross-sections were used for interpretation of Kabul Basin geology, hydrogeology and natural groundwater flow system. The 2D cross-sections lines are provided according to the explorations and productions wells data that were drilled by Ministries of Mine and Industry, Ministry of Water and Power and JICA. The cross sections wells hydraulic parameters are shown in the table 3 and the cross section lines location is shown in the figaur 20.

Tab. 3: Cross sections wells hydraulic parameters

Well ID	Lat.	Long.	Well Depth (m)	WT (m)	Drilling year	Q (L/sec)	S (m)	K (m/sec)
2	34.55599	69.17104	554	10.5	2008	-	-	-
3	34.50999	69.20380	640	10.7	2007	-	-	-
4	34.57399	69.11209	83	45	1982	5	13	$0.853* 10^{-4}$
5	34.54900	69.23706	178	5.9	1984	2.5	3.57	$1.5* 10^{-6}$
6	34.57399	69.12904	570	6.16	2007	-	-	-
7	34.51107	69.16331	35	3.7	1982	92	2.74	$3.8543* 10^{-3}$
8	34.51299	69.17623	43	6.7	1987	30	2.3	$3.765* 10^{-3}$
9	34.53699	69.20727	37	3.41	1986	18.4	4.7	$1.0613*10^{-3}$
10	34.52499	69.19132	39	21	1982	16	1.52	1.703* 10-3
11	34.52599	69.18623	35	5.61	1983	20	0.69	$1.85* 10^{-3}$
12	34.55274	69.16003	158	1.5	1973	-	-	-
13	34.53799	69.13718	36	2.3	1988	3.75	4.5	$0.567* 10^{-3}$
14	34.53499	69.15013	68	2.5	1982	4	2.07	$0.2245 *10^{-4}$
15	34.51299	69.17413	40	5.7	1990	15	0.8	$1.78* 10^{-4}$
16	34.52299	69.17019	54	6.17	1982	15	4.71	$3.6612* 10^{-3}$
17	34.55099	69.12018	117	12.8	1981	8	3.8	-
18	34.50499	69.15509	45	3.2	1983	30	2.3	$2.95* 10^{-4}$
19	34.49699	69.15618	52	1.8	1988	20	0.8	$2.56* 10^{-4}$
20	34.47199	69.15414	40	5.7	1982	16	1.18	$2.55* 10^{-4}$
21	34.50090	69.14710	46	2.4	1982	44	2.1	$1.97* 10^{-3}$
22	34.51299	69.15309	34	3.4	1982	30	0.93	$1.65* 10^{-3}$
23	34.51199	69.13913	42	6	1987	8	18.02	$3.5* 10^{-3}$
24	34.50499	69.12914	43	3	1985	25	4.7	$4.12* 10^{-4}$
25	34.48999	69.10913	38	4.4	1984	13	11.3	$1.92* 10^{-4}$
26	34.49699	69.12403	40	2.74	1987	14	1.3	$1.19* 10^{-4}$
27	34.47999	69.15504	27	4	1990	10	0.5	$3.12* 10^{-4}$
28	34.47860	69.22873	36	1.28	2003	-	-	-
29	34.48699	69.22254	45	3.41	1997	34	3.7	-
30	34.49699	69.21704	56	3.3	1983	25	5.63	$1.66* 10^{-3}$
31	34.50899	69.21204	50	1	1980	9	4.26	$4.41* 10^{-4}$

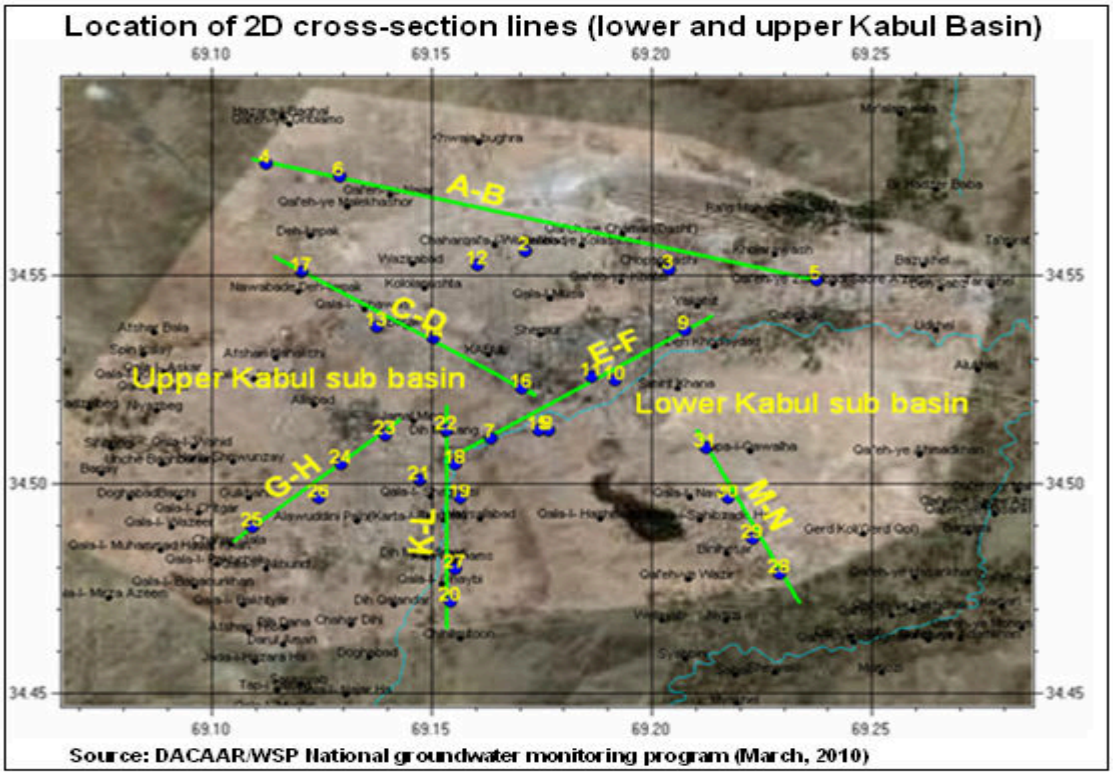


Fig. 20: Location of 2D cross-section lines (lower and upper Kabul Basin)

8.4.7 Lower Kabul sub Basin

The 2D cross-section of A-B is located in the lower Kabul sub Basin and indicates three hydro geologic units (crystalline rocks, upper Tertiary and Quaternary) of Kabul Basin natural groundwater systems. The main parts of the aquifer consist of Quaternary sand and gravel with intercalation of clay, fine sand and silt. The overlying layers (cover) consist of loam, sandy loam with large pore spaces. The cover has a good filtration capacity. This is a significant factor in the retaining of microbiological and anthropogenic contamination from countless drainage pits. The overlying loam and sandy loam layers are very thin in the center Basin and thick at the edges of the Basin. The average thickness of the Quaternary aquifer ranges between 25 and 40 meters.

The Neogene (Miocene and Pliocene) aquifer-aquitard system is underlain by an aquiclude (bed rock) which mainly consists of clay (mudstone) and interbedded silt, sand, gravel and pebble. The thickness of the Neocgene aquifer-aquitard systems ranges between 534 and 640 meters.

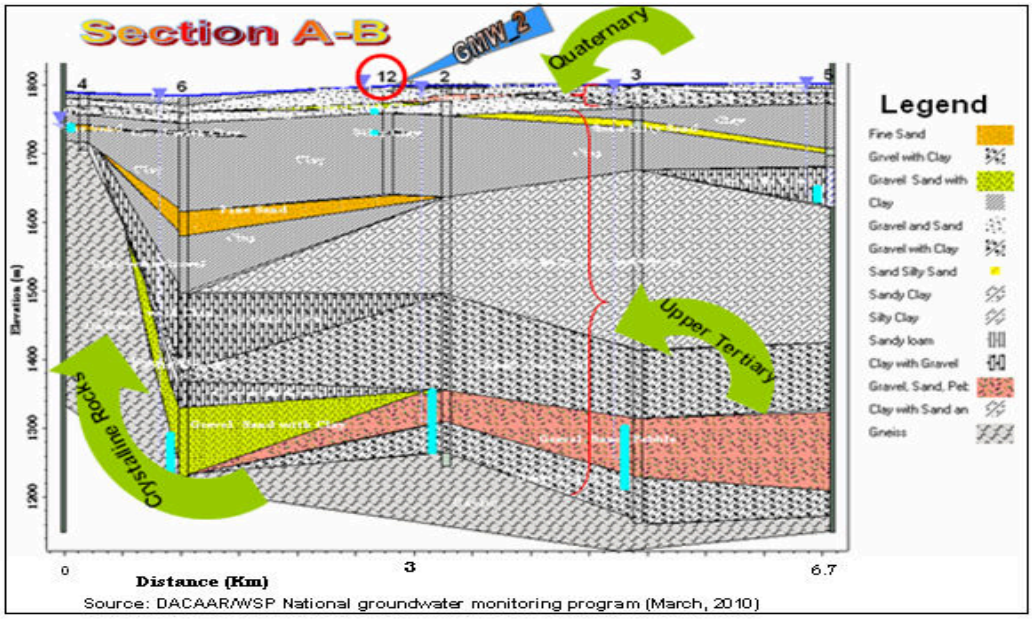


Fig. 21: Cross-section A-B (lower Kabul sub Basin)

The 2D cross-section C-D is located in the lower Kabul sub Basin. The main aquifers consist of Quaternary sand, gravel with the intercalation of clay, fine sand and silt. The overlying layers consist of loam, sandy clay and silt with large pore space. The thickness of the Quaternary aquifers ranges between 30 meters and 40 meters.

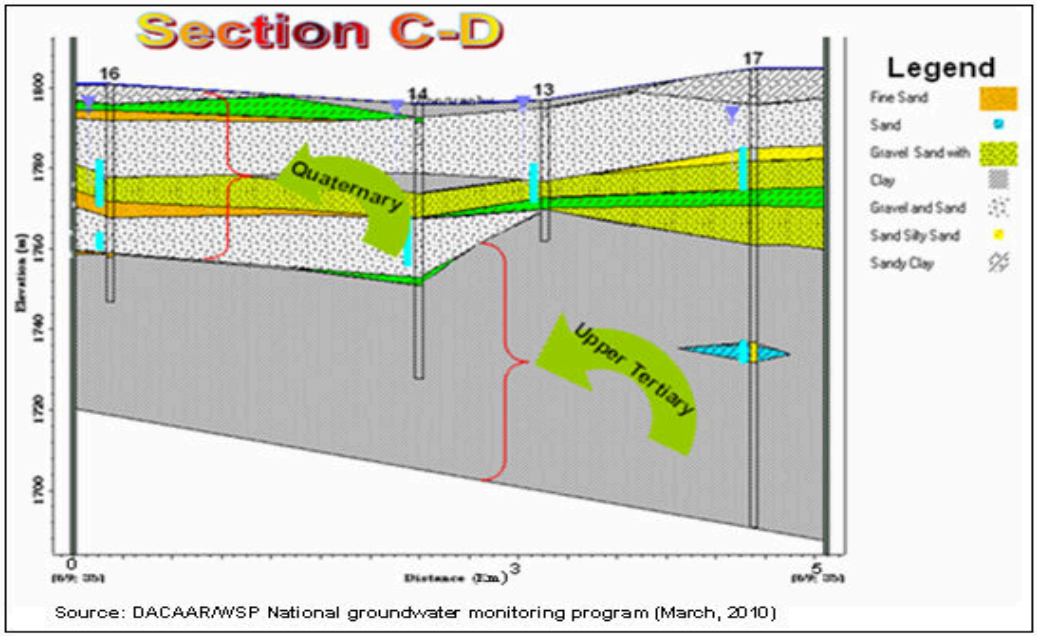


Fig.22: Cross-section C-D (lower Kabul sub Basin)

The 2D cross-section E-F is located in the lower Kabul sub Basin along the lower Kabul River course. The main aquifer consists of Quaternary sand, gravel, pebble and conglomerate. The overlying layers consist of loam, sandy loam and sandy clay with large pore space. The thickness of the Quaternary aquifer ranges between 30 meters and 40 meters. The aquifer consists of conglomerate hardened with calcareous sediment. Compaction and hardening of conglomerate causes a reduction in pore spaces and lowers the productivity of the main aquifer.

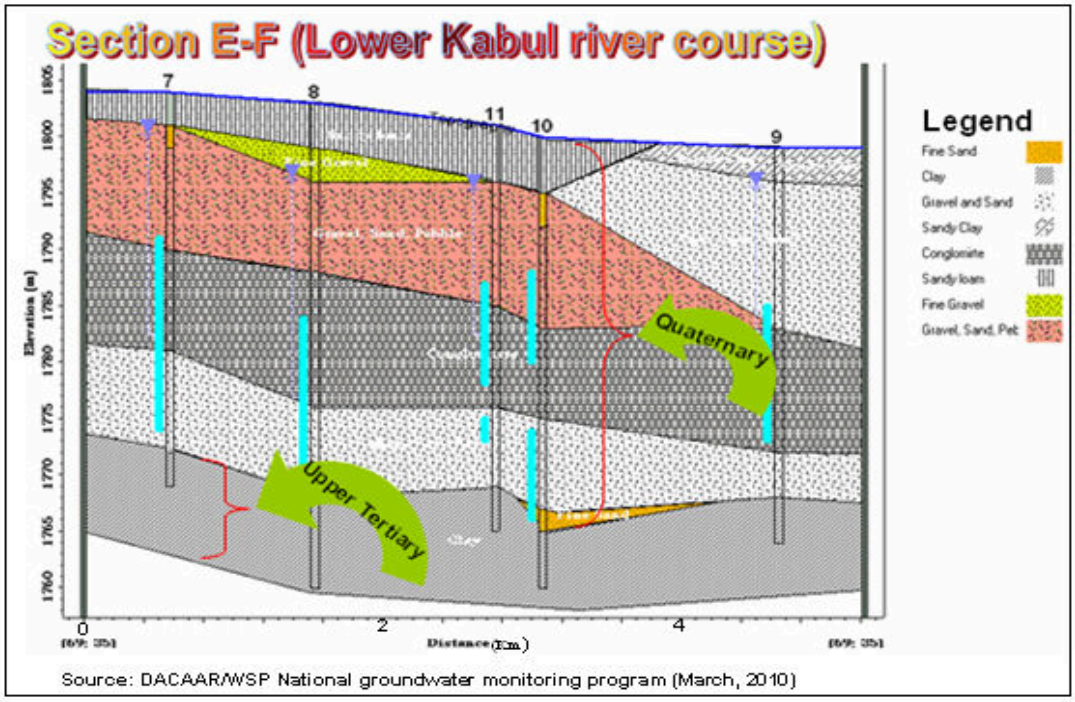


Fig. 23: Cross-section E-F (lower Kabul sub Basin)

The 2D cross-section M-N is located in the lower Kabul sub Basin within the Logar aquifer. The main aquifers consist of Quaternary sand, gravel, pebble and conglomerate.
The layer consists of conglomerate cemented with calcareous. The overlying loam, sandy loam beds, is relatively thin at the south eastern part and thick in the north part of the section. The average thickness of aquifer is about 40 meters. The different layers act as one interconnected aquifer with hydraulic contact.

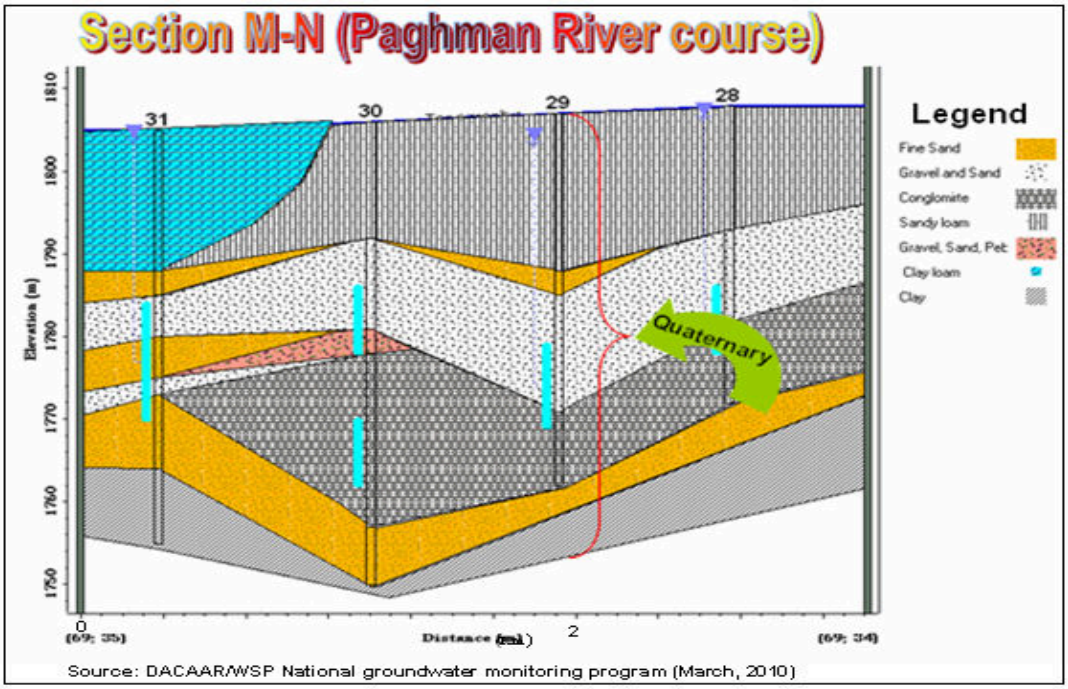


Fig. 24: Cross-section M-N (lower Kabul sub Basin)

8.4.8 Upper Kabul sub Basin

The 2D cross-section K-L is located in the upper Kabul sub Basin along the upper Kabul river course. The main aquifer consists of Quaternary sand, gravel, pebble and conglomerate. The overlying layers consist of loam and clay loam with large pore space. The thickness of Quaternary aquifer ranges between 30 meters and 55 meters. The aquifer consists of conglomerate cemented with calcareous sediment. Compaction and hardening of conglomerate causes a reduction in pore spaces and lowers the productivity of the main aquifer.

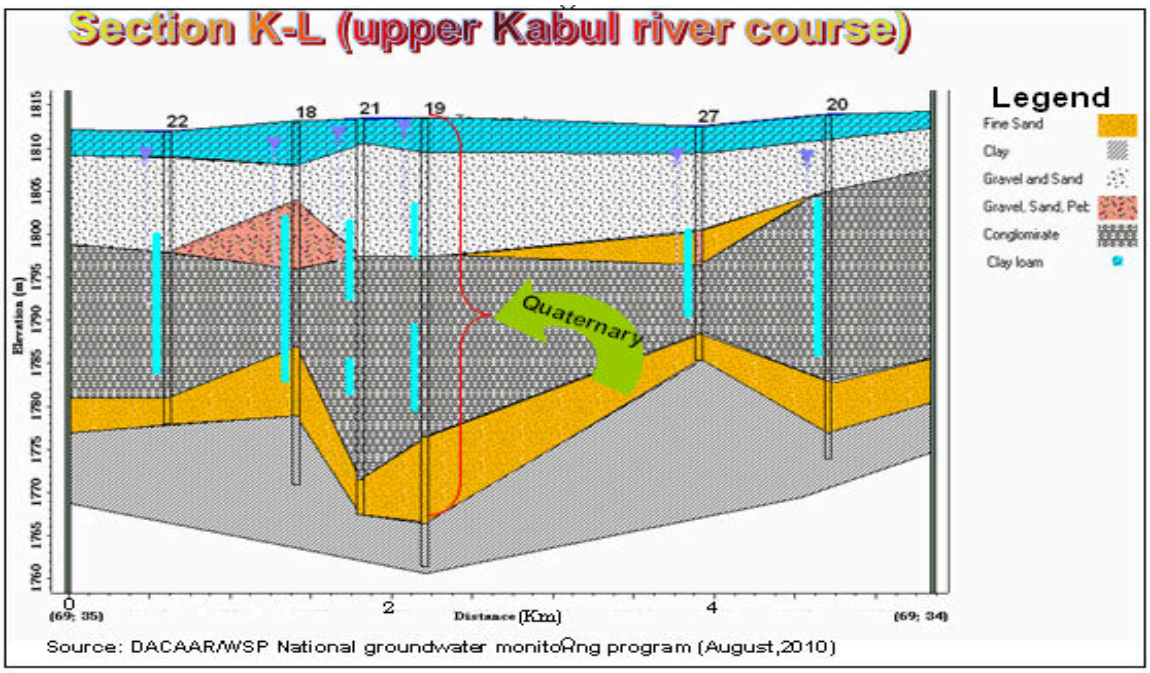


Fig. 25: Cross-section K-L (lower Kabul sub Basin)

The 2D cross-section G-H is located in the upper Kabul sub Basin along the lower Paghman river course. The main aquifer consists of Quaternary sand, gravel, pebble and conglomerate. The overlying layers consist of loam and clay loam with large pore space. The thickness of Quaternary aquifer ranges between 30 meters and 55 meters. The aquifer consists of conglomerate hardened with calcareous sediment. Compaction and hardening of conglomerate causes a reduction in pore spaces and decreases the productivity of the main aquifer.

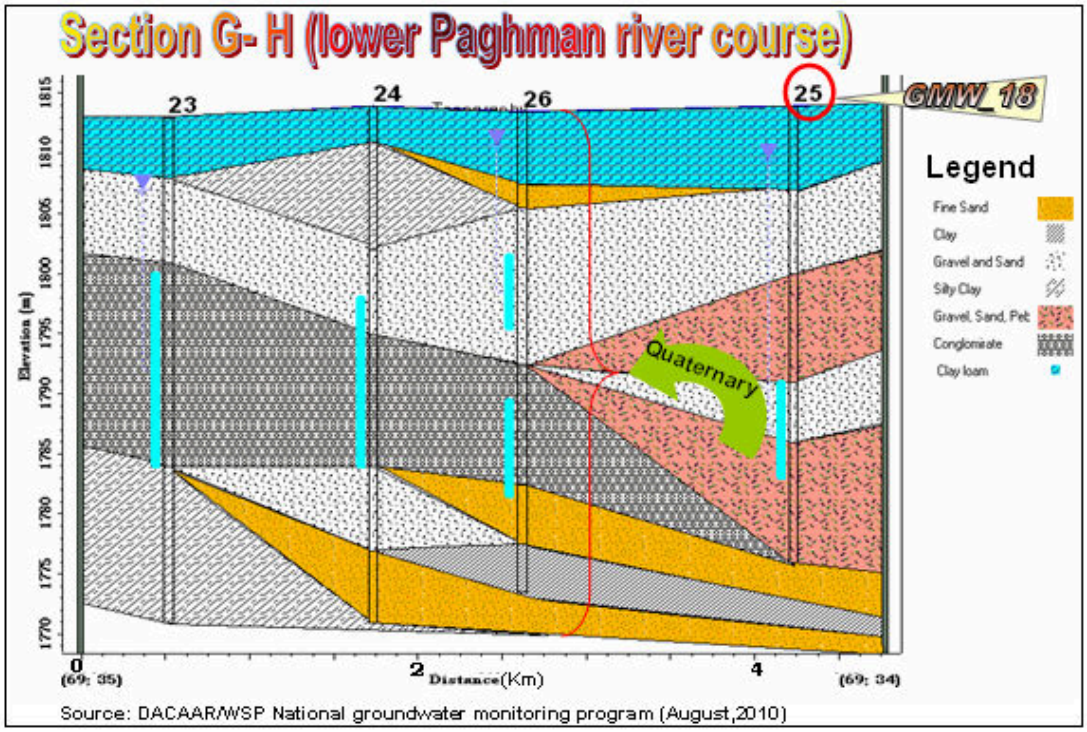


Fig 26: Cross-section G-H (upper Kabul sub Basin)

8.5 Conceptual hydrologic cycle of Kabul Basin

Kabul Basin hydrologic cycle is a conceptual model that describes the storage and movement of water between ecosystem (biosphere, atmosphere, lithosphere, and the hydrosphere). Water can be stored in the atmosphere, reservoirs, rivers, soils, snowfields, and groundwater and can cycle by processes like evaporation, transpiration, condensation, precipitation, deposition, runoff, infiltration, melting, and groundwater flow. Recharge (in flow) to the aquifers is mainly from precipitation, run off, irrigated water return, irrigation canals and sewerage. Discharges (out flow) from the aquifer are groundwater pumping, spring, karezes and evaporation. Kabul Basin natural groundwater systems model is characterized by three hydro geologic units: 1) crystalline rocks (metamorphic and volcanic rock); 2) upper Tertiary (Neogene) sediments; and 3) Quaternary sediments, which is characterized in detail under the hydrogeologic setting.

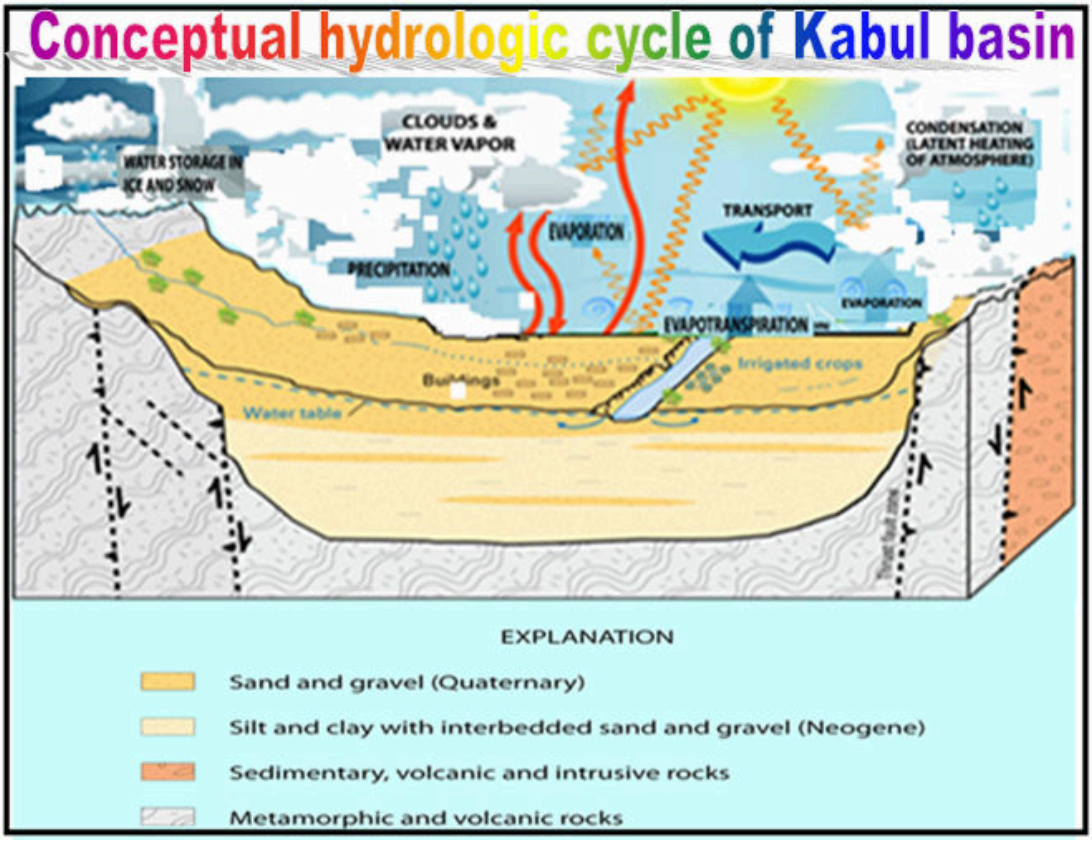


Fig 27: Conceptual hydrologic cycle of Kabul Basin (DACAAR/WSP, March, 2010)

The recharge condition of the flow system has characterized: 1) recharges from rivers bed; 2) direct recharge from precipitation; 3) foot hill recharge from snow melts; 4) recharge from irrigation channels; and 5) recharge from percolation of sewage, leakage septic tank and pit latrine.

The main recharge occurs from river beds and irrigation channels during high peak flow of Kabul and Logar rivers. The highest discharge occurs in April-May after snow melt, this is the most likely period for recharge.

The discharge condation of the flow system has characterized: 1) wells; 2) springs: 3) karezes; 4) discharge to the rivers; and 5) evapo-transporation.

9. Water quality concern

The primary groundwater quality concerns in Kabul Basin are:

1. Salinity
2. Nitrate
3. Hardness
4. Boron
5. Coliform bacteria

In Kabul Basin the cover of the aquifers consists of loess loam which has a particularly good filtration capacity. This is a significant factor in the retention of microbiological and anthropogenic contamination from countless drainage pits (pit latrines, sewerage, leaking septic tanks, Kabul river and irrigation channels), but because of strong erosion and excavation of loess by people, the upper natural protection layer does not exist now. Kabul city has a network of surface open drains (Fig.28) for carrying rain water and sewage to the irrigation channel and Kabul River. They are also filled with solid waste, human excreta, and potential sources of contamination.

Fig. 28: Solid waste and human excreta in the Kabul River and Khirkhana surface drain channel.

At the base of the mountains slopes (Basin margin) the run off and melted snow movement pick up human made pollution (anthropogenic) and solid waste (Fig.29) which are either infiltrated through the groundwater via consolidated and unconsolidated sedimentary rocks or discharged to Kabul River and then via infiltration to the groundwater.

Fig. 29: Foot hill mountainous slopes human made pollution (anthropogenic) and solid waste.

9.1 Salinity

9.1.1 Definition of salinity.

Salinity is the dissolved minerals or salt content of a body of water. Minerals dissolved in water have a positive or negative charge and electrical conductivity (EC) is a measure of this charge (and therefore is a measure of the dissolved mineral content). Major components of EC are calcium, magnesium, sodium, bicarbonate, chloride and sulfate. EC measured in micro Siemens (µS/cm) or micro mhos (mhos/cm)

9.1.2 Maximum Contaminant Levels (MCLs)

The WHO guideline for electrical conductivity is 1,500 micro mhos (µS/cm), but due to the acute water shortage in Afghanistan the electrical conductivity values of up to 3,000 µS/cm are tolerated for human consumption.

9.1.3 Salinity of Kabul Basin

The distribution of EC in Kabul Basin groundwater ranges between 306 and 13,899 µS/cm (Appendix 2) with clear increases from recharge (up gradient) zones to the discharge (down gradient) zones. In recharge zones of Kabul Basin, the EC values range from 306 to 1,000 µS/cm, however in the middle part of the Basin these values gradually increase from 1,000 to 1,500 µS/cm. In discharge zones of Kabul Basin, especially in Kabul city, the EC values have progressively increased from 1,500 to 13,899 µS/cm due to combination of dissolution of minerals and relative enriched salts as a result of strong evaporation, percolation of sewage from countless drainage pits and anthropogenic emission from Kabul and Logar Rivers. The chemical composition and salinity of groundwater typically change in transit from recharge to discharge zones. In the recharge zones, the lower value of EC may result from the high hydraulic gradient and lower solubility of the aquifer material.

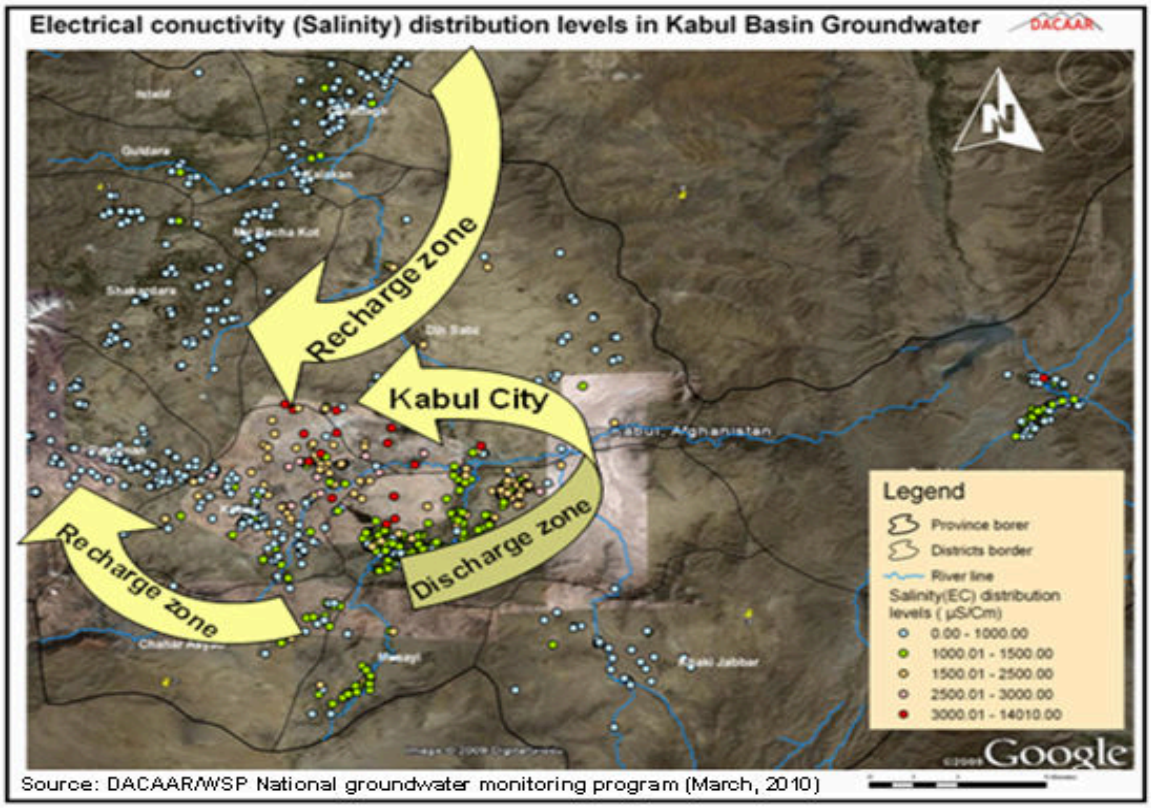


Fig. 30: Electrical conductivity distribution level in Kabul Basin groundwater.

The 18.36% of measured drinking water points of Kabul Basin show that the EC values are higher than the WHO limit of 1,500 µS/cm and 81.64% of measured drinking water points shown that the EC values are lower than the WHO limit of 1,500 µS/cm.

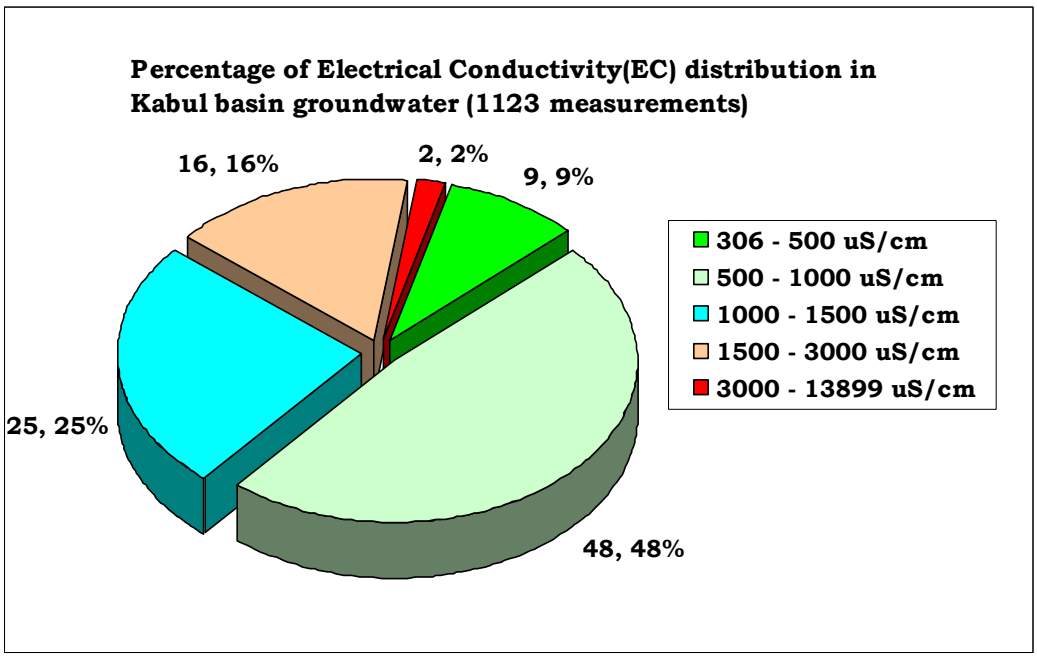


Fig. 31: Percentage of EC distribution in groundwater of Kabul Basin (DACAAR, March, 2010)

The 66% of measured drinking water points of Kabul city shows that the EC values are higher than the WHO limit of 1,500 µS/cm and 34% of measured drinking water points show that the EC values are lower than the WHO limit of 1,500 µS/cm.

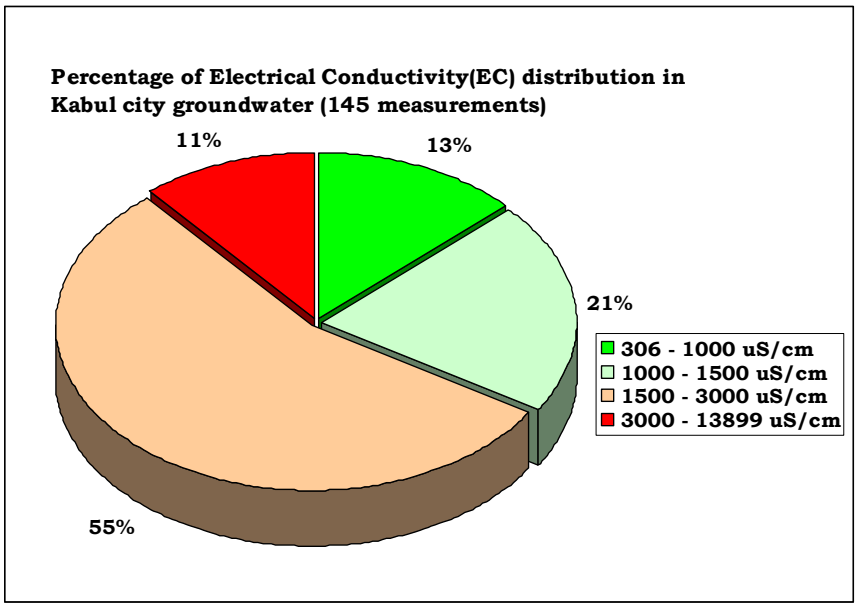


Fig. 32: Percentage of EC distribution in groundwater of Kabul Basin (DACAAR, March, 2010)

9.1.4 Major ions chemistry

Kabul Basin major ions chemistry analysis was conducted by a Piper triangular diagram (Fig. 32), where the samples are classified according to the recharge zones to the discharge zones (flow direction). The chemistry of groundwater of Kabul Basin varies from up gradient (recharge zones) to down gradient (discharge zones).

Samples from wells located in the recharge zones have low EC and the water type is mostly calcium bicarbonate (Ca- HCO_3), however samples from wells which are located in the middle part of the Basin have moderate EC and the water type is mostly magnesium-Calcium Bicarbonate (Mg-Ca-HCO_3). These samples are clustered near the left corner of the triangular diagram. These differences in chemical composition may come from weathering and solution of minerals like calcite, dolomite, biotite and other common minerals.

The sample from wells located in the discharge zones (Kabul city) are clustered in the center, near the top and right of the triangular diagram. The EC ranged between 1,500 µS/cm and 13,899 µS/cm, the water type is mixed and many of these samples are highly elevated in sodium, magnesium, sulfate and chloride. These differences in chemical composition are due to dissolution of minerals, evaporative concentration and anthropogenic sources.

Figure 32 shows that the chemical composition and salinity of groundwater in Kabul Basin has progressively increased from recharge zones to the discharge zones.

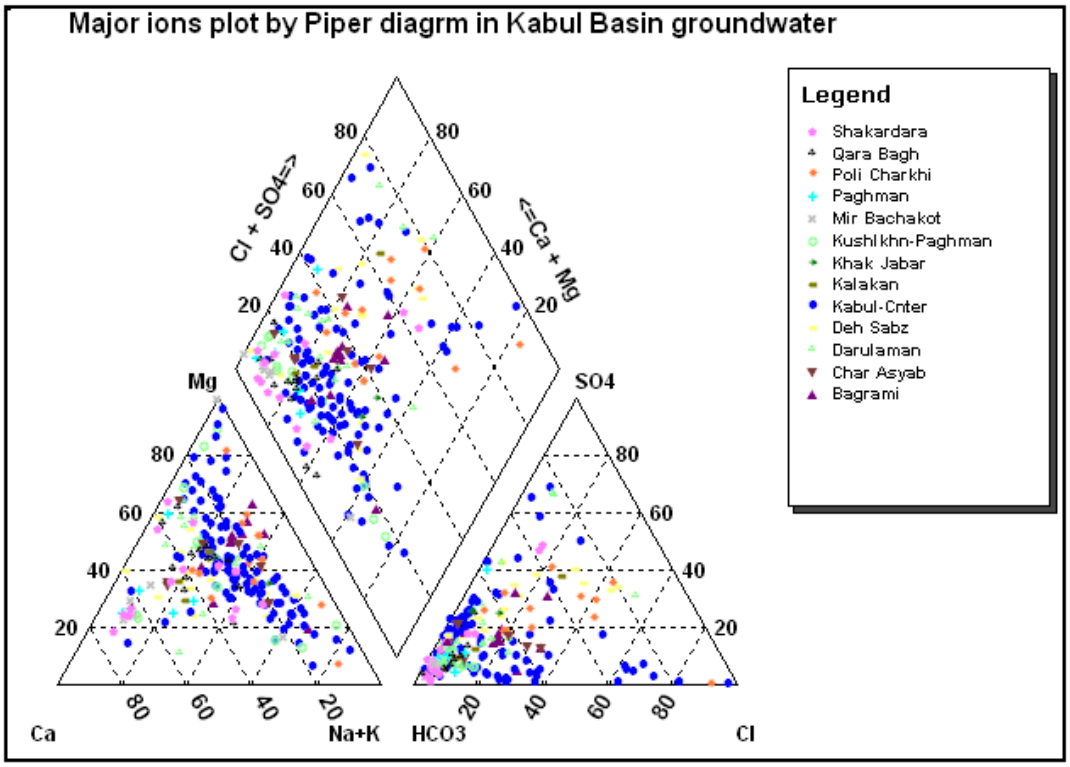


Fig.33: Piper triangular diagram, illustrating variability in major ions composition from recharge areas to the discharge areas (DACAAR, March, 2010)

9.1.5 pH

pH is defined as the negative decimal logarithm hydrogen ion activity (H^+).The pH value is indicated where the water is acid or basic. Neutral water has a pH of 7. If the pH of water is less than 7 it is acidic and if more than 7 it is basic. It is a very important parameter for numerous hydro-chemical reactions and assessing the usability of water in a technical system. The WHO limit for pH is 6.5 - 8.

The hydrochemical processes are dependent on pH:

1. Carbonates equilibrium.
2. The solubility of numerous minerals (calcium, magnesium, iron, manganese and aluminium minerals)
3. Surface charge of numerous minerals and thus their adsorption capacity.

The pH of the groundwater in Kabul Basin lies in the very basic zone (Appendix 2). This indicates a well buffered system.

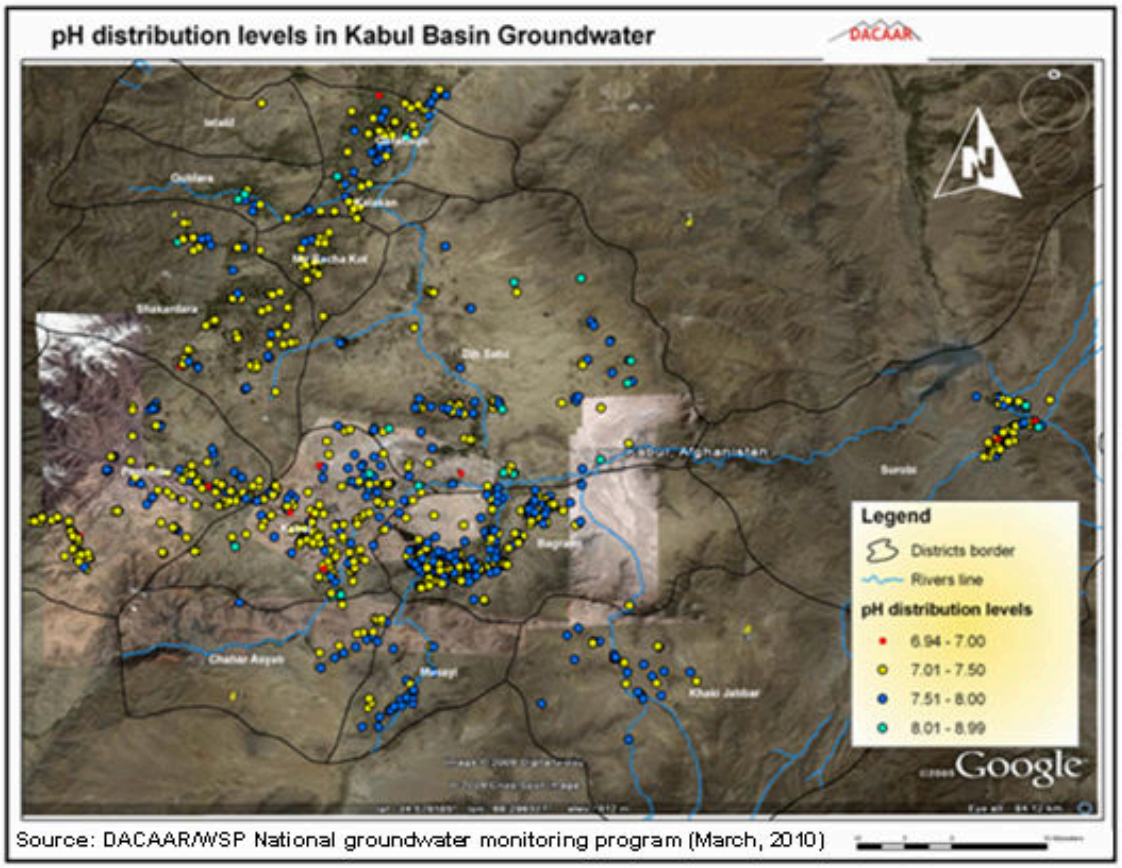


Fig. 34: pH distribution level in Kabul Basin groundwater

9.2 Nitrate

9.2.1 Sources of nitrate

The sources of nitrate come from animal waste, private septic systems, wastewater, flooded sewers, polluted storm water run-off, fertilizers, agricultural run-off, and decaying plants.

9.2.2 Maximum Contaminant Levels (MCLs).

The U.S. Environmental Protection Agency (EPA) maximum contaminant levels for nitrates is 10 milligrams per liter (as NO_3 –N mg/l), however the WHO maximum contaminant levels for nitrate is 50 mg /l NO_3 (2004).

9.2.3 Nitrate and potential health effects

Nitrate can cause health problems for infants, especially those six months of age and younger. Nitrate interferes with their blood's ability to transport oxygen. This causes an oxygen deficiency, which results in a dangerous condition called *methemoglobinemia*, or "blue baby syndrome". The most common indication of nitrate toxin is bluish skin colouring, especially around the eyes and mouth. Infants six months of age and younger and pregnant and nursing women should avoid consumption of water high in nitrate. Toxic effects occur when bacteria in the infant's stomach convert nitrate to more toxic nitrate. Some scientific studies suggest a linkage between high nitrate level in drinking water with birth defects and certain types of cancer.

According to the U.S Environmental Protection Agency (EPA) long-term exposure to water with high nitrate levels can cause diuresis (excessive discharge of urine), increased starchy deposits, and hemorrhaging (flow of blood) of the spleen. People with heart or lung disease, reduced gastric acidity, may be more vulnerable to the toxic effects of nitrate than others.

9.2.4 Water Treatment Systems

Reverse osmosis, ion exchange and distillation are types of water treatment systems that can remove nitrate. Carbon adsorption filters, mechanical filters of various types, and standard water softeners do not remove nitrate

9.2.5 Reverse Osmosis

Pressure is applied to water to force it through a semi-permeable membrane, filtering out most impurities. According to manufacturers' literature, 85-95% of nitrate can be removed. Actual removal rates may vary, depending on the initial quality of the water, the system pressure and water temperature.

9.2.6 Ion Exchange

Special anion exchange resins are used that exchange chloride ions for nitrate and sulphate ions in the water as it passes through the resin. Since most anion exchange resins have a higher selectivity for sulphate than nitrate, the level of sulphate in the water is an important factor in the efficiency of an ion exchange system for removing nitrates. Disposable mixed-bed deionizers are an ion-exchange process where virtually all the dissolved ions in the water can be removed. This type of system uses both anion and cat ion exchange resins.

9.2.7 Distillation

The process involves boiling the water, collecting and condensing the steam via a metal coil and removes nearly 100% of the nitrate.

9.2.8 Sources of nitrate in Kabul Basin

The sources of nitrate in the Kabul Basin groundwater are: 1) sewage drainage; 2) leakage from septic tanks; 3) pit latrines; 4) nitrogen based fertilizer; 5) irrigation channels; and 6) Kabul river.

9.2.9 Nitrate contamination documented in previous and recent study results.

This report compares the historical nitrate concentration level with the recent nitrate concentration level in Kabul Basin. The result reveals that the nitrate concentration has progressively increased with time.

32% of all hand pumped wells in Kabul Basin indicated that the nitrate concentrations level exceeded the WHO limit of 50 mg/l (Action Contre La Faim, 1996). 42% of analyzed water samples from drinking water points revealed that the nitrate concentrations exceeded the WHO limit of 50 mg/l (BGR, 2004).

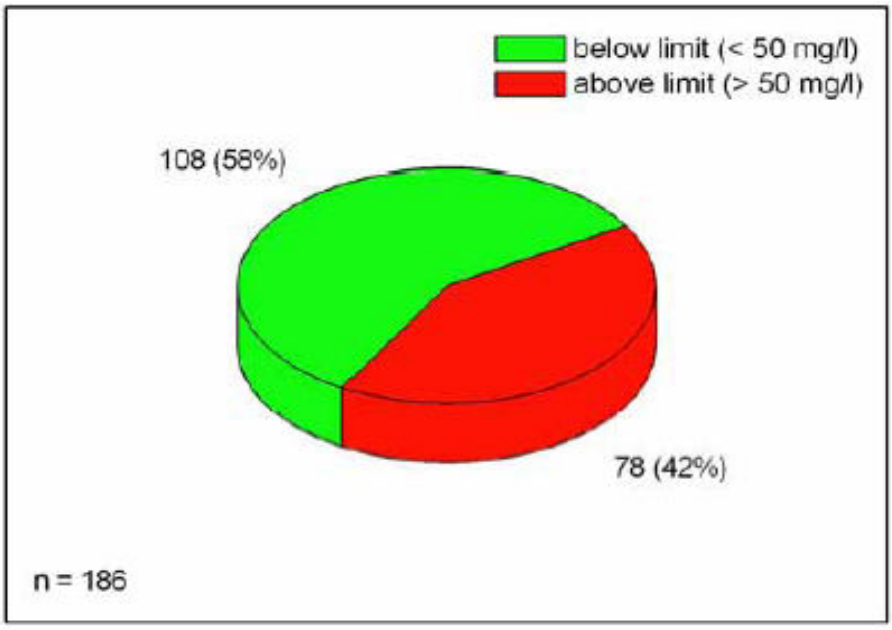


Fig. 35: Distribution of values exceeding the limit for nitrate in groundwater in the Kabul Bain in percent (BGR 2004)

The analyzed samples of this study show that the nitrate concentration in the urban areas of Kabul Basin is higher than in the rural areas (Figure 35). 47% of water samples from the urban areas of Kabul Basin groundwater indicated that the nitrate concentrations exceeded the WHO limit of 50 mg/l while only 2% of water samples from the rural areas of Kabul Basin indicated that the nitrate concentrations exceeded the WHO limit of 0.5 mg/l.

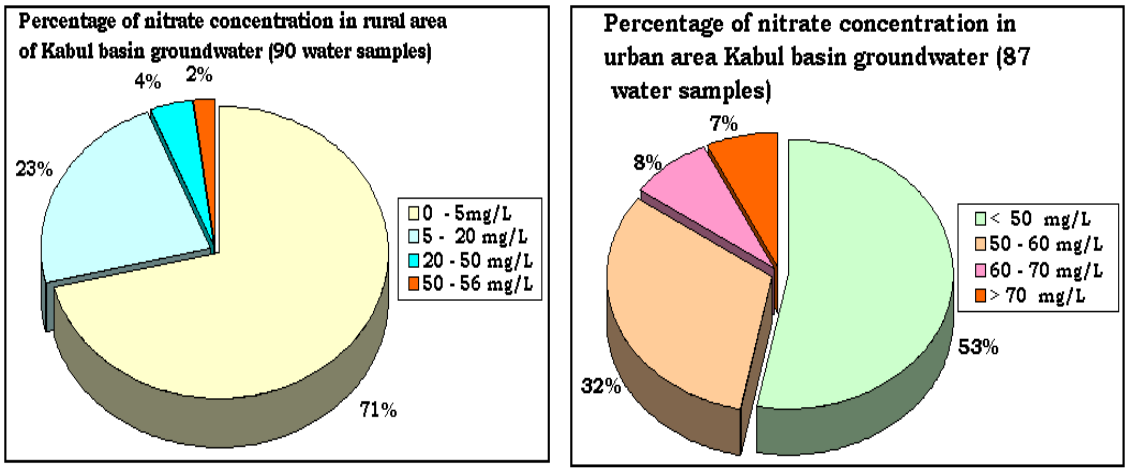


Figure: 36, Percentage of nitrate concentrations in urban and rural areas of Kabul Basin (DACAAR, March, 2010)

The nitrate concentration increased in a down gradient of Kabul Basin, along the River courses and density populated areas of Kabul city.

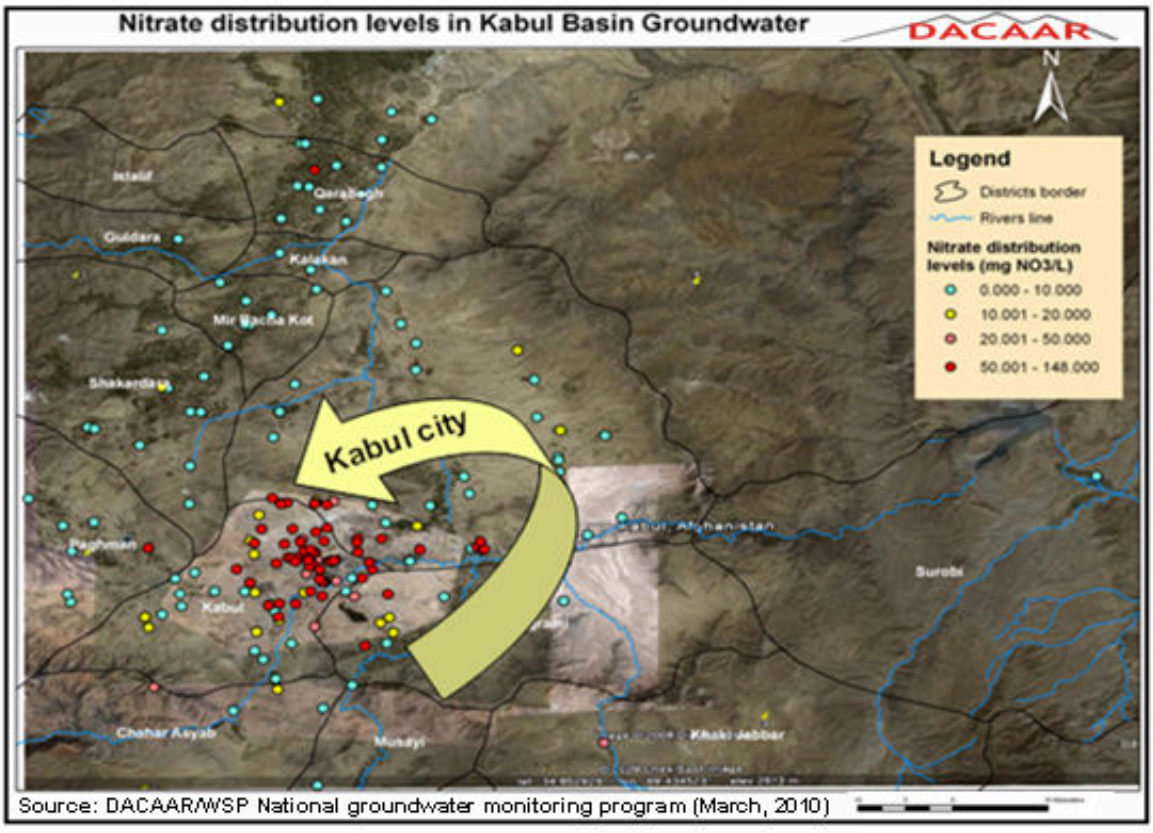


Fig. 37: Nitrate distribution levels in Kabul Basin groundwater

Sewage, leakage from septic tanks, pit latrines and waste disposal are responsible for high nitrate concentrations in Kabul city.

Revere osmosis, ion exchange and distillation plants can remove the nitrate from drinking water, but it is very expensive and a short time solution.

9.3 Water hardness

9.3.1 Environmental occurrence

The hardness of water is a measure of the multivalent cat-ions (Ca, Mg, Fe and Mn) associated with carbonate (CO_3). Hardness is typically reported as mg/l as calcium carbonate ($CaCO_3$)

The minerals (calcite, aragonite and dolomite) cause hardness in water leach from sedimentary rocks such as limestone. Hardness can be reduced using a water softener or ion exchange. A water softener or ion exchange replaces problematic calcium and magnesium ions that cause hardness with sodium and potassium.

9.3.2 Classification of hardness.

Water hardness is classified by the U.S. Department of Interior and the Water Quality Association as follow.

Classification	mg/l or ppm	grains/gal
Soft	0 – 17.1	0 – 1
Slightly hard	17.1 – 60	1 - 3.5
Moderately hard	60 – 120	3.5 - 7.0
Hard	120 – 180	7.0 – 10.5
Very hard	180 and over	10 and over

The precipitation of carbonates (scale) from oversaturated waters has caused major economic damage to pipes, treatment plants and domestic appliances.

Aggressive carbonic acid from carbonate under saturation water can lead to the corrosion of cemented and metallic materials. The hardness also affects the taste of drinking water.

9.3.3 Hardness and possible health effects.

No evidence is available to document harm to human health from drinking harder water. Perhaps only high magnesium content coupled with high sulphate content cause diarrhea. In areas supplied with drinking water harder than 500 mg/l CaCO3, higher incidence rates of gall bladder disease, urinary stones, arthritis and arthropathies (Muzalevskaya et al, 1993). High hardness (over 185 mg/l) may be associated with higher risk for urinary and salivary stone formation as documented by a Russian epidemiological study (Mudryi, 1999).

9.3.4 Water hardness documented in previous and recent study results

84% of water samples from drinking water points in Kabul Basin are classified “hard” or “very hard” (BGR, 2004).

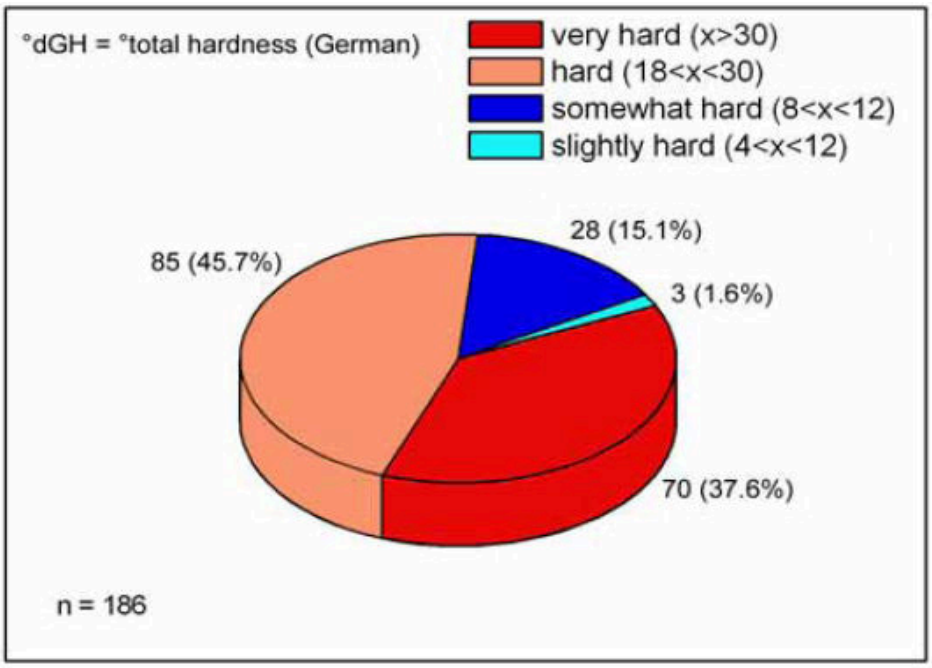


Fig. 38: Distribution of hardness of the Kabul Basin groundwater (BGR, 2004-2005)

This study shows that 92% of water samples from drinking water points are classified hard or very hard water. This significant hardness gives the water a very high capacity against acid emission.

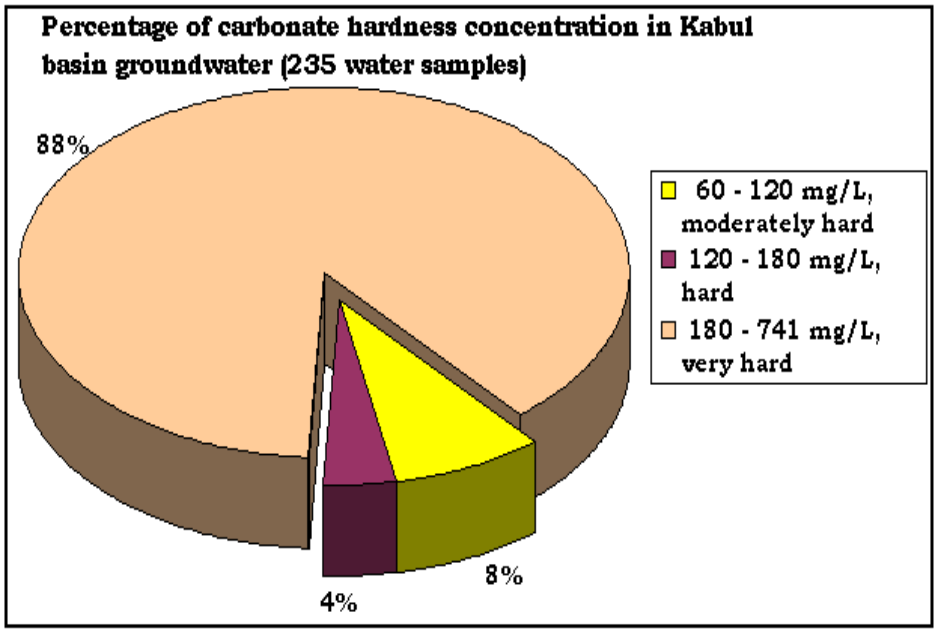


Fig. 39: Percentage of carbonate hardness in urban and rural areas of Kabul Basin (DACAAR, March, 2010)

9.4 Boron

9.4.1 Environmental occurrence

Boron is an element that is present in our environment. It is often found in rock and soil, and it is slowly released into water. Plants use boron that is obtained from soil. Some boron also gets into the environment from manufacturing of chemical products or pesticides. Much of the boron found in groundwater and drinking water is naturally occurring, but some of it comes from the production of consumer and agricultural products.

9.4.2 Boron's effect on health and plant growth

High boron content in drinking water affects the testes and sperm of males, and causes birth defects in the offspring of pregnant females. Some research has suggested that small amounts of boron in drinking water may actually offer a beneficial effect for certain conditions, such as arthritis. High boron concentrations in water are also expected to have a negative impact on plant growth. The WHO maximum contaminants level for boron is 0.5 mg/l B or 2 mg/l BO_2.

9.4.3 Sources of boron in Kabul Basin

Boron can be derived from various sources: 1) residual solutions of evaporating surface water; 2) anthropogenic pollution and detergent from sewage; 3) weathering of boron-bearing minerals (biotite and amphibolites); and 4) agricultural fertilizer**.**

9.4.4 Boron contamination documented in previous and recent study results

This report compares the historical boron concentration level with the recent boron concentration level in Kabul Basin. The result reveals that the boron concentration has progressively increased with time.

The most of the water samples from drinking water points exceeded the limit of 0.5 mg/l B (BGR, 2004).

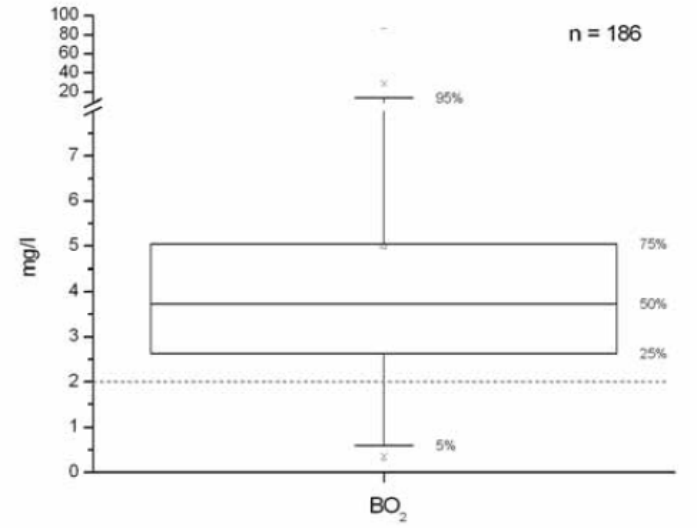


Fig. 40: Box- whisker diagram of borate concentration in groundwater of Kabul Basin (BGR, 2004-2005)

33% of water samples from drinking water points in the rural areas indicated that the boron concentrations exceeded the WHO limit of 0.5 mg/l, however the 72% water samples from the drinking water points in the urban areas indicated that the boron concentration exceeded the WHO limit of 0.5 mg/L (USGS, 2005).

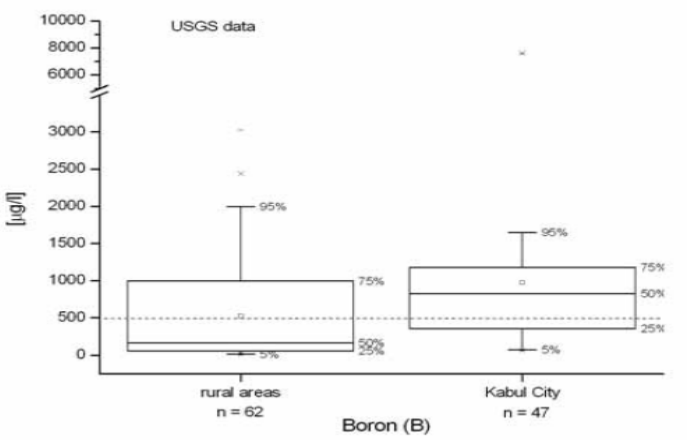
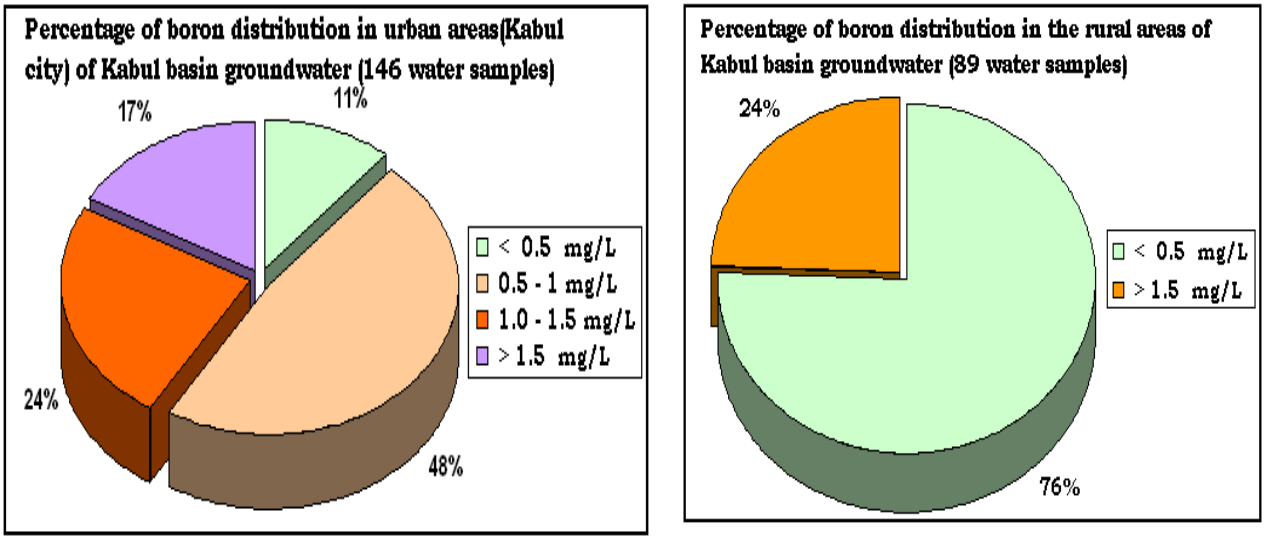


Fig. 41: Box- whisker diagram of boron concentration in groundwater in urban and rural part of Kabul Basin (USGS)

The analyzed water samples of this study show that boron concentration in the urban areas of Kabul Basin is higher than in most rural areas. 76% of water samples from the drinking water points in the urban areas indicated that boron concentration exceeded the WHO limit of 0.5 mg/l, however 24% of water samples from the drinking water points in the rural areas indicated that the boron concentrations exceeded the WHO limit of 0.5 mg/l.

The urban areas (Kabul city) of Kabul Basin are more contaminated than most of the rural areas. Boron contamination is a wide spread problem in Kabul city.

Fig.42: Percentage of boron concentration in the urban and rural areas of Kabul Basin (DACAAR, March, 2010)



Boron concentration levels in the urban areas are significantly higher than in the rural areas. The anthropogenic pollution and detergent from sewerage and enrichments residuals from surface water evaporating are responsible for high boron concentrations in Kabul city. Figure 42 illustrates the special distribution of boron concentrations in the urban and rural areas of Kabul Basin.

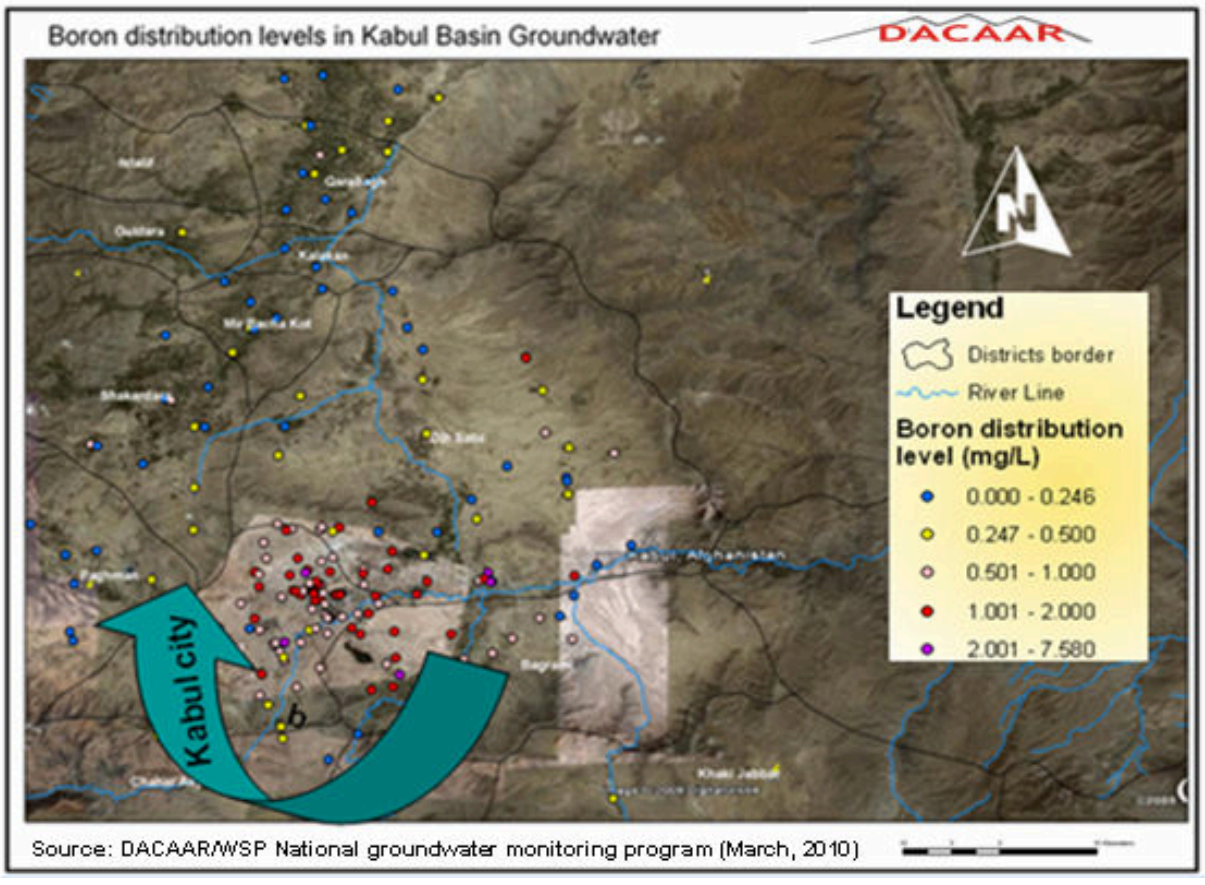


Fig. 43: distribution of boron concentration levels in Kabul Basin groundwater

A reverse osmosis plant can remove the boron from drinking water, but it is very expensive and of short time solution.

9.5 Bacteria

9.5.1 Fecal coliforms and E. coli

Coliform bacteria are generally not harmful, and presence in drinking water is usually a result of a problem with a treatment system. Presence of fecal coli form and E. coli bacteria indicates that the water may be contaminated with human or animal wastes. E. coli can be more pathogenic (disease-causing microorganisms from decaying vegetation, human and animal wastes) in immune compromised individuals. E. coli Coliform bacteria may not cause disease, but can be indicators of pathogenic organisms that cause diseases. The latter could cause intestinal infections, dysentery, hepatitis, typhoid fever, cholera and other illnesses. However, these illnesses are not limited to disease-causing organisms in drinking water. E. Coli is a coliform bacterium of fecal origin whose presence indicates that the water may be contaminated with human or animal wastes. These wastes come from septic systems, sewage, feedlots and pastures, or from wildlife, domestic animals and pets.

9.5.2 Total Coliforms

Total Coliforms are a large group of usually harmless bacteria that are naturally present in soil and vegetation, and also in the intestinal tract of warm-blooded animals. Although total coliforms normally do not produce illness, their presence in drinking water is used as an indicator that other potentially harmful bacteria may be present. Since total coliforms and fecal coliforms often coexist, the presence of total coliform in drinking water is a warning to check for possible sources of contamination.

The absence of a sewerage system is responsible for the presence of various aerobic bacteria in the water because sewage represents an almost unlimited source of nutrition bacteria. The number of fecal coliform bacteria is one of the most important criteria for the assessing microbiological quality of drinking water.

9.5.3 Main factors of bacteria contamination in Kabul Basin

The factors providing suitable conditions for distribution of bacteria to the groundwater of Kabul Basin are:

1) Countless drainage pit ways (sewage, road site ditches, irrigation canals, ponds and rivers beds).
2) Cover soil contamination by human wastes and solid disposal load.
3) High permeability of overlying layers of aquifer (loess-loam, sandy clay, silt and sand) which have a good water filtration capacity and retaining of the microbiological contamination from the countless drainage pits.
4) Improper land use facilitating bacteria contamination of the groundwater.

Fig. 44: Feature of contamination in the Kabul River and mountain foot

9.5.4 Bacteria contamination documented in previous and recent study results.

In Kabul Basin, the comparison of previous and recent studies show that the bacteria contamination has progressively increased.

In 1996, Timmins as part of the “Action Contre La Faim” program analyzed 1,400 drinking water points in the Kabul Basin to determine the level of faecal bacteria contamination. The results of analysis indicated that 45% of all wells fitted with hand pump, 76% of open wells and 49% of distribution network were contaminated with bacteria.

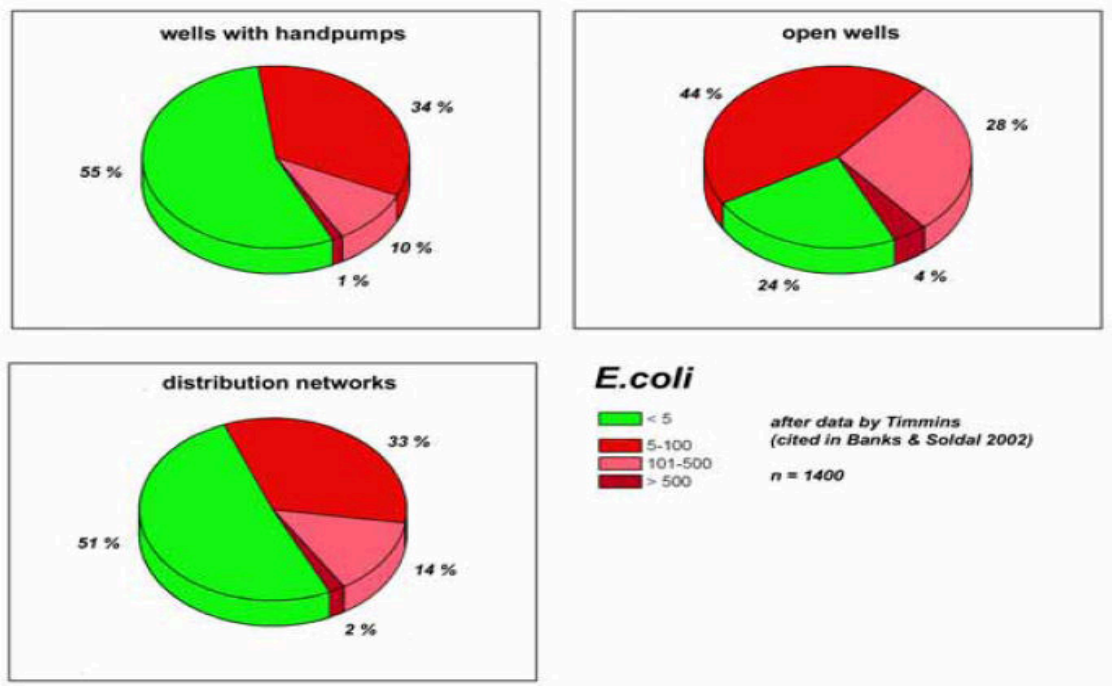


Fig. 45: Microbial contamination of Kabul Basin groundwater with E. Coli (Timmins, 1996)

55% of the analyzed water samples from drinking water points of Kabul Basin indicated significant bacteria contamination (BGR, 2004).

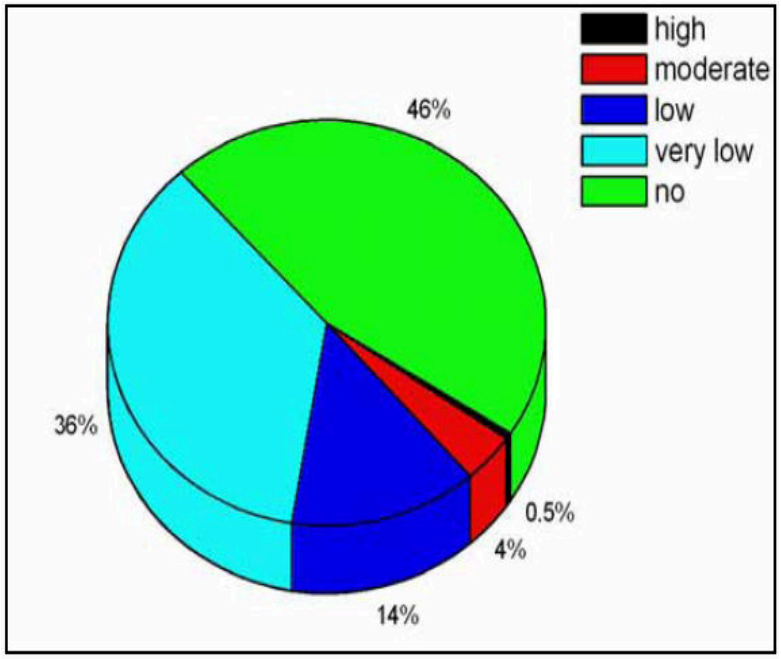


Fig. 46: Distribution of contamination classes for total number of aerobic bacteria in groundwater of the Kabul Basin (230 water samples)

73% of analyzed water samples from the drinking water points of Kabul Basin indicated significant coliform bacteria and 23 % analyzed water samples indicated E coli bacteria (USGS, 2005).

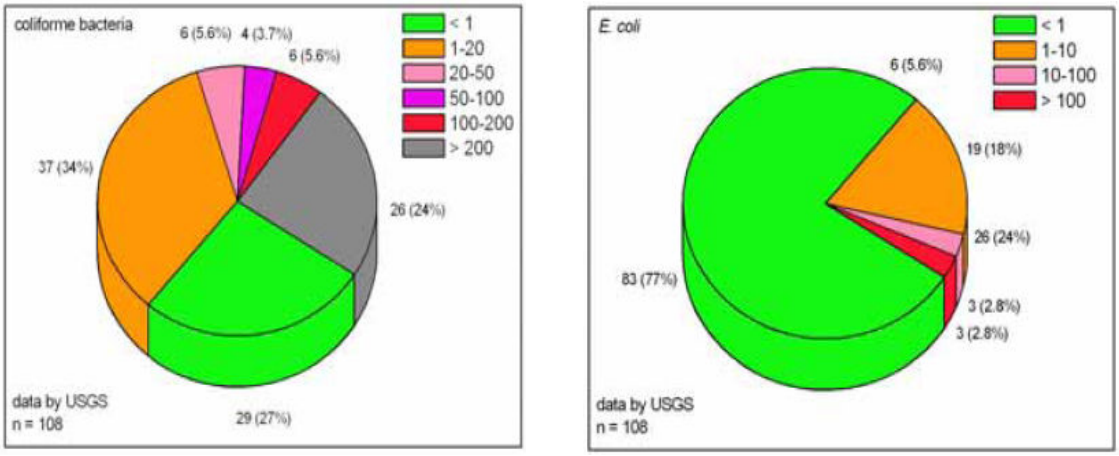


Fig. 47: Microbial contamination of Kabul Basin groundwater (USGS, 2005)

This study indicated that 59% of the analyzed water samples of Kabul Basin had significant bacteria contamination.

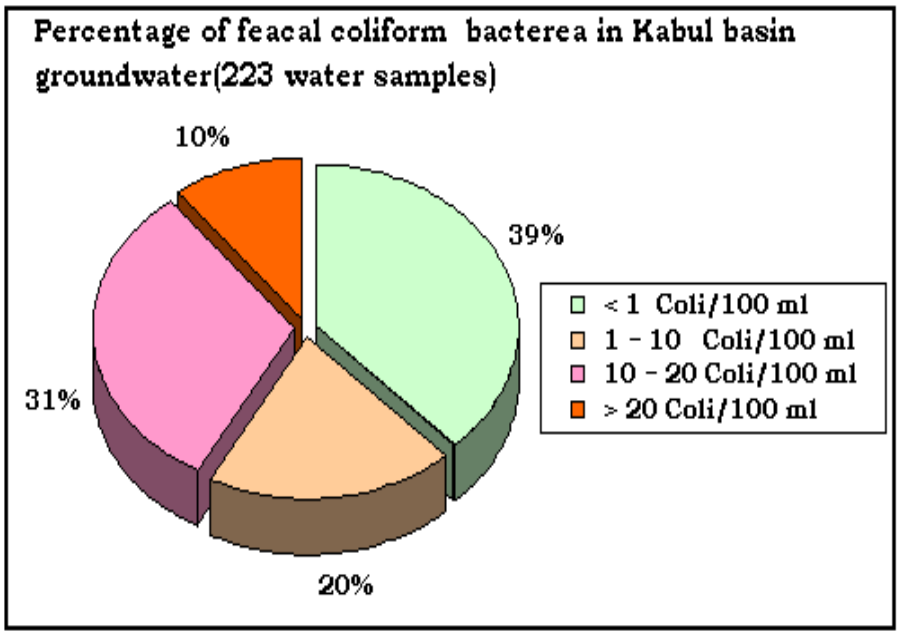


Fig. 48: Faecal coliform contamination in Kabul Basin groundwater (DACAAR, 2009)

The faecal bacteria contamination level in the urban areas is significantly higher than the rural areas. The countless drainage, permeable overlying cover, poor land use and poor waste management are responsible for bacteria contamination in Kabul city. Figure 48 illustrates the faecal coliform bacteria contamination in the urban and rural areas of Kabul Basin.

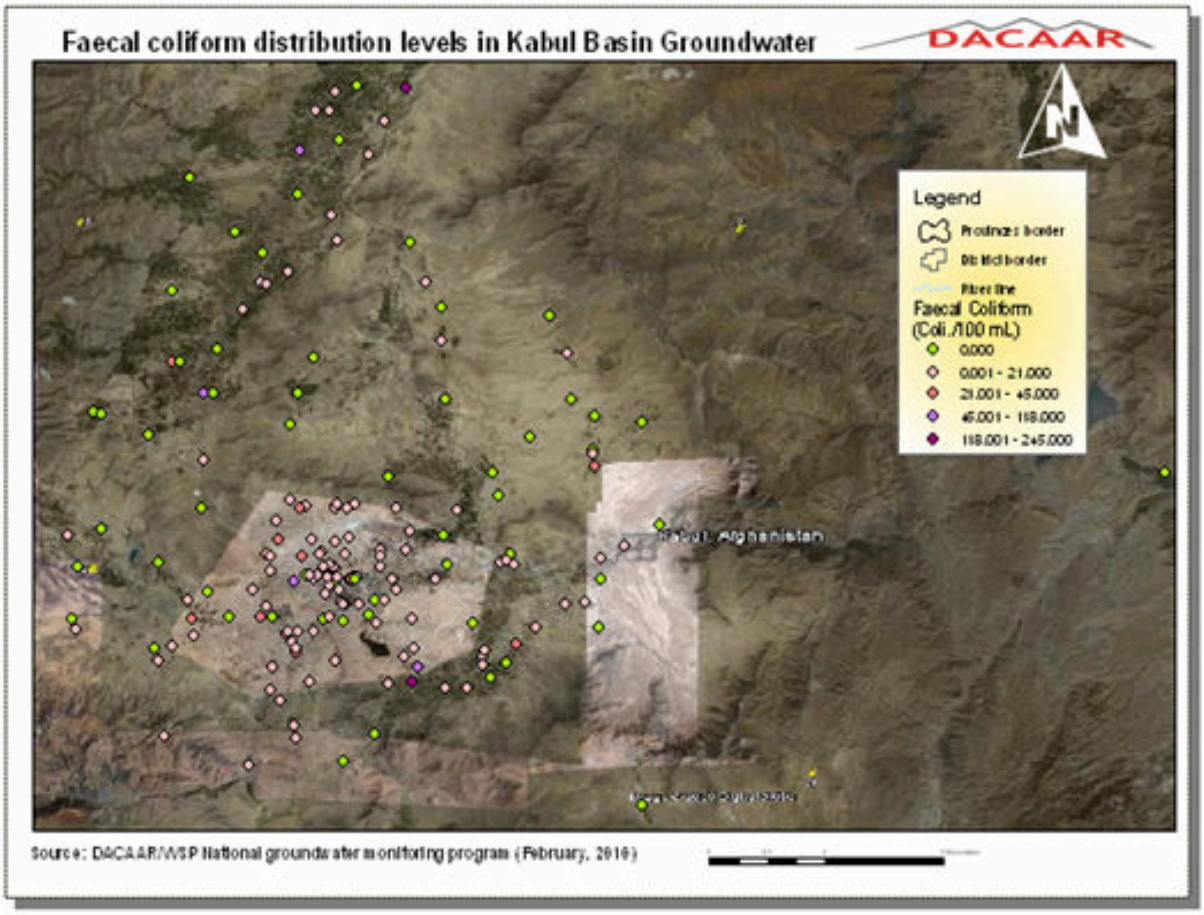


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Fig. 49: Illustration of faecal coliform bacteria contamination level in the urban and rural areas of Kabul Basin.

10. Kabul Basin groundwater monitoring wells Water Level and Water Quality Data Evaluation

Kabul Basin groundwater monitoring wells (GMWs) network is divided according to:

1) The groundwater level and electrical conductivity (EC) measurement.
2) The groundwater quality analysis (physical, chemical and bacteriological properties).

The groundwater level and electrical conductivity (EC) of GMWs was measured on a monthly basis (for a while on a two week basis). All the field water level and EC data from GMWs was checked and processed after which it is recorded in DACAAR national groundwater monitoring database.

Various natural and artificial factors (precipitation, evaporation, and transpiration, surface run off, urbanization and pumping) influence groundwater level fluctuation. The time variation (fluctuation) in groundwater level can be considered as: 1) long-term; 2) seasonal; and 3) short-term.

In over developed Basins, where the groundwater extraction exceeds recharge, the groundwater level may continue to decline for many years. In this trend the water level has continuously declined (dropping dynamic water level) due to over extraction and low recharge, which is defined as long term groundwater level dropping.
The seasonal fluctuation usually results from influence of precipitation, irrigation canal and ditches leakage and pumping for irrigation, all of which define seasonal cycle or seasonal fluctuations of groundwater.

Short-term or monthly fluctuation of groundwater level is measured in alluvial aquifers for any special purpose (municipality water supply and pumping for irrigation).

Many factors affect groundwater recharge including evaporation, transpiration, precipitation, pumping for irrigation and water supply, surface flow and urbanization.

The water quality of GMWs was analyzed every sixth month. All the water quality data from GMWs was checked and processed and then recorded in AcuaChem database (software) for integrated water quality data management, analysis and interpretation.

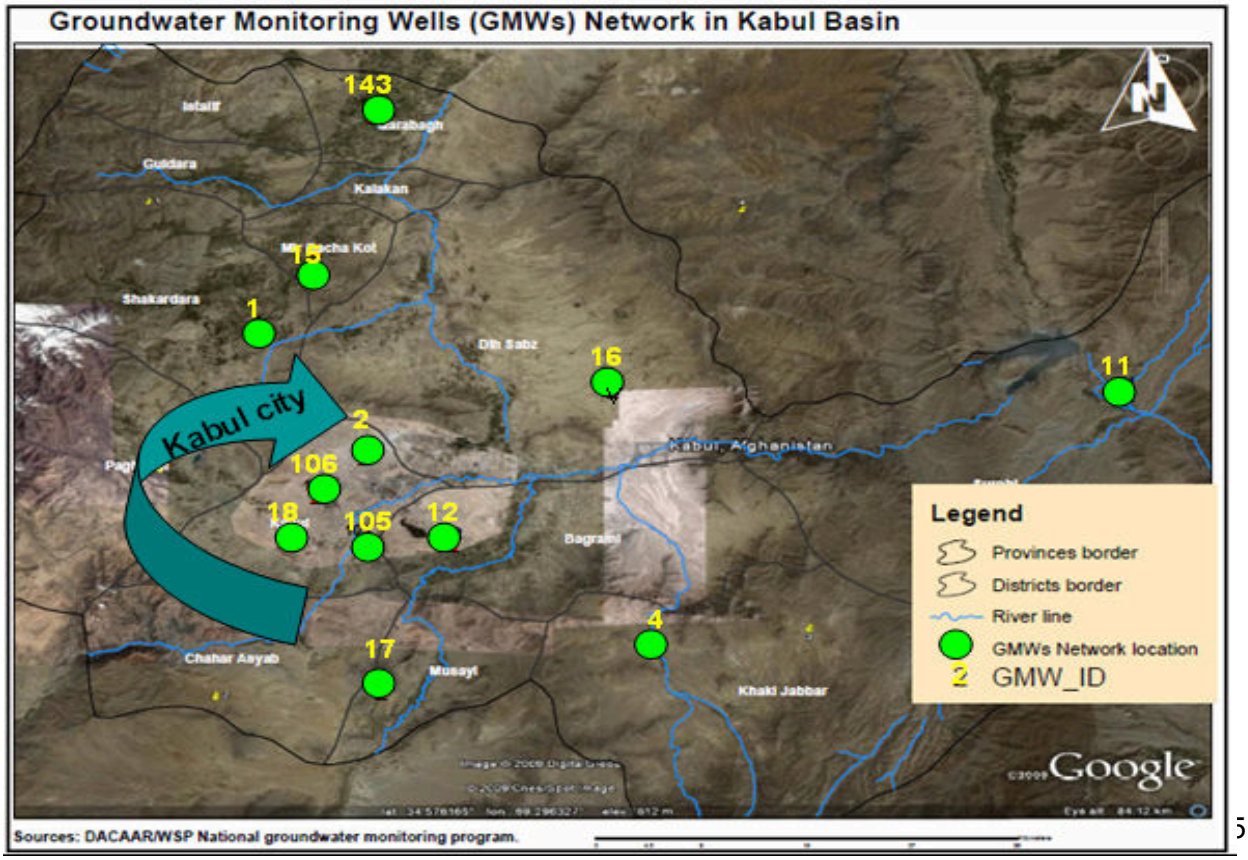


Fig. 50: Groundwater monitoring wells network in Kabul Basin.

Overall, this study focussed on finding the seasonal and long term fluctuation of groundwater level in Kabul Basin for planning and implementation of water supply project in the rural areas.

In this study the major causes of groundwater level fluctuation in Kabul Basin is assessed based on the groundwater monitoring data of the last five years (2005-2009).

The groundwater level fluctuation results from the effects of rainfall and snow melt, over-pumping and high evaporation. Highest level of groundwater normally occurs throughout the Kabul Basin during April-May, and lowest level of groundwater occurs during October-December. In general the highest and lowest groundwater level fluctuation amplitude occurs during the year but the trend has continuously declined the groundwater level.

10.1 Lower Kabul Basin

10.1.1 GMW_ ID 2

GMW_ ID 2 is located inside of Kabul city and within lower Kabul Basin (Figure 50). The water level and salinity were monitored either manually or by the using an automatic monitoring system (water level and salinity recorder). The water level variation with time graph (Figure 50) shows that the water level is progressively declining due to over-exploitation, high evaporation and low recharge. The drawdown of water level was 4.05 meters over the last five years (May 2003 - December 2008). The water level dropped at the rate of 0.95 m/year. The comparison of historical data with recent data indicates that drop of water level in this area from 1990 to 2008 was 11.05 meters (over 19 years).

The precipitation data from surrounding meteorological stations (Figures 7, 8, 9 and 10) show that the water level raised when the area received an amount of precipitation which directly and indirectly infiltrated to the groundwater, but it was for a short time (April-May) and it was not stable due to the short period of precipitation. The trend shows a continuous lowering of water level.

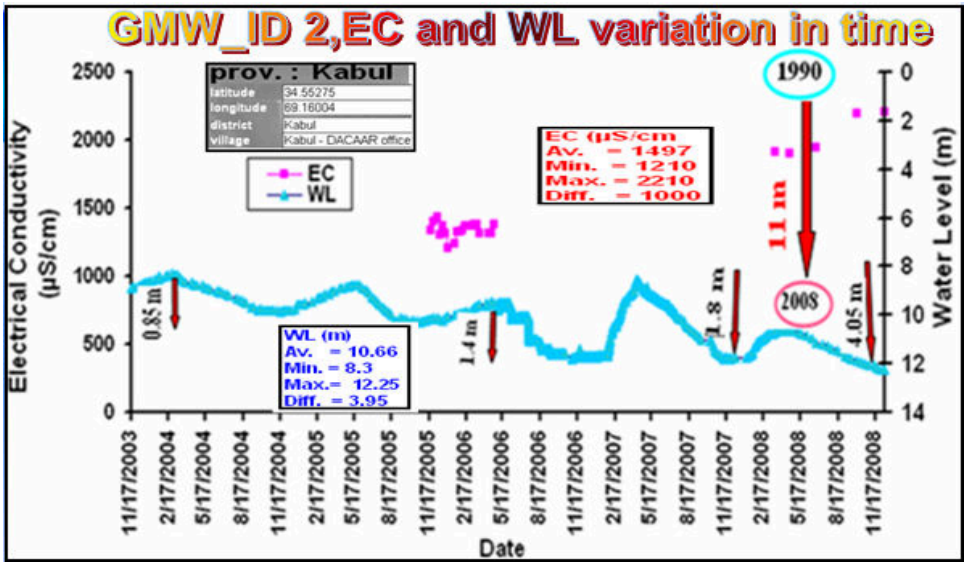
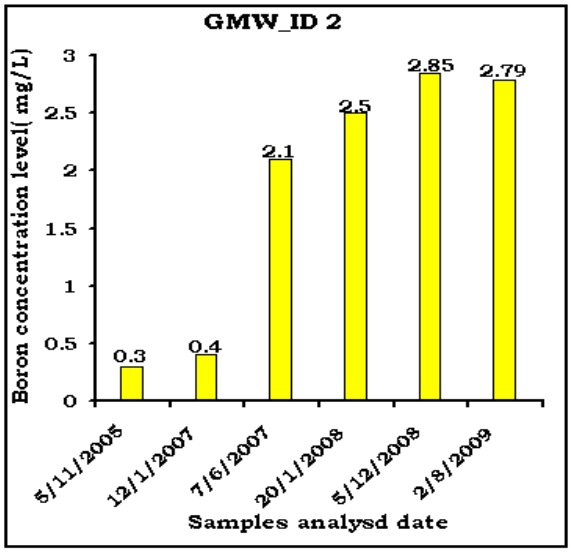


Fig. 51: EC and ground water level variation with time (DACCAR/WSP November, 2009)

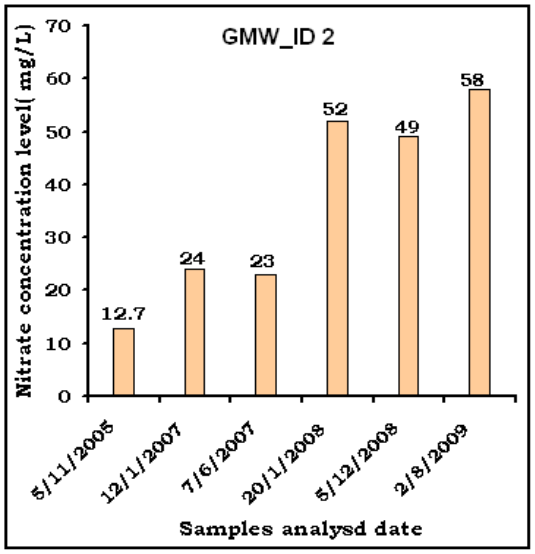
The salinity variation with time graph (Fig. 51) shows that the salinity of water has progressively increased from 978 to 2,150 µ/Cm (2003 - 2009) due to percolation of sewage, evaporative enrichment and anthropogenic emissions via infiltration from different pit ways.

Historical groundwater level in this area was reviewed and compared with the GMWs data collected recently. The result shows long term lowering of ground water level and deterioration of water quality.

The declining groundwater level due to over exploitation has created a large hydraulic gradient in the aquifer (cone of depression) which has resulted in increased infiltration of pollutants. This trend has progressively elevated concentration of boron, nitrate, hardness and fluoride (Figure 52)



a).



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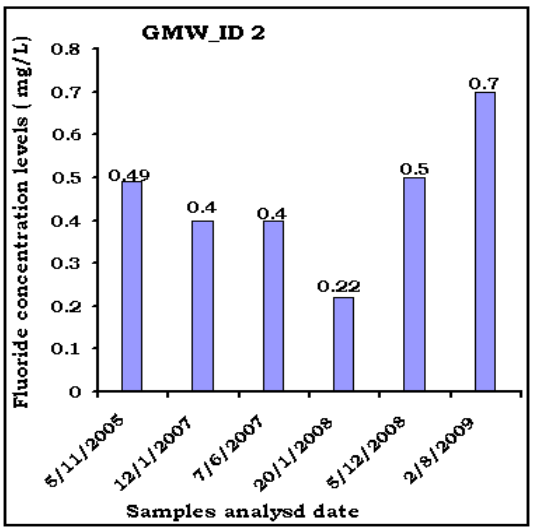

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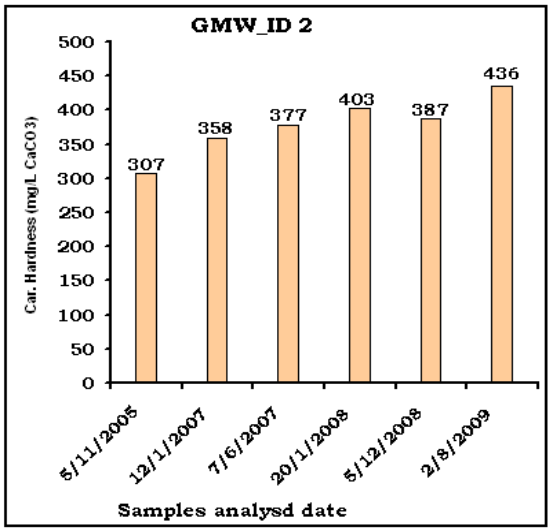


d)

Fig. 52: Progressive increasing of boron, nitrate, hardness and fluoride due to a declining of water level with time trend (DACCAR November, 2009)

10.1.2 GMW_ ID 12

Monitoring well ID_12 is located on the left bank of Logar River and within Logar aquifer (Gul Buta village of Bagrami district). This area is a well field and supplies water for most parts of the Kabul city. The depths of groundwater level and salinity were manually recorded from March 2005 to June 2009 on a monthly basis. The bacteriological, physical and chemical analysis of water samples were performed on a six months basis. The water level variation with time graph (Fig. 52) shows that the seasonal fluctuation of water level varied between 2.71 – 5.59 m and the yearly fluctuation of water level was at the rate of 4.9-5.90 m/year over four years, whereas the seasonal fluctuation of water level was not more than 1 m/year in 1971 (Bockh 1971).

The salinity variation with time graph (Fig. 53) shows that the salinity of the aquifer also fluctuated according to the water level variation with time. The difference of this variation was 267 µS/cm. The main recharge of this area is Logar River, irrigation ditches and precipitation.

The groundwater level dropped sharply during dry seasons when the Logar River became dry and the aquifer was extensively pumped for irrigation and water supply. However the water level recovered again when the Logar River discharged and when water demand for irrigation decreased. The sharp yearly fluctuation of water level indicated that the aquifer is more vulnerable against contamination and natural storage depletion.

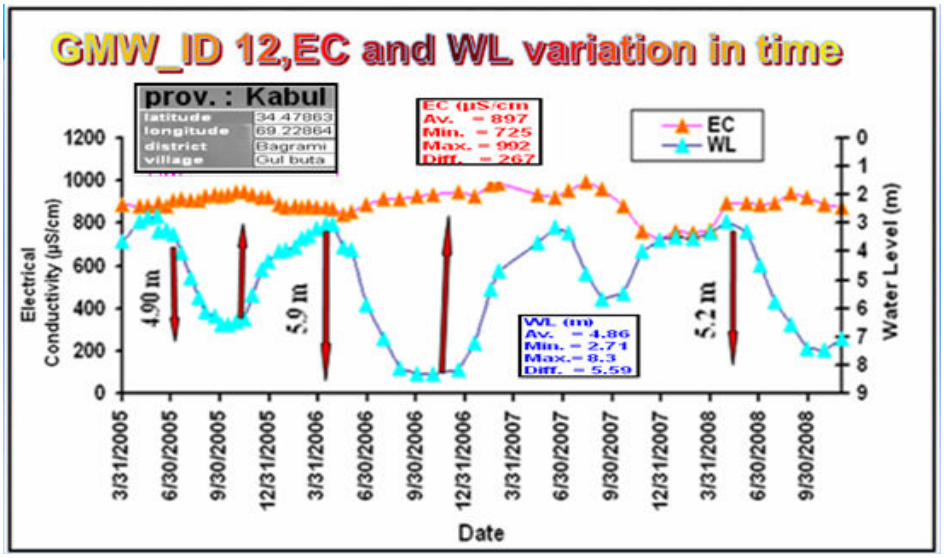
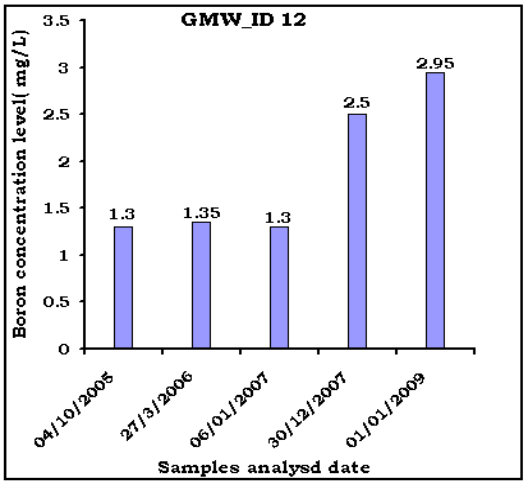
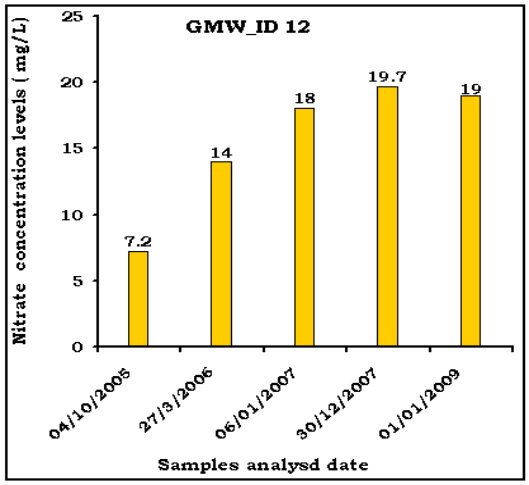


Fig. 53: EC and groundwater level variation with time (DACCAR November, 2009)

Declining groundwater level has resulted in increase in concentration levels of boron, nitrate, fluoride and water hardness (Figure 53)





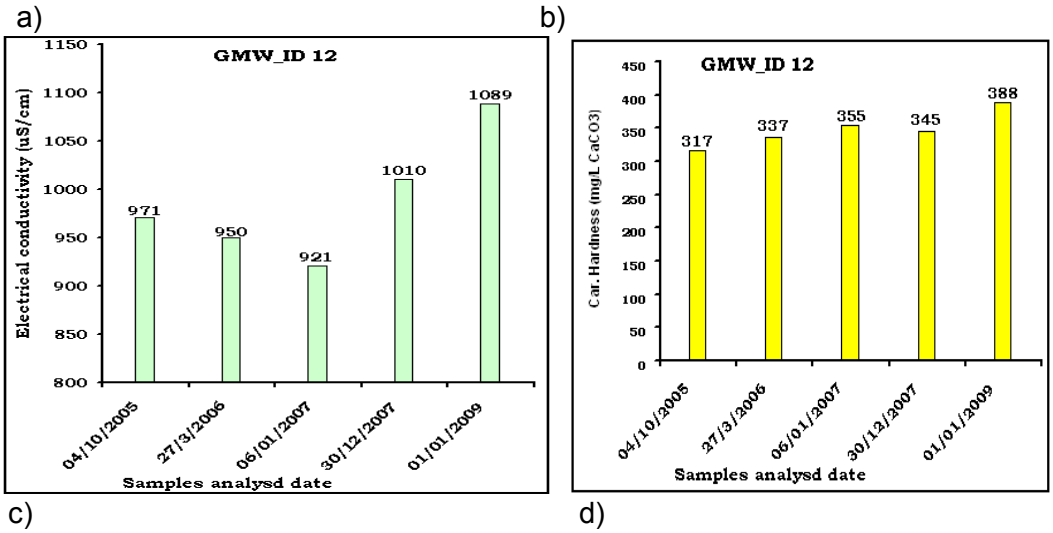


Fig. 54: Progressive increasing of boron, nitrate, hardness, and EC due to a declining of water level with time trend (DACCAR November, 2009)

10.1.3 GMW_ ID 17

GMW_ ID 17 is located in the recharge zone (Chaman village of Char Asiab district). The water level variation with time graph (Fig. 55) shows that the highest level of groundwater occurred during April-May and the lowest level of groundwater occurred in the dry seasons when the area rarely received precipitation (June-October). Groundwater recharge and withdrawal is widely varied due to the unequal spacial and time distribution of precipitation.

The EC (salinity) variation with time graph (Fig. 55) shows that the fluctuation of EC ranges between 410 - 753 µS/cm according to the water level variation with time. The difference of this variation was 342 µS/cm. This GMW is located in a less populated area and groundwater is not as vulnerable to anthropogenic and pathogenic influences.

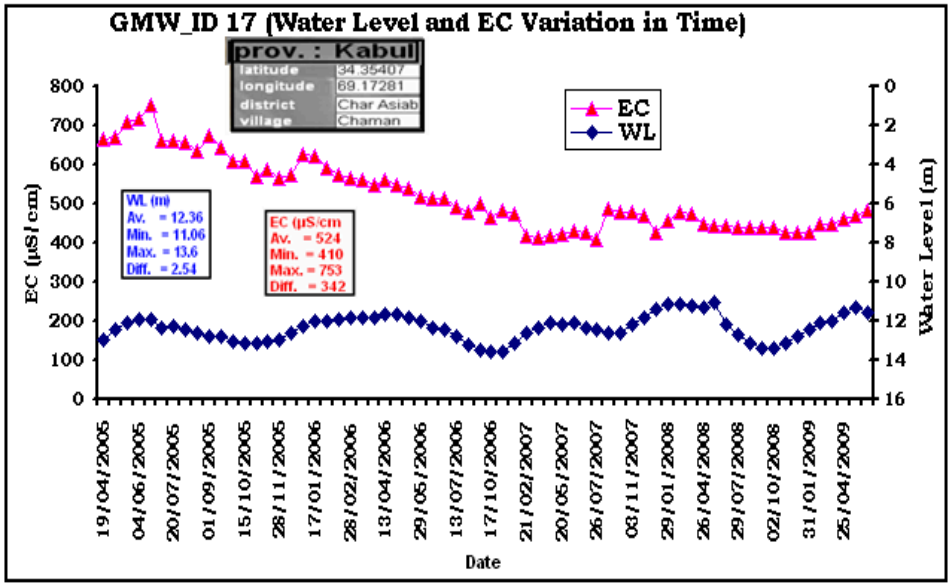


Fig. 55: EC and groundwater level variation with time (DACCAR November, 2009)

10.2 Upper Kabul Basin

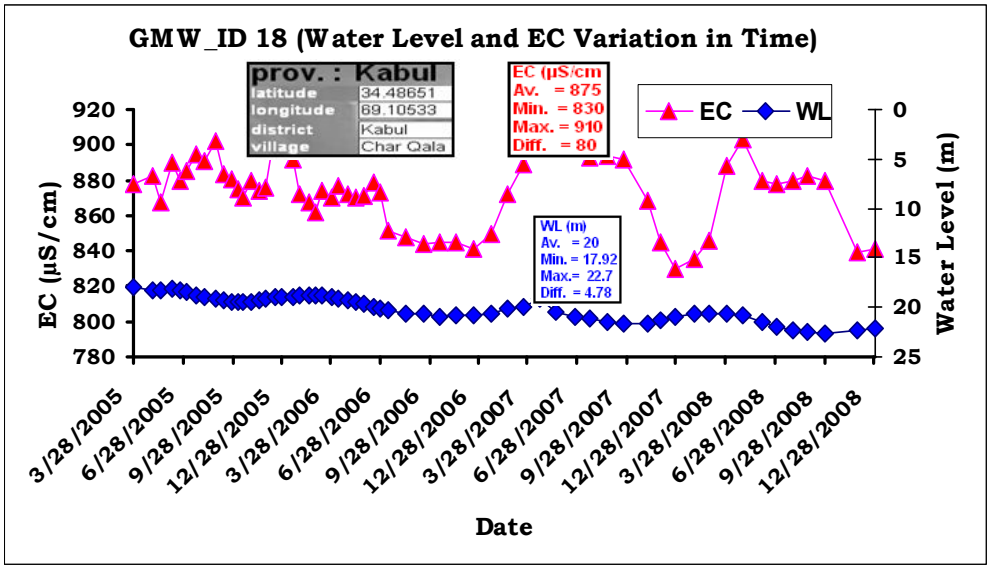
10.2.1 GMW_ ID 18.

Monitoring well ID_18 is located on the right bank of Paghman River and within the Paghman aquifer (Char Qala, district 6 of Kabul City). The physical parameters (EC, water level and temperature) were manually measured from March 2005 to June 2009 on a monthly basis but on a two week basis for a while. The water level variation with time graph (Figure 56) shows that the water level has progressively declined due to over-exploitation, high evaporation and low recharge. Groundwater recharge and withdrawal is widely varied due to the unequal special and time distribution of precipitation. The drop in water level was 4.78 meters over the four years (2005 – 2009). The water level dropped at the rate of 1.2 m/year. The comparison of historical data with recent data indicated that a decline of water level in this area was 14.7 meters during the last 30 years (1981- 2009).

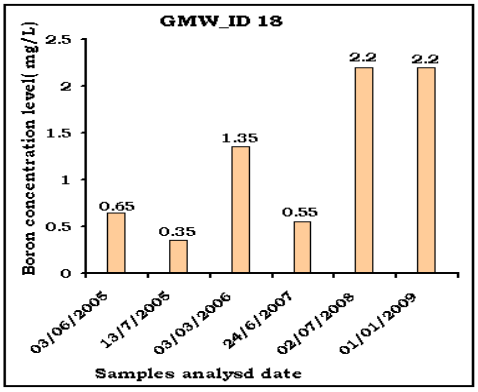
The precipitation data from the nearby meteorological station (Figure 7) shows that when the area received an amount of precipitation which directly and indirectly infiltrated to the groundwater and caused the water level to rise, but it was for a short time (April-May) and was not stable due to the short period of precipitation.

Fig. 56:, EC and groundwater level variation with time (DACCAR November, 2009)

The declining groundwater level due to over exploitation has created a large hydraulic gradient in the aquifer (cone of depression) which has resulted in increased infiltration of pollutants. This



trend has progressively elevated concentration of boron, fluoride, nitrate and hardness (Figure 57 a, b, c and d)



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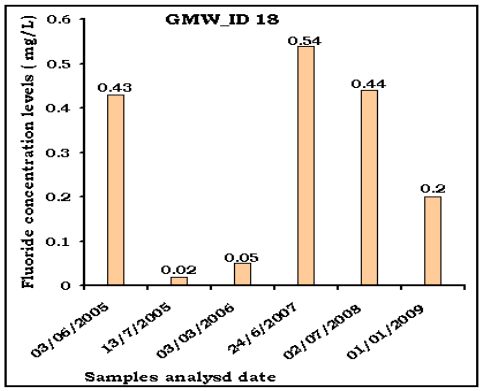

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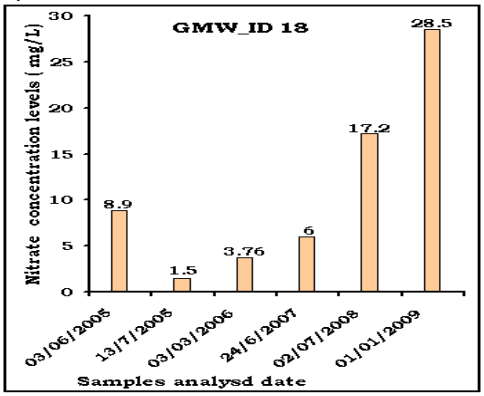

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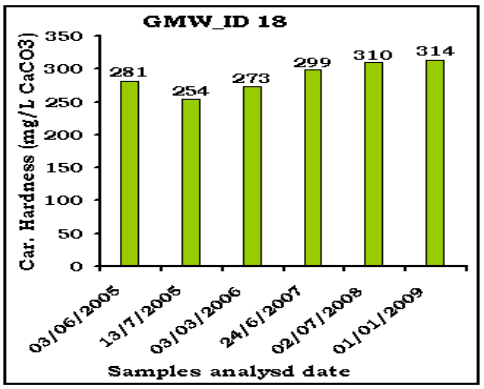

d)

Fig. 57: Progressive increase of boron, fluoride, nitrate and hardness (DACCAR November, 2009)

10.3 Deh Sabz sub Basin

10.3.1 GMW_ ID 16

Monitoring well ID_16 is located in the east margin of Deh Sabz district within the Neogene sediment. The water level and salinity was manually recorded from March 2005 to July 2009 on a monthly basis. The water level variation in time graph shows that the water level progressively dropped due to over-pumping for irrigation, high evaporation and low recharge. The drop of water level was 4.86 meters over the last five years.

The precipitation data from the nearby meteorological station (Fig. 7) shows that when the area received an amount of precipitation which infiltrated to the groundwater and caused the water level to rise, but it was for a short time (April-May) and was not stable due to the short period of precipitation.

The salinity variation with time graph shows that the salinity of the aquifer also fluctuated according to the water level variation with time. The difference of this variation was 118 µS/cm.

The main recharge of this area is rainfall and snow melt that the area receives for a short time. This area has sufficient clay cover to prevent contamination to the groundwater. The Tertiary (Neogene) sediments consist of clay, silty clay and fine sand, but the aquifer is composed of thin layers of fine sand with fresh water. The discharge of drilled wells ranges between 1.5 – 2.5 l/s for 8 – 13 meters drawdown (Mysil and others, 1982).

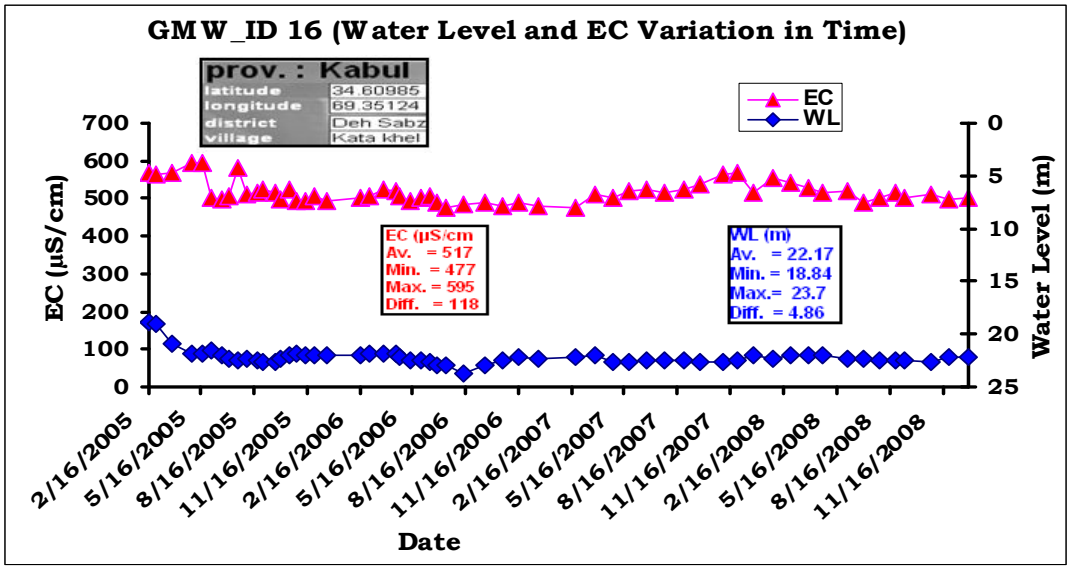

Fig. 58: EC and groundwater level variation with time (DACCAR/WSP November, 2009)

10.4 Shamali sub Basin

10.4.1 GMW_ ID 15

Monitoring well ID_15 is located in the Shamali sub Basin within alluvium aquifer (Shikhan village of Mir Bachakot district). The water level variation with time graph (Fig. 59:) shows that the water level has progressively declined due to over-exploitation for irrigation and water supply, high evaporation and low recharge. The drop of water level was 3.24 meters over the last four years. The water level dropped at the rate of 0.81 m/year. Seasonal pattern of fluctuation mainly results from the effect of rainfall and snow melting. Highest level of groundwater occurred during April-May and the lowest level of groundwater occurred in the dry seasons when the area rarely received precipitation (June-October).

The EC (salinity) variation with time graph (Fig. 59.) shows that the fluctuation of EC ranges between 579 - 697 µS/cm according to the water level variation with time. The difference of this variation was 118 µS/cm. This GMW is located in a less populated area and groundwater is not as vulnerable to anthropogenic influence.

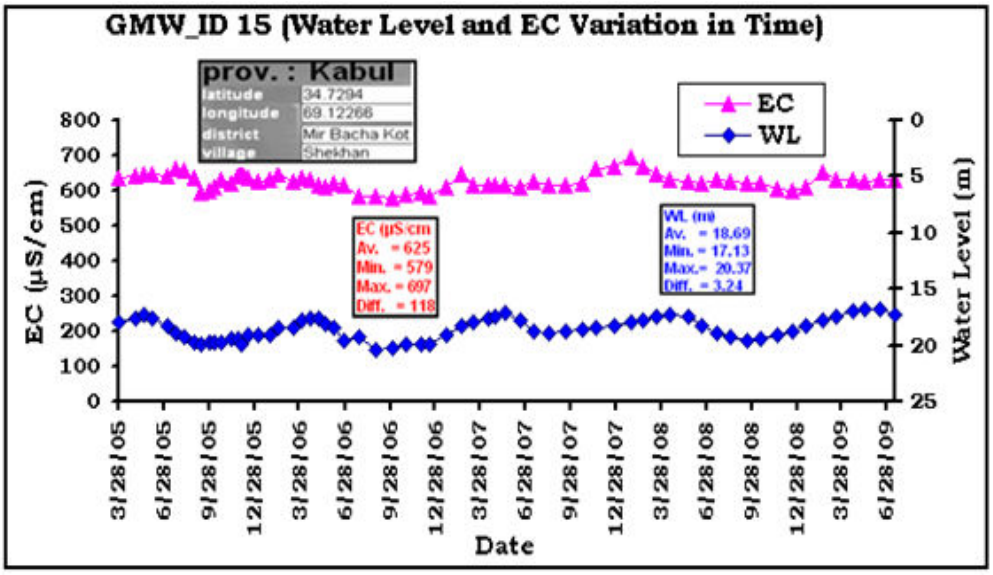

Fig. 59: EC and groundwater level variation with time (DACCAR November, 2009)

10.4.2 GMW_ ID 1

GMW_ ID_1 is located in the Shamali sub Basin (Qala-e-Morad Bek village of Shakardara district) in the recharge zone within alluvium aquifer. Seasonal pattern of fluctuation of groundwater level is mainly affected by rainfall and snow melting. The water level variation with time graph (Figure 60) shows that the highest level of groundwater occurred in this area during April-May and the lowest level of groundwater occurred in the dry seasons when the area rarely received precipitation (June-October).

The precipitation data from surrounding meteorological station (Figure 9) shows that when the area received an amount of precipitation which infiltrated to the groundwater it caused the water level to rise (April-May). Yearly fluctuation amplitude of groundwater level was between 1.5 and 2.16 meters, but the yearly increasing and decreasing of groundwater table was stable.

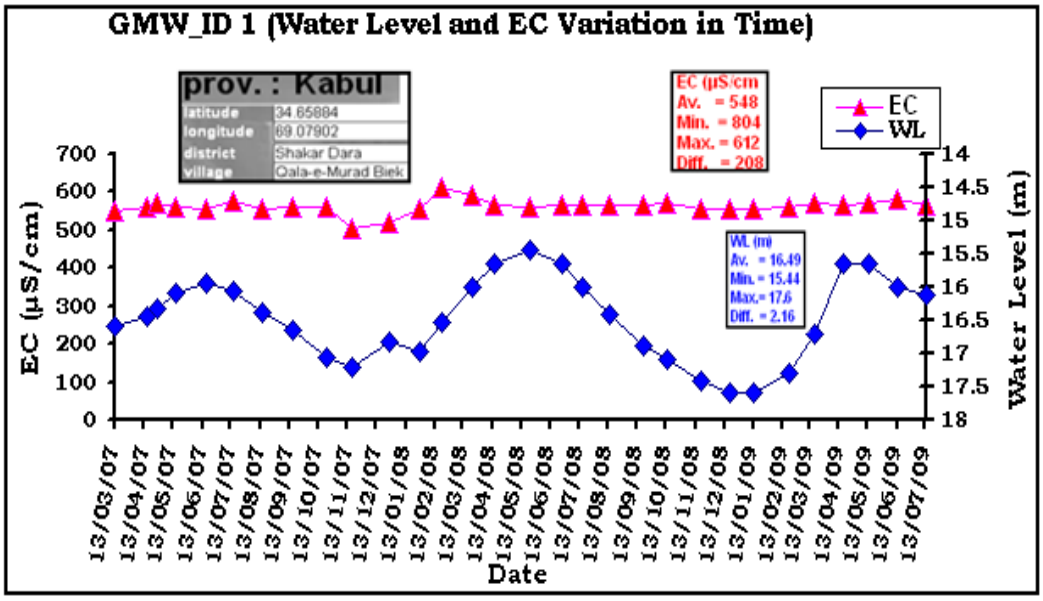

Fig. 60:, EC and groundwater level variation with time (DACCAR November, 2009)

The EC variation with time graph (Fig. 60) shows that the salinity of aquifer also fluctuated according to the water level variation with time. The difference of this variation was 208 µS/cm.

10.4.3 GMW_ ID 143

GMW ID_143 is located in the Shamali sub Basin (Qara Quol village of Qara Bagh district) in the discharge zone within alluvium aquifer. The physical parameter (EC, water level and pH) has manually measured from May 2007 to April 2009 on the monthly period. The water level variation with time graph shows that the water level has progressively declined due to pumping for irrigation, high evaporation and low recharge. The decline of water level was 1.59 meters over the last three years. i.e., the water level dropped at the rate of 0.53 m/year (Figure 61)

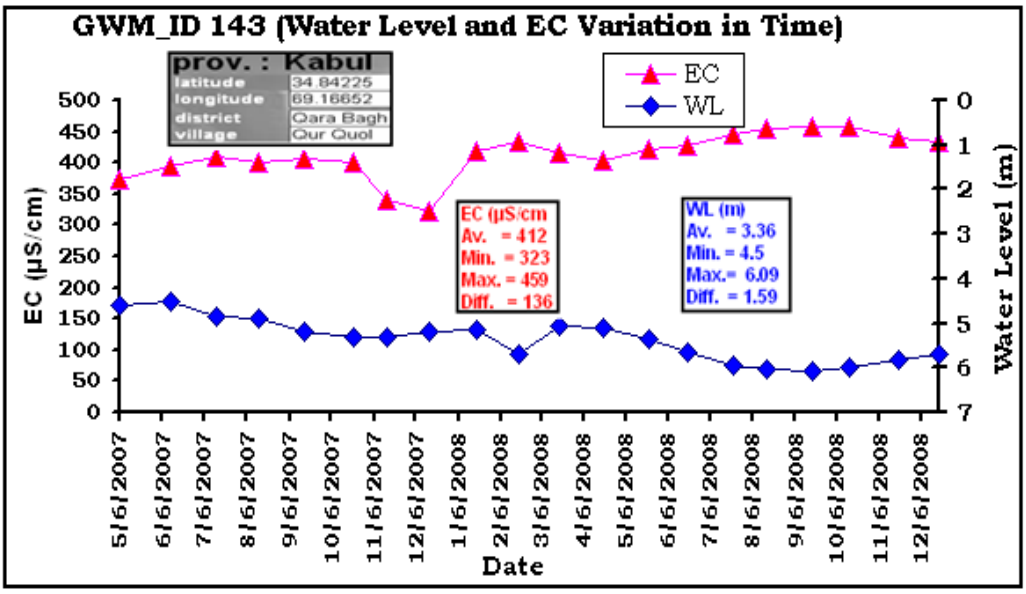

Fig. 61: EC and groundwater level variation with time (DACCAR November, 2009)

The EC variation with time graph (Figure 61) shows that the salinity of aquifer also fluctuated according to the water level variation with time. The difference of this variation was 136 µS/cm.

11. Conclusions

1) Historical temperature, precipitation and evaporation data was reviewed and compared with the data recently collected. The result suggests adverse changing in temperatures, precipitation and evaporation and consequently which has affected groundwater recharge.

2) Kabul Basin natural groundwater systems are characterized by three hydro geologic units: 1) crystalline rocks; 2) upper Tertiary (Neogene) aquifer and aquitard system; and 3) Quaternary sediments. The crystalline rocks and Neogene sediments are not considered a major aquifer in Kabul Basin. Alluvial Quaternary sediments within the rivers channel are the most productive aquifers. These aquifers are affected by anthropogenic (human made waste) and pathogenic (microorganism) emission from various pit ways.

3) The recharge condition of the flow system is characterized by: 1) recharges from River beds; 2) direct recharge from precipitation; 3) foot hill recharge from snow melts; 4) recharge from irrigation channels; and 5) recharge from percolation of sewage, leakage from septic tanks and pit latrines.

4) Kabul Basin groundwater main quantitative concerns are: 1) declining water table exceeding the recharge trend; 2) depletion of natural storage; 3) water logging and salination; and 4) perhaps land subsidence.

5) Kabul Basin groundwater main qualitative concern is: 1) progressive increase of salinity with time; 2) hard and very hard characteristic of carbonate hardness; 3) progressive increase of nitrate concentrations with time; 4; progressive increase of coliform bacteria; and 5) progressive increase of boron concentrations.
6) The high rate presence of fecal coliform Bactria and high concentrations level of Nitrate indicates that Kabul Basn's drinking water systems are contaminated by fecal coliform (microbial pathogens) and nitrate (anthropogenic) contamination and pose a threat to the health of Kabul's inhabitants.

12. Recommandation:

1) Quantify availability and supply of groundwater in the Kabul basin for sustanaible using and development.
2) The monitoring shows that Kabul Basin drinking water systems are contaminated by microbial pathogens and anthropogenic contamination and pose a threat to the health of Kabul's inhabitants. Therefore, there is a need to take corrective action before further deterioration of Kabul Basin drinking water systems.
3) Strengthen institutional arrangement for formulation and application of water resources related policies regulations and strategic plans

4) Improve groundwater monitoring system, database and data information system for integrated water resources management, development, protection, sustainability and institutional arrangement and formulation of policy, strategy and regulation.

5) Encourage and mobilize practical research for identifying alternative water resources for water supply.

6) The excessive usage of groundwater for variety of purposes while the recharge is low has resulted in drop of groundwater table and deteriorated water quality. Therefore, there is an urgent requirement to undertake anti degradation policy and strategic plan to prevent further lowering of the water table and deterioration of water quality.

7) Encourage public participation for improved housing sanitation and hygiene practices.

8) Water harvesting techniques searches and development of small check dam as alternative water sources.

9) Assess use of peak flow river water for artificial recharge which might be a useful option to recover groundwater aquifer.

10) Strengthen cooperation and coordination among water and sanitation stakeholders for sharing experience, lesson learning, dissemination and exchange information.

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14. Appendices

Appendix 1: Kabul Basin drinking water points measured water table and physical parameters (EC, PH, and Temperature) DACAAR, 1997-2004)

Provz	District	Village	Year Impl	WP C0de.	WP Type	Lon.	Lat.	Depth (m)	WL (M)	EC (µS/cm)	PH	T
Kabul	Bagrami	Qalai Hasan	1998	62	DW	69.22361	34.47445	6.00	5.00	968.00	7.60	14.00
Kabul	Kabul	Company kas	2002	1	DW	69.06108	34.52743	25.00	23.00	973.00	7.60	15.50
Kabul	Bagrami	Alu Khail	1998	101	DW	69.28028	34.53305	9.00	8.00	1030.00	7.91	16.60
Kabul	Bagrami	Nyazi	1998	49	DW	69.22065	34.47158	9.00	7.00	1205.00	7.40	19.90
Kabul	Bagrami	Kamari	1998	15	DW	69.27871	34.47587	11.00	9.00	2100.00	7.10	17.00
Kabul	Bagrami	Beni Hissar	1997	15	DW	69.21333	34.48056	7.00	6.00	1047.00	7.89	13.40
Kabul	Bagrami	Shewaki	1997	9	DW	69.23475	34.45689	7.00	6.00	1202.00	7.42	17.00
Kabul	Bagrami	Deh Yaqub	1997	45	DW	69.22902	34.46296	9.00	7.00	1045.00	7.58	17.40
Kabul	Bagrami	Qalai Hassa	1997	41	DW	69.24727	34.46517	9.00	8.00	1202.00	7.75	17.40
Kabul	Bagrami	Qalai Ab. R	1997	35	DW	69.24167	34.47445	5.50	9.00	1347.00	7.76	15.00
Kabul	Bagrami	Deh Yaqub	1997	26	DW	69.22483	34.46183	7.00	6.00	990.00	7.84	13.00
Kabul	Bagrami	Deh Yaqub	1997	47	DW	69.22814	34.46753	8.00	6.00	1124.00	7.46	15.00
Kabul	Bagrami	Shewaki	1997	2	DW	69.24537	34.45915	7.00	6.00	1200.00	7.23	13.00
Kabul	Bagrami	Qalai Salam	1998	18	DW	69.23005	34.46802	7.00	6.00	1227.00	7.31	17.50
Kabul	Bagrami	Qalai Shekh	1997	27	DW	69.25583	34.46932	7.00	6.00	1563.00	7.73	18.10
Kabul	Paghman	Guzarga Pul	1998	29	DW	69.15599	34.50472	2.50	6.00	2120.00	7.50	16.00
Kabul	Bagrami	Deh Yaqub	1997	48	DW	69.23621	34.46228	8.00	6.00	1063.00	7.55	17.00
Kabul	Bagrami	Qalai Hassa	1997	29	DW	69.24790	34.46610	8.00	6.70	1427.00	7.78	17.50
Kabul	Kalakan	Quchi	2004	1	DW	69.11400	34.77587	9.00	6.70	451.00	7.52	17.00
Kabul	Paghman	Bar Avghand	2004	171	DW	68.90574	34.49106	8.00	6.70	455.00	7.27	16.60
Kabul	Paghman	Karezak	2004	168	DW	68.98002	34.53208	9.00	6.70	455.00	7.48	20.80
Kabul	Paghman	Arghandi Ba	2004	160	DW	68.90925	34.47376	8.00	6.70	458.00	7.25	16.20
Kabul	Guldara	Zargaran	2004	17	DW	69.05740	34.78449	9.00	6.70	505.00	7.52	13.30
Kabul	Paghman	Masjid Sups	2004	164	DW	68.95749	34.57893	9.00	6.70	531.00	7.28	14.00
Kabul	Paghman	Morghgiraan	2003	138	DW	68.99815	34.49753	8.00	6.70	644.00	6.97	20.00
Kabul	Paghman	Khwaja lake	2003	127	DW	68.95586	34.55727	9.00	6.70	694.00	7.33	18.50
Kabul	Guldara	Bagh Shadi	2004	15	DW	68.99763	34.74804	8.00	6.70	700.00	8.13	15.80
Kabul	Paghman	Khwaja jan	2004	169	DW	69.04210	34.52827	9.00	6.70	744.00	7.65	13.40
Kabul	Paghman	Bar Avghand	2004	166	DW	68.90934	34.47135	9.00	6.70	755.00	7.25	23.70
Kabul	Qarabagh	Zargaran	2004	16	DW	69.05740	34.78449	9.00	6.70	1015.00	7.55	17.00
Kabul	Kalakan	Bazari	2004	2	DW	69.16021	34.79616	10.00	8.99	1025.00	7.36	14.00
Kabul	Kalakan	Bazari	2004	2	DW	69.16725	34.79861	10.80	8.99	1044.00	7.36	15.00
Kabul	Kabul	Qala-e-Bakh	2004	106	DW	69.11598	34.49112	12.00	8.99	1171.00	7.35	24.60
Kabul	Guldara	Guladara	2004	16	DW	69.05638	34.74334	12.00	8.99	1200.00	7.66	17.00
Kabul	Bagrami	Kamari	1998	8	DW	69.27861	34.46889	12.00	8.99	1453.00	7.40	17.00
Kabul	Bagrami	Qalai Hasan	1998	3	DW	69.23639	34.47417	12.00	8.99	1459.00	7.71	14.00
Kabul	Qarabagh	Zargaran	2004	19	DW	69.05097	34.78509	11.00	8.99	2460.00	8.01	17.00
Kabul	Paghman	Beik Toot	2004	142	DW	68.94167	34.56157	13.00	8.99	344.00	7.78	14.00
Kabul	Paghman	Arghandi Ba	2004	167	DW	68.91082	34.49250	12.00	8.99	555.00	6.99	15.70
Kabul	Paghman	Bar Avghand	2004	159	DW	68.90920	34.47387	24.00	23.00	789.00	7.25	13.00
Kabul	Bagrami	Qalai Shekh	1997	31	DW	69.25593	34.46979	11.00	9.00	1235.00	7.25	15.00
Kabul	Bagrami	Qalai Hassa	1997	23	DW	69.24914	34.46695	11.00	9.00	1321.00	7.76	18.50
Kabul	Paghman	Bara Arghnd	1998	3	DW	68.91997	34.47260	11.00	7.00	520.00	7.58	14.20
Kabul	Paghman	Beik Toot	2004	156	DW	68.93988	34.56109	13.00	6.00	605.00	7.12	14.00
Kabul	Bagrami	Dehyaqub	1997	20	DW	69.22916	34.46017	8.50	6.00	981.00	7.59	14.00
Kabul	Bagrami	Qalai Hassa	1997	25	DW	69.24094	34.46280	4.50	3.00	1055.00	7.79	17.00

Kabul	Bagrami	Qalehye Has	1998	54	DW	69.23877	34.46264	6.00	3.00	1134.00	7.26	15.00
Kabul	Bagrami	Shewaki	1997	33	DW	69.23121	34.45902	5.00	3.00	1147.00	7.23	16.00
Kabul	Bagrami	Beni Hissar	1997	43	DW	69.21917	34.48222	5.50	3.00	1152.00	7.85	14.00
Kabul	Bagrami	Qalai Hassa	1997	22	DW	69.24841	34.46545	5.00	3.00	1188.00	7.78	18.40
Kabul	Bagrami	Qalai Hasan	1998	47	DW	69.22905	34.46750	6.00	3.00	1202.00	7.50	18.20
Kabul	Bagrami	Arzan Qimat	1998	8	DW	69.31392	34.51468	9.00	3.00	1231.00	7.54	16.50
Kabul	Bagrami	Qalai Hassa	1997	13	DW	69.25328	34.46694	5.00	3.00	1231.00	7.70	14.00
Kabul	Bagrami	Aka Khail	1997	32	DW	69.24685	34.47680	6.00	3.00	1240.00	7.14	18.00
Kabul	Bagrami	Binihisar	1998	26	DW	69.21797	34.48005	6.00	3.00	1402.00	7.25	13.00
Kabul	Bagrami	Shewaki	1998	2	DW	69.24537	34.45915	6.00	3.00	1421.00	7.23	14.25
Kabul	Paghman	Pole-e-Sukh	1998	57	DW	69.11701	34.50595	4.80	3.30	755.00	7.23	14.00
Kabul	Paghman	Naw Abad Mo	1998	88	DW	69.15068	34.48579	5.00	3.50	759.00	7.55	17.00
Kabul	Bagrami	Shewaki	1997	10	DW	69.22949	34.45751	6.00	3.50	1122.00	7.94	19.00
Kabul	Bagrami	Shewaki	1997	28	DW	69.22917	34.45619	9.00	3.50	1400.00	7.36	17.90
Kabul	Bagrami	Shewaki	1997	12	DW	69.23373	34.45780	6.00	3.50	1456.00	7.46	13.20
Kabul	Bagrami	Qalai Adam	1998	33	DW	69.27015	34.46610	7.00	3.50	1555.00	7.20	14.00
Kabul	Bagrami	Shewaki	1997	5	DW	69.23204	34.45548	6.00	3.70	1054.00	7.23	15.00
Kabul	Paghman	Bar Arghand	1998	16	DW	68.87778	34.50972	4.50	3.80	1500.00	7.47	16.00
Kabul	Bagrami	Woloswali B	1997	38	DW	69.27556	34.49750	5.00	4.00	478.00	7.25	17.00
Kabul	Kabul	Dawan bigi	1998	76	DW	69.10005	34.51813	6.00	4.00	493.00	7.42	18.00
Kabul	Bagrami	Shohadai Sa	1998	45	DW	69.18333	34.50028	6.50	4.00	582.00	7.71	17.00
Kabul	Qarabagh	Qara Bagh k	2004	24	DW	69.17574	34.87572	7.00	4.00	620.00	6.98	17.00
Kabul	Kabul	Sinbangi	1998	100	DW	69.08040	34.50982	6.00	4.00	788.00	7.25	19.00
Kabul	Bagrami	Shewaki	1997	8	DW	69.23042	34.45864	6.00	4.00	921.00	7.50	14.00
Kabul	Paghman	Arghandeh	1998	37	DW	68.91161	34.47782	6.00	4.00	924.00	7.51	17.00
Kabul	Kabul	Yakhdan Pul	1998	28	DW	69.15861	34.50720	6.00	4.00	1013.00	7.37	17.00
Kabul	Bagrami	Nuhburja	1998	64	DW	69.26344	34.46750	5.50	4.00	1089.00	7.32	18.00
Kabul	Bagrami	Aka khel	1997	40	DW	69.24370	34.47785	6.50	4.00	1093.00	7.84	17.00
Kabul	Paghman	Khwaja Musa	1998	78	DW	69.00519	34.54768	6.00	4.00	1109.00	7.12	17.00
Kabul	Bagrami	Deh Yaqub	1998	57	DW	69.23487	34.46124	5.00	4.00	1174.00	7.40	17.70
Kabul	Bagrami	Shewaki	1997	14	DW	69.23356	34.45687	6.00	4.00	1270.00	7.31	18.10
Kabul	Bagrami	ShinaMalik	1998	109	DW	69.27611	34.51528	6.00	4.00	1400.00	7.32	13.80
Kabul	Bagrami	Shewaki	1997	7	DW	69.22013	34.45552	6.00	4.00	1423.00	7.36	14.00
Kabul	Bagrami	Qalai Hassa	1997	37	DW	69.25045	34.46605	6.50	4.00	1436.00	7.23	17.00
Kabul	Bagrami	Shewaki	1997	1	DW	69.23281	34.45914	5.00	4.00	1455.00	7.25	17.00
Kabul	Bagrami	Qaleh Ye Ha	1998	21	DW	69.21913	34.46393	6.00	4.00	1456.00	7.80	14.00
Kabul	Kabul	Alo Khel	2004	15	TW	69.16086	34.32582	29.00	4.20	970.00	7.85	17.00
Kabul	Bagrami	Kamari	1998	19	DW	69.28033	34.47410	7.00	4.20	1590.00	7.15	13.20
Kabul	Bagrami	Arzan Qimat	1998	99	DW	69.30351	34.49211	6.00	4.20	1595.00	7.42	19.70
Kabul	Bagrami	Alu Khail	1998	106	DW	69.28139	34.53333	6.00	4.30	1822.00	7.87	13.90
Kabul	Kabul	Dewan Bigi	1998	63	DW	69.09318	34.51638	6.20	4.40	519.00	7.46	18.50
Kabul	Paghman	Khushhal Kh	1998	74	DW	69.09811	34.52839	6.00	4.50	545.00	7.52	14.90
Kabul	Bagrami	Qala-e-Bagh	1998	36	DW	69.20840	34.46572	8.00	4.50	788.00	8.02	16.30
Kabul	Bagrami	Qalieh ye s	1998	108	DW	69.31666	34.52801	6.00	4.50	789.00	7.36	17.00
Kabul	Paghman	Qalai sang	2003	134	DW	68.95746	34.60428	7.00	4.50	899.00	7.62	19.80
Kabul	Bagrami	Kamari	1998	10	DW	69.27992	34.47351	6.00	4.50	1065.00	7.36	18.50
Kabul	Bagrami	Deh Yaqub	1998	73	DW	69.23036	34.45887	6.00	4.50	1178.00	7.32	19.00
Kabul	Bagrami	Arzan Qimat	1998	98	DW	69.32316	34.51227	5.50	4.50	1423.00	7.56	17.00

Kabul	Bagrami	Kamari	1998	38	DW	69.28118	34.47464	6.00	4.50	1439.00	7.60	16.00
Kabul	Bagrami	Alu Khail	1998	102	DW	69.27695	34.52528	7.00	4.50	2130.00	7.94	20.00
Kabul	Paghman	Bar Arghand	1998	23	DW	68.86750	34.50555	5.30	4.65	1490.00	7.48	14.20
Kabul	Paghman	Morghgiraan	1998	21	DW	68.99755	34.49686	5.40	4.75	696.00	7.55	18.00
Kabul	Kabul	Qala-i-Aska	1998	96	DW	69.08137	34.53065	9.80	4.80	495.00	7.48	18.20
Kabul	Paghman	Bar Arghand	1998	4	DW	68.91889	34.47361	5.40	4.80	512.00	7.05	17.00
Kabul	Bagrami	Alu Khail	1998	104	DW	69.27611	34.52361	6.00	4.80	1147.00	7.90	17.00
Kabul	Paghman	Darwish tol	2003	130	DW	68.93442	34.54872	7.00	5.00	362.00	7.83	14.00
Kabul	Guldara	Bagh-e-Kush	2003	8	DW	69.00186	34.75247	7.00	5.00	522.00	7.39	16.40
Kabul	Paghman	Khwaja Musa	1998	66	DW	69.01525	34.54102	7.00	5.00	547.00	7.36	19.00
Kabul	Paghman	Khwaja Musa	1998	55	DW	69.01634	34.53742	7.00	5.00	547.00	7.60	14.00
Kabul	Qarabagh	Qarabgh Kal	2004	22	DW	69.17783	34.84571	7.00	5.00	564.00	7.40	17.10
Kabul	Paghman	Khushhal Kh	1998	16	DW	69.10128	34.52497	8.00	5.00	575.00	7.52	14.00
Kabul	Kabul	Qaleh Askar	1998	21	DW	69.08437	34.53099	7.50	5.00	588.00	7.51	17.00
Kabul	Kabul	Kotai sangi	1998	56	DW	69.11491	34.51468	7.50	5.00	756.00	7.36	18.40
Kabul	Qarabagh	Qarabgh Kal	2004	23	DW	69.17974	34.84563	7.00	5.00	758.00	7.25	22.10
Kabul	Paghman	Jaie Rayees	1998	84	DW	69.13213	34.47947	7.00	5.00	898.00	7.39	13.00
Kabul	Surobi	Jalawana	1996	13	DW	69.74006	34.60738	6.00	5.00	944.00	7.04	17.00
Kabul	Bagrami	Nuhburja	1998	23	DW	69.26412	34.46449	6.50	5.00	953.00	7.35	17.00
Kabul	Paghman	Deh DaanaAs	1998	32	DW	69.13445	34.45917	8.00	5.00	966.00	7.35	17.00
Kabul	Bagrami	Deh Yaqub	1997	49	DW	69.22991	34.45868	6.00	5.00	1047.00	7.26	17.00
Kabul	Bagrami	Deh Yaqub	1997	42	DW	69.22990	34.45867	9.00	5.00	1078.00	7.25	16.30
Kabul	Surobi	Naqhloo lay	1997	1	DW	69.74215	34.60658	6.00	5.00	1097.00	7.55	17.00
Kabul	Bagrami	Sahak	1998	60	DW	69.21848	34.45061	6.50	5.00	1099.00	7.43	18.20
Kabul	Bagrami	Alu khail	1998	107	DW	69.27199	34.53550	7.00	5.00	1230.00	7.25	14.00
Kabul	Bagrami	Arzan Qimat	1998	31	DW	69.31021	34.51078	7.00	5.00	1300.00	7.66	16.90
Kabul	Bagrami	Qalai Shekh	1997	30	DW	69.25605	34.46999	8.00	5.00	1400.00	7.25	22.20
Kabul	Paghman	Khwaja Musa	1998	67	DW	69.02241	34.53429	7.00	5.00	1400.00	7.25	18.30
Kabul	Bagrami	Kamari	1998	97	DW	69.27855	34.47357	6.00	5.00	1500.00	7.56	17.40
Kabul	Kabul	Yakhdan Pul	1998	11	DW	69.15695	34.50664	6.50	5.00	1553.00	7.12	17.00
Kabul	Paghman	Bar Arghand	1998	13	DW	68.87473	34.50417	6.00	5.20	547.00	7.36	14.00
Kabul	Paghman	Qalai Mula	1998	67	DW	69.11688	34.48567	7.30	5.30	820.00	7.08	14.00
Kabul	Paghman	Qala Hakim	2003	113	DW	68.97793	34.60762	7.00	5.50	356.00	7.61	21.10
Kabul	Paghman	Dih Qabil	1998	55	DW	69.10254	34.50018	7.00	5.50	456.00	7.32	14.00
Kabul	Paghman	Arghandi Ba	2003	133	DW	68.91784	34.47729	7.50	5.50	503.00	7.46	14.00
Kabul	Kabul	Naw Abad Ni	1998	75	DW	69.09445	34.52020	7.00	5.50	504.00	7.35	21.10
Kabul	Kabul	Qala-i-Aska	1998	81	DW	69.07972	34.52998	11.00	5.50	530.00	7.52	13.50
Kabul	Kabul	Pole Sukhta	1998	8	DW	69.11623	34.50234	6.70	5.50	587.00	7.34	18.60
Kabul	Qarabagh	Qarabgh Kal	2003	2	DW	69.18052	34.84506	12.50	5.50	693.00	7.20	17.60
Kabul	Mir Bacha K	Guzar-Mewa	2003	10	DW	69.11199	34.71510	7.50	5.50	744.00	7.30	18.00
Kabul	Qarabagh	Ashraf Khel	2004	38	DW	69.23530	34.87580	7.00	5.50	789.00	7.90	13.40
Kabul	Qarabagh	Nare Kalan	2004	28	DW	69.21556	34.86299	7.50	5.50	870.00	7.46	13.50
Kabul	Bagrami	Alu Khail	1998	105	DW	69.27500	34.52444	8.00	5.50	1125.00	7.12	17.00
Kabul	Bagrami	Shewaki	1997	18	DW	69.22683	34.45265	7.00	5.50	1145.00	7.32	17.30
Kabul	Bagrami	Qalai Hassa	1997	21	DW	69.24837	34.46624	7.50	5.50	1200.00	7.23	16.00
Kabul	Bagrami	Arzan Qimat	1998	37	DW	69.30773	34.51123	7.00	5.50	2201.00	7.38	17.20
Kabul	Qarabagh	Qalai Shahi	2003	13	DW	69.21738	34.85699	7.50	5.70	643.00	7.32	15.00
Kabul	Paghman	Qalai mula	1998	71	DW	69.11782	34.48410	7.30	5.80	808.00	7.21	17.00

Kabul	Bagrami	Alu Khail	1998	103	DW	69.27139	34.52778	7.00	5.80	1321.00	7.95	14.70
Kabul	Kabul	Deh Dana Ma	1998	19	DW	69.13336	34.46852	10.00	6.00	422.00	7.39	17.00
Kabul	Paghman	Khwaja Musa	1998	58	DW	69.00678	34.54362	8.00	6.00	442.00	7.09	17.00
Kabul	Qarabagh	Qarabagh Ka	2004	37	DW	69.18132	34.84541	13.00	6.00	465.00	7.37	14.40
Kabul	Paghman	Khushhal Kh	1998	6	DW	69.12139	34.51472	8.00	6.00	513.00	7.21	15.00
Kabul	Paghman	Qalai Hakim	2003	109	DW	68.97778	34.60225	8.00	6.00	522.00	7.40	17.70
Kabul	Qarabagh	Nare Kalan	2003	20	DW	69.21067	34.86777	8.00	6.00	569.00	7.35	13.20
Kabul	Surobi	Naghloo Mia	1997	12	DW	69.72533	34.60745	7.00	6.00	570.00	7.14	18.00
Kabul	Paghman	Bar Avghand	1998	34	DW	68.90946	34.47849	11.00	6.00	587.00	7.32	17.00
Kabul	Kabul	Fazelbig	1998	30	DW	69.09773	34.52224	8.50	6.00	589.00	7.23	18.00
Kabul	Paghman	Khaldari_s	2003	119	DW	69.97608	34.55593	10.00	6.00	597.00	7.38	18.10
Kabul	Paghman	Khwaja Musa	1998	83	DW	69.01541	34.54202	7.00	6.00	670.00	7.20	14.00
Kabul	Qarabagh	Qala -e- Sa	2004	33	DW	69.22006	34.86731	8.00	6.00	705.00	7.63	18.50
Kabul	Shakar Dara	Dahe Chukra	1997	27	DW	69.03034	34.67987	7.00	6.00	712.00	7.36	16.00
Kabul	Paghman	Oria khail	1998	91	DW	68.95878	34.54086	8.00	6.00	745.00	7.25	17.00
Kabul	Paghman	Qargha Deh	1998	38	DW	69.02928	34.56365	8.00	6.00	788.00	7.80	17.60
Kabul	Bagrami	Qala-e-Bagh	1998	35	DW	69.20678	34.46662	9.00	6.00	788.00	8.03	18.00
Kabul	Kabul	Gul khana	1998	61	DW	69.10636	34.49949	7.50	6.00	815.00	7.17	18.50
Kabul	Kabul	Yakhdan Pul	1998	10	DW	69.16123	34.50892	8.50	6.00	856.00	7.32	18.00
Kabul	Kabul	Qalai Logar	1998	43	DW	69.13333	34.44166	8.50	6.00	866.00	7.63	14.00
Kabul	Shakar Dara	GhazaQalai	1997	14	DW	69.01504	34.63976	7.00	6.00	866.00	7.36	20.00
Kabul	Kabul	Khushhal Kh	1998	79	DW	69.08410	34.52819	7.50	6.00	966.00	7.36	18.00
Kabul	Kabul	Deh DaanaMa	1998	22	DW	69.13250	34.46639	11.50	6.00	1012.00	7.48	14.00
Kabul	Paghman	Deh Dana Ma	1998	38	DW	69.13205	34.46625	11.00	6.00	1026.00	7.32	17.00
Kabul	Kabul	Harbi Showu	1998	33	DW	69.11456	34.50474	8.00	6.00	1145.00	7.55	17.00
Kabul	Bagrami	Sahak	1998	72	DW	69.21145	34.44790	7.00	6.00	1210.00	7.42	14.00
Kabul	Paghman	Qalai Ghaib	1998	60	DW	69.14972	34.47778	7.30	6.10	977.00	7.41	20.50
Kabul	Kabul	Gul khana	1998	78	DW	69.10944	34.49313	8.20	6.20	890.00	7.23	21.30
Kabul	Bagrami	Arzan Qimat	1998	3	DW	69.29999	34.48755	9.00	6.20	1651.00	7.38	13.00
Kabul	Paghman	Oria KhailS	1998	97	DW	68.93667	34.54945	7.00	6.30	720.00	7.52	14.00
Kabul	Paghman	Deh Dana No	1998	12	DW	69.13066	34.46984	8.80	6.30	822.00	7.36	16.90
Kabul	Dih Sabz	Sufi Baba	1998	95	DW	69.25913	34.59890	7.30	6.35	800.00	7.69	17.00
Kabul	Qarabagh	Qara Bagh K	2003	7	DW	69.20414	34.86466	8.50	6.40	583.00	7.44	14.00
Kabul	Paghman	Oria khail	1998	71	DW	68.96085	34.54206	8.00	6.50	398.00	7.45	14.00
Kabul	Paghman	Oria khal P	1998	72	DW	68.95998	34.53898	8.00	6.50	552.00	7.12	17.30
Kabul	Paghman	Deh araban	1998	5	DW	69.06399	34.53541	8.50	6.50	562.00	7.43	13.80
Kabul	Surobi	Naghloo_Al	1996	2	DW	69.73414	34.60879	7.50	6.50	750.00	7.12	18.50
Kabul	Kabul	Qargha Rahm	1998	90	DW	69.08569	34.53146	8.00	6.50	812.00	7.60	14.00
Kabul	Paghman	Chehl Stoon	1998	59	DW	69.15121	34.46976	8.00	6.50	948.00	7.41	15.10
Kabul	Paghman	Qalai shada	1998	68	DW	69.11790	34.49682	8.50	6.50	960.00	7.31	14.00
Kabul	Bagrami	Sya Bini	1998	58	DW	69.21306	34.46111	8.00	6.50	987.00	7.67	13.20
Kabul	Kabul	Karez-i-Tut	1998	3	DW	69.00554	34.49045	8.00	6.50	1147.00	7.32	19.00
Kabul	Bagrami	Arzan Qimat	1998	22	DW	69.30960	34.51221	8.00	6.50	1225.00	7.70	17.00
Kabul	Paghman	Qalai sang	2003	121	DW	68.95782	34.60466	8.50	6.50	2020.00	7.42	15.40
Kabul	Paghman	Bar Arghand	1998	11	DW	68.87055	34.50667	7.50	6.70	572.00	7.04	18.90
Kabul	Paghman	Deh DaanaBa	1998	72	DW	69.12473	34.48806	8.20	6.70	861.00	7.51	14.00
Kabul	Bagrami	Arzan Qimat	1998	23	DW	69.31225	34.51029	8.00	6.80	2780.00	7.60	14.00
Kabul	Bagrami	Arzan qimat	1998	18	DW	69.30815	34.51713	8.00	6.90	1287.00	7.36	18.80

Kabul	Paghman	Oria khail	1998	81	DW	68.95778	34.53900	8.00	7.00	382.00	7.69	21.30
Kabul	Qarabagh	Baghe Zagha	2004	26	DW	69.20165	34.84469	10.00	7.00	401.00	7.75	15.00
Kabul	Paghman	Khwaja Musa	1998	68	DW	69.00611	34.54278	8.00	7.00	425.00	7.63	21.50
Kabul	Guldara	Qole Nemat	2004	13	DW	69.01613	34.74330	9.00	7.00	445.00	7.24	22.10
Kabul	Paghman	Khwaja Musa	1998	54	DW	69.01688	34.53772	9.00	7.00	451.00	7.53	17.30
Kabul	Paghman	Kuz Arghand	1998	82	DW	68.94530	34.51422	9.00	7.00	457.00	7.26	18.70
Kabul	Mir Bacha K	Wolaswalai	2003	4	DW	69.11918	34.74978	9.00	7.00	570.00	7.24	13.50
Kabul	Paghman	Chehl stoon	1998	58	DW	69.15119	34.46867	8.50	7.00	588.00	7.25	22.10
Kabul	Paghman	Qargha Rahm	1998	98	DW	69.08366	34.53320	8.50	7.00	590.00	7.30	14.90
Kabul	Paghman	Company kas	2004	47	TW	69.05554	34.52975	18.00	7.00	604.00	7.10	17.00
Kabul	Kabul	Qaleh Askar	1998	99	DW	69.08542	34.53295	8.80	7.00	606.00	7.44	13.60
Kabul	Shakar Dara	Ghaza Safo	1997	19	DW	69.00015	34.63942	10.00	7.00	626.00	6.95	15.00
Kabul	Kabul	Qalai Fatoo	1998	49	DW	69.13462	34.44000	9.20	7.00	652.00	8.15	13.30
Kabul	Paghman	Morghgiraan	1998	86	DW	68.99516	34.49845	9.00	7.00	672.00	7.07	13.90
Kabul	Paghman	Bar Avghand	1998	14	DW	68.90858	34.48586	9.00	7.00	700.00	7.23	14.20
Kabul	Paghman	Qaleh-Ye-Ab	1998	5	DW	69.03374	34.51889	8.50	7.00	719.00	7.32	13.50
Kabul	Paghman	Sra Qala	1998	35	DW	68.89090	34.50668	11.20	7.00	748.00	7.36	14.00
Kabul	Surobi	Naghloo D	2004	201	DW	69.33788	34.60790	9.00	7.00	780.00	7.47	14.00
Kabul	Kabul	Gul Khan	1998	77	DW	69.10876	34.49765	8.50	7.00	784.00	7.06	13.90
Kabul	Kabul	Deh Morad K	1998	66	DW	69.13831	34.47729	8.80	7.00	788.00	7.23	13.50
Kabul	Paghman	Deh DaanaMa	1998	39	DW	69.12389	34.48583	11.00	7.00	812.00	7.41	13.50
Kabul	Paghman	Khal dari	1998	89	DW	69.97154	34.55223	9.00	7.00	850.00	7.22	17.80
Kabul	Paghman	Deh DaanaMa	1998	37	DW	69.12611	34.46611	9.50	7.00	899.00	7.25	13.00
Kabul	Paghman	Char qala d	1998	87	DW	69.10629	34.48866	8.80	7.00	963.00	7.26	13.50
Kabul	Kabul	Sarake Now	1998	18	DW	69.15721	34.47902	8.50	7.00	988.00	7.43	13.60
Kabul	Bagrami	Qalai Kakar	1998	43	DW	69.26461	34.46649	9.00	7.00	1171.00	7.25	13.90
Kabul	Guldara	Shah Mir Ba	2003	3	DW	69.00629	34.76455	9.00	7.10	451.00	7.46	21.60
Kabul	Mir Bacha K	Payandeh	2003	12	DW	69.05887	34.79268	9.00	7.20	418.00	7.50	14.00
Kabul	Bagrami	Shewaki	1997	3	DW	69.24363	34.45512	8.00	7.25	1152.00	7.32	14.00
Kabul	Bagrami	Arzan Qimat	1998	35	DW	69.31499	34.51823	9.80	7.30	1388.00	7.36	14.60
Kabul	Bagrami	Arzan Qimat	1998	51	DW	69.31919	34.51975	9.00	7.30	1485.00	7.51	15.50
Kabul	Paghman	Morghgiraan	1998	61	DW	69.99888	34.49566	8.00	7.35	653.00	7.41	18.00
Kabul	Paghman	Khwaja Musa	1998	59	DW	69.01167	34.54222	8.00	7.40	574.00	7.32	14.20
Kabul	Bagrami	Arzan Qimat	1998	48	DW	69.30036	34.48688	9.00	7.40	1643.00	7.40	13.20
Kabul	Bagrami	Arzan Qimat	1998	16	DW	69.31245	34.51183	9.00	7.40	2770.00	7.44	14.50
Kabul	Shakar Dara	Ghaza Omar	1997	8	DW	69.99830	34.64959	9.00	7.50	542.00	7.15	17.00
Kabul	Surobi	Tapa number	2002	181	DW	69.76284	34.58797	9.00	7.50	552.00	7.36	17.00
Kabul	Paghman	Bar Arghand	1998	30	DW	68.90474	34.49511	8.50	7.50	588.00	7.36	14.31
Kabul	Qarabagh	Baghe Zagha	2003	1	DW	69.20264	34.84386	9.50	7.50	638.00	7.34	18.50
Kabul	Shakar Dara	Jan Shah	1997	16	DW	69.05072	34.66801	8.50	7.50	703.00	7.36	16.00
Kabul	Qarabagh	Qarabgh Kal	2003	4	DW	69.18038	34.84447	9.50	7.50	719.00	7.22	17.00
Kabul	Shakar Dara	Ghaza Ali K	1997	26	DW	69.00877	34.65361	8.50	7.50	744.00	7.25	18.60
Kabul	Kabul	Deh Dana Qa	1998	48	DW	69.13453	34.48756	9.00	7.50	788.00	7.23	18.60
Kabul	Paghman	Chehl Stoon	1998	70	DW	69.15278	34.45278	9.00	7.50	877.00	7.30	20.50
Kabul	Bagrami	Arzan Qimat	1998	27	DW	69.30796	34.51245	9.00	7.50	1353.00	7.44	14.00
Kabul	Bagrami	Arzan Qimat	1998	17	DW	69.31237	34.51309	9.00	7.50	1356.00	7.88	13.00
Kabul	Bagrami	Arzan qimat	1998	20	DW	69.30897	34.51405	9.00	7.50	1360.00	7.39	16.40
Kabul	Bagrami	Qalai Adam	1998	24	DW	69.27104	34.46447	8.50	7.50	1456.00	7.25	14.00

Kabul	Bagrami	Arzan Qimat	1998	49	DW	69.32214	34.52275	9.00	7.50	1464.00	7.20	17.00
Kabul	Bagrami	Arzan qimat	1998	12	DW	69.31433	34.51566	9.00	7.50	2130.00	7.33	16.00
Kabul	Bagrami	Arzan Qimat	1998	14	DW	69.31108	34.51232	9.00	7.50	2780.00	7.36	16.00
Kabul	Paghman	Bar Arghand	1998	10	DW	68.87222	34.50611	8.50	7.60	723.00	7.11	22.30
Kabul	Paghman	Qalai shada	1998	14	DW	69.11531	34.49605	8.80	7.60	655.00	7.30	17.00
Kabul	Bagrami	Arzan Qimat	1998	26	DW	69.31214	34.51355	9.00	7.70	1225.00	7.55	14.00
Kabul	Bagrami	Arzan Qimat	1998	60	DW	69.31309	34.51771	9.00	7.70	1477.00	7.25	20.50
Kabul	Bagrami	Arzan Qimat	1998	50	DW	69.31371	34.51958	9.00	7.70	1516.00	7.60	17.00
Kabul	Paghman	Char qala f	1998	91	DW	69.10646	34.48624	9.30	7.80	747.00	7.26	14.50
Kabul	Kabul	Gul Khana	1998	80	DW	69.10274	34.49822	9.30	7.80	887.00	7.36	18.30
Kabul	Bagrami	Arzan Qimat	1998	21	DW	69.30854	34.51357	9.00	7.80	1168.00	7.56	16.90
Kabul	Bagrami	Arzan Qimat	1998	82	DW	69.30972	34.51577	9.00	7.80	1300.00	7.25	19.00
Kabul	Bagrami	Arzan Qimat	1998	10	DW	69.30891	34.51641	9.00	7.80	1324.00	7.40	14.30
Kabul	Bagrami	Qalai Hassa	1998	25	DW	69.24932	34.46594	9.00	7.80	1400.00	7.25	16.40
Kabul	Bagrami	Arzan Qimat	1998	33	DW	69.31440	34.51882	9.00	7.80	1515.00	7.54	15.40
Kabul	Bagrami	Arzan Qimat	1998	9	DW	69.31198	34.51673	9.00	7.80	1671.00	7.52	19.40
Kabul	Paghman	Oria Khail	1998	90	DW	68.96479	34.53742	10.00	8.00	403.00	7.54	18.70
Kabul	Paghman	Deh Punba	2003	124	DW	69.02820	34.56758	10.00	8.00	489.00	7.92	14.40
Kabul	Kabul	Rahmatabad	1998	24	DW	69.08446	34.53579	10.50	8.00	493.00	7.39	17.40
Kabul	Guldara	Qole Nemat	2004	11	DW	69.00240	34.75036	10.00	8.00	500.00	7.25	14.60
Kabul	Paghman	Khwaja Musa	1998	74	DW	69.00686	34.54025	10.00	8.00	526.00	7.48	17.60
Kabul	Kabul	Qala-i-Aska	1998	65	DW	69.08047	34.52862	10.30	8.00	552.00	7.46	19.20
Kabul	Kabul	Qala-i-Aska	1998	25	DW	69.07959	34.52924	10.20	8.00	566.00	7.25	17.00
Kabul	Qarabagh	Denar Khel	2003	16	DW	69.18130	34.86202	13.00	8.00	566.00	7.58	15.20
Kabul	Surobi	Shrin Kalay	2004	194	DW	69.75806	34.59005	21.00	8.00	585.00	8.85	17.00
Kabul	Paghman	Bar Arghand	1998	73	DW	68.90639	34.47917	9.00	8.00	587.00	7.60	13.20
Kabul	Qarabagh	Qarabgh Kal	2004	25	DW	69.17787	34.84315	14.00	8.00	627.00	7.07	20.30
Kabul	Kabul	Dasht-e-bar	1998	40	DW	69.09843	34.49711	10.50	8.00	640.00	7.28	15.10
Kabul	Qarabagh	Qarabagh Ka	2004	29	DW	69.18253	34.84544	10.00	8.00	678.00	7.21	14.50
Kabul	Shakar Dara	Dahe Chukra	1997	3	DW	69.02820	34.67957	10.00	8.00	714.00	7.36	18.00
Kabul	Shakar Dara	Ghaza Shari	1997	18	DW	69.00393	34.64078	9.00	8.00	766.00	7.25	17.40
Kabul	Paghman	Char Qala D	1998	94	DW	69.10590	34.48799	10.00	8.00	888.00	7.70	15.50
Kabul	Surobi	Naghloo wa	1997	34	DW	69.72392	34.61271	9.00	8.00	1008.00	7.32	16.60
Kabul	Bagrami	Shewaki	1997	4	DW	69.23180	34.45848	10.00	8.00	1023.00	7.79	14.80
Kabul	Kabul	Qalai Ghaib	1998	36	DW	69.13669	34.45236	10.00	8.00	1062.00	7.96	15.10
Kabul	Bagrami	Arzan Qimat	1998	7	DW	69.31117	34.51517	9.00	8.00	1325.00	7.25	16.10
Kabul	Bagrami	Arzan Qimat	1998	6	DW	69.30739	34.51605	9.00	8.00	1330.00	7.61	14.50
Kabul	Bagrami	Arzan Qimat	1998	13	DW	69.31227	34.51613	9.00	8.00	1383.00	7.38	14.20
Kabul	Bagrami	Qalai Kakar	1998	30	DW	69.26668	34.46376	9.50	8.00	1531.00	7.26	17.50
Kabul	Paghman	Khwaja Musa	1998	74	DW	69.00690	34.54021	9.00	8.20	778.00	7.58	19.70
Kabul	Qarabagh	Baghe Zagha	2003	3	DW	69.20687	34.84102	10.00	8.20	992.00	7.47	17.80
Kabul	Bagrami	Arzan Qimat	1998	54	DW	69.31599	34.52321	9.00	8.30	526.00	7.54	16.30
Kabul	Bagrami	Arzan Qimat	1998	19	DW	69.31008	34.51407	10.00	8.30	1486.00	8.00	17.10
Kabul	Bagrami	Arzan Qimat	1998	30	DW	69.32059	34.51894	10.00	8.30	1535.00	7.41	13.60
Kabul	Bagrami	Arzan Qimat	1998	43	DW	69.31703	34.51932	10.00	8.40	1396.00	7.41	19.80
Kabul	Bagrami	Arzan Qimat	1998	28	DW	69.31063	34.51582	10.00	8.40	1512.00	7.58	13.50
Kabul	Mir Bacha K	Mareki	2003	2	DW	69.12745	34.75115	11.00	8.50	545.00	7.40	13.60
Kabul	Qarabagh	Qarabgh Kal	2003	17	DW	69.17965	34.84472	14.50	8.50	703.00	7.04	15.70

Kabul	Paghman	Char qala	1998	93	DW	69.10542	34.48643	10.00	8.50	847.00	7.09	17.30
Kabul	Paghman	Easa khel	2003	114	DW	68.97834	34.58837	11.50	8.50	888.00	7.36	21.00
Kabul	Paghman	Char qala s	1998	92	DW	69.10536	34.48396	10.00	8.50	899.00	7.23	18.00
Kabul	Paghman	Chehl Stoon	1998	64	DW	69.15111	34.46111	10.00	8.50	910.00	7.32	20.30
Kabul	Bagrami	Arzan Qimat	1998	67	DW	69.31905	34.51723	10.00	8.50	1412.00	7.70	19.40
Kabul	Bagrami	Block-1	1998	34	DW	69.31192	34.51900	10.00	8.50	1524.00	7.60	18.10
Kabul	Bagrami	Arzan qimat	1998	68	DW	69.32311	34.51831	10.00	8.50	1723.00	7.58	18.00
Kabul	Bagrami	Arzan Qimat	1998	46	DW	69.30153	34.51449	10.00	8.50	2132.00	7.35	20.80
Kabul	Bagrami	Arzan Qimat	1998	71	DW	69.31604	34.51232	10.00	8.50	2875.00	7.32	15.10
Kabul	Paghman	Bar Arghand	1998	12	DW	68.87083	34.50500	9.40	8.79	577.00	7.23	18.70
Kabul	Surobi	Udkhel Baza	1997	10	DW	69.75719	34.59213	10.00	8.80	789.00	7.90	17.30
Kabul	Bagrami	Arzan Qimat	1998	55	DW	69.31375	34.51606	10.00	8.80	1372.00	7.31	17.50
Kabul	Bagrami	Arzan Qimat	1998	85	DW	69.31229	34.51131	10.00	8.80	1400.00	7.13	18.30
Kabul	Bagrami	Arzan qimat	1998	36	DW	69.31070	34.51828	10.00	8.80	1500.00	7.25	13.90
Kabul	Bagrami	Arzan Qimat	1998	86	DW	69.32005	34.52289	10.00	8.80	1798.00	7.10	18.60
Kabul	Bagrami	Arzan Qimat	1998	69	DW	69.31477	34.51203	10.00	8.80	2930.00	7.34	19.30
Kabul	Shakar Dara	Bih Zadi	2004	48	DW	69.05326	34.69872	11.50	9.00	421.00	7.36	16.30
Kabul	Paghman	Darwish Tol	2003	98	DW	68.93459	34.54966	11.00	9.00	422.00	7.46	16.40
Kabul	Kabul	Qargha	1998	82	DW	69.07945	34.52963	10.50	9.00	511.00	7.61	15.60
Kabul	Kabul	Fazel Bigi	1998	46	DW	69.07022	34.52306	15.50	9.00	581.00	7.42	14.30
Kabul	Surobi	Naghloo Lew	1996	12	DW	69.77051	34.61074	10.00	9.00	589.00	7.11	16.20
Kabul	Kabul	Dawan bigi	2004	4	TW	69.09549	34.51485	17.00	9.00	594.00	7.51	15.00
Kabul	Surobi	Naghloo war	2004	33	TW	69.72596	34.61311	27.00	9.00	594.00	7.30	14.10
Kabul	Shakar Dara	Qala-e-Surk	2003	33	DW	69.07812	34.69010	11.00	9.00	598.00	7.23	11.90
Kabul	Paghman	Khwaja Musa	2004	47	TW	69.00179	34.54083	38.50	9.00	624.00	7.21	14.00
Kabul	Shakar Dara	Hayat Khel	2003	37	DW	69.00344	34.64611	11.00	9.00	703.00	7.46	16.10
Kabul	Surobi	Naghloo war	1997	4	DW	69.72603	34.61216	10.00	9.00	716.00	7.69	14.30
Kabul	Paghman	Bar Avghand	1998	15	DW	68.90968	34.48791	11.00	9.00	745.00	7.36	14.50
Kabul	Qarabagh	Bagh -e- Al	2004	36	DW	69.22747	34.87750	11.00	9.00	765.00	7.25	14.60
Kabul	Qarabagh	Baghe Zagha	2004	27	DW	69.20495	34.84224	11.00	9.00	777.00	7.84	14.60
Kabul	Paghman	Oria khail	1998	92	DW	68.95978	34.54288	10.00	9.00	788.00	7.20	15.10
Kabul	Kabul	Gul khana	2002	103	DW	69.11028	34.49786	19.00	9.00	825.00	7.15	16.10
Kabul	Paghman	Qaleh-Ye-Ab	1998	24	DW	69.03518	34.51941	11.00	9.00	855.00	7.28	13.50
Kabul	Qarabagh	Bagh -e- Al	2004	35	DW	69.22588	34.87604	11.00	9.00	873.00	7.75	13.40
Kabul	Bagrami	Qalai Kakar	1998	31	DW	69.26580	34.46326	10.00	9.00	1119.00	7.45	21.30
Kabul	Bagrami	Arzan qimat	1998	99	DW	69.29361	34.48314	11.00	9.00	1235.00	7.56	15.30
Kabul	Bagrami	Arzan Qimat	1998	62	DW	69.31536	34.51121	10.00	9.00	1475.00	7.23	14.00
Kabul	Bagrami	Arzan qimat	1998	73	DW	69.31621	34.51833	10.00	9.00	1721.00	7.23	16.70
Kabul	Paghman	Khwaja Musa	1998	69	DW	69.02468	34.53487	9.80	9.10	1523.00	7.00	13.30
Kabul	Qarabagh	Bagh -e- Za	2003	5	DW	69.20612	34.84968	11.00	9.30	894.00	7.20	18.40
Kabul	Bagrami	Arzan Qimat	1998	78	DW	69.31489	34.51010	10.00	9.30	2520.00	7.44	15.10
Kabul	Bagrami	Arzan Qimat	1998	52	DW	69.31871	34.51858	11.00	9.40	1291.00	7.52	20.60
Kabul	Bagrami	Arzan Qimat	1998	57	DW	69.31997	34.51831	11.00	9.40	1396.00	7.48	14.50
Kabul	Shakar Dara	Ghaza Dara	1997	25	DW	69.99225	34.69600	11.00	9.50	366.00	8.16	20.40
Kabul	Qarabagh	Qalai Qadzi	2003	19	DW	69.18768	34.84124	14.50	9.50	502.00	7.42	14.20
Kabul	Shakar Dara	Ali Shikho	1997	2	DW	69.02253	34.67530	11.50	9.50	511.00	7.32	15.80
Kabul	Kabul	Fazelbig	1998	26	DW	69.07371	34.52395	13.00	9.50	550.00	7.30	14.90
Kabul	Surobi	Sarchino Sr	2004	207	DW	69.71765	34.57097	11.00	9.50	716.00	7.23	20.30

Kabul	Mir Bacha K	Deh-e-mir	2003	6	DW	69.13185	34.75670	12.00	9.50	725.00	7.36	18.00
Kabul	Kabul	Sarak Now T	1998	13	DW	69.15947	34.48004	11.00	9.50	1200.00	7.25	17.00
Kabul	Bagrami	Arzan Qimat	1998	58	DW	69.31543	34.51893	11.00	9.50	1323.00	7.38	20.00
Kabul	Bagrami	Arzan Qimat	1998	42	DW	69.31878	34.51701	11.00	9.50	1344.00	7.48	21.50
Kabul	Bagrami	Arzan qimat	1998	66	DW	69.32453	34.52419	11.00	9.50	1450.00	7.19	21.30
Kabul	Paghman	Kuz Arghand	1998	62	DW	68.94471	34.51263	11.00	9.50	1502.00	6.93	14.00
Kabul	Bagrami	Arzan Qimat	1998	38	DW	69.31369	34.52203	11.00	9.60	1487.00	7.80	19.20
Kabul	Bagrami	Nawabad	1998	47	DW	69.31223	34.50417	11.00	9.60	1852.00	7.76	20.00
Kabul	Bagrami	Arzan Qimat	1998	11	DW	69.30999	34.51498	11.00	9.70	1729.00	7.48	20.50
Kabul	Bagrami	Arzan Qimat	1998	72	DW	69.31588	34.51298	11.00	9.70	3440.00	7.26	15.00
Kabul	Bagrami	Arzan Qimat	1998	15	DW	69.31387	34.51358	10.40	9.75	2200.00	7.59	18.00
Kabul	Kabul	Sare Asiab	1998	89	DW	69.12263	34.45652	11.30	9.80	1095.00	7.39	18.00
Kabul	Bagrami	Arzan Qimat	1998	92	DW	69.31023	34.51784	11.00	9.80	2360.00	7.58	14.00
Kabul	Bagrami	Arzan Qimat	1998	80	DW	69.31795	34.51039	11.00	9.90	2147.00	7.25	18.00
Kabul	Qarabagh	Qarabgh Kal	2003	10	DW	69.17964	34.84325	15.00	10.00	482.00	7.41	22.00
Kabul	Kabul	Dewan Big M	2004	7	TW	69.09448	34.51820	25.00	10.00	495.00	7.48	21.20
Kabul	Paghman	Khwaja Musa	2004	33	TW	69.03367	34.53740	36.70	10.00	544.00	7.01	19.00
Kabul	Kabul	Qala-i- Ask	2004	97	TW	69.08203	34.52859	35.00	10.00	555.00	7.47	17.60
Kabul	Shakar Dara	Qalai Dasht	1997	1	DW	69.09125	34.65886	11.00	10.00	578.00	7.36	20.20
Kabul	Paghman	Qaleh-Ye-Ab	2004	22	DW	69.03580	34.51906	26.00	10.00	631.00	7.36	22.20
Kabul	Bagrami	Qala-e-Bagh	1998	37	DW	69.20520	34.46764	13.00	10.00	670.00	7.95	19.00
Kabul	Paghman	Paghman kha	1998	77	DW	68.97280	34.55107	12.00	10.00	705.00	7.13	18.70
Kabul	Qarabagh	Bagh -e- Al	2004	34	DW	69.22930	34.88087	12.00	10.00	735.00	7.32	17.20
Kabul	Paghman	Chehl Stoon	1998	17	DW	69.15366	34.46314	13.50	10.00	788.00	7.25	15.40
Kabul	Kabul	Gul Khan	2002	102	TW	69.11091	34.49824	20.00	10.00	788.00	7.32	20.10
Kabul	Kabul	Gul Khan	2002	104	TW	69.11087	34.49637	20.00	10.00	788.00	7.69	16.80
Kabul	Paghman	Khwaja Musa	2004	76	DW	69.01889	34.53334	16.60	10.00	847.00	7.29	17.00
Kabul	Paghman	Char qala f	2004	95	TW	69.10645	34.48682	43.20	10.00	848.00	7.16	19.20
Kabul	Kabul	Pole Sukhta	2004	54	TW	69.11675	34.50968	30.70	10.00	854.00	7.00	15.70
Kabul	Kabul	Pole Sukhta	2004	9	TW	69.11651	34.50424	28.00	10.00	855.00	7.23	14.60
Kabul	Surobi	Liwan	1996	16	DW	69.72935	34.61136	11.00	10.00	899.00	7.32	14.70
Kabul	Bagrami	Aazan Qimat	1998	96	DW	69.31696	34.52004	34.70	10.00	1227.00	7.62	17.60
Kabul	Bagrami	Arzan Qimat	1998	59	TW	69.31159	34.51705	24.40	10.00	1523.00	7.57	18.40
Kabul	Bagrami	Arzan Qimat	1998	44	TW	69.31507	34.52377	31.50	10.00	1725.00	7.90	20.20
Kabul	Bagrami	Arzan qimat	1998	100	TW	69.32967	34.51951	28.40	10.00	2258.00	7.28	18.10
Kabul	Shakar Dara	Kariz Mir A	2003	34	DW	69.05727	34.61998	12.00	10.10	453.00	7.56	14.60
Kabul	Paghman	Easa khel	2003	107	DW	68.98241	34.58818	12.00	10.10	589.00	7.36	18.00
Kabul	Guldara	Mula Akhund	2003	6	DW	69.02701	34.74512	12.00	10.20	440.00	7.84	14.10
Kabul	Paghman	Qala Hakim	2003	108	DW	68.97545	34.60281	12.00	10.20	484.00	7.72	14.60
Kabul	Bagrami	NawabadHowz	1998	29	DW	69.31028	34.50195	11.00	10.30	1425.00	7.23	14.90
Kabul	Bagrami	Arzan Qimat	1998	56	DW	69.31453	34.51708	11.00	10.30	1618.00	7.45	22.00
Kabul	Paghman	Morghgiraan	1998	29	DW	68.99500	34.49917	11.00	10.35	701.00	7.90	16.60
Kabul	Shakar Dara	Ghaza Qalai	1997	7	DW	69.01565	34.63856	11.50	10.50	338.00	7.81	14.00
Kabul	Guldara	Qalai Akhud	2003	5	DW	69.04662	34.72350	13.00	11.50	412.00	7.55	16.10
Kabul	Guldara	Qalai Sayfa	2003	2	DW	69.02415	34.75147	12.50	11.50	455.00	7.68	15.30
Kabul	Shakar Dara	shah sang	2004	41	DW	69.07775	34.70296	14.50	11.50	541.00	7.21	19.80
Kabul	Paghman	Easa khel	2003	106	DW	68.98215	34.58755	12.50	11.50	567.00	7.52	18.90
Kabul	Guldara	Qole Nemat	2004	14	DW	69.01129	34.74048	12.50	11.50	581.00	7.09	18.80

Kabul	Shakar Dara	Nassari	1997	15	DW	69.07182	34.68772	11.50	11.50	654.00	7.36	19.80
Kabul	Shakar Dara	Qariae Dani	1997	21	DW	69.14115	34.66009	12.00	11.50	744.00	7.23	21.00
Kabul	Paghman	Morghgiraan	1998	36	DW	68.99485	34.49972	12.00	9.00	789.00	7.36	18.70
Kabul	Guldara	Masjed-e-Ma	2003	7	DW	69.05064	34.74323	12.00	10.50	822.00	7.23	17.00
Kabul	Bagrami	Hussain Kha	1998	4	DW	69.29945	34.48611	12.00	10.50	1045.00	7.25	17.10
Kabul	Qarabagh	Baghe Zagha	2003	6	DW	69.20785	34.84277	12.50	9.30	1087.00	7.33	18.00
Kabul	Bagrami	Arzan qimat	1998	65	DW	69.32534	34.52110	12.00	9.30	1413.00	7.29	19.10
Kabul	Bagrami	Arzan Qimat	1998	40	DW	69.31825	34.52252	12.00	9.30	1446.00	7.23	19.50
Kabul	Surobi	Warkhara	2004	192	DW	69.72475	34.58120	13.00	9.30	1532.00	7.39	18.20
Kabul	Bagrami	Arzan Qimat	1998	39	DW	69.31780	34.52329	12.00	9.30	1645.00	7.41	18.00
Kabul	Bagrami	Arzan Qimat	1998	53	DW	69.32080	34.51776	12.00	9.30	1963.00	7.44	17.10
Kabul	Bagrami	Arzan Qimat	1998	24	DW	69.31012	34.51154	12.00	9.30	2130.00	7.60	17.70
Kabul	Bagrami	Arzan qimat	1998	95	DW	69.32412	34.52187	12.00	11.00	1357.00	7.34	14.00
Kabul	Surobi	Naghloo Ba	1997	6	DW	69.74911	34.60393	12.00	11.00	1034.00	7.07	16.50
Kabul	Bagrami	Arzan Qimat	1998	45	DW	69.31575	34.51732	12.00	11.00	1425.00	7.46	19.10
Kabul	Paghman	Qaleh-Ye-Ab	1998	17	DW	69.03365	34.51841	11.60	11.00	610.00	7.50	16.00
Kabul	Bagrami	Arzan qimat	1998	88	DW	69.32543	34.52168	12.00	10.90	1387.00	7.38	21.70
Kabul	Shakar Dara	Bihzadi	2004	47	DW	69.04589	34.69827	13.50	11.00	415.00	7.36	17.90
Kabul	Paghman	Arghandeh B	2003	122	DW	68.90425	34.49315	13.00	11.00	433.00	7.34	17.60
Kabul	Bagrami	Qalai Hashm	1998	41	DW	69.17917	34.49722	13.50	11.00	596.00	7.44	12.00
Kabul	Mir Bacha K	Mirbacha Ko	2003	5	DW	69.12331	34.75134	13.00	11.00	600.00	7.32	17.00
Kabul	Paghman	Bara Arghan	1998	7	DW	68.91660	34.46316	13.00	11.00	635.00	7.05	16.40
Kabul	Qarabagh	Worya Khel	2003	15	DW	69.19901	34.86866	19.00	11.00	694.00	7.33	13.00
Kabul	Paghman	KhoshkakBar	1998	40	DW	69.02361	34.55639	12.00	11.10	741.00	7.32	16.20
Kabul	Bagrami	Arzan qimat	1998	76	DW	69.32755	34.52696	12.00	11.35	1893.00	7.80	17.00
Kabul	Paghman	Arghandeh	1998	26	DW	68.90462	34.49145	13.00	11.50	399.00	7.63	16.70
Kabul	Paghman	Darwish Tol	2003	99	DW	68.93465	34.54974	14.00	11.50	435.00	7.51	16.80
Kabul	Qarabagh	Qarabgh Kal	2003	8	DW	69.17874	34.83982	17.50	11.50	515.00	7.19	18.80
Kabul	Paghman	Khal dari	2003	117	DW	69.97568	34.55443	13.50	11.50	517.00	7.94	18.00
Kabul	Shakar Dara	Jan Shah	1997	29	DW	69.04953	34.66769	13.00	11.50	702.00	7.32	17.00
Kabul	Qarabagh	Qala-i-Gode	2004	31	DW	69.20035	34.83908	14.50	11.50	724.00	8.01	18.00
Kabul	Paghman	Bar Avghand	1998	46	DW	68.90566	34.49038	13.00	11.50	758.00	7.25	18.50
Kabul	Paghman	Bar Avghand	1998	27	DW	68.90388	34.49216	13.00	11.50	789.00	7.32	19.70
Kabul	Kabul	Gul Khana	2002	105	DW	69.10963	34.49829	21.00	11.50	882.00	7.16	17.30
Kabul	Dih Sabz	Tara KhailB	1998	96	DW	69.23556	34.60389	12.50	11.50	1178.00	7.23	17.00
Kabul	Bagrami	Arzan qimat	1998	64	DW	69.32450	34.52350	12.00	11.50	1356.00	7.33	18.20
Kabul	Bagrami	Arzan Qimat	1998	32	DW	69.32132	34.51933	13.00	11.50	1700.00	7.58	15.00
Kabul	Bagrami	Arzan qimat	1998	90	DW	69.32596	34.52044	13.00	11.70	1965.00	7.72	16.40
Kabul	Bagrami	Arzan Qimat	1998	75	DW	69.31676	34.50911	13.00	11.80	2146.00	7.23	17.00
Kabul	Bagrami	Sahak	1998	68	DW	69.21216	34.44741	12.70	11.90	1402.00	7.34	15.00
Kabul	Paghman	Kumari Khil	2003	129	DW	68.90860	34.49025	14.50	12.00	408.00	7.45	21.80
Kabul	Paghman	Chiltan	2004	65	DW	68.99237	34.52697	29.70	12.00	524.00	7.25	15.90
Kabul	Bagrami	Mamozia	1998	7	DW	69.26953	34.43520	15.00	12.00	578.00	8.22	15.20
Kabul	Shakar Dara	Seaw Quli	2003	38	DW	69.09319	34.67443	13.50	12.00	588.00	7.31	15.00
Kabul	Paghman	Khwaja Musa	2004	56	TW	69.01473	34.53926	38.60	12.00	604.00	7.38	17.00
Kabul	Paghman	Qaleh-Ye-Ab	1998	84	DW	69.04023	34.52032	14.00	12.00	691.00	7.11	17.00
Kabul	Paghman	Khwaja Musa	1998	87	DW	69.01124	34.54519	13.00	12.00	699.00	7.32	18.30
Kabul	Shakar Dara	Qaria Rokay	1997	10	DW	69.09485	34.76890	15.00	12.00	700.00	7.30	17.90

Kabul	Shakar Dara	Kharoti	1997	17	DW	69.09515	34.69109	13.00	12.00	702.00	7.20	13.40
Kabul	Shakar Dara	Syah Sang	2004	40	DW	69.07929	34.70311	14.00	12.00	792.00	7.10	13.40
Kabul	Bagrami	Yakh Dara	1998	9	DW	69.26909	34.43656	15.00	12.00	1045.00	7.25	14.00
Kabul	Guldara	Malik Agha	2003	1	DW	69.01096	34.75187	14.00	12.00	1100.00	7.36	17.00
Kabul	Paghman	Qalai Kashe	1998	1	DW	69.06108	34.52740	13.50	12.00	1455.00	7.32	17.00
Kabul	Paghman	Qala Hakim	2003	101	DW	68.97212	34.60177	14.50	12.50	361.00	7.96	12.00
Kabul	Paghman	Bar Arghand	1998	42	DW	68.90454	34.48088	14.00	12.50	483.00	7.35	14.00
Kabul	Paghman	Khoshkak	1998	75	DW	69.03107	34.53447	14.00	12.50	725.00	7.70	18.00
Kabul	Surobi	Udkhel Baza	2002	185	DW	69.75719	34.59222	14.50	12.50	1347.00	6.99	17.00
Kabul	Guldara	Allahyar	2003	9	DW	69.01870	34.75072	14.50	12.60	330.00	7.64	15.00
Kabul	Dih Sabz	Bakhtyaran	1998	94	TW	69.27712	34.60366	18.00	12.75	1975.00	7.46	17.00
Kabul	Bagrami	Arzan Qimat	1998	79	DW	69.31583	34.51500	14.00	12.80	1400.00	7.32	14.00
Kabul	Bagrami	Arzan qimat	1998	97	DW	69.32607	34.51794	14.00	12.80	1425.00	7.36	15.00
Kabul	Bagrami	Arzan Qimat	1998	61	DW	69.31173	34.52139	14.00	12.80	1432.00	7.90	14.00
Kabul	Guldara	Payan Deh	2003	12	DW	69.05891	34.79315	14.50	12.90	477.00	7.38	16.50
Kabul	Shakar Dara	Nassari	2004	23	TW	69.07188	34.86899	23.00	13.00	459.00	7.19	18.00
Kabul	Paghman	Khwaja Musa	1998	79	DW	69.00693	34.54539	14.00	13.00	533.00	7.07	13.20
Kabul	Paghman	Esa Khil	2003	115	DW	68.97839	34.58841	15.00	13.00	582.00	7.38	14.00
Kabul	Mir Bacha K	Bostan	2003	13	DW	69.06596	34.77998	15.00	13.00	595.00	7.78	14.00
Kabul	Shakar Dara	Ghaza Omar	1997	9	DW	69.99818	34.64870	14.00	13.00	640.00	7.05	16.00
Kabul	Surobi	Hood Khail	1997	67	DW	69.74213	34.58843	14.00	13.00	743.00	8.13	17.50
Kabul	Surobi	Warkhara	1997	19	DW	69.72510	34.57702	16.00	13.00	1220.00	7.33	17.00
Kabul	Bagrami	Beni Hissar	1998	100	DW	69.21083	34.48917	15.00	13.00	1432.00	7.45	17.00
Kabul	Bagrami	Shewaki	1998	39	DW	69.24271	34.45926	20.00	13.00	1444.00	7.62	17.00
Kabul	Chahar Asya	Alyas Khil	2003	1	DW	69.14450	34.39008	16.00	13.00	1936.00	7.57	20.10
Kabul	Surobi	Udkhel	1997	21	DW	69.73709	34.58713	14.00	13.10	588.00	7.25	19.90
Kabul	Paghman	Qalai Hakim	2003	102	DW	68.97849	34.60373	15.00	13.10	989.00	7.42	17.30
Kabul	Surobi	Udkhel	1997	26	DW	69.75140	34.58845	15.00	13.50	588.00	7.36	16.00
Kabul	Paghman	Arghandi Pa	2002	98	DW	68.94167	34.51389	14.50	13.50	589.00	7.36	15.80
Kabul	Shakar Dara	Syah Sang	2004	39	DW	69.08137	34.70221	15.50	13.50	591.00	7.40	15.00
Kabul	Qarabagh	Qarabgh Kal	2003	18	DW	69.18119	34.83999	15.50	13.50	620.00	7.25	14.00
Kabul	Paghman	Morghgiraan	1998	45	DW	68.99306	34.49944	15.00	13.50	645.00	7.36	17.90
Kabul	Paghman	Chehl Stoon	1998	15	TW	69.15434	34.46425	20.50	13.50	749.00	7.36	14.40
Kabul	Surobi	Nawi Kaly	1997	2	DW	69.74745	34.60645	15.00	13.50	837.00	7.49	17.00
Kabul	Paghman	Khal dari	2003	104	DW	68.97457	34.55058	15.50	13.50	909.00	7.19	18.00
Kabul	Bagrami	Damaney kam	1998	5	DW	69.28148	34.46443	15.00	13.50	1020.00	7.41	18.50
Kabul	Bagrami	Arzan qimat	1998	81	DW	69.32563	34.51731	15.00	13.50	1048.00	7.30	14.00
Kabul	Bagrami	Qalai Hashm	1998	40	DW	69.18111	34.49778	16.00	13.50	1214.00	7.20	15.70
Kabul	Bagrami	Arzan qimat	1998	70	DW	69.32782	34.51766	15.00	13.50	1641.00	7.50	14.00
Kabul	Surobi	Dresar ka	2004	202	DW	69.73463	34.57581	16.00	13.50	1986.00	7.92	14.00
Kabul	Mir Bacha K	Zargarn	2003	9	DW	69.05686	34.78955	16.00	13.90	2420.00	8.03	17.90
Kabul	Paghman	Chilton Kuz	2004	51	TW	69.00109	34.52392	29.50	14.00	478.00	7.13	14.00
Kabul	Paghman	Khowaja Mos	2003	120	DW	68.99875	34.54974	17.00	14.00	565.00	7.63	18.30
Kabul	Paghman	Arghandi Pa	2002	99	DW	68.94433	34.51371	14.00	14.00	581.00	7.29	19.10
Kabul	Surobi	Sahib Zadag	1997	15	DW	69.72989	34.60596	15.00	14.00	889.00	7.90	14.00
Kabul	Bagrami	Mya khel	1997	16	DW	69.22946	34.45206	16.00	14.00	896.00	7.36	15.00
Kabul	Surobi	Ahangaran D	1997	31	DW	69.72571	34.57906	15.00	14.00	1115.00	7.53	14.00
Kabul	Bagrami	Mamozi	1998	70	DW	69.24938	34.45467	15.00	14.00	1325.00	7.00	18.00

Kabul	Bagrami	Qalai Bagha	1998	59	DW	69.20417	34.47306	15.50	14.00	1436.00	7.36	14.00
Kabul	Bagrami	Arzan qimat	1998	77	DW	69.32750	34.52083	15.00	14.00	1455.00	7.60	17.00
Kabul	Bagrami	Mamozi	1998	51	DW	69.25344	34.45763	15.50	14.00	1470.00	7.55	18.50
Kabul	Paghman	Bar Arghand	1998	6	DW	68.91444	34.46500	16.00	14.00	2028.00	7.90	14.00
Kabul	Dih Sabz	Bakhtyaran	1998	84	DW	69.27990	34.61044	18.00	14.00	2290.00	7.45	14.00
Kabul	Bagrami	Arzan qimat	1998	87	DW	69.32264	34.51289	15.00	14.00	2710.00	7.51	15.00
Kabul	Bagrami	Mamozi	1997	24	DW	69.24565	34.45438	15.00	14.25	1322.00	7.26	13.90
Kabul	Shakar Dara	shah sang	2004	44	DW	69.08424	34.61781	16.00	14.50	495.00	7.34	17.00
Kabul	Bagrami	Mamozi	1998	56	DW	69.26395	34.46015	16.00	14.50	652.00	7.97	13.90
Kabul	Shakar Dara	Deh Chukrak	1997	24	DW	69.03038	34.68003	16.00	14.50	765.00	7.25	15.00
Kabul	Bagrami	Kamari	1998	16	DW	69.28282	34.46953	16.00	14.50	1325.00	7.25	17.00
Kabul	Dih Sabz	Bakhtyaran	1998	80	DW	69.26063	34.60898	18.50	14.50	2320.00	7.68	13.00
Kabul	Dih Sabz	Paymonar	1998	74	DW	69.21167	34.61153	18.00	14.75	522.00	7.60	22.10
Kabul	Kabul	deh Araban	1998	50	DW	69.06917	34.53544	16.30	14.80	588.00	7.23	14.20
Kabul	Shakar Dara	Bihzadi	2004	43	DW	69.04903	34.70077	17.00	15.00	375.00	7.70	14.00
Kabul	Paghman	Arghandeh B	1998	28	DW	68.90357	34.49321	16.00	15.00	386.00	7.58	14.00
Kabul	Paghman	Chilton Kuz	2004	50	TW	69.00186	34.52351	30.50	15.00	471.00	7.12	17.00
Kabul	Paghman	Chiltan Qal	1998	63	DW	68.98835	34.53072	16.00	15.00	488.00	7.49	14.10
Kabul	Mir Bacha K	Afraz -e- B	2003	1	DW	69.10723	34.73292	17.00	15.00	616.00	7.29	14.80
Kabul	Shakar Dara	Ghaza Qalad	1997	20	DW	69.00257	34.64178	16.00	15.00	699.00	7.03	15.00
Kabul	Shakar Dara	Qalai Eazat	1997	4	DW	69.05072	34.66425	16.00	15.00	700.00	7.20	15.70
Kabul	Paghman	Sadiq Qala	1998	85	DW	69.03117	34.53006	17.00	15.00	715.00	7.20	16.00
Kabul	Kabul	Qalae Logar	1998	42	DW	69.13364	34.44240	17.00	15.00	777.00	7.23	21.50
Kabul	Shakar Dara	Ghaza Omar	1997	12	DW	69.99876	34.64741	17.50	15.00	789.00	7.23	15.50
Kabul	Surobi	Warkhar	1997	25	DW	69.73362	34.58398	16.00	15.00	1198.00	7.22	18.00
Kabul	Bagrami	Arzan Qimat	1998	41	DW	69.31348	34.52013	50.00	15.00	1528.00	7.82	13.20
Kabul	Bagrami	Arzan Qimat	1998	94	DW	69.31392	34.52332	46.90	15.00	1867.00	7.58	15.90
Kabul	Surobi	Warkhara	2004	204	TW	69.72495	34.58306	44.00	15.00	1915.00	7.51	13.10
Kabul	Dih Sabz	Bakhtyaran	1998	87	DW	69.27829	34.60897	17.00	15.00	2210.00	7.51	13.80
Kabul	Dih Sabz	Bakhtyaran	1998	88	DW	69.27887	34.60736	18.00	15.00	2390.00	7.66	18.40
Kabul	Paghman	Qala Hakim	2003	100	DW	68.97479	34.60423	17.00	15.10	470.00	7.56	17.50
Kabul	Surobi	Udkhel	1997	14	DW	69.73824	34.58708	16.00	15.20	589.00	7.23	21.00
Kabul	Paghman	Khwaja Musa	1998	52	DW	69.01000	34.55333	16.00	15.20	875.00	7.32	14.00
Kabul	Bagrami	Mamozi	1997	44	DW	69.26313	34.45943	16.00	15.35	788.00	7.25	17.30
Kabul	Shakar Dara	Bihzadi	2004	46	DW	69.04618	34.69891	17.00	15.50	416.00	7.44	15.10
Kabul	Kabul	Deh Arbaban	1998	51	DW	69.06408	34.53554	17.00	15.50	603.00	7.25	24.30
Kabul	Paghman	Sar Qala	1998	2	DW	68.89125	34.50829	18.50	15.50	744.00	7.30	25.60
Kabul	Paghman	Qaleh-Ye-Ab	2003	131	DW	69.04104	34.52000	18.00	15.50	896.00	7.25	21.50
Kabul	Bagrami	Kamari	1998	48	DW	69.28707	34.46964	17.00	15.50	1006.00	7.48	18.70
Kabul	Bagrami	Arzan qimat	1998	63	DW	69.33093	34.51672	17.00	15.70	1805.00	7.40	12.60
Kabul	Paghman	khwaja jan	1998	93	DW	69.04090	34.52882	17.00	15.75	755.00	7.65	19.60
Kabul	Kabul	Barchi	1998	62	DW	69.08304	34.49122	17.00	15.80	651.00	7.70	24.50
Kabul	Bagrami	Damanay ka	1998	25	DW	69.28520	34.46790	16.50	15.80	1601.00	7.33	18.30
Kabul	Paghman	Bara Arghan	1998	53	DW	68.90897	34.47357	18.00	16.00	451.00	7.20	18.20
Kabul	Paghman	Arghandeh B	2003	123	DW	68.90219	34.49734	18.00	16.00	455.00	7.32	18.70
Kabul	Paghman	Khushhal Kh	1998	101	DW	69.06973	34.54055	17.70	16.00	589.00	7.36	24.30
Kabul	Surobi	Mirza Khani	1997	3	DW	69.72694	34.56889	17.00	16.00	745.00	7.63	19.10
Kabul	Surobi	Warkhara	1997	44	DW	69.72637	34.57983	17.00	16.00	755.00	7.44	16.10

Kabul	Surobi	Mirza Khano	1997	64	DW	69.72382	34.57185	17.00	16.00	756.00	7.58	19.10
Kabul	Shakar Dara	Ghaza Ali k	1997	22	DW	69.00666	34.65427	18.00	16.00	769.00	7.25	19.40
Kabul	Surobi	Loy Kalay	2002	190	DW	69.72297	34.57014	17.50	16.00	788.00	7.66	18.20
Kabul	Bagrami	Arzan Qimat	1998	91	DW	69.30735	34.51607	17.00	16.00	1685.00	7.42	17.40
Kabul	Dih Sabz	Bakhtyaran	1998	91	DW	69.27813	34.60962	18.00	16.00	2420.00	7.35	15.00
Kabul	Paghman	Bar Arghan	1998	39	DW	68.90886	34.47457	17.00	16.30	409.00	7.36	19.50
Kabul	Bagrami	Arzan qimat	1998	74	DW	69.33049	34.51847	17.00	16.30	1828.00	7.37	21.20
Kabul	Shakar Dara	Bihzadi	2004	45	DW	69.05083	34.70330	19.00	16.50	421.00	7.71	24.20
Kabul	Bagrami	Nuh Borja Q	1998	32	DW	69.27457	34.45989	18.00	16.50	544.00	7.84	13.60
Kabul	Bagrami	Mamozi	1998	71	DW	69.24720	34.45382	17.50	16.50	962.00	7.45	22.30
Kabul	Bagrami	Damanay kam	1998	13	DW	69.28492	34.46716	18.00	16.50	970.00	7.73	24.20
Kabul	Surobi	Eslam Kot	1996	5	DW	69.71689	34.56923	18.50	16.50	1024.00	6.94	20.80
Kabul	Bagrami	Damanay ka	1998	14	DW	69.28744	34.46641	18.00	16.50	1355.00	7.45	20.40
Kabul	Bagrami	Arzan qimat	1998	84	DW	69.32448	34.50352	18.00	16.70	1700.00	7.28	25.60
Kabul	Bagrami	Arzan qimat	1998	83	DW	69.32161	34.50282	18.00	16.80	2440.00	7.66	14.20
Kabul	Paghman	Bar Avghand	2003	136	DW	68.91179	34.47570	19.00	17.00	465.00	7.36	19.70
Kabul	Kabul	Company sar	1998	2	DW	69.06013	34.52569	23.30	17.00	512.00	7.28	18.30
Kabul	Paghman	Chilton Qal	1998	19	DW	69.01363	34.51904	18.50	17.00	520.00	7.38	20.70
Kabul	Bagrami	Mamozi	1997	46	DW	69.25953	34.45863	18.00	17.00	579.00	7.65	13.00
Kabul	Surobi	Mulayan	2004	195	DW	69.71627	34.56137	19.00	17.00	724.00	7.21	24.40
Kabul	Surobi	Mirza Khan	1996	15	DW	69.72388	34.57008	18.00	17.00	738.00	7.36	22.30
Kabul	Bagrami	Damany kam	1998	12	DW	69.28021	34.46132	18.50	17.00	765.00	7.99	13.90
Kabul	Paghman	Bar Argande	1998	44	DW	68.90977	34.46965	19.00	17.00	855.00	7.42	22.00
Kabul	Bagrami	Mamozi	1998	53	DW	69.25085	34.45487	18.50	17.00	897.00	7.36	24.60
Kabul	Surobi	Konj Qala	2002	183	DW	69.73817	34.57483	24.00	17.00	899.00	7.25	25.60
Kabul	Paghman	Qalai Bader	1998	31	DW	69.09863	34.47738	19.80	17.00	1093.00	7.63	14.40
Kabul	Bagrami	Kamari	1998	4	DW	69.28603	34.46803	19.00	17.00	1455.00	7.25	21.20
Kabul	Surobi	Mir Ali khe	1997	52	DW	69.72641	34.58149	18.00	17.00	1539.00	7.59	24.60
Kabul	Bagrami	Mamozi	1998	65	DW	69.25260	34.45578	17.70	17.10	799.00	7.41	15.60
Kabul	Qarabagh	Dergi Mirka	2003	12	DW	69.15176	34.86209	19.00	17.30	577.00	7.25	15.60
Kabul	Paghman	Morghgiraan	1998	1	DW	68.98488	34.47665	19.00	17.50	364.00	7.45	17.80
Kabul	Paghman	Arghandeh B	2003	128	DW	68.90237	34.49683	19.50	17.50	458.00	7.23	11.80
Kabul	Surobi	Molakhel	1997	63	DW	69.71473	34.56149	19.00	17.50	708.00	7.22	19.40
Kabul	Bagrami	Deh Yaqub	1997	39	DW	69.23015	34.46191	20.00	17.50	999.00	7.25	16.70
Kabul	Bagrami	Damanay ka	1998	6	DW	69.27788	34.47495	24.00	17.50	1989.00	7.08	25.60
Kabul	Paghman	Doda Mast K	2003	125	DW	68.95737	34.60169	20.00	18.00	436.00	7.34	20.30
Kabul	Shakar Dara	Qaleh-ye Su	2003	36	DW	69.08553	34.66814	28.00	18.00	467.00	7.28	19.30
Kabul	Paghman	Bar Arghand	1998	18	DW	68.90125	34.50484	20.00	18.00	489.00	7.25	17.40
Kabul	Bagrami	Mamozi	1998	61	DW	69.24979	34.45322	19.00	18.00	505.00	7.59	23.60
Kabul	Bagrami	Mamozai	1998	42	DW	69.25749	34.45789	18.50	17.00	577.00	7.61	19.10
Kabul	Paghman	Bar Arghand	1998	31	DW	68.87730	34.50816	20.00	18.00	588.00	7.50	25.00
Kabul	Paghman	Arghandeh P	1998	48	DW	68.90251	34.49597	19.00	18.00	700.00	7.25	16.80
Kabul	Paghman	Khoshkak Sa	1998	96	DW	69.03253	34.53763	19.00	18.00	754.00	7.17	15.70
Kabul	Surobi	Hassain Kha	2004	32	DW	69.72210	34.56171	22.00	18.00	815.00	7.61	23.30
Kabul	Surobi	Warkhara	2004	205	DW	69.72696	34.58013	20.00	18.00	1043.00	7.64	23.60
Kabul	Bagrami	Kamari	1998	20	DW	69.28660	34.46900	19.00	18.00	1562.00	7.20	12.60
Kabul	Bagrami	Mamozi	1998	44	TW	69.25750	34.45783	37.00	18.05	804.00	7.67	17.10
Kabul	Mir Bacha K	Toot -e- Qa	2003	3	DW	69.10831	34.72643	20.00	18.10	535.00	7.49	22.80

Kabul	Qarabagh	Qalai Haji	2003	14	DW	69.14819	34.82644	20.00	18.20	1400.00	7.23	14.40
Kabul	Bagrami	Sahak	1997	19	DW	69.21762	34.44756	19.10	18.40	1200.00	7.25	17.60
Kabul	Bagrami	Mamozi	1998	67	DW	69.25880	34.45613	20.00	18.50	529.00	7.55	24.20
Kabul	Bagrami	Kamari	1998	50	DW	69.28340	34.46948	20.00	18.50	777.00	7.30	15.00
Kabul	Bagrami	Damanay ka	1998	22	DW	69.25554	34.46608	20.00	18.50	901.00	7.35	25.60
Kabul	Surobi	Udkhel	2004	66	TW	69.74606	34.58935	33.00	18.50	1115.00	7.38	22.50
Kabul	Surobi	Nowi kaly	1997	48	DW	69.74932	34.60547	20.00	19.00	507.00	8.51	20.00
Kabul	Paghman	Compani Bag	2003	135	DW	69.04017	34.52400	21.00	19.00	589.00	7.25	15.40
Kabul	Surobi	Mlulayan	1996	9	DW	69.71704	34.56122	20.00	19.00	711.00	7.39	12.00
Kabul	Bagrami	Mamozi	1998	52	DW	69.25519	34.45608	20.00	19.00	895.00	7.65	16.30
Kabul	Surobi	Hassain Kha	2004	16	DW	69.72468	34.56635	29.00	19.00	1102.00	7.61	14.20
Kabul	Surobi	Daguna	1996	3	DW	69.72035	34.57591	21.00	19.00	1112.00	6.98	16.70
Kabul	Surobi	Loy kalay 2	1997	17	DW	69.71908	34.56705	20.00	19.00	1265.00	7.18	18.60
Kabul	Bagrami	Qalai Kakar	1998	27	DW	69.26635	34.46328	21.00	19.00	1300.00	7.25	23.60
Kabul	Dih Sabz	Deh I Yehya	1998	89	DW	69.24064	34.60463	20.00	19.00	1400.00	7.58	20.60
Kabul	Bagrami	Qalai Kakar	1998	28	DW	69.26524	34.46350	21.00	19.00	1409.00	7.23	17.40
Kabul	Bagrami	Damanay ka	1998	17	DW	69.28727	34.46777	19.70	19.05	951.00	7.29	19.50
Kabul	Mir Bacha K	Zya Khel	2003	7	DW	69.10715	34.74184	21.00	19.10	580.00	7.27	25.60
Kabul	Paghman	Beik Toot	2003	103	DW	68.93842	34.56119	21.00	19.20	545.00	7.09	15.90
Kabul	Bagrami	Sahak	1997	36	DW	69.21347	34.44688	20.00	19.30	1251.00	7.19	16.30
Kabul	Paghman	CompanyQala	1998	49	DW	69.04916	34.52472	22.00	20.00	523.00	7.36	13.50
Kabul	Qarabagh	Qala-i-Naw	2003	9	TW	69.18305	34.83310	29.00	20.00	575.00	7.55	20.20
Kabul	Bagrami	Qala-e-Bagh	1998	34	DW	69.20407	34.46722	22.00	20.00	656.00	8.08	15.00
Kabul	Surobi	lowy Kalay	2004	189	TW	69.71868	34.56610	30.00	20.00	725.00	7.38	18.00
Kabul	Surobi	Warkhara	2004	198	DW	69.72576	34.57904	23.00	20.00	750.00	7.22	13.30
Kabul	Paghman	Khwaja jamh	2003	118	DW	69.04384	34.52769	22.00	20.00	896.00	7.60	15.50
Kabul	Surobi	Dopay	1997	18	DW	69.73810	34.58263	21.00	20.00	908.00	7.45	15.40
Kabul	Surobi	Dresar kala	1997	24	DW	69.73258	34.57307	23.00	20.00	1121.00	7.56	15.10
Kabul	Paghman	Bar Avghand	2003	137	DW	68.90448	34.49176	22.00	20.00	1457.00	7.25	15.20
Kabul	Bagrami	Kamari	1998	66	DW	69.28970	34.46693	22.00	20.50	705.00	7.30	16.40
Kabul	Bagrami	Mamozai	1998	55	DW	69.23372	34.45604	22.00	20.50	970.00	7.55	12.70
Kabul	Surobi	Shirin Kala	2002	182	DW	69.76279	34.58792	22.00	20.80	628.00	7.83	15.60
Kabul	Surobi	Sar Cheshme	2002	168	DW	69.71159	34.56074	22.00	20.80	1132.00	7.35	18.20
Kabul	Dih Sabz	Pay Manor	1998	75	DW	69.21379	34.60360	30.00	21.00	478.00	7.25	18.90
Kabul	Bagrami	Mamozi	1998	46	DW	69.25976	34.43669	22.00	21.00	500.00	7.58	15.50
Kabul	Surobi	Loy kalay 2	2004	10	DW	69.71916	34.56503	31.00	21.00	724.00	7.48	13.10
Kabul	Paghman	Bar Arghand	1998	41	DW	68.89722	34.47445	22.00	21.30	588.00	7.23	16.00
Kabul	Bagrami	Maya Khel	1997	11	DW	69.23434	34.45152	23.00	21.50	510.00	7.65	15.80
Kabul	Bagrami	Arzan Qimat	1998	2	DW	69.35291	34.50265	23.00	21.50	1423.00	7.32	18.40
Kabul	Kabul	Company baz	1998	20	DW	69.05825	34.52475	23.00	21.70	526.00	7.55	17.00
Kabul	Bagrami	Mamozi	1998	63	DW	69.25148	34.45192	23.50	22.00	475.00	7.67	13.30
Kabul	Paghman	Koshkak Khw	1998	20	DW	69.03693	34.53719	24.00	22.00	478.00	7.36	17.30
Kabul	Paghman	Bar Arghand	1998	32	DW	68.98274	34.50358	24.00	22.00	588.00	7.32	14.70
Kabul	Dih Sabz	Deh Yehya	1998	92	DW	69.24892	34.59780	27.00	22.00	1022.00	7.89	15.20
Kabul	Surobi	Daguna	2004	14	TW	69.72334	34.57809	32.00	22.00	1058.00	7.45	15.30
Kabul	Dih Sabz	Deh I Yehya	1998	79	DW	69.24056	34.60529	23.00	22.00	1255.00	7.56	14.30
Kabul	Bagrami	Kamari	1998	11	DW	69.28024	34.47191	23.00	22.00	1355.00	7.15	15.40
Kabul	Paghman	Bar Arghand	1998	9	DW	68.88583	34.50583	23.00	22.25	577.00	7.25	16.20

Kabul	Surobi	Ghondei Qa	2004	167	TW	69.74276	34.60920	32.50	22.50	821.00	7.37	15.40
Kabul	Bagrami	Sahak	1997	17	DW	69.22047	34.44875	24.00	22.50	1087.00	7.34	14.90
Kabul	Paghman	Company	1998	88	DW	69.04861	34.52250	25.00	23.00	526.00	7.40	14.90
Kabul	Mir Bacha K	Hasan khel	2003	11	TW	69.07075	34.78078	36.00	23.00	571.00	7.14	15.00
Kabul	Surobi	Darahesar	2004	46	TW	69.73388	34.57360	33.00	23.00	588.00	7.30	14.40
Kabul	Dih Sabz	Paymonar	1998	93	TW	69.21063	34.60444	29.00	23.00	788.00	7.25	14.80
Kabul	Bagrami	Maya Khel	1998	69	DW	69.23181	34.45066	24.00	23.00	857.00	7.25	14.80
Kabul	Bagrami	Mamozi	1997	6	DW	69.26217	34.45711	24.00	23.00	1083.00	7.52	14.10
Kabul	Bagrami	Arzan Qimat	1998	89	DW	69.33916	34.51400	25.00	23.50	2773.00	7.25	14.90
Kabul	Dih Sabz	Paymanar	1998	76	TW	69.20812	34.60387	32.00	24.00	425.00	7.58	16.10
Kabul	Mir Bacha K	Bostan	2003	8	DW	69.06389	34.77466	26.00	24.00	475.00	7.70	13.80
Kabul	Paghman	CompanyBaza	1998	95	DW	69.04583	34.53139	26.00	24.00	525.00	7.29	18.30
Kabul	Surobi	Orya Khel N	2004	206	DW	69.70518	34.61326	28.00	24.00	622.00	7.70	15.50
Kabul	Surobi	Loy kalay 2	1996	8	DW	69.71984	34.56807	25.00	24.00	732.00	7.14	13.80
Kabul	Paghman	Khoshkak sa	1998	43	DW	69.03265	34.53878	26.00	24.00	847.00	7.36	16.60
Kabul	Bagrami	Both Khak	1998	1	DW	69.35000	34.50167	25.00	24.00	1175.00	7.38	15.40
Kabul	Bagrami	Mamozi	1998	1	TW	69.24886	34.45292	26.00	24.50	1085.00	7.25	13.30
Kabul	Paghman	CompanyKhwa	1998	94	DW	69.04333	34.52250	26.00	25.00	596.00	7.49	14.60
Kabul	Paghman	Sarak Now T	1998	45	DW	69.16144	34.47179	26.20	25.00	744.00	7.23	16.70
Kabul	Surobi	Eslam Kot	2004	208	TW	69.71753	34.57116	58.00	25.00	901.00	7.26	13.90
Kabul	Surobi	Eslam Kot	2004	166	TW	69.71703	34.57193	37.00	25.00	1167.00	7.20	17.00
Kabul	Surobi	Warkhara	2004	203	TW	69.72463	34.57734	44.00	25.00	1224.00	6.94	13.30
Kabul	Surobi	Udkhel	2004	17	TW	69.74208	34.58863	35.00	25.00	1300.00	7.48	14.70
Kabul	Surobi	Naghloo Alo	2004	7	TW	69.73332	34.61041	35.00	25.00	13290.00	7.05	16.10
Kabul	Paghman	Sar Qala	1998	8	DW	68.89089	34.50853	26.00	25.25	748.00	7.32	14.40
Kabul	Shakar Dara	Ghaza Kakak	1997	13	DW	69.00722	34.64410	28.00	26.00	655.00	7.90	19.50
Kabul	Bagrami	Qalai-e-Qan	1998	29	DW	69.21242	34.48071	29.00	26.00	1456.00	7.99	14.50
Kabul	Dih Sabz	Bakhtyaran	1998	83	TW	69.28270	34.60798	36.00	26.00	1988.00	8.20	17.00
Kabul	Surobi	Eslam Kot	2004	68	TW	69.71570	34.57358	37.30	27.00	718.00	7.16	18.30
Kabul	Surobi	Udkhel	1997	49	DW	69.75030	34.59147	28.00	27.00	755.00	7.32	15.50
Kabul	Dih Sabz	Dehyehya	1998	81	TW	69.24510	34.60653	44.00	29.00	1125.00	7.25	16.10
Kabul	Kabul	Sarak-e-Now	1998	27	DW	69.16389	34.47083	30.00	29.30	966.00	7.25	16.00
Kabul	Shakar Dara	Qaria Danis	1997	31	DW	69.14419	34.66074	31.00	30.00	544.00	7.50	17.40
Kabul	Shakar Dara	Qaria Danis	1997	30	DW	69.14388	34.65961	31.00	30.00	544.00	7.20	15.90
Kabul	Shakar Dara	Qaria Danis	1997	6	DW	69.14279	34.65996	31.00	30.00	702.00	7.20	13.90
Kabul	Surobi	Udkhel	1997	40	DW	69.73921	34.58843	34.00	31.00	755.00	7.32	19.70
Kabul	Kabul	Qaleh-ye Qa	1998	44	DW	69.01508	34.47882	33.00	32.00	458.00	7.25	15.00
Kabul	Shakar Dara	Qaria Danis	1997	32	DW	69.14265	34.65909	34.00	33.00	600.00	7.25	14.30
Kabul	Dih Sabz	Dehyehya	1998	82	TW	69.24692	34.60744	48.00	36.00	1055.00	7.37	17.00
Kabul	Dih Sabz	Dehyehya	1998	90	TW	69.24660	34.60634	52.00	36.00	1068.00	7.39	18.00
Kabul	Surobi	Warkhar	2004	55	DW	69.72460	34.58378	46.00	36.00	1134.00	7.60	14.60
Kabul	Dih Sabz	Bakhtyaran	1998	85	TW	69.28155	34.60983	51.00	36.00	1229.00	7.71	15.20
Kabul	Surobi	Udkhel	2004	13	TW	69.74034	34.58793	46.00	36.00	1272.00	7.05	16.30
Kabul	Surobi	Udkhel	2004	35	TW	69.74705	34.59043	46.00	36.00	1700.00	7.69	15.20
Kabul	Surobi	Udkhel	2004	59	DW	69.74770	34.59000	39.00	37.00	1400.00	7.55	15.90
Kabul	Surobi	Warkhara	2004	43	DW	69.72701	34.58191	39.00	37.00	1394.00	7.84	14.70
Kabul	Guldara	Sarkh I Nas	2003	4	DW	69.07075	34.74088	42.00	40.00	415.00	7.35	13.70
Kabul	Surobi	Udkhel	2004	160	DW	69.74558	34.58978	35.00	33.00	905.00	7.67	15.30

Kabul	Surobi	Shirin Kala	2002	159	DW	69.76038	34.58673	44.00	43.00	547.00	8.15	15.90
Kabul	Dih Sabz	Deh I Yehya	1998	77	DW	69.23659	34.60196	35.00	33.00	568.00	7.63	16.10
Kabul	Surobi	Hassain Kha	2004	191	DW	69.72640	34.56744	35.00	33.00	990.00	7.38	15.20
Kabul	Surobi	Warkhara	2004	211	DW	69.72900	34.58232	60.00	45.00	1485.00	7.38	16.10
Kabul	Surobi	Udkhel	2004	60	DW	69.74782	34.59091	36.00	35.00	1465.00	7.63	15.10
Kabul	Dih Sabz	Deh I Yehya	1998	78	DW	69.23264	34.60345	37.00	36.00	556.00	7.73	13.00
Kabul	Shakar Dara	Sona Khel	2004	42	DW	69.08830	34.70440	24.50	23.00	535.00	7.37	13.10
Kabul	Guldara	Shamir Bala	2004	10	DW	69.00295	34.76468	17.50	16.00	477.00	7.22	18.00
Kabul	Kabul	Qalai manga	1998	52	DW	69.13007	34.45564	31.00	9.00	843.00	7.34	17.50
Kabul	Bagrami	Arzan Qimat	1998	5	DW	69.30890	34.51528	16.90	15.00	2140.00	7.63	16.40
Kabul	Kabul	Chaman Char	2004	1	TW	69.20583	34.34619	24.20	6.00	1003.00	7.72	18.40
Kabul	Kabul	Chaman Char	2004	6	TW	69.20016	34.36644	23.00	6.00	1139.00	7.56	16.80
Kabul	Dih Sabz	Deh I Yehya	2003	6	TW	69.25090	34.59846	14.00	6.00	1298.00	7.38	17.20
Kabul	Kabul	Chaman Haji	2004	2	TW	69.20158	34.35350	20.60	6.00	1562.00	7.40	15.80
Kabul	Bagrami	Qalai Gulo	2004	45	TW	69.22862	34.47865	40.50	6.70	907.00	7.90	17.00
Kabul	Kabul	Mia Khel-e-	2004	17	TW	69.18472	34.33988	20.00	8.99	1029.00	7.83	15.80
Kabul	Bagrami	Qalai bala	1998	6	TW	69.27320	34.48985	30.00	8.99	1048.00	7.91	19.40
Kabul	Bagrami	Kamari masj	1998	15	TW	69.27898	34.47938	25.00	8.99	1064.00	7.57	17.00
Kabul	Bagrami	Kamari	1998	12	TW	69.27901	34.48552	20.00	8.99	1080.00	7.57	16.70
Kabul	Kabul	Chaman Qala	2004	19	TW	69.19481	34.34936	19.50	8.99	1087.00	7.65	17.10
Kabul	Bagrami	Qalai bala	1998	8	TW	69.27353	34.49038	25.00	8.99	1091.00	7.60	14.00
Kabul	Kabul	Saheb Zadag	2004	9	TW	69.20443	34.35232	21.50	8.99	1095.00	7.53	15.30
Kabul	Bagrami	Kamari Qala	1998	13	TW	69.27882	34.48755	26.00	8.99	1097.00	7.56	16.20
Kabul	Kabul	Haji Khil	2004	7	TW	69.20574	34.35154	21.00	8.99	1105.00	7.55	17.90
Kabul	Bagrami	Chaman Haji	2004	4	TW	69.20669	34.35669	21.70	8.99	1147.00	7.28	17.50
Kabul	Kabul	Saheb Zadag	2004	10	TW	69.20338	34.36314	23.00	8.99	1214.00	7.37	19.20
Kabul	Bagrami	Gul Buta	2004	43	TW	69.23180	34.47573	26.70	8.99	1277.00	7.82	20.10
Kabul	Bagrami	Nawabad	1998	7	TW	69.26977	34.49558	17.00	8.99	1437.00	7.58	18.10
Kabul	Bagrami	Kucha masio	1998	10	TW	69.27538	34.49454	26.00	8.99	1620.00	7.33	19.40
Kabul	Bagrami	Kamari	1998	14	TW	69.28167	34.49445	24.50	9.00	1664.00	7.46	17.20
Kabul	Bagrami	Qala-i-Hasa	2004	40	TW	69.24383	34.47116	19.00	7.00	1018.00	7.29	20.10
Kabul	Kabul	Chaman Khan	2004	14	TW	69.18914	34.34261	22.00	3.00	1023.00	7.75	18.00
Kabul	Kabul	Qala-i-Tari	2004	14	TW	69.17452	34.40000	31.50	3.00	1036.00	7.53	19.20
Kabul	Bagrami	Haji Khil	2004	5	TW	69.20025	34.35155	21.00	3.00	1110.00	7.70	15.90
Kabul	Bagrami	Nuhburja	2004	44	TW	69.25951	34.46745	32.00	3.00	1205.00	7.53	16.90
Kabul	Bagrami	Chaman Qala	2004	37	TW	69.25163	34.48741	26.00	3.00	1214.00	7.66	16.30
Kabul	Bagrami	Qaleh ye	2000	22	TW	69.31428	34.53203	27.30	3.40	1830.00	7.87	19.00
Kabul	Bagrami	Qala-e-Wazi	2000	11	TW	69.21194	34.47445	42.40	3.50	1193.00	7.51	16.10
Kabul	Kabul	Mia Khil-e-	2004	18	TW	69.19563	34.34418	21.60	3.50	1262.00	7.98	17.00
Kabul	Bagrami	Alu khail	2000	9	TW	69.28521	34.52472	21.20	3.60	1421.00	7.88	17.00
Kabul	Bagrami	Bagh Koty	2000	2	TW	69.21528	34.47889	34.20	3.80	1299.00	7.80	21.40
Kabul	Bagrami	Bagrami	2000	21	TW	69.27428	34.49083	32.10	3.99	1183.00	7.54	19.90
Kabul	Paghman	Qadzi khel	2003	6	TW	69.96036	34.56332	14.00	4.00	753.00	7.33	16.20
Kabul	Kabul	Nawabad Qal	2004	17	TW	69.16499	34.40219	31.30	4.00	896.00	7.66	17.00
Kabul	Kabul	Qala-i-Tari	2004	15	TW	69.17030	34.40516	23.50	4.00	965.00	7.54	18.00
Kabul	Kabul	Deh Kalan	2004	16	TW	69.17547	34.32596	20.10	4.00	977.00	7.92	19.30
Kabul	Kabul	Qultagan	2004	12	TW	69.16614	34.34241	11.00	4.00	1002.00	7.23	17.70
Kabul	Kabul	Charso	2004	13	TW	69.20630	34.35736	26.10	4.00	1024.00	7.52	19.40

Kabul	Kabul	Charso	2004	11	TW	69.20649	34.35802	26.30	4.00	1038.00	7.75	14.60
Kabul	Bagrami	Aka Khil	2004	35	TW	69.25591	34.45225	25.60	4.00	1155.00	7.86	19.90
Kabul	Bagrami	Gulbota	2004	41	TW	69.23003	34.47721	29.50	4.00	1166.00	7.86	16.20
Kabul	Bagrami	Qala-e waz	2000	37	TW	69.21439	34.47186	41.80	4.00	1187.00	7.69	18.50
Kabul	Bagrami	Qala-e-Wazi	2000	16	TW	69.21194	34.47111	40.00	4.00	1192.00	7.62	17.30
Kabul	Bagrami	Qala-i-Hasa	2004	39	TW	69.24391	34.46811	27.00	4.00	1192.00	7.76	14.70
Kabul	Bagrami	Qala-i-Wazi	2004	36	TW	69.22169	34.39597	43.00	4.00	1289.00	7.46	17.60
Kabul	Bagrami	Alu khail	2000	3	TW	69.28054	34.52183	24.20	4.00	1465.00	7.81	18.50
Kabul	Bagrami	Alu khail	2000	17	TW	69.28106	34.52779	26.40	4.00	1743.00	7.68	16.40
Kabul	Bagrami	Bagrami	2000	10	TW	69.27451	34.49238	31.50	4.00	1789.00	7.30	16.60
Kabul	Bagrami	Bagrami	2000	20	TW	69.27271	34.49042	27.90	4.19	1175.00	7.62	15.00
Kabul	Bagrami	Qalai Has	2000	8	TW	69.24584	34.46742	28.80	4.19	1470.00	7.14	17.30
Kabul	Bagrami	Qala-e-Wazi	2000	19	TW	69.21528	34.47222	39.40	4.20	1088.00	7.63	22.90
Kabul	Bagrami	Balooch	2000	7	TW	69.24208	34.47170	27.90	4.50	973.00	7.77	21.00
Kabul	Bagrami	Nyazi	2000	28	TW	69.20055	34.47445	43.90	4.50	1061.00	7.39	19.50
Kabul	Bagrami	Welayati Sa	2004	49	TW	69.21079	34.46378	32.00	4.50	1115.00	7.65	15.10
Kabul	Bagrami	Balooch	2000	1	TW	69.24167	34.47417	22.70	4.50	1145.00	7.77	13.00
Kabul	Bagrami	Gulbota	2000	13	TW	69.23185	34.47814	27.90	4.50	1147.00	7.97	24.00
Kabul	Bagrami	Nyazi	2000	26	TW	69.21866	34.46969	38.60	4.50	1202.00	7.35	14.00
Kabul	Bagrami	Qala -e- Ha	2000	24	TW	69.21929	34.48143	49.70	4.50	1242.00	7.64	20.40
Kabul	Bagrami	Qala-i-Wazi	2004	48	TW	69.21323	34.47600	34.40	4.50	1308.00	7.48	17.00
Kabul	Bagrami	Qala-e waz	2000	12	TW	69.21413	34.47363	42.00	4.50	1315.00	7.51	20.40
Kabul	Bagrami	Chaman Kart	2000	18	TW	69.29833	34.49445	29.00	4.50	1362.00	7.52	13.20
Kabul	Bagrami	Qala-e-Wazi	2000	4	TW	69.21250	34.47722	40.90	4.50	1440.00	7.42	13.00
Kabul	Bagrami	Bininisar	2000	29	TW	69.21843	34.48560	47.00	4.79	1540.00	7.40	17.00
Kabul	Bagrami	Khurd Kabul	2000	31	TW	69.38400	34.38891	31.50	5.00	807.00	7.60	14.00
Kabul	Bagrami	Ahmad Zai	2004	52	TW	69.24271	34.47607	28.50	5.00	1105.00	7.82	16.20
Kabul	Bagrami	Qala-i-Balo	2004	54	TW	69.24414	34.46953	27.00	5.00	1220.00	7.89	17.10
Kabul	Qarabagh	Qala-e-Sama	2004	18	TW	69.21796	34.86128	13.00	5.00	1396.00	7.24	17.00
Kabul	Bagrami	Gul bota	2004	53	TW	69.23868	34.47444	28.50	5.00	1570.00	7.74	16.20
Kabul	Bagrami	Noman	2000	15	TW	69.25098	34.50149	64.00	5.00	2150.00	7.48	15.20
Kabul	Qarabagh	Qarabagh Ka	2003	2	TW	69.18935	34.85200	18.50	5.50	664.00	7.19	17.00
Kabul	Qarabagh	Qarabagh	2003	10	TW	69.15412	34.84465	14.00	6.00	366.00	7.65	20.50
Kabul	Qarabagh	Qala -e- Sa	2004	17	TW	69.22213	34.86985	15.00	6.00	709.00	7.62	16.10
Kabul	Qarabagh	Qarabagh Ka	2003	3	TW	69.19157	34.85192	18.00	6.00	737.00	7.48	15.60
Kabul	Chahar Asya	Gulzar	2003	3	TW	69.18861	34.39363	16.00	6.00	974.00	7.58	15.00
Kabul	Kabul		2003		TW	69.14902	34.46842	15.00	6.00	983.00	7.55	16.30
Kabul	Chahar Asya	Khirababd	2003	10	TW	69.18260	34.41696	16.00	6.00	1268.00	7.58	20.00
Kabul	Bagrami	Welayati	2004	42	TW	69.21466	34.47236	31.50	6.00	1713.00	7.79	15.20
Kabul	Khaki Jabba	Aynak	2000	14	TW	69.37124	34.40031	40.00	6.59	5751.00	7.58	13.80
Kabul	Qarabagh	Qorqol	2003	1	TW	69.16652	34.84233	19.00	7.00	353.00	7.16	15.40
Kabul	Qarabagh	Qarabagh Ka	2003	8	TW	69.19013	34.85290	19.00	7.00	556.00	7.45	16.10
Kabul	Bagrami	Qala-i-Numa	2004	47	TW	69.25191	34.57700	65.00	7.00	2400.00	7.44	17.00
Kabul	Mir Bacha K	Sari khwaja	2003	3	TW	69.12220	34.74723	19.50	7.50	501.00	7.21	17.00
Kabul	Dih Sabz	Baba Qishqa	2003	25	TW	69.36477	34.67801	18.00	8.00	339.00	7.74	16.80
Kabul	Bagrami	Qaleh Ye Ha	2004	58	TW	69.22098	34.46504	28.00	8.50	997.00	7.42	16.30
Kabul	Bagrami	Qaleh Ye Ha	2004	55	TW	69.21988	34.46462	32.00	8.70	919.00	7.45	17.30
Kabul	Khaki Jabba	Kooz Malang	2000	20	TW	69.39590	34.37318	35.00	9.00	483.00	7.62	17.00

Kabul	Kalakan	Kalakan	2003	9	TW	69.14885	34.78584	20.00	9.00	524.00	7.49	15.00
Kabul	Kabul	Alyas Khil	2004	8	TW	69.16894	34.34673	29.00	9.00	995.00	7.26	18.30
Kabul	Khaki Jabba	Kharoti	2000	15	TW	69.34914	34.38448	34.00	10.00	1172.00	7.65	18.70
Kabul	Kabul	Pul-i-Sagi	2004	18	TW	69.16168	34.40798	28.10	10.00	1193.00	7.16	14.00
Kabul	Bagrami	Onlatzar	2003	33	TW	69.25798	34.47144	20.00	10.00	1468.00	7.77	15.30
Kabul	Dih Sabz	Baba Qishqa	2003	29	TW	69.36450	34.67768	18.50	10.50	345.00	7.77	20.00
Kabul	Shakar Dara	Qaleh-ye-Sa	2003	5	TW	69.07903	34.64713	25.00	11.00	522.00	7.55	20.00
Kabul	Khaki Jabba	Shamanzai P	2000	29	TW	69.41064	34.38016	23.00	11.00	573.00	7.52	19.90
Kabul	Kalakan	Kalakan	2004	11	TW	69.15103	34.78339	30.00	11.00	615.00	7.02	18.50
Kabul	Dih Sabz	Baba Qishqa	2003	24	TW	69.36375	34.67895	24.00	12.00	353.00	7.83	17.00
Kabul	Kalakan	Shewar Khel	2004	14	TW	69.14345	34.79738	33.00	12.00	390.00	7.43	17.90
Kabul	Qarabagh	Dawzai	2004	15	TW	69.17566	34.82083	22.00	12.00	441.00	7.84	20.50
Kabul	Qarabagh	Sardar Beik	2003	4	TW	69.17780	34.85584	25.00	12.00	444.00	7.64	17.00
Kabul	Qarabagh	Qala-i-Naw	2004	22	TW	69.18207	34.83447	20.00	12.00	492.00	7.82	16.00
Kabul	Kalakan	Mushwani Su	2004	13	TW	69.15268	34.77379	30.00	12.00	501.00	7.03	13.30
Kabul	Kalakan	Kalakan	2004	12	TW	69.15265	34.78241	30.00	12.00	538.00	7.28	17.90
Kabul	Khaki Jabba	Ghozgay	2000	28	TW	69.39704	34.31468	31.00	12.00	615.00	7.62	20.30
Kabul	Khaki Jabba	Wali Khel C	2000	13	TW	69.45728	34.36533	34.00	12.00	778.00	7.38	14.00
Kabul	Dih Sabz	Bakhtyaran	2004	39	TW	69.28244	34.60637	38.00	12.00	2290.00	7.59	21.90
Kabul	Kabul		2003		TW	69.13781	34.47428	22.20	12.20	920.00	7.34	20.10
Kabul	Bagrami	Qala-e-Khan	2000	14	TW	69.20766	34.48054	23.30	12.40	699.00	7.64	16.60
Kabul	Bagrami	Qalai khan	1998	1	TW	69.20530	34.48037	21.50	12.50	1121.00	7.71	17.80
Kabul	Bagrami	Qalai Qan	2000	25	TW	69.20607	34.48005	39.40	12.80	1700.00	7.99	14.00
Kabul	Kalakan	Shewar Khel	2004	15	TW	69.14595	34.79825	40.00	13.00	454.00	7.56	21.80
Kabul	Shakar Dara	Qala Murad	2003	3	TW	69.07910	34.65878	23.00	13.00	516.00	7.25	15.70
Kabul	Khaki Jabba	Aynak	2000	18	TW	69.36612	34.39993	51.50	13.00	543.00	7.69	17.10
Kabul	Khaki Jabba	Aynak	2000	21	TW	69.36539	34.39868	49.00	13.00	758.00	7.25	16.80
Kabul	Bagrami	Qalai khund	1998	2	TW	69.20470	34.48030	27.00	13.00	878.00	7.82	18.50
Kabul	Dih Sabz	Bakhiaran	2004	40	TW	69.23839	34.60620	38.00	13.00	991.00	7.27	19.50
Kabul	Chahar Asya	Chaman Qali	2003	1	TW	69.18946	34.34384	23.00	13.00	1033.00	7.59	16.50
Kabul	Kabul	Qultaghan	2004	3	TW	69.16727	34.35044	26.00	13.00	1684.00	7.17	14.00
Kabul	Bagrami	Qalai khun	1998	4	TW	69.20425	34.48022	21.00	13.00	1854.00	7.74	16.50
Kabul	Bagrami	Qalai e kan	2000	5	TW	69.20403	34.47942	38.50	13.60	3350.00	7.60	19.10
Kabul	Shakar Dara	Kochkin	2004	12	TW	69.06751	34.64209	24.00	14.00	405.00	7.52	13.00
Kabul	Kalakan	Quchi	2003	8	TW	69.12399	34.77504	24.00	14.00	435.00	7.27	17.00
Kabul	Bagrami	Wolayati	2000	30	TW	69.20320	34.46912	42.70	14.00	472.00	7.87	13.90
Kabul	Paghman	Balasan kh	2003	10	TW	69.97990	34.55263	22.00	14.00	574.00	7.55	17.00
Kabul	Khaki Jabba	Mirza Khan	2000	9	TW	69.35248	34.41204	38.00	14.00	594.00	7.47	17.20
Kabul	Khaki Jabba	Qala Taghar	2000	11	TW	69.35246	34.41205	38.00	14.00	722.00	7.79	18.00
Kabul	Khaki Jabba	Zendan	2000	22	TW	69.42194	34.36398	33.00	14.00	777.00	7.25	14.00
Kabul	Dih Sabz	Tara Khail	2003	14	TW	69.25907	34.57582	25.00	14.00	848.00	7.31	17.60
Kabul	Bagrami	Binhisar Qa	1998	13	TW	69.21776	34.48127	26.00	14.00	1247.00	7.53	14.00
Kabul	Chahar Asya	Char Sooq	2003	13	TW	69.15658	34.40721	24.00	14.00	1282.00	7.45	17.00
Kabul	Chahar Asya	Qala jafar	2004	12	TW	69.13670	34.38593	38.00	14.00	1317.00	7.55	14.00
Kabul	Kabul	Arzan Qimat	2004	12	TW	69.31371	34.51139	29.00	14.00	1332.00	7.62	14.20
Kabul	Bagrami	Binihisar	1998	5	TW	69.21774	34.48127	26.00	14.00	1478.00	7.50	17.10
Kabul	Bagrami	Qalai kudar	1998	3	TW	69.20316	34.47985	31.00	14.00	1540.00	7.77	14.00
Kabul	Kabul	Arzan Qimat	2004	13	TW	69.31394	34.51262	25.50	14.00	1942.00	7.55	15.70

Kabul	Bagrami	Wolayati	2000	23	TW	69.20419	34.46847	43.60	14.20	554.00	7.89	20.00
Kabul	Chahar Asya	Khirababd	2003	9	TW	69.17350	34.41808	24.50	14.50	1291.00	7.08	18.40
Kabul	Bagrami	Welayati Ol	2004	50	TW	69.20445	34.46966	33.00	15.00	372.00	7.92	17.80
Kabul	Qarabagh	Dawzai	2004	12	TW	69.17369	34.81764	25.00	15.00	480.00	7.84	17.00
Kabul	Khaki Jabba	Taloo khel	2000	5	TW	69.45158	34.37344	43.00	15.00	486.00	7.64	16.80
Kabul	Shakar Dara	Seaw Quli	2003	9	TW	69.09390	34.67504	28.00	15.00	541.00	7.48	17.00
Kabul	Mir Bacha K	Isiqi Bala	2004	13	TW	69.11910	34.72210	25.00	15.00	564.00	7.41	15.30
Kabul	Paghman	Khwaja jamh	2003	1	TW	69.04445	34.53108	25.00	15.00	612.00	7.30	17.00
Kabul	Kabul	Chahar Qala	2004	2	TW	69.11250	34.48864	32.00	15.00	917.00	7.09	17.00
Kabul	Kabul	Char Qala-e	2004	1	TW	69.11733	34.48628	32.00	15.00	925.00	7.28	13.20
Kabul	Chahar Asya	Qalai Chama	2003	2	TW	69.18657	34.34047	25.00	15.00	1014.00	7.61	14.00
Kabul	Bagrami	Qala e khan	2000	6	TW	69.20285	34.47931	35.20	15.00	1424.00	7.81	18.60
Kabul	Dih Sabz	Khwaja Ches	2003	17	TW	69.24781	34.63847	23.00	15.00	2240.00	7.58	22.40
Kabul	Kalakan	Mushwani Su	2003	6	TW	69.15775	34.76853	28.00	16.00	474.00	7.52	17.00
Kabul	Kabul	Qala-i-Alam	2004	21	TW	69.22483	34.37320	29.00	16.00	518.00	7.75	17.00
Kabul	Kabul	Char Qala (	2004	4	TW	69.12404	34.49282	32.50	16.00	758.00	7.06	14.10
Kabul	Kabul	Qala-e Mul	2004	3	TW	69.12205	34.49108	33.00	16.00	764.00	7.11	18.00
Kabul	Dih Sabz	Tara Khail	2003	20	TW	69.25697	34.57611	30.00	16.00	1125.00	7.40	20.10
Kabul	Kabul	Said Khil	2004	20	TW	69.22428	34.39564	41.00	16.00	2255.00	7.75	18.70
Kabul	Dih Sabz	Deh Sabz	2003	22	TW	69.39737	34.64493	28.00	17.00	428.00	7.78	13.40
Kabul	Khaki Jabba	Ghazgai	2000	27	TW	69.39768	34.43165	35.00	17.00	651.00	7.48	17.80
Kabul	Khaki Jabba	Malik Khel	2000	12	TW	69.39316	34.38174	47.00	17.00	655.00	7.36	17.00
Kabul	Bagrami	Hassan Khan	2003	34	TW	69.21835	34.46422	27.00	17.00	1075.00	7.40	20.90
Kabul	Chahar Asya	qala hajyan	2004	2	TW	69.14052	34.39645	36.00	17.00	1318.00	7.45	17.00
Kabul	Dih Sabz	Qalai Haji	2003	23	TW	69.20700	34.67333	27.00	17.00	2120.00	7.32	14.00
Kabul	Paghman	Qala-e-Agha	2003	9	TW	69.00985	34.54580	27.00	17.00	7270.00	7.24	15.50
Kabul	Mir Bacha K	Mirbacha Ko	2003	6	TW	69.11569	34.75012	30.00	18.00	404.00	7.59	13.90
Kabul	Qarabagh	Dawzai	2004	13	TW	69.17391	34.81813	28.00	18.00	480.00	7.79	13.30
Kabul	Qarabagh	Qala-i-Qadz	2004	19	TW	69.17511	34.83043	31.00	18.00	488.00	7.73	17.00
Kabul	Kabul	Khushhal Kh	2004	6	TW	69.09486	34.52460	37.00	18.00	538.00	7.58	13.80
Kabul	Paghman	Qalakyan k	2003	8	TW	68.98829	34.54707	30.00	18.00	575.00	7.46	13.30
Kabul	Shakar Dara	Kochkin	2003	6	TW	69.06480	34.63781	30.00	18.00	622.00	7.29	16.90
Kabul	Kalakan	Mushwani Su	2003	4	TW	69.15653	34.76857	30.00	18.00	622.00	7.12	24.00
Kabul	Khaki Jabba	Baghgay	2000	10	TW	69.31991	34.34609	40.00	18.00	925.00	7.67	14.50
Kabul	Chahar Asya	Mira Khoran	2003	5	TW	69.17077	34.40868	28.00	18.00	1005.00	7.32	17.30
Kabul	Kabul	Arzan Qimat	2004	9	TW	69.32444	34.51466	37.00	18.00	1617.00	7.71	22.10
Kabul	Kabul	Arzan Qimat	2004	10	TW	69.32827	34.52003	31.00	18.00	1822.00	7.50	14.00
Kabul	Chahar Asya	Chel Dokhta	2003	2	TW	69.12422	34.37700	28.50	18.50	978.00	7.75	14.00
Kabul	Kabul	Dashti Barc	2004	40	TW	69.07401	34.50445	34.00	18.85	640.00	7.28	16.10
Kabul	Paghman	Qadzi khel	2003	7	TW	69.95903	34.56364	31.00	19.00	361.00	7.71	21.60
Kabul	Dih Sabz	Deh Sabz	2003	3	TW	69.39914	34.64450	32.00	19.00	361.00	8.08	15.00
Kabul	Kalakan	Kalakan	2003	10	TW	69.14644	34.78723	31.00	19.00	465.00	7.56	15.00
Kabul	Qarabagh	Dawzai	2004	14	TW	69.17835	34.82131	29.50	19.00	500.00	7.75	17.00
Kabul	Qarabagh	Qala-i-Qadz	2004	21	TW	69.17636	34.83079	29.00	19.00	504.00	7.70	17.00
Kabul	Khaki Jabba	Malang	2000	3	TW	69.40846	34.35398	45.00	19.00	514.00	7.71	16.70
Kabul	Kalakan	Kalakan	2003	7	TW	69.14894	34.78307	31.00	19.00	620.00	7.13	15.80
Kabul	Kabul	Block-6	2004	8	TW	69.32320	34.51110	35.00	19.00	1734.00	7.54	18.10
Kabul	Shakar Dara	Kariz Mir	2004	11	TW	69.05849	34.62090	29.00	20.00	451.00	7.67	22.10

Kabul	Qarabagh	Qarabgh Kal	2003	9	TW	69.17602	34.84466	32.00	20.00	455.00	7.41	25.20
Kabul	Qarabagh	Postin Doz	2004	23	TW	69.17108	34.82669	31.00	20.00	501.00	7.80	14.50
Kabul	Qarabagh	Qala-i-Qadz	2004	24	TW	69.18382	34.82745	35.00	20.00	533.00	7.74	14.00
Kabul	Mir Bacha K	She Khan	2004	10	TW	69.12600	34.73220	30.00	20.00	555.00	7.54	14.30
Kabul	Mir Bacha K	She Khan	2004	11	TW	69.12630	34.68320	32.00	20.00	624.00	7.37	14.00
Kabul	Kalakan	Kalakan	2003	1	TW	69.15919	34.77823	31.00	20.00	659.00	7.36	16.30
Kabul	Mir Bacha K	She Khan	2004	8	TW	69.12790	34.74710	31.00	20.00	717.00	7.33	19.00
Kabul	Qarabagh	Qala-e-Qadz	2004	16	TW	69.18248	34.82260	30.00	20.00	833.00	7.19	20.50
Kabul	Mir Bacha K	Isiqi Bala	2004	14	TW	69.12210	34.71980	30.00	20.00	1200.00	7.25	18.60
Kabul	Dih Sabz	Jaibar	2002	5	TW	69.22432	34.70391	42.00	20.00	2930.00	7.30	17.50
Kabul	Chahar Asya	Khirababd	2003	8	TW	69.17185	34.41996	30.50	20.50	1120.00	7.32	13.60
Kabul	Qarabagh	Postin Doz	2004	25	TW	69.16906	34.82601	27.00	21.00	441.00	7.94	21.00
Kabul	Dih Sabz	Sangab	2003	12	TW	69.23477	34.74449	31.00	21.00	458.00	7.93	18.40
Kabul	Kalakan	Kalakan	2003	2	TW	69.15355	34.77685	33.00	21.00	495.00	7.40	21.90
Kabul	Shakar Dara	Qala-e-Dash	2003	4	TW	69.10133	34.66086	33.00	21.00	498.00	7.37	14.70
Kabul	Mir Bacha K	Isiqi Bala	2004	12	TW	69.11120	34.72800	30.00	21.00	512.00	7.49	14.00
Kabul	Khaki Jabba	Zendan Sar	2000	19	TW	69.41802	34.37008	35.00	21.00	572.00	7.59	17.00
Kabul	Khaki Jabba	Dawran Khel	2000	2	TW	69.42412	34.39521	35.00	21.00	1238.00	7.71	17.00
Kabul	Dih Sabz	Juibar	2002	1	TW	69.22020	34.70567	46.00	21.00	1458.00	7.22	17.00
Kabul	Dih Sabz	Jaibar	2002	3	TW	69.22201	34.70489	29.00	21.00	3340.00	7.22	18.00
Kabul	Chahar Asya	Malik khail	2003	12	TW	69.39315	34.38175	31.50	21.50	1346.00	7.47	14.00
Kabul	Mir Bacha K	Shekan	2004	9	TW	69.12264	34.72941	32.00	22.00	567.00	7.24	17.00
Kabul	Chahar Asya	Khirababd	2003	6	TW	69.17817	34.41704	32.00	22.00	1041.00	7.43	16.70
Kabul	Chahar Asya	Qalai Chama	2003	1	TW	69.18950	34.34386	32.00	22.00	1795.00	7.68	16.40
Kabul	Dih Sabz	Jaibar	2002	4	TW	69.22443	34.70401	47.00	22.00	2430.00	7.50	17.60
Kabul	Khaki Jabba	Mia Sahib	2000	26	TW	69.42845	34.37406	34.50	22.50	450.00	7.59	17.00
Kabul	Bagrami	Woloswali B	1998	11	TW	69.27639	34.49778	25.00	22.50	1053.00	7.67	18.90
Kabul	Kalakan	Qala-i-Khwa	2003	5	TW	69.13647	34.77375	36.00	23.00	501.00	7.44	14.00
Kabul	Shakar Dara	Kochkin	2004	13	TW	69.06303	34.64195	33.00	23.00	524.00	7.51	17.00
Kabul	Kalakan	Qala-i-Khwa	2003	3	TW	69.13663	34.77467	36.00	23.00	566.00	7.36	19.30
Kabul	Khaki Jabba	Malang	2000	16	TW	69.40744	34.35484	85.50	23.50	539.00	7.60	15.00
Kabul	Bagrami	Madrasa	1998	9	TW	69.27834	34.49639	25.50	23.50	1215.00	7.65	16.00
Kabul	Paghman	Karizak	2003	2	TW	68.97490	34.52561	41.50	24.00	533.00	7.60	18.00
Kabul	Khaki Jabba	Malang	2000	31	TW	69.40908	34.35262	50.00	24.00	542.00	7.71	23.00
Kabul	Khaki Jabba	Malang	2000	25	TW	69.41000	34.35034	66.00	24.00	553.00	7.82	17.00
Kabul	Dih Sabz	Qalah Gh.Qa	2003	10	TW	69.25745	34.69005	38.00	24.00	757.00	7.81	14.60
Kabul	Dih Sabz	Deh I Yehya	2003	16	TW	69.24331	34.60363	37.00	24.00	991.00	7.40	14.00
Kabul	Dih Sabz	Qalah Shura	2003	15	TW	69.29805	34.70412	37.00	24.00	2090.00	7.45	17.00
Kabul	Shakar Dara	Kochkin	2004	14	TW	69.06189	34.64051	37.00	25.00	588.00	7.41	16.00
Kabul	Dih Sabz	Bakht Yaran	2004	32	TW	69.28521	34.60226	39.50	25.00	1300.00	8.14	17.00
Kabul	Khaki Jabba	Baber	2000	17	TW	69.34252	34.40534	45.00	25.70	556.00	7.52	17.00
Kabul	Dih Sabz	shani	2004	37	TW	69.35664	34.64407	36.00	26.00	523.00	7.35	14.00
Kabul	Mir Bacha K	Shekhan	2004	15	TW	69.12057	34.73021	36.00	26.00	592.00	7.34	15.00
Kabul	Khaki Jabba	Dawran Khel	2000	23	TW	69.42313	34.39618	46.00	26.00	608.00	7.50	16.60
Kabul	Dih Sabz	Bandi Khana	2003	11	TW	69.29542	34.71300	36.00	26.00	669.00	8.06	17.50
Kabul	Chahar Asya	Khirababd	2003	7	TW	69.17422	34.41946	36.00	26.00	988.00	7.32	17.00
Kabul	Dih Sabz	Se Qala	2003	8	TW	69.39796	34.62604	36.50	26.50	492.00	7.60	15.90
Kabul	Shakar Dara	Kochkin	2004	15	TW	69.06752	34.64212	34.50	26.50	548.00	7.36	17.00

Kabul	Mir Bacha K	Shekhan	2004	7	TW	69.11857	34.73043	36.50	26.50	598.00	7.24	16.00
Kabul	Chahar Asya	Gardana	2003	4	TW	69.12349	34.39051	36.50	26.50	1052.00	7.42	16.50
Kabul	Qarabagh	Qaleh-ye-Ba	2004	11	TW	69.15339	34.80904	62.00	27.00	417.00	7.93	16.30
Kabul	Dih Sabz	Manz Qalah	2003	5	TW	69.40048	34.62658	37.00	27.00	443.00	7.63	18.70
Kabul	Shakar Dara	Qalai Dasht	2003	1	TW	69.09818	34.66043	42.00	28.00	546.00	7.36	17.80
Kabul	Chahar Asya	Khirababd	2003	11	TW	69.17804	34.41979	38.50	28.50	977.00	7.38	20.00
Kabul	Khaki Jabba	Khurd Kabul	2000	8	TW	69.38407	34.38506	59.00	29.00	544.00	7.36	16.30
Kabul	Paghman	Kashkak Pay	2003	4	TW	69.03653	34.53660	42.20	29.20	660.00	7.35	19.50
Kabul	Dih Sabz	Abdara Bala	2003	21	TW	69.35488	34.71627	40.00	30.00	335.00	8.05	23.10
Kabul	Qarabagh	Mughul Beg	2004	26	TW	69.13890	34.80509	41.00	30.00	387.00	8.09	17.00
Kabul	Dih Sabz	Kata Khel	2004	31	TW	69.34878	34.61182	46.00	30.00	430.00	7.73	13.10
Kabul	Shakar Dara	Qala Sadraz	2003	8	TW	69.07741	34.64874	40.00	30.00	516.00	7.52	17.80
Kabul	Dih Sabz	Deh Yaha	2004	36	TW	69.23839	34.60620	40.00	30.00	967.00	7.32	17.00
Kabul	Dih Sabz	Deh Yehya	2003	19	TW	69.24627	34.59962	42.00	30.00	1115.00	7.56	14.60
Kabul	Dih Sabz	Jeran	2003	2	TW	69.37284	34.60338	40.00	30.00	2589.00	7.32	17.00
Kabul	Paghman	Qariyae Ali	2003	3	TW	69.05433	34.54299	51.00	31.00	788.00	7.60	16.60
Kabul	Mir Bacha K	Mirbacha Ko	2003	5	TW	69.11011	34.74816	45.00	32.00	356.00	7.66	15.70
Kabul	Dih Sabz	Shine Kala	2004	33	TW	69.36048	34.64589	47.00	32.00	369.00	7.93	16.40
Kabul	Shakar Dara	Qaleh ye S	2003	7	TW	69.08052	34.66796	45.00	32.00	418.00	7.59	15.60
Kabul	Dih Sabz	Kotu	2004	38	TW	69.38118	34.66212	44.00	32.00	544.00	7.56	16.00
Kabul	Dih Sabz	katakhel	2003	9	TW	69.35119	34.60978	44.50	32.50	498.00	7.61	19.10
Kabul	Dih Sabz	Se Qala	2003	1	TW	69.39617	34.62524	45.00	33.00	499.00	7.66	18.30
Kabul	Dih Sabz	Kata Khel	2004	34	TW	69.35263	34.61336	47.00	33.00	653.00	7.57	22.40
Kabul	Shakar Dara	Kdochkin	2003	10	TW	69.06772	34.63933	34.00	33.88	580.00	7.44	21.70
Kabul	Dih Sabz	Shah Mohamm	2004	35	TW	69.35635	34.64076	50.00	35.00	588.00	7.25	16.00
Kabul	Khaki Jabba	Malang	2000	6	TW	69.40513	34.35619	78.00	35.00	626.00	7.69	17.50
Kabul	Khaki Jabba	Khurd Kabul	2000	1	TW	69.38400	34.38887	52.00	35.00	758.00	7.52	17.00
Kabul	Dih Sabz	Landaki	2003	4	TW	69.39623	34.62517	47.00	36.50	438.00	8.01	22.10
Kabul	Khaki Jabba	Khurd Kabul	2000	4	TW	69.38473	34.38625	58.00	37.00	704.00	7.66	20.30
Kabul	Khaki Jabba	Khurd Kabul	2000	7	TW	69.38592	34.38502	56.50	38.50	566.00	7.74	22.20
Kabul	Shakar Dara	Alghu-e-Dan	2003	2	TW	69.14123	34.65993	52.00	40.00	455.00	8.00	17.00
Kabul	Khaki Jabba	Noora	2000	32	TW	69.42614	34.35330	50.00	40.00	553.00	7.62	14.00
Kabul	Dih Sabz	Baba Qishqa	2003	26	TW	69.36624	34.67540	51.00	41.00	366.00	7.62	24.60
Kabul	Dih Sabz	Dehyehya	2003	18	TW	69.24082	34.59892	56.00	43.00	1077.00	7.88	14.60
Kabul	Paghman	Morghgiraan	2003	9	TW	68.98398	34.47793	55.00	44.00	470.00	7.31	19.10
Kabul	Paghman	Karizak	2003	7	TW	68.97034	34.51953	57.00	44.00	494.00	7.59	18.20
Kabul	Khaki Jabba	Khurd Kabul	2000	24	TW	69.38562	34.38671	62.00	44.00	496.00	7.92	19.60
Kabul	Dih Sabz	Kotu	2003	27	TW	69.38054	34.66120	58.00	48.00	531.00	7.53	21.20
Kabul	Dih Sabz	Ali Khail	2003	7	TW	69.38257	34.63405	59.00	48.00	535.00	7.95	25.10
Kabul	Dih Sabz	Deh I Yehya	2003	28	TW	69.24066	34.60051	61.00	50.00	988.00	7.12	15.60
Kabul	Dih Sabz	Pay Manor	2003	13	TW	69.22209	34.60468	61.00	51.00	435.00	7.78	17.20
Kabul	Dih Sabz	Deh I Yehya	2003	30	TW	69.23704	34.60297	63.00	51.00	775.00	7.71	18.00
Kabul	Kabul City	Qala-i-Sarf			TW	69.04566	34.49113	81.70	51.23	1800.00	7.49	14.10
Kabul	Paghman	Morghgiran	2003	6	TW	68.97775	34.60218	76.00	62.00	458.00	7.65	23.00
Kabul	Khaki Jabba	Khak-i- Jab	2000	30	TW	69.39460	34.36348	94.00	65.00	712.00	7.32	20.90
Kabul	Paghman	Morghgiran	2003	5	TW	68.97565	34.60275	86.00	66.00	420.00	7.68	25.30
Kabul	Paghman	Morghgiran	2003	8	TW	69.01253	34.47863	85.00	53.00	479.00	7.36	22.30
Kabul	Kabul City	Badam Bagh			TW	69.20580	34.52309	25.00	5.00	558.00	7.68	18.60

Kabul	Kabul		2003		TW	69.07949	34.52963	31.00	19.00	547.00	7.54	14.20
Kabul	Musayi	Qala Baghal	2004	17	TW	69.17672	34.33434	35.00	7.00	1015.00	7.89	18.90
Kabul	Chahar Asya	Kakar	2004	16	TW	69.15540	34.39562	35.00	15.00	3170.00	7.70	23.00
Kabul	Bagrami	Gul Buta			TW	69.22864	34.47863	35.00	3.30	1699.00	7.52	14.60
Kabul	Bagrami	Qalae-i-Ahm			TW	69.26616	34.50794	28.50	4.90	1428.00	7.82	22.80
Kabul	Kabul City	Alluddin			TW	69.14138	34.49556	50.00	5.60	1723.00	7.60	14.00
Kabul	Kabul City	Alluddin			TW	69.14432	34.48869	50.00	5.80	1705.00	7.30	17.00
Kabul	Kabul City	Shashahaid			TW	69.19984	34.50799	35.00	5.95	2178.00	7.25	15.60
Kabul	Bagrami	Kamari			TW	69.27415	34.48570	48.00	6.00	1740.00	7.10	19.70
Kabul	Kabul City	Rahman Mina			TW	69.22575	34.49110	16.00	6.00	2800.00	7.67	19.30
Kabul	Kabul City	Qalae Wahe			TW	69.09697	34.51227	30.00	6.10	540.00	7.00	20.30
Kabul	Kabul City	Baghe Babor			TW	69.15666	34.50213	35.00	6.30	909.00	7.29	13.00
Kabul	Bagrami	Qala-i-Hass			TW	69.29618	34.49432	11.60	6.50	1220.00	7.30	16.80
Kabul	Kabul City	Qasabae Kha			TW	69.22312	34.56820	50.00	6.50	4941.00	7.56	19.50
Kabul	Kabul City				TW	69.12664	34.51125	40.00	6.60	2222.00	7.30	16.60
Kabul	Kabul City	Karte Now			TW	69.22480	34.51001	34.50	6.60	2500.00	7.36	15.30
Kabul	Kabul City	Deh Khodaid			TW	69.24110	34.53694	99.70	6.78	2914.00	7.83	16.70
Kabul	Kabul City				TW	69.19366	34.51260	26.30	6.84	2390.00	7.79	15.80
Kabul	Kabul City				TW	69.18003	34.56390	8.00	6.90	3420.00	7.20	16.10
Kabul	Kabul City	Froshga			TW	69.17068	34.48370	51.00	7.00	874.00	7.84	13.50
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	49.00	7.00	922.00	8.08	15.60
Kabul	Kabul City	khwaja Bugr			TW	69.17186	34.58608	25.00	7.00	1355.00	8.25	15.60
Kabul	Kabul City				TW	69.16301	34.51121	59.70	7.00	1527.00	7.41	15.40
Kabul	Kabul City	Karti 3			TW	69.14461	34.50198	116.00	7.00	1780.00	7.30	20.10
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	15.00	7.00	4113.00	7.36	14.80
Kabul	Kabul City	Timany			TW	69.15436	34.56309	85.00	7.00	12000.00	7.65	16.30
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	52.00	7.10	1799.00	7.75	14.70
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	81.00	7.11	880.00	7.88	14.90
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	41.00	7.20	907.00	8.10	18.90
Kabul	Kabul City	Shash Darak			TW	69.20580	34.52309	67.00	7.30	1529.00	7.50	17.90
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	26.00	7.33	1117.00	7.31	14.00
Kabul	Kabul City	Timany			TW	69.14840	34.55091	35.00	7.34	1780.00	7.68	14.00
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	51.00	7.40	3567.00	7.20	14.70
Kabul	Kabul City	Binihisar			TW	69.21913	34.48644	49.75	7.44	14010.00	7.81	18.80
Kabul	Bagrami	Qala-i-Hass			TW	69.27399	34.48055	43.00	7.50	890.00	7.60	17.00
Kabul	Pole Charkh	Kazinoo			TW	69.37211	34.55847	35.00	7.50	2147.00	8.99	17.00
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	65.00	7.55	1482.00	7.56	17.00
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	22.00	7.55	1503.00	7.46	17.00
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	39.00	7.76	1451.00	7.43	14.00
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	29.00	7.77	1188.00	7.04	20.20
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	27.00	7.77	2820.00	7.30	19.30
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	67.00	7.77	5020.00	7.71	18.20
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	13.00	7.80	1239.00	7.74	13.70
Kabul	Kabul City	Kabul Seren			TW	69.17068	34.58370	49.00	7.80	1535.00	7.29	17.00
Kabul	Kabul City	Qalai Shahi			TW	69.21990	34.85826	44.00	7.80	1818.00	7.69	15.10
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	67.00	7.87	1240.00	7.77	14.90
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	29.00	7.88	1268.00	7.47	14.00
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	26.00	7.88	1280.00	7.54	17.00

Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	63.00	7.98	1681.00	7.23	17.00
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	51.00	7.99	1080.00	7.77	14.00
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	33.00	7.99	1473.00	7.04	17.00
Kabul	Kabul City	Froshga			TW	69.17132	34.58435	17.00	7.99	1700.00	7.36	14.10
Kabul	Kabul City	Center			TW	69.17072	34.85583	72.00	8.00	1085.00	7.28	17.00
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	24.00	8.00	1243.00	7.72	17.00
Kabul	Kabul City				TW	69.17716	34.51950	45.00	8.00	2140.00	7.50	14.00
Kabul	Kabul City	Shash Darak			TW	69.17966	34.58288	14.00	8.00	2800.00	7.30	18.00
Kabul	Kabul City	Parkhae Son			TW	69.29295	34.55288	159.50	8.00	2900.00	7.49	19.10
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	62.00	8.10	958.00	8.19	13.40
Kabul	Kabul City	Sashdarak			TW	69.17966	34.58288	52.00	8.10	1451.00	7.61	17.00
Kabul	Kabul City	Froshga			TW	69.17068	34.58370	76.00	8.12	1045.00	7.91	15.00
Kabul	Kabul City	Khoja Rawas			TW	69.21991	34.55521	20.00	8.60	2800.00	7.39	16.00
Kabul	Kabul City	Kote Sangi			TW	69.11918	34.51202	36.00	8.70	1400.00	7.26	17.00
Kabul	Kabul Unive	Kabul Unive			TW	69.12299	34.51930	39.00	8.98	1789.00	7.09	14.00
Kabul	Kabul City	Qalae Zaman			TW	69.21319	34.53026	70.00	9.00	2189.00	7.30	15.00
Kabul	Kabul City	Parkhae Son			TW	69.24851	34.54644	24.66	9.00	2860.00	6.94	14.00
Kabul	Bagrami	Qala-i-Hass			TW	69.27529	34.48979	53.00	9.30	1084.00	7.32	15.00
Kabul	Bagrami	Noborja			TW	69.26209	34.46485	25.00	9.30	1757.00	7.75	17.00
Kabul	Kabul City	Alluddin			TW	69.14391	34.49138	50.00	9.60	1700.00	7.30	19.00
Kabul	Kabul City	Microrayan			TW	69.21091	34.53587	55.00	9.70	750.00	8.22	14.00
Kabul	Kabul City	Shir Poor			TW	69.17285	34.53796	67.00	9.80	1719.00	7.47	14.00
Kabul	Kabul City				TW	69.18676	34.52079	50.00	10.00	1080.00	7.40	17.00
Kabul	Kabul City	Froshga			TW	69.17122	34.58430	67.00	10.00	1780.00	7.93	18.30
Kabul	Kabul City	Kolola Pash			TW	69.15087	34.53970	43.00	10.00	6390.00	8.08	14.00
Kabul	Kabul City	Hawai Block			TW	69.20221	34.55525	48.00	10.10	1899.00	7.10	19.40
Kabul	Bagrami	Kamari			TW	69.27918	34.47263	26.00	10.13	1428.00	7.82	13.10
Kabul	Bagrami	Kamari			TW	69.29065	34.48175	60.00	10.20	1360.00	7.32	15.90
Kabul	Kabul City	Qalai Fatul			TW	69.16944	34.54408	38.00	10.33	1800.00	7.30	17.40
Kabul	Kabul City				TW	69.16746	34.51235	39.40	10.65	2890.00	7.23	13.20
Kabul	Kabul City	Shahrak Pol			TW	69.13136	34.56309	25.00	10.73	1700.00	7.50	13.00
Kabul	Kabul City				TW	69.16469	34.52644	34.25	10.75	2700.00	7.80	15.30
Kabul	Bagrami	Shewaki			TW	69.22382	34.46998	25.00	10.78	1435.00	7.56	15.30
Kabul	Kabul City				TW	69.17618	34.51973	60.00	10.83	1800.00	7.71	16.60
Kabul	Kabul City	Shari Naw			TW	69.16599	34.53757	32.00	10.88	620.00	8.04	14.00
Kabul	Kabul City	Shahri Now			TW	69.16541	34.53822	63.00	11.00	814.00	7.87	15.90
Kabul	Kabul City	Gust House			TW	69.15652	34.53664	26.00	11.00	1096.00	7.93	15.20
Kabul	Kabul City	Arzanqimat			TW	69.31068	34.50490	19.71	11.00	1280.00	7.80	14.00
Kabul	Kabul City	Arzanqimat			TW	69.31068	34.50490	19.71	11.00	1320.00	7.40	13.40
Kabul	Kabul City	Center			TW	69.29583	34.54648	71.00	11.00	1650.00	7.39	18.00
Kabul	Kabul City	Shahri Now			TW	69.17051	34.53334	66.00	11.00	1667.00	7.55	17.00
Kabul	Kabul City	Karti 3			TW	69.14466	34.50222	38.00	11.00	1757.00	7.62	21.00
Kabul	Kabul City	Wazir Akbar			TW	69.18504	34.53673	38.00	11.00	1890.00	8.02	25.20
Kabul	Kabul City	Karti Sae			TW	69.13822	34.50176	56.00	11.00	2430.00	7.52	23.00
Kabul	Pole Charkh	Sare Pole			TW	69.35595	34.55044	20.10	11.03	672.00	7.75	18.70
Kabul	Kabul City				TW	69.17830	34.52014	34.19	11.07	1890.00	7.40	17.00
Kabul	Kabul City	Qalai Fatul			TW	69.17130	34.54381	57.00	11.10	1487.00	7.63	25.30
Kabul	Kabul City	Wazir Akbar			TW	69.18366	34.53753	56.00	11.10	1631.00	7.14	23.50

Kabul	Kabul City	Share Now			TW	69.16683	34.53276	59.50	11.14	2100.00	7.63	17.00
Kabul	Kabul City	Microrayan			TW	69.20271	34.54422	60.00	11.22	2700.00	7.92	21.00
Kabul	Kabul City	Taheamaskan			TW	69.12623	34.55151	33.00	11.27	1780.00	7.77	24.40
Kabul	Kabul City	Shahr Now			TW	69.16496	34.53860	39.00	11.30	782.00	7.69	21.90
Kabul	Kabul City	Charhi Shai			TW	69.17163	34.56086	44.00	11.30	841.00	7.91	21.70
Kabul	Kabul City	Karti 3			TW	69.14461	34.50198	57.00	11.30	2890.00	7.15	24.70
Kabul	Kabul City	Chelstoon			TW	69.15351	34.46974	99.80	11.31	898.00	7.45	18.00
Kabul	Kabul City	Shari Now			TW	69.16599	34.53757	65.00	11.40	813.00	7.43	18.60
Kabul	Kabul City	Gust House			TW	69.15349	34.53907	37.00	11.55	1071.00	7.53	22.00
Kabul	Kabul City	Sarak Sowan			TW	69.16411	34.54244	33.00	11.66	999.00	7.55	21.90
Kabul	Kabul City	Wazir Akbar			TW	69.18283	34.53651	26.00	11.67	1410.00	7.10	18.60
Kabul	Kabul City	Wazir Akbar			TW	69.18093	34.53677	55.00	11.70	1165.00	7.45	25.50
Kabul	Kabul City	Charhi Haji			TW	69.16746	34.53696	25.00	11.70	1671.00	7.38	17.00
Kabul	Kabul City	Gust House			TW	69.15365	34.53907	16.00	11.77	1250.00	7.66	17.00
Kabul	Kabul City	Wazir Akbar			TW	69.18615	34.53758	72.00	11.80	1425.00	7.08	22.00
Kabul	Kabul City	Kart-i-Se			TW	69.13673	34.50066	55.00	11.80	1800.00	7.37	17.30
Kabul	Kabul City	Office			TW	69.15298	34.53941	83.00	11.80	1830.00	7.52	19.00
Kabul	Kabul City	Timani stee			TW	69.16309	34.54517	16.00	11.80	1836.00	7.71	16.10
Kabul	Kabul City	Hawai Block			TW	69.20185	34.55211	60.00	11.83	2470.00	7.10	23.10
Kabul	Kabul City	Qalai Fatul			TW	69.16748	34.54639	37.00	11.88	3120.00	8.16	23.80
Kabul	Kabul City	Center			TW	69.18494	34.53737	72.00	11.88	3168.00	7.65	17.00
Kabul	Kabul City	Qala-i- Fat			TW	69.16157	34.55466	52.00	11.94	2375.00	7.79	25.60
Kabul	Kabul City	Wazir Akbar			TW	69.18219	34.53643	19.00	11.99	1575.00	7.20	25.00
Kabul	Kabul City	Wazir Akbar			TW	69.18366	34.53753	36.00	12.00	561.00	7.97	25.00
Kabul	Kabul City	Wazir Abad			TW	69.16004	34.55275	35.00	12.00	898.00	7.97	17.00
Kabul	Kabul City	Doghabod			TW	69.13286	34.45667	63.72	12.00	922.00	7.54	23.10
Kabul	Kabul City	Shari Now			TW	69.17427	34.52999	92.00	12.00	933.00	7.88	23.20
Kabul	Kabul City	Arzanqimat			TW	69.31068	34.50490	38.00	12.00	1280.00	7.80	24.50
Kabul	Bagrami	Hasankhan			TW	69.24728	34.46517	24.30	12.00	1398.00	7.23	17.00
Kabul	Kabul City	Arzanqimat			TW	69.31068	34.50490	38.00	12.00	1436.00	7.31	22.00
Kabul	Kabul City	Chaharqale-			TW	69.17767	34.55353	18.00	12.00	1739.00	7.76	22.70
Kabul	Kabul City	Wazir Akbar			TW	69.18383	34.53751	29.00	12.00	2000.00	7.23	23.60
Kabul	Kabul City	Kolola Push			TW	69.15812	34.53961	25.00	12.00	3220.00	7.35	19.10
Kabul	Kabul City	Qasaba			TW	69.17966	34.58288	35.00	12.00	3800.00	7.43	24.10
	Bagrami	Qala-i-Baqh			TW	69.20792	34.46769	26.00	12.15	1992.00	7.67	22.00
Kabul	Kabul City				TW	69.17452	34.52203	40.00	12.50	1209.00	7.30	24.50
Kabul	Kabul City	Poli Charkh			TW	69.29482	34.54606	55.00	13.00	673.00	8.01	19.40
Kabul	Kabul	khwaja Bugr			TW	69.18466	34.58554	33.00	13.00	938.00	8.11	25.60
Kabul	Kabul City	Poli Charkh			TW	69.29020	34.54826	37.00	13.00	1625.00	7.31	21.80
Kabul	Kabul City	Karti Parwa			TW	69.14262	34.53518	32.00	13.00	1740.00	7.79	22.40
Kabul	Kabul City	Karti Parwa			TW	69.14262	34.53518	25.00	13.00	2520.00	7.32	21.00
Kabul	Kabul City	Darlaman			TW	69.12778	34.47911	53.00	14.00	1700.00	7.64	21.30
Kabul	Kabul City	Darlaman Pi			TW	69.12653	34.46387	35.00	14.00	1788.00	6.96	17.50
Kabul	Pole Charkh	Jabarkhan			TW	69.35570	34.53638	26.00	15.95	1857.00	7.76	23.00
Kabul	Kabul City				TW	69.12952	34.57458	60.00	16.65	2344.00	7.30	18.60
Kabul	Kabul City	Arzanqimat			TW	69.33056	34.51982	17.60	16.82	1527.00	7.41	24.90
Kabul	Kabul City	Parwan 3			TW	69.12603	34.54259	18.00	16.98	1700.00	7.65	18.00
Kabul	Kabul City	Qalae Fatoo			TW	69.14204	34.44094	60.00	17.82	1197.00	8.37	24.00

Kabul	Kabul City	Microrayan			TW	69.19807	34.52307	40.00	17.96	2500.00	7.62	17.00
Kabul	Kabul City	Dasht Barc			TW	69.07240	34.50016	19.15	18.62	656.00	7.39	19.60
Kabul	Kabul City	Paktya Kot			TW	69.28644	34.54718	52.00	19.00	1406.00	8.25	23.80
Kabul	Pole Charkh	Tangi			TW	69.39723	34.57248	112.50	19.00	1943.00	7.39	24.00
Kabul	Kabul City	Chindawol			TW	69.17626	34.50850	25.10	20.07	2800.00	7.80	24.00
Kabul	Kabul City	Afshar			TW	69.07142	34.51027	48.00	20.64	1700.00	7.68	21.00
Kabul	Kabul City	Khair Khana			TW	69.14602	34.58351	125.00	20.65	2700.00	7.50	18.30
Kabul	Kabul City	Qasabae Kha			TW	69.21307	34.58259	60.00	21.82	2470.00	7.84	25.00
Kabul	Kabul City	Afshar			TW	69.06788	34.52248	35.00	23.10	1780.00	7.69	21.00
Kabul	Kabul City	Badam Bagh			TW	69.12320	34.55330	33.00	24.00	1865.00	6.95	19.00
Kabul	Kabul City	Khoshal Kha			TW	69.11304	34.53034	55.00	24.47	1980.00	7.50	18.00
Kabul	Kabul City	Khair Khana			TW	69.15013	34.58457	35.00	24.79	2450.00	7.20	21.90
Kabul	Pole Charkh				TW	69.34519	34.52117	50.00	26.52	722.00	7.72	23.10
Kabul	Kabul City	Rishkhor			TW	69.14336	34.43221	70.00	26.53	7710.00	7.44	19.00
Kabul	Kabul City	Qalai Qazi			TW	69.04822	34.48274	36.00	27.00	658.00	8.27	19.00
Kabul	Kabul City	Qalai Qazi			TW	69.05212	34.43416	23.00	27.00	865.00	7.69	20.70
Kabul	Kabul City	Qarqha Bloc			TW	69.08212	34.52770	64.80	27.00	2760.00	7.01	22.10
Kabul	Bagrami	Botkhak			TW	69.35437	34.50447	39.20	29.00	932.00	7.76	25.50
Kabul	Kabul City	Dasht Barc			TW	69.05810	34.49341	45.44	32.10	1195.37	7.37	23.00
Kabul	Kabul City	Qargha	2003	5	TW	69.04783	34.54771	65.00	33.00	306.00	7.94	20.70
Kabul	Kabul City	Khair Khana				69.13959	34.58813	60.00	40.06	2450.00	7.82	21.00

Appendix 2 water quality concern elements of the groundwater in Kabul basin

Province	District	village	Lat.	Lon.	WL(m)	Ana. Date	NO3 (mg/L)	B (mg/L)	F (mg/L)	Car. Hardnes (mg/L)	Faecal Coliforms
Kabul	Dih Sabz	Kata Khel	34.62191	69.35002	31.00	10/08/2007	0.277	0.010	0.000	245	0
Kabul	Kabul City	Kote Sangi	34.51202	69.11918	8.70	03/11/2007	2.955	0.014	0.170	335	24
Kabul	Shakardara	Bazar Sari House	34.68757	69.08891	14.70	08/11/2007	1.040	0.019	0.070	218	0
Kabul	Shakardara	Gaza Kakakhel	34.64474	69.00852	21.70	22/09/2007	2.790	0.019	0.090	293	0
Kabul	Mir Bachakot	Mir Bachakot	34.74926	69.12013	18.00	09/11/2006	7.000	0.020	0.140	207	0
Kabul	Dih Sabz	Pacha Sahab	34.60388	69.20809	32.21	04/11/2007	2.710	0.040	0.460	269	0
Kabul	Dih Sabz	Sharak-Sabz	34.63002	69.30682	36.96	25/09/2007	1.160	0.045	0.090	434	0
Kabul	Shakardara	Qalae Haji Gul	34.72509	69.05810	72.00	11/11/2007	1.700	0.045	0.190	548	0
Kabul	Dih Sabz	Bakhat Yaran	34.60595	69.28092	15.84	02/11/2007	3.060	0.050	0.430	590	0
Kabul	Shakardara	Qala-e-Dasht	34.65857	69.08656	16.00	05/10/2007	2.140	0.053	0.160	177	0
Kabul	Paghman	Dodamast	34.56867	69.00798	18.30	06/11/2006	7.080	0.060	0.300	145	0
Kabul	Mir Bachakot	Obchakan Ball	34.73752	69.13880	19.34	27/09/2006	4.560	0.063	0.320	197	9
Kabul	Kabul City	Qalae Wahed	34.51227	69.09697	6.10	09/11/2007	4.450	0.073	0.140	238	0
Kabul	Dih Sabz	Ab Dara	34.70886	69.32043	28.90	02/11/2007	11.560	0.080	0.350	187	0
Kabul	Qarabagh	Qarabagh	34.84308	69.15798	4.82	06/11/2006	1.636	0.080	0.070	210	1
Kabul	Dih Sabz	Shekhu	34.75700	69.22350	15.10	07/11/2007	0.642	0.088	0.390	211	0
Kabul	Mir Bachakot	Moshwani Bala	34.76411	69.10095	27.00	09/11/2006	1.710	0.090	0.080	270	0
Kabul	Dih Sabz	Moshwani Bala	34.71467	69.24553	27.50	11/7/20047	2.930	0.114	0.230	258	0
Kabul	Charasaiab	Khairabad	34.41707	69.17664	5.90	10/11/2007	4.210	0.120	0.290	485	0
Kabul	Dih Sabz	Kata Khel	34.61918	69.35063	34.99	02/11/2007	3.240	0.120	0.260	553	12
Kabul	Kabul City	Qarqha Blocks	34.52770	69.08212	27.00	08/11/2006	2.950	0.120	0.250	418	0
Kabul	Qarabagh	Sabzsang	34.81631	69.14599	23.52	30/10/2006	5.090	0.127	0.190	395	118
Kabul	Pole Charkhi		34.52117	69.34519	26.52	11/11/2006	2.710	0.135	0.490	588	17
Kabul	Dih Sabz	Tarakhil	34.58225	69.25577	14.07	18/11/2007	3.680	0.139	0.660	472	1
Kabul	Kalakan	Kalakan	34.78817	69.14485	14.00	27/10/2006	1.000	0.140	0.000	338	0
Kabul	Pole Charkhi	Tangi	34.57248	69.39723	19.00	31/10/2006	8.000	0.142	0.000	303	0
Kabul	Charasaiab	Sange Naweshta	34.43570	69.19828	9.40	10/11/2007	4.000	0.150	0.390	112	0
Kabul	Mirbachakot	shikhan	34.7294	69.12266	17.00	01/01/2009	1.400	0.150	0.250	373	4
Kabul	Pole Charkhi	Jabarkhan	34.53638	69.35570	15.95	11/11/2006	2.660	0.150	0.520	361	0
Kabul	Qarabagh	Nangikhele Bala	34.87740	69.16378	19.00	11/8/20046	2.440	0.152	0.250	565	0
Kabul	Pole Charkhi	Kazinoo	34.55847	69.37211	7.50	31/10/2006	1.640	0.160	0.590	541	8
Kabul	Shakardara	Aqa Ali Khoja	34.67871	69.05766	14.32	11/11/2006	17.000	0.160	0.140	296	41
Kabul	Shakardara	Sarchashma	34.63151	69.04162	18.53	16/11/2007	3.830	0.170	0.520	550	0
Kabul	Kalakan	Boynawkara	34.77469	69.16793	18.00	01/11/2007	6.350	0.180	0.340	675	1
Kabul	Shakardara	Daneshmand	34.65893	69.14501	32.00	03/11/2006	5.000	0.182	0.370	552	0
Kabul	Dih Sabz	Kata Cha	34.73058	69.23420	19.00	07/11/2007	3.875	0.184	0.200	560	1
Kabul	Paghman	Dashte Karizak	34.50987	68.98831	21.00	06/11/2006	3.380	0.190	0.500	600	0
Kabul	Bagrami	Kamari	34.48570	69.27415	6.00	26/07/2007	11.000	0.200	0.000	211	12
Kabul	Kabul City	Qala-i-Sarfraz Khan	34.49113	69.04566	51.23	17/10/2008	12.000	0.200	0.000	513	0
Kabul	Paghman	Chandal Bai Bazar	34.58800	68.95957	4.86	06/11/2006	1.770	0.200	0.100	512	0
Kabul	Paghman	Khogha Mosafer	34.54463	68.99154	14.00	21/09/2007	4.160	0.200	0.200	492	0
Kabul	Qarabagh	Jani	34.91138	69.14451	53.00	25/11/2006	11.000	0.200	0.000	452	0

Kabul	Qarabagh	Musa-e-Pain	34.90355	69.22738	14.50	25/11/2007	2.000	0.210	0.000	336	0
Kabul	Qarabagh	Langar	34.81395	69.19377	11.13	10/11/2007	1.866	0.213	0.300	295	1
Kabul	Kalakan	Sofian	34.75858	69.17208	21.00	01/11/2007	4.670	0.220	0.380	92	8
Kabul	Qarabagh	Godar	34.83614	69.20496	7.25	10/11/2007	2.970	0.226	0.240	219	3
Kabul	Paghman	Khogha Mosafer	34.56574	68.98499	13.42	21/09/2007	2.080	0.230	0.090	221	8
Kabul	Paghman	Qalae Haidar Khan	34.50350	68.99079	24.00	06/11/2006	2.940	0.230	0.330	483	8
Kabul	Qarabagh	Postin Doze	34.82377	69.17429	16.00	29/08/2006	6.000	0.230	0.000	290	0
Kabul	Qarabagh	Qarabaghi	34.91373	69.17273	21.00	25/11/2006	2.000	0.240	0.000	352	0
Kabul	Kabul City	Qasabae Khanasazi	34.58259	69.21307	21.82	18/11/2006	3.910	0.246	0.730	284	10
Kabul	Deh Sabz	Kata Khil	34.60979	69.35118	22.40	01/01/2009	1.260	0.300	0.140	362	45
Kabul	Dih Sabz	Shani	34.64349	69.35207	16.24	31/10/2007	13.000	0.300	0.210	416	
Kabul	Guldara	Mir Afghan	34.79978	69.07012	5.20	30/10/2007	8.520	0.300	0.220	320	0
Kabul	Kabul City	Qargha	34.54771	69.04783	33.00	16/06/2006	54.000	0.300	0.430	381	0
Kabul	Khak Jabar	Khurd Kabul	34.38887	69.38399	39.00	03/10/2007	22.800	0.300	0.710	383	0
Kabul	Mir Bachakot	Gozar	34.71271	69.10679	12.21	22/09/2006	3.160	0.300	0.170	367	12
Kabul	Qarabagh	Dewana	34.89730	69.25698	6.29	25/11/2007	3.000	0.300	0.000	351	10
Kabul	Shakardara	Dashte Chemtala	34.58367	69.07823	18.00	16/11/2006	2.000	0.300	0.000	488	0
Kabul	Shakardara	Baghe Arif	34.61453	69.07888	20.00	09/11/2007	7.070	0.300	0.460	333	12
Kabul	Dih Sabz	Dehkada N 2	34.65444	69.33465	23.40	25/09/2007	3.710	0.350	0.090	419	0
Kabul	Dih Sabz	Nawa	34.68489	69.33267	12.40	02/11/2007	2.110	0.350	0.200	380	2
Kabul	Khak-e-jabar	Khurd Kabul	34.38887	69.38399	39.00	05/01/2009	8.620	0.350	0.700	352	12
Kabul	Qarabagh	Bagh Alam	34.88072	69.22020	8.49	08/11/2007	2.770	0.350	0.220	418	0
Kabul	Kabul City	Dasht Barchi	34.50016	69.07240	18.62	08/11/2006	3.370	0.356	0.270	197	2
Kabul	Kabul City	Rishkhor	34.43221	69.14336	26.53	01/11/2006	10.350	0.357	0.090	352	1
Kabul	Shakardara	Haji Bakhchi	34.67815	69.06243	10.45	17/08/2006	4.000	0.360	0.000	542	0
Kabul	Charasaiab	Tangi Saedon	34.41479	69.11069	17.65	01/11/2006	1.110	0.370	0.220	549	0
Kabul	Dih Sabz	Akhand Zada	34.63932	69.38481	5.98	31/10/2007	2.170	0.370	0.360	503	0
Kabul	Charasaiab	Tangi Saedon	34.41479	69.11069	17.65	01/11/2007	2.492	0.400	0.220	206	7
Kabul	Dih Sabz	Saed Hasan	34.69293	69.24532	20.00	20/10/2007	4.333	0.400	0.000	476	1
Kabul	Dih Sabz	Khoja Chashat	34.65363	69.24806	15.72	04/11/2007	12.000	0.400	0.230	263	0
Kabul	Kabul City	Qalai Qazi	34.43416	69.05212	27.00	11/06/2006	29.600	0.400	0.500	560	2
Kabul	Kabul City	Qalae Fatoo	34.44094	69.14204	17.82	01/11/2006	2.460	0.400	0.110	567	1
Kabul	Kabul City	Doghabod	34.45667	69.13286	12.00	01/11/2006	2.300	0.400	0.260	574	7
Kabul	Kabul City	Tara Khil	34.5655	69.24641	18.00	21/09/2008	12.000	0.400	0.680	180	0
Kabul	Mir Bachakot	Shekhan	34.73014	69.11942	21.00	27/09/2006	7.606	0.400	0.210	620	1
Kabul	Qarabagh	Nangikhele Bala	34.87738	69.16038	17.80	01/09/2006	2.000	0.400	0.000	473	0
Kabul	Qarabagh	Miyan Joy	34.85959	69.18665	5.91	01/09/2007	2.000	0.400	0.000	621	0
Kabul	Shakardara	Alghoai	34.63795	69.14009	42.00	03/11/2006	5.900	0.415	0.580	434	0
Kabul	Qara Bagh	Qurqul	34.84225	69.16652	7.00	13/01/2009	1.000	0.450	0.220	212	12
Kabul	Sarobi	Naway Kalai	34.60649	69.74756	15.00	11/01/2009	4.820	0.450	1.240	453	0
Kabul	Shakardara	Qala-e-Murad big	34.65884	69.07902	12.00	24/06/2008	2.740	0.450	0.520	658	54
Kabul	Shakardara	Entephat	34.68122	69.15611	33.00	06/11/2006	2.960	0.490	0.450	402	0
Kabul	Bagrami	Noborja	34.46485	69.26209	9.30	16/11/2007	12.000	0.500	0.480	343	4
Kabul	Dih Sabz	Bakhat Yaran	34.59177	69.28479	19.30	07/10/2007	6.000	0.500	0.000	720	0
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.99	10/11/2007	65.000	0.500	0.260	378	12
Kabul	Kabul City	Qalai Qazi	34.48274	69.04822	27.00	11/06/2007	16.800	0.500	0.090	453	12
Kabul	Kabul City	Alluddin	34.49138	69.14391	9.60	27/07/2007	35.000	0.500	0.000	705	12

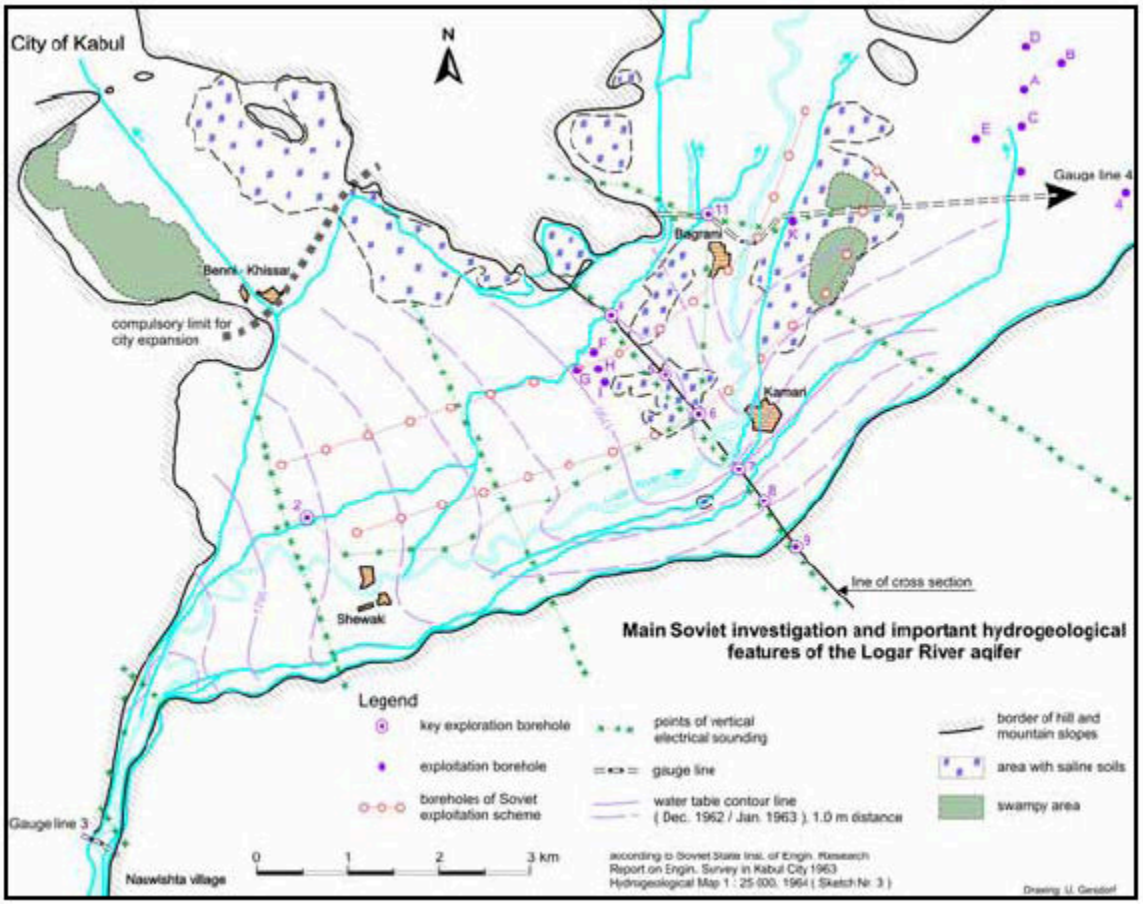
Kabul	Kabul City		34.51121	69.16301	7.00	21/08/2006	12.000	0.500	0.000	121	
Kabul	Kabul City		34.51950	69.17716	8.00	23/08/2007	55.000	0.500	0.000	327	0
Kabul	Kabul City	Afshar	34.51027	69.07142	20.64	07/11/2006	2.790	0.500	0.160	281	24
Kabul	Kabul City	Dasht Barchi	34.49341	69.05810	32.10	08/11/2006	3.366	0.500	0.290	279	12
Kabul	Shakardara	Gaza Hayatkhel	34.64608	69.00341	11.55	07/09/2006	2.000	0.500	0.000	448	0
Kabul	Charasaiab	Khairabad	34.41707	69.17664	5.90	10/11/2007	2.492	0.528	0.290	244	0
Kabul	Kabul City	Karti Sae	34.50176	69.13822	11.00	08/04/2005	19.200	0.550	0.800	526	12
Kabul	Kabul City	Kabul Serena Hotal	34.5837	69.17068	7.80	18/08/2005	45.000	0.550	0.610	411	10
Kabul	Kabul City	Froshga	34.5837	69.17068	7.20	01/12/2005	55.000	0.550	0.460	509	4
Kabul	Kabul City	Froshga	34.5837	69.17068	7.00	28/12/2005	48.000	0.550	0.160	438	24
Kabul	Kabul City	Qalai Shahi	34.85826	69.2199	7.80	16/12/2007	2.200	0.550	0.160	181	245
Kabul	Bagrami	Botkhak	34.50447	69.35437	29.00	28/08/2007	1.000	0.600	0.000	359	0
Kabul	Char Asyab	Sang Nawishta	34.044	69.20972	11.00	14/06/2007	45.000	0.600	0.840	391	0
Kabul	Kabul City	Karti 3	34.50198	69.14461	7.00	05/09/2007	21.000	0.600	0.400	486	2
Kabul	Kabul City	Paktya Kot	34.54718	69.28644	19.00	01/08/2007	0.900	0.600	0.620	301	12
Kabul	Kabul City	Froshga	34.5837	69.17068	7.40	27/11/2005	36.000	0.600	0.130	156	13
Kabul	Kabul City	Qasaba	34.58288	69.17966	12.00	25/03/2007	25.000	0.600	1.040	428	14
Kabul	Kabul City	Arzanqimat	34.50490	69.31068	11.00	B	3.610	0.600	0.760	162	12
Kabul	Kabul City		34.51125	69.12664	6.60	27/07/2007	12.000	0.600	0.000	592	0
Kabul	Kabul City	Microrayan	34.54422	69.20271	11.22	20/09/2007	47.000	0.600	0.310	481	5
Kabul	Kabul City	Qalae Zaman Khan	34.53026	69.21319	9.00	04/09/2007	35.000	0.600	0.000	591	14
Kabul	Kabul City		34.51235	69.16746	10.65	23/09/2007	42.000	0.600	0.200	365	10
Kabul	Kabul City	Kart-i-Se	34.50066	69.13673	11.80	12/12/2005	52.000	0.650	0.530	182	41
Kabul	Kabul City	Froshga	34.58435	69.17132	7.99	24/08/2005	52.000	0.650	0.550	741	11
Kabul	Kabul City	Froshga	34.5837	69.17068	7.00	08/01/2005	34.000	0.650	0.550	90	2
Kabul	Kabul City	Froshga	34.4837	69.17068	7.00	19/10/2005	24.000	0.650	0.330	333	13
Kabul	Kabul City		34.52079	69.18676	10.00	22/11/2007	25.000	0.679	0.240	97	7
Kabul	Kabul City	Gust House	34.53907	69.15349	11.55	28/06/2005	77.000	0.680	0.880	354	11
Kabul	Kabul City	Froshga	34.5843	69.17122	10.00	24/08/2006	45.000	0.700	0.380	188	2
Kabul	Kabul City	Shir Poor	34.53796	69.17285	9.80	18/08/2005	28.000	0.700	0.690	406	12
Kabul	Kabul City	Center	34.85583	69.17072	8.00	07/05/2005	54.000	0.700	0.500	551	2
Kabul	Kabul City	Froshga	34.5837	69.17068	7.77	21/09/2005	36.000	0.700	0.590	225	31
Kabul	Kabul City	Alluddin	34.49556	69.14138	5.60	31/07/2007	6.060	0.700	0.000	185	3
Kabul	Kabul City		34.57458	69.12952	16.65	02/11/2006	12.894	0.700	0.480	373	17
Kabul	Kabul City		34.51973	69.17618	10.83	22/11/2006	56.000	0.700	0.220	150	12
Kabul	Kabul City	Binihisar	34.48644	69.21913	7.44	22/11/2007	11.240	0.700	0.600	172	2
Kabul	Kabul City	Taheamaskan Blocks	34.55151	69.12623	11.27	04/11/2007	51.000	0.712	0.460	188	14
Kabul	Kabul City	Wazir Akbar Khan	34.53758	69.18615	11.80	07/10/2007	52.000	0.750	0.420	328	8
Kabul	Kabul City	Sashdarak	34.58288	69.17966	8.10	19/09/2007	54.000	0.750	0.470	103	1
Kabul	Kabul City	Qalai Fatullah	34.54381	69.1713	11.10	25/09/2007	68.000	0.750	0.330	247	4
Kabul	Kabul City	Shahrak Police	34.56309	69.13136	10.73	02/11/2006	54.000	0.777	0.690	239	25
Kabul	Kabul City	Chindawol	34.50850	69.17626	20.07	22/11/2006	144.000	0.799	0.150	353	0
Kabul	Bagrami	Qala-i-Hassan Khan	34.49432	69.29618	6.50	18/11/2007	11.000	0.800	0.640	223	28
Kabul	Kabul City	Karti Parwan	34.53518	69.14262	13.00	08/02/2005	59.000	0.800	0.880	408	56
Kabul	Kabul City	Froshga	34.5837	69.17068	8.10	21/09/2005	63.000	0.800	0.500	279	24
Kabul	Kabul City	Sashdarak	34.58288	69.17966	7.80	16/09/2007	48.000	0.800	0.770	240	7

Kabul	Kabul City	Sashdarak	34.58288	69.17966	7.87	16/09/2007	59.000	0.800	0.490	252	14
Kabul	Kabul City	Sashdarak	34.58288	69.17966	8.00	20/09/2007	57.000	0.800	0.490	414	17
Kabul	Kabul City	Shash Darak	34.58288	69.17966	8.00	12/12/2007	14.000	0.800	0.000	165	23
Kabul	Kabul City	Darlaman Pilawary	34.46387	69.12653	14.00	03/11/2006	3.700	0.800	0.270	410	7
Kabul	Kabul City		34.52203	69.17452	12.50	23/08/2006	62.000	0.800	0.000	390	12
Kabul	Kabul City	Khoshal Khan	34.53034	69.11304	24.47	08/11/2006	51.000	0.800	0.310	455	18
Kabul	Kabul City	Microrayan	34.52307	69.19807	17.96	20/09/2006	9.430	0.800	0.180	233	0
Kabul	Kabul City		34.56390	69.18003	6.90	21/11/2007	57.000	0.800	0.370	420	11
Kabul	Kabul City	Afshar	34.52248	69.06788	23.10	07/11/2006	3.090	0.800	0.130	360	14
Kabul	Kabul City	Froshga	34.5837	69.17068	7.10	31/07/2005	55.000	0.850	0.740	387	8
Kabul	Kabul City	Kolola Pushta	34.53961	69.15812	12.00	02/02/2005	53.000	0.850	0.580	414	15
Kabul	Kabul City	Sashdarak	34.58288	69.17966	7.55	08/07/2007	45.000	0.850	0.730	383	1
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.77	12/12/2007	16.000	0.860	0.000	391	0
Kabul	Kabul City	Baghe Babor	34.50213	69.15666	6.30	03/11/2006	53.000	0.870	0.290	361	12
Kabul	Kabul City	Karti Parwan	34.53518	69.14262	13.00	20/08/2005	24.000	0.900	0.880	353	45
Kabul	Kabul City	Timani steet 5	34.54517	69.16309	11.80	18/08/2005	67.000	0.900	0.790	350	12
Kabul	Kabul City	Shari Now	34.52999	69.17427	12.00	13/04/2005	76.000	0.900	0.420	402	2
Kabul	Kabul City	Froshga	34.5837	69.17068	7.11	14/12/2005	51.000	0.900	0.400	203	21
Kabul	Kabul City	Charhi Shaid	34.56086	69.17163	11.30	24/10/2006	69.000	0.900	0.000	430	11
Kabul	Kabul City	khwaja Bugra	34.58608	69.17186	7.00	14/11/2006	12.000	0.900	0.900	418	8
Kabul	Kabul City	Sashdarak	34.58288	69.17966	7.55	09/06/2007	57.000	0.900	0.490	350	4
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.77	12/12/2007	18.000	0.900	0.010	385	12
Kabul	Kabul City	Arzanqimat	34.51982	69.33056	16.82	28/08/2007	3.610	0.900	0.000	385	11
Kabul	Kabul City	Alluddin	34.48869	69.14432	5.80	27/07/2006	18.000	0.900	0.000	393	35
Kabul	Kabul City	Khair Khana part 2	34.58457	69.15013	24.79	21/11/2006	51.000	0.900	0.520	140	3
Kabul	Kabul City	Khair Khana part 2	34.58813	69.13959	40.06	21/11/2006	51.000	0.900	0.440	161	17
Kabul	Kabul City		34.52014	69.17830	11.07	23/08/2006	19.000	0.900	0.000	178	2
Kabul	Kabul City	Hawai Blocks	34.55525	69.20221	10.10	04/09/2007	59.000	0.920	0.000	674	13
Kabul	Kabul City	Chelstoon	34.46974	69.15351	11.31	03/11/2007	4.550	0.921	0.290	299	12
Kabul	Bagrami	Qala-i-Hassan Khan	34.48979	69.27529	9.30	26/07/2006	2.050	0.935	0.000	205	18
Kabul	Kabul City	Badam Bagh	34.52309	69.2058	122.00	07/11/2007	15.000	1.000	0.620	346	8
Kabul	Kabul City	Sashdarak	34.58288	69.17966	7.88	09/06/2007	62.000	1.000	0.530	502	12
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.88	26/09/2007	61.000	1.000	0.330	212	13
Kabul	Kabul City	Arzanqimat	34.50490	69.31068	12.00	26/07/2007	3.750	1.000	0.410	340	5
Kabul	Kabul City		34.52644	69.16469	10.75	22/11/2006	23.993	1.000	0.300	204	12
Kabul	Kabul City	Hawai Blocks	34.55211	69.20185	11.83	17/11/2007	68.000	1.020	0.170	230	18
Kabul	Kabul City	Charhi Haji Yaqob	34.53696	69.16746	11.70	18/08/2006	52.000	1.050	0.610	480	12
Kabul	Kabul City	Gust House	34.53664	69.15652	11.00	28/06/2005	148.000	1.050	1.000	380	2
Kabul	Bagrami	Qalae-i-Ahmad Khan	34.50794	69.26616	4.90	20/11/2006	9.000	1.080	0.560	245	0
Kabul	Kabul City	Froshga	34.5837	69.17068	8.12	14/11/2005	29.000	1.100	0.400	417	16
Kabul	Kabul City	Microrayan	34.53587	69.21091	9.70	26/07/2007	45.000	1.100	0.000	549	17
Kabul	Kabul City		34.51260	69.19366	6.84	22/11/2007	3.880	1.110	0.200	372	0
Kabul	Kabul City	Chaharqale-i-Wazirabad	34.55353	69.17767	12.00	21/11/2006	61.000	1.155	0.260	395	13
Kabul	Kabul City	Qasabae Khanasazi	34.56820	69.22312	6.50	18/11/2007	1.783	1.180	0.200	417	21
Kabul	Kabul City	Deh Khodaidad	34.53694	69.24110	6.78	17/11/2007	3.920	1.180	0.230	382	3

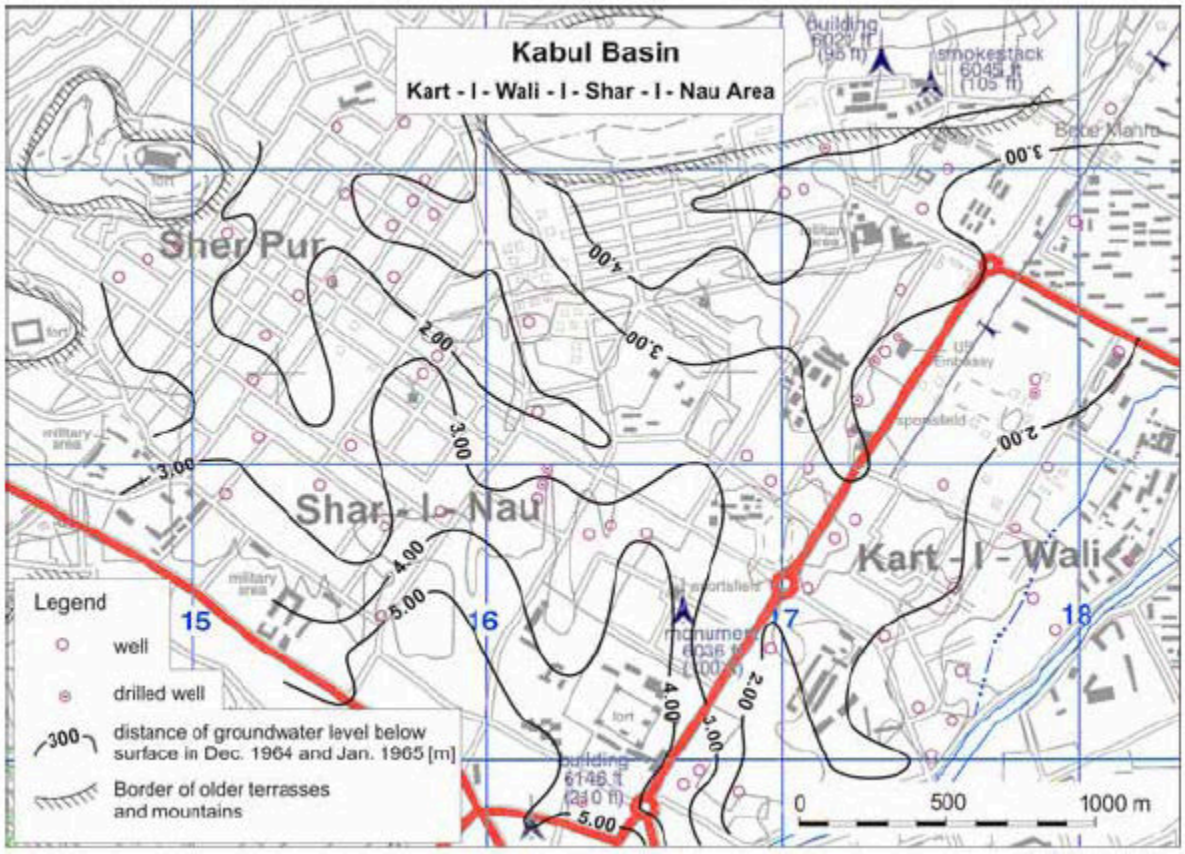
Kabul	Kabul City	Shashahaid	34.50799	69.19984	5.95	20/11/2006	35.000	1.190	0.280	322	6
Kabul	Kabul	khwaja Bugra	34.58554	69.18466	13.00	14/11/2005	48.000	1.200	0.800	437	2
Kabul	Kabul City	Shahri Now	34.53334	69.17051	11.00	24/08/2005	57.000	1.200	0.720	388	0
Kabul	Kabul City	Center	34.53737	69.18494	11.88	01/03/2005	78.000	1.200	0.370	313	14
Kabul	Kabul City	Badam Bagh	34.5533	69.1232	24.00	07/04/2007	19.000	1.200	0.470	167	3
Kabul	Kabul City	Qalai Fatullah	34.54408	69.16944	10.33	21/09/2008	68.000	1.200	0.480	425	1
Kabul	Kabul City	Rahman Mina	34.49110	69.22575	6.00	04/09/2007	14.000	1.200	0.000	390	17
Kabul	Kabul City	Khair Khana part 2	34.58351	69.14602	20.65	02/08/2006	77.000	1.200	0.000	488	35
Kabul	Kabul City	Parwan 3	34.54259	69.12603	16.98	20/11/2006	10.080	1.200	0.330	345	16
Kabul	Kabul City	Qala-i- Fathulla	34.55466	69.16157	11.94	21/11/2006	38.000	1.200	0.180	362	19
Kabul	Kabul City	Share Now	34.53276	69.16683	11.14	20/11/2007	65.000	1.200	0.350	333	1
Kabul	Kabul City	Timany	34.55091	69.14840	7.34	20/11/2007	52.000	1.250	0.290	274	32
Kabul	Kabul City	Khoja Rawash	34.55521	69.21991	8.60	17/11/2007	65.000	1.250	0.250	278	6
Kabul	Bagrami	Qala-i-Hassan Khan	34.48055	69.27399	7.50	26/07/2007	4.210	1.260	0.000	291	12
Kabul	Bagrami	Kamari	34.47263	69.27918	10.13	16/11/2007	3.744	1.293	0.460	308	0
Kabul	Kabul City	Gust House	34.53907	69.15365	11.77	28/06/2005	96.000	1.300	0.180	179	18
Kabul	Kabul City	Office	34.53941	69.15298	11.80	28/06/2005	52.000	1.300	0.760	343	18
Kabul	Kabul City	Wazir Akbar Khan	34.53751	69.18383	12.00	21/06/2005	52.000	1.300	0.520	251	11
Kabul	Kabul City	Wazir Akbar Khan	34.53677	69.18093	11.70	07/10/2007	46.000	1.300	0.540	287	1
Kabul	Kabul City	Kolola Pashta Blocks	34.53970	69.15087	10.00	04/11/2007	65.000	1.300	0.410	217	0
Kabul	Kabul City	Wazir Akbar Khan	34.53753	69.18366	11.10	05/03/2007	33.000	1.350	0.710	207	18
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.99	12/12/2007	52.000	1.380	0.160	262	12
Kabul	Bagrami	Hasankhan	34.46517	69.24728	12.00	28/08/2006	4.930	1.400	0.000	283	12
Kabul	Kabul City	Wazir Akbar Khan	34.53643	69.18219	11.99	07/10/2007	55.000	1.400	0.590	279	25
Kabul	Kabul City	Parkhae Sonati	34.54644	69.24851	9.00	11/11/2007	63.000	1.400	0.230	358	0
	Bagrami	Qala-i-Baqhalak	34.46769	69.20792	12.15	10/11/2006	47.000	1.410	0.510	561	1
Kabul	Kabul City	Center	34.54648	69.29583	11.00	01/04/2005	80.000	1.450	0.340	254	17
Kabul	Pole Charkhi	Sare Pole	34.55044	69.35595	11.03	26/09/2006	7.800	1.470	0.300	231	1
Kabul	Kabul City	Wazir Akbar Khan	34.53651	69.18283	11.67	07/10/2007	52.000	1.500	0.630	267	7
Kabul	Kabul City	Shari Naw	34.53757	69.16599	10.88	08/10/2008	67.000	1.500	0.650	347	28
Kabul	Kabul City	Shahri Now	34.53822	69.16541	11.00	01/10/2005	58.000	1.550	0.480	334	17
Kabul	Kabul University	Kabul University	34.5193	69.12299	8.98	15/12/2008	57.000	1.550	0.260	342	3
Kabul	Kabul City	Arzanqimat	34.50490	69.31068	12.00	26/07/2007	3.641	1.580	0.410	316	0
Kabul	Kabul City	Wazir Akbar Khan	34.53753	69.18366	12.00	20/05/2007	55.000	1.600	0.530	209	2
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.98	26/09/2007	49.000	1.600	0.500	388	12
Kabul	Kabul City	Poli Charkhi	34.54826	69.2902	13.00	01/10/2005	44.000	1.650	0.890	145	1
Kabul	Kabul City	Timany	34.56309	69.15436	7.00	21/11/2007	55.000	1.650	0.250	251	1
Kabul	Bagrami	Shewaki	34.46998	69.22382	10.78	10/11/2007	0.737	1.700	0.600	504	165
Kabul	Kabul City	Shahr Now	34.5386	69.16496	11.30	07/05/2007	52.000	1.700	0.400	362	17
Kabul	Kabul City	Shash Darak	34.58288	69.17966	7.76	10/11/2007	48.000	1.700	0.240	342	4
Kabul	Kabul City	Qalai Fatullah-S No4	34.54639	69.16748	11.88	22/06/2005	75.000	1.800	0.860	272	6
Kabul	Kabul City	Sashdarak	34.58288	69.17966	7.33	08/07/2007	52.000	1.800	0.470	231	4
Kabul	Kabul City	Arzanqimat	34.50490	69.31068	11.00	18/11/2007	3.750	1.800	0.760	312	2
Kabul	Kabul City	Darlaman	34.47911	69.12778	14.00	23/04/2006	12.000	1.850	0.510	384	14

Kabul	Kabul City	Shari Now	34.53757	69.16599	11.40	20/06/2007	65.000	1.850	0.800	230	4
Kabul	Kabul City	Wazir Akbar Khan	34.53673	69.18504	11.00	23/09/2008	57.000	1.900	0.430	171	0
Kabul	Kabul City	Sarak Sowan Timani	34.54244	69.16411	11.66	21/06/2005	65.000	1.900	1.000	261	17
Kabul	Char Asyab	Chaman	34.35407	69.17281	11.98	01/01/2009	3.560	2.000	0.870	425	0
Kabul	Kabul City	Shash Darak	34.52309	69.2058	7.30	07/12/2007	52.000	2.000	0.440	143	6
Kabul	Kabul City	Karte Now	34.51001	69.22480	6.60	20/11/2007	35.360	2.000	0.770	162	17
Kabul	Bagrami	Kamari	34.48175	69.29065	10.20	16/11/2007	3.620	2.230	0.490	370	0
Kabul	Kabul City	Karti 3	34.50222	69.14466	11.00	05/09/2007	53.000	2.500	0.800	218	12
Kabul	Kabul City	Wazir Abad	34.55275	69.16004	12.00	15/12/2008	63.000	2.850	0.500	206	12
Kabul	Bagrami	Gul Buta	34.47863	69.22864	3.30	01/01/2009	16.000	2.950	0.550	195	65
Kabul	Kabul City	Karti 3	34.50198	69.14461	11.30	05/09/2007	24.400	3.000	0.930	159	1
Kabul	Kabul City	Poli Charkhi	34.54606	69.29482	13.00	25/09/2008	59.000	4.000	0.300	334	2
Kabul	Kabul City	Parkhae Sonati	34.55288	69.29295	8.00	17/11/2007	65.000	7.580	1.320		0

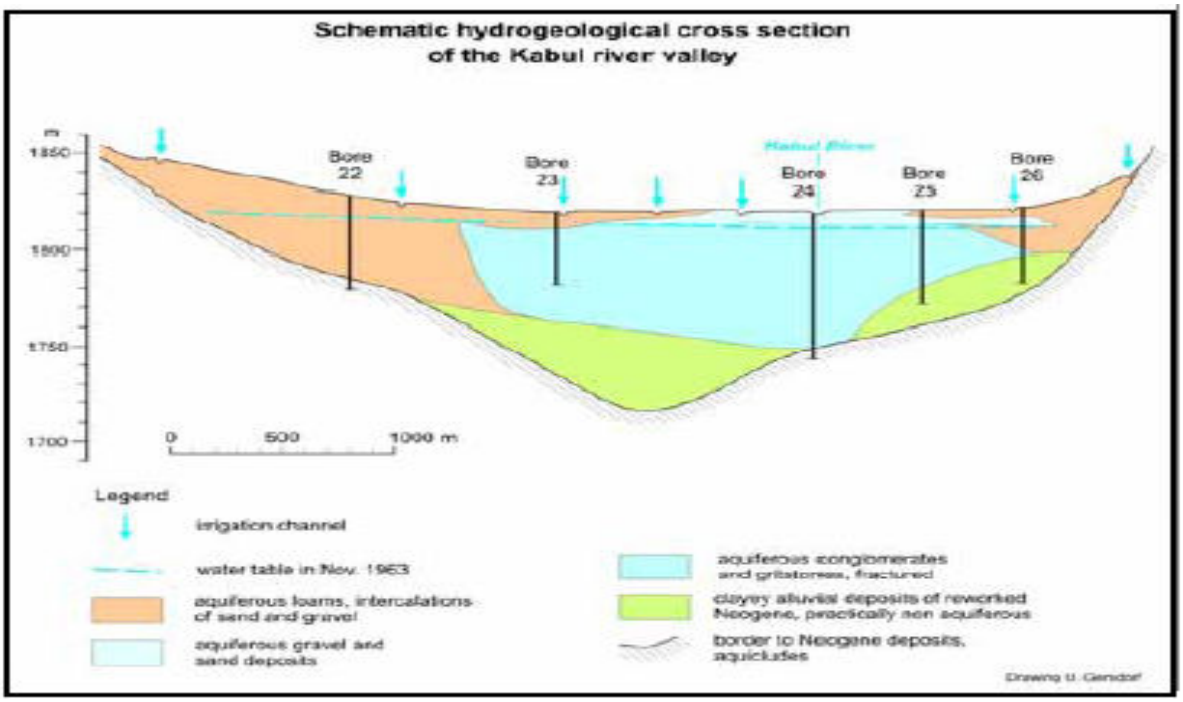
Appendix 3, Hydrogeological map of Logar aquifer (Bockh 1971)



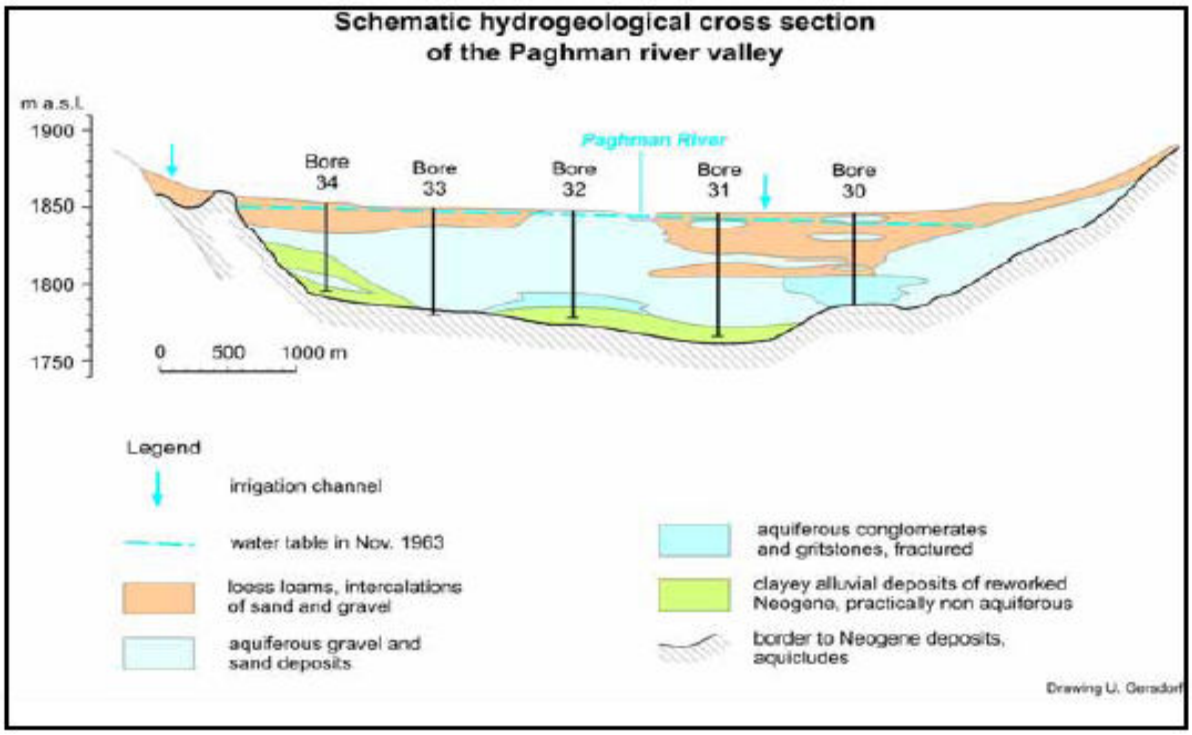
Appendix 4, Water table in the urban area of Kabul(German geological mission 1965)



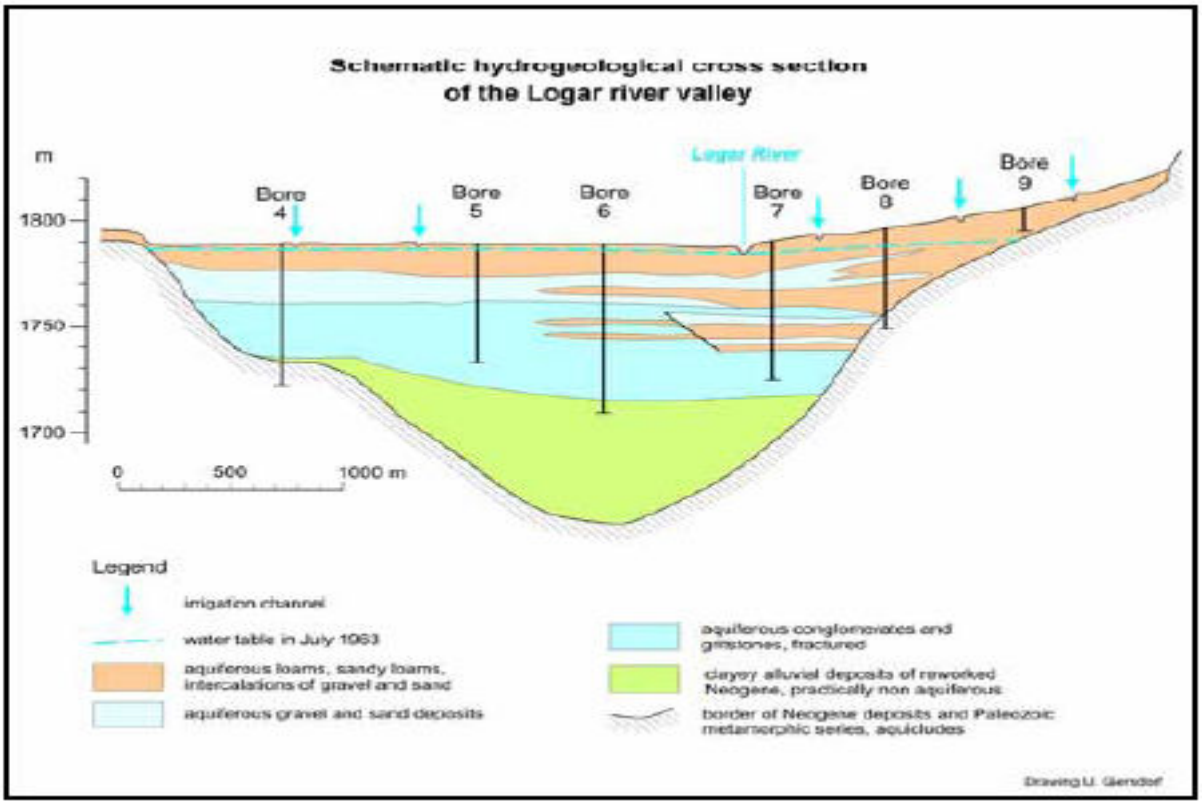
Appendix 5, Schematic hydrogeological cross section of the Kabul river valley(Bockh 1971)



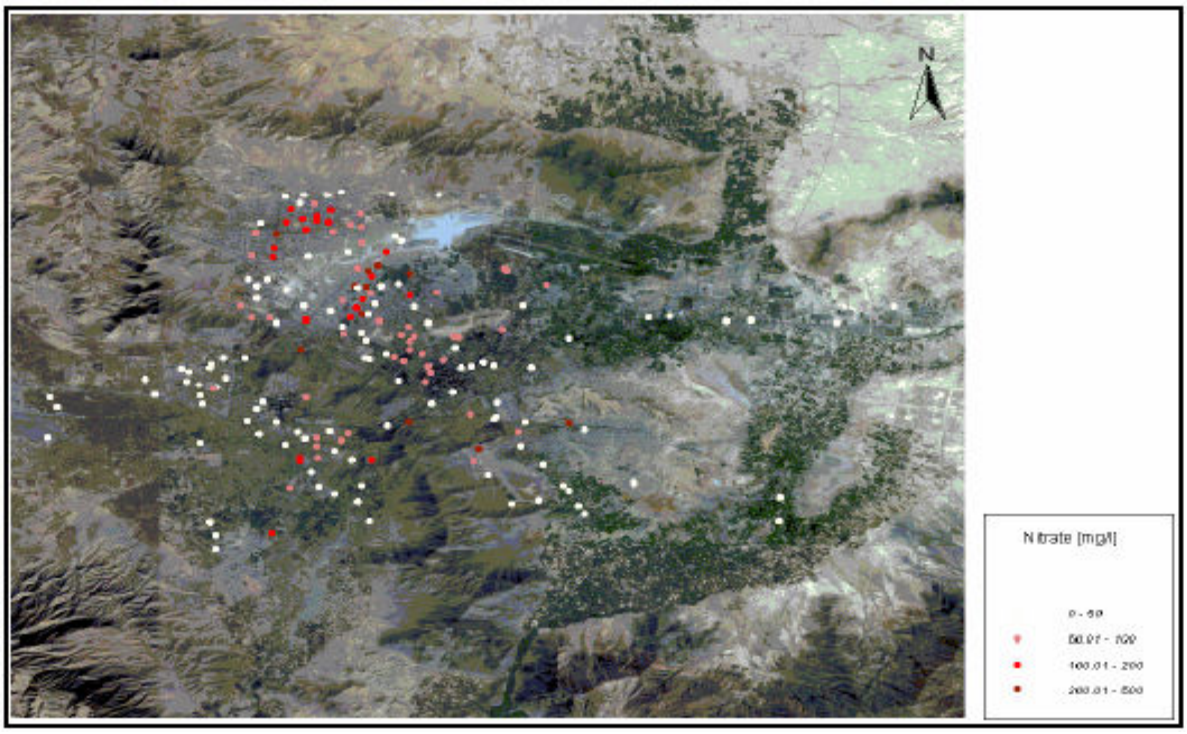
Appendix 6, Schematic hydrogeological cross section of the Paghman river valley (Bockh 1971)



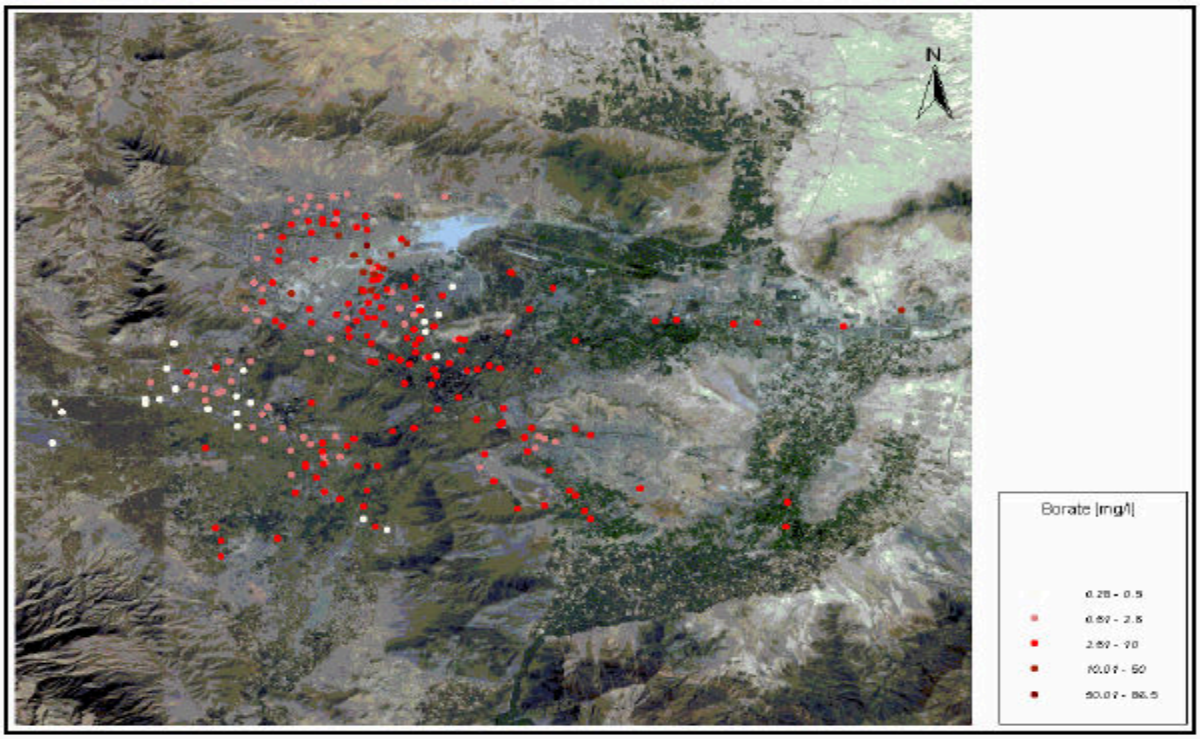
Appendix 7, Schematic hydrogeological cross section of the Logar river valley (Bockh 1971)



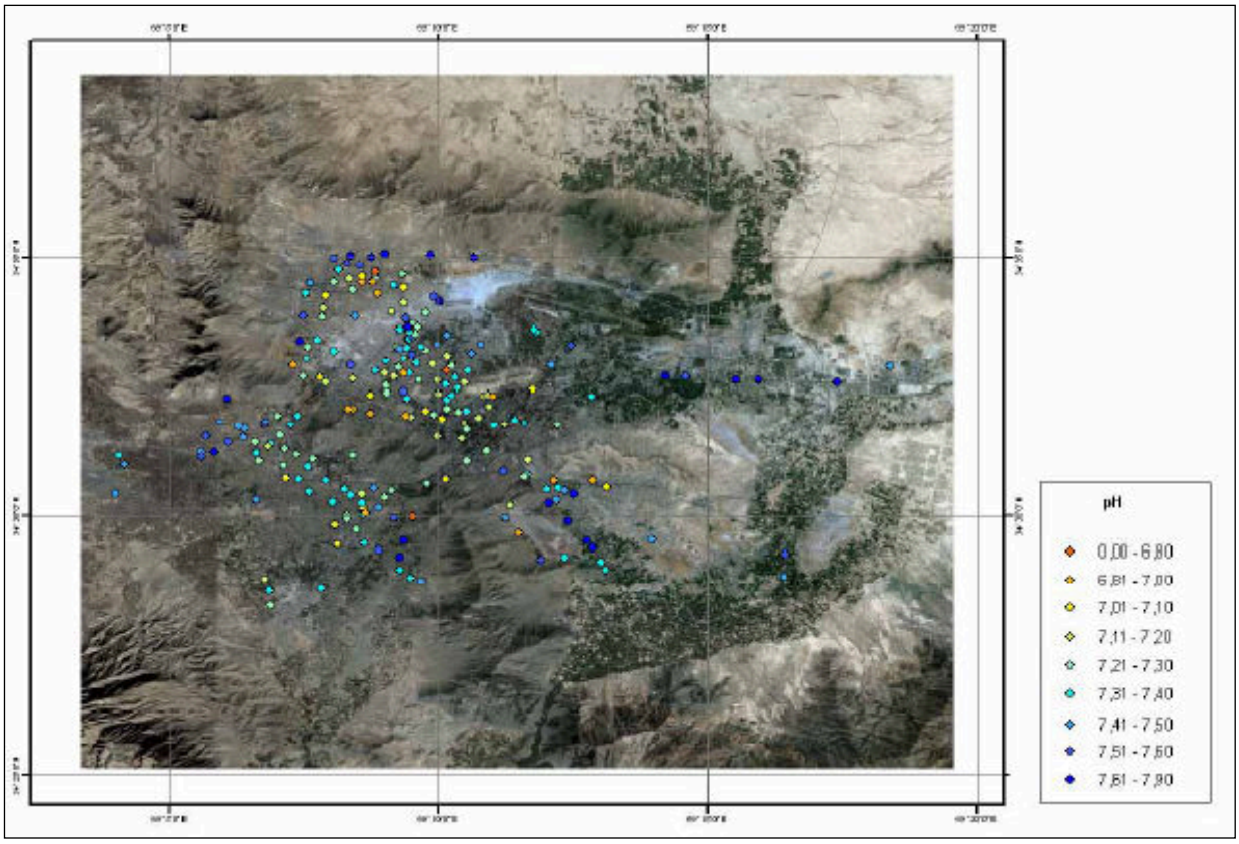
Appendix 8, Spetial distribution of the nitrate concentrations in the groundwater of Kabul Basin(BGR 2004-2005)



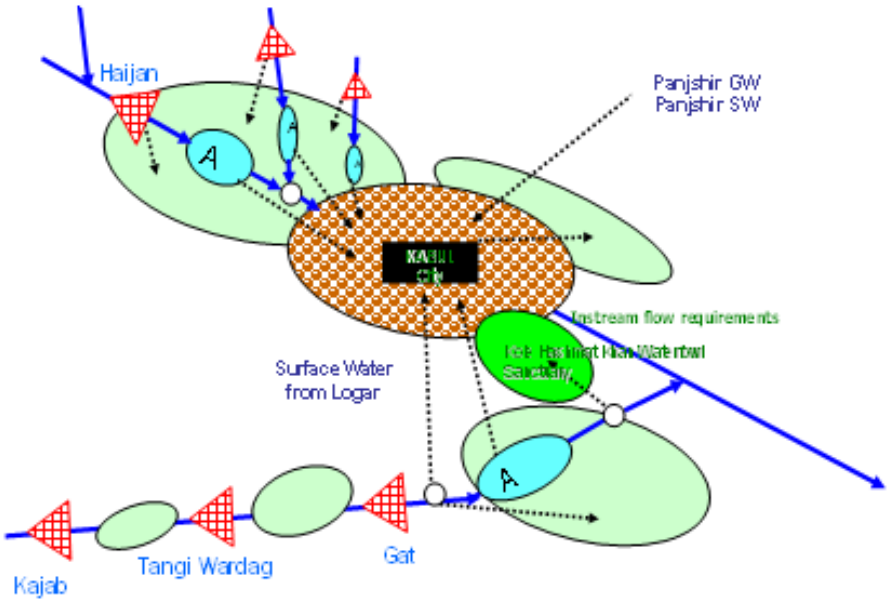
Appendix 9, Spetial distribution of the Borat concentrations in the groundwater of Kabul Basin (BGR 2004-2005)



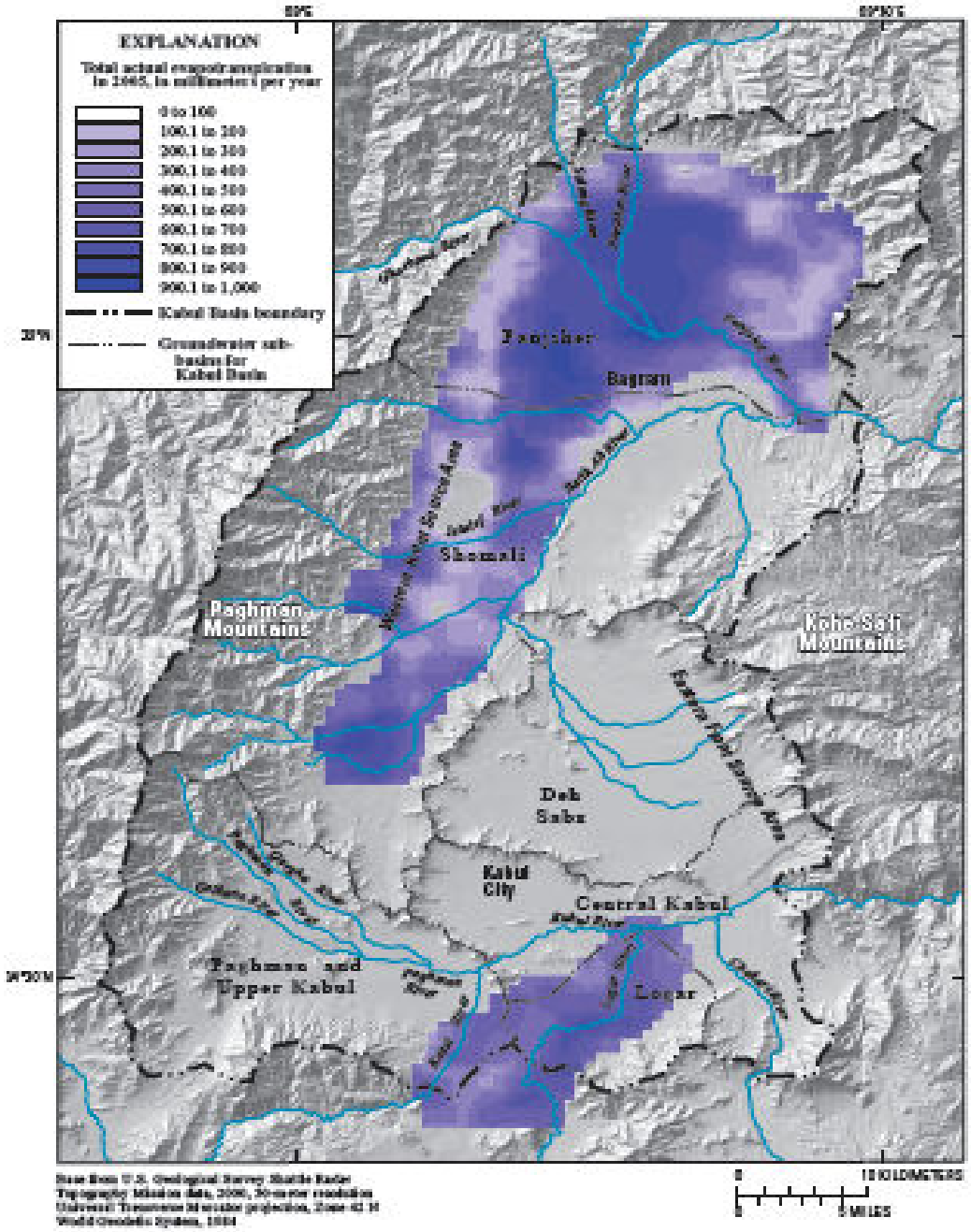
Appendix 10, Spetial distribution of pH in the groundwater of Kabul Basin (BGR 2004)



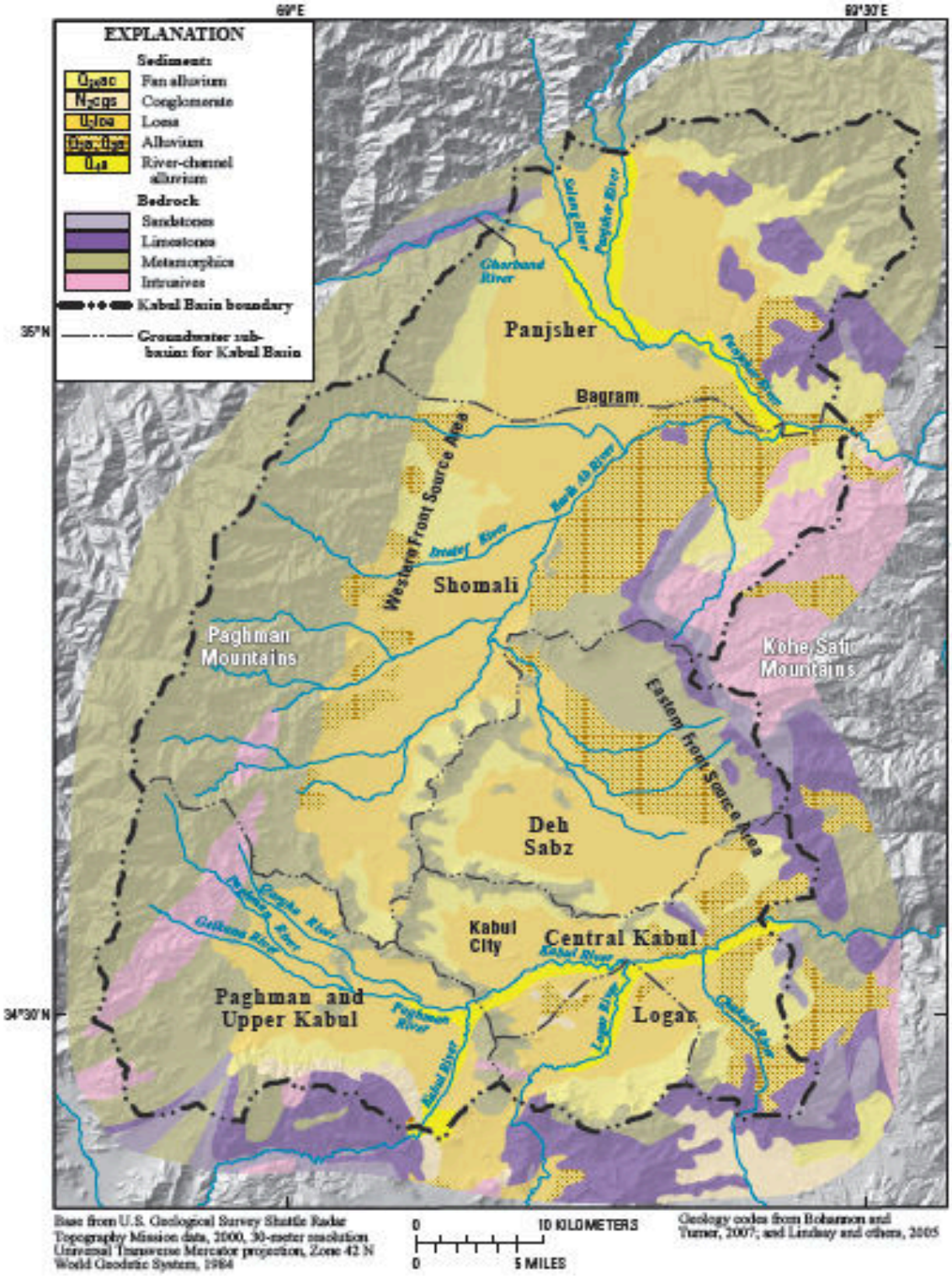
Appendix 11, alternative water recerces for improvement of groundwater and water supply in Kabul Basin



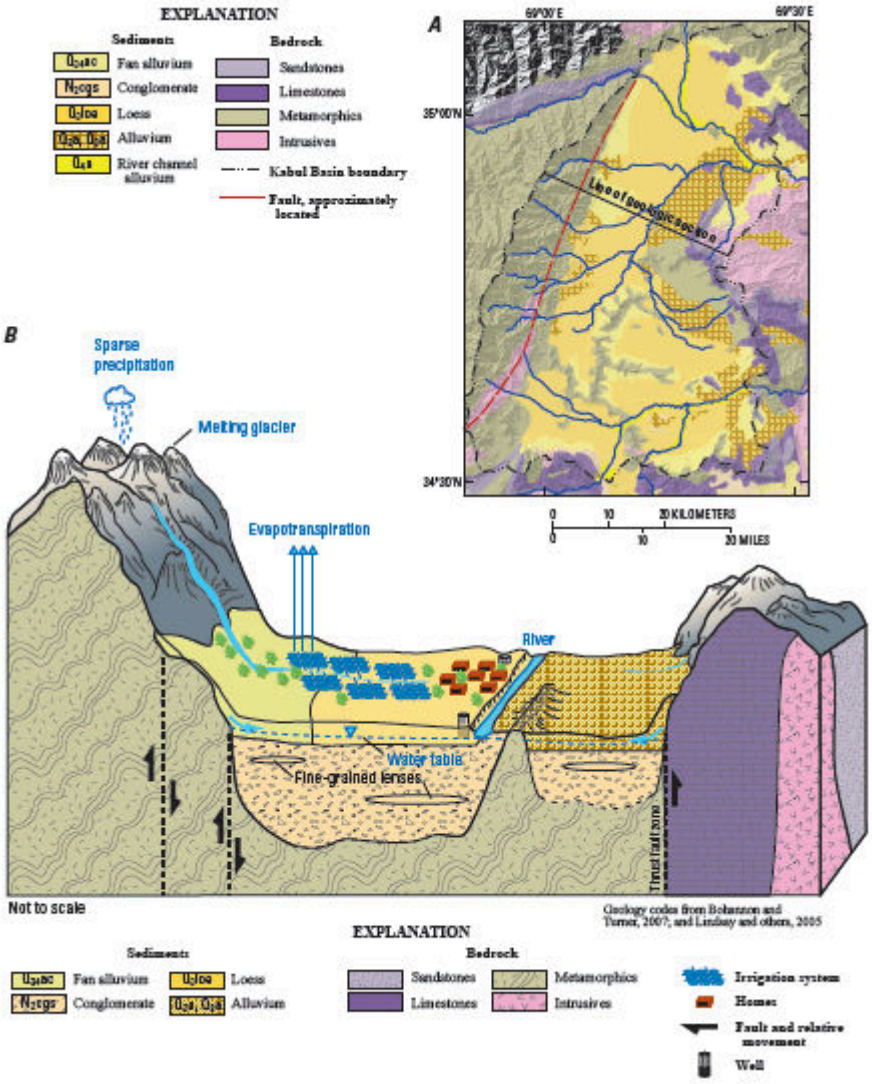
Appendix 12, Estimated actual evapotranspiration (AET) in Kabul Basin (USGS 2005)



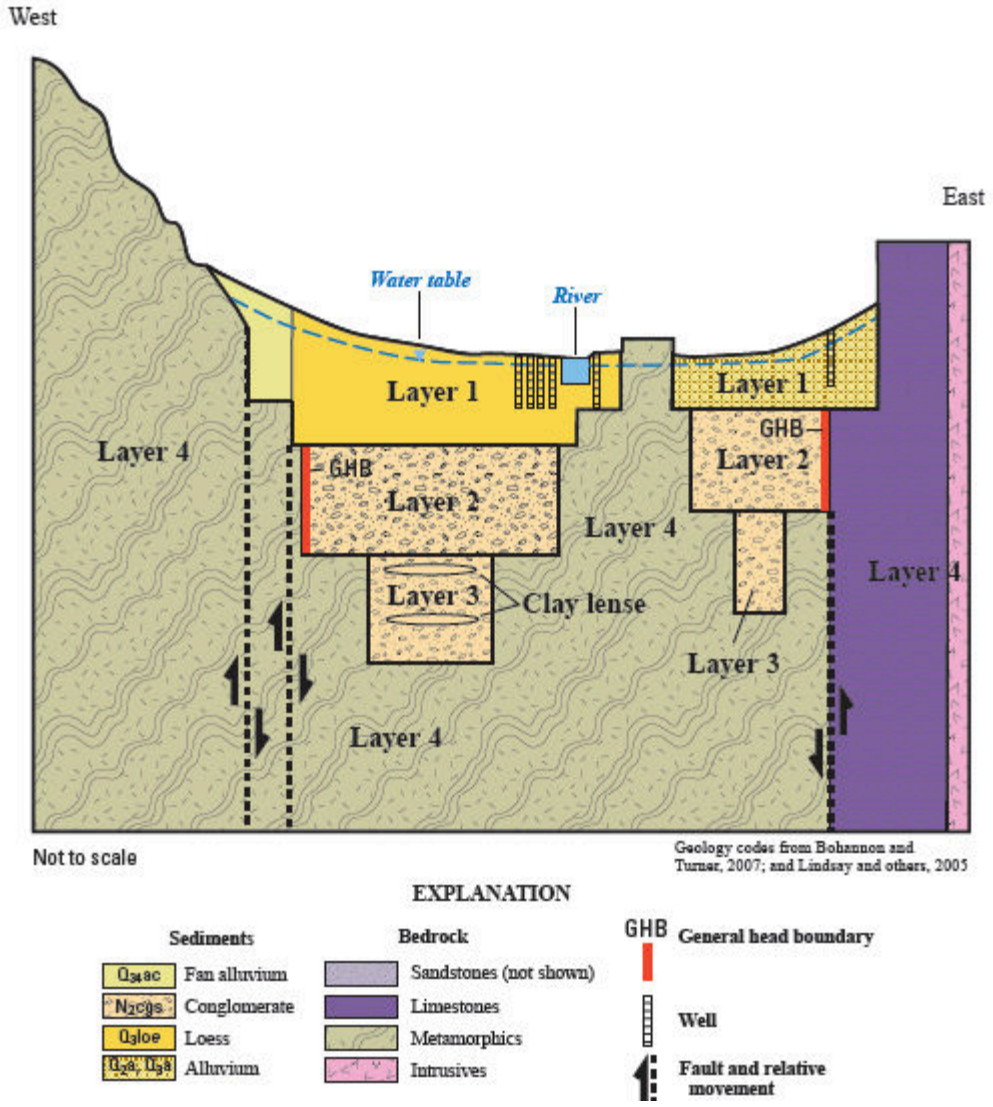
Appendix 13, Generalized surficial geology of the Kabul Basin (USGS 2005)


69°E
69°30'E
35°N
34°30'N
EXPLANATION
Sediments
Fan alluvium
Conglomerate
Loess
Alluvium
River-channel alluvium
Bedrock
Sandstones
Limestones
Metamorphics
Intrusives
Kabul Basin boundary
Groundwater sub-basins for Kabul Basin
Panjsher
Bagram
Shomali
Paghman Mountains
Kohe Safi Mountains
Deh Sabz
Kabul City
Central Kabul
Paghman and Upper Kabul
Logar
Ghorband River
Panjshir River
Salang River
Paghman River
Kabul River
Logar River
Gulbahar River
Eastern Front Source Area
Western Front Source Area
Base from U.S. Geological Survey Shuttle Radar Topography Mission data, 2000, 30-meter resolution
Universal Transverse Mercator projection, Zone 42 N
World Geodetic System, 1984
0 10 KILOMETERS
0 5 MILES
Geology codes from Rohanmon and Turner, 2007; and Lindsay and others, 2005

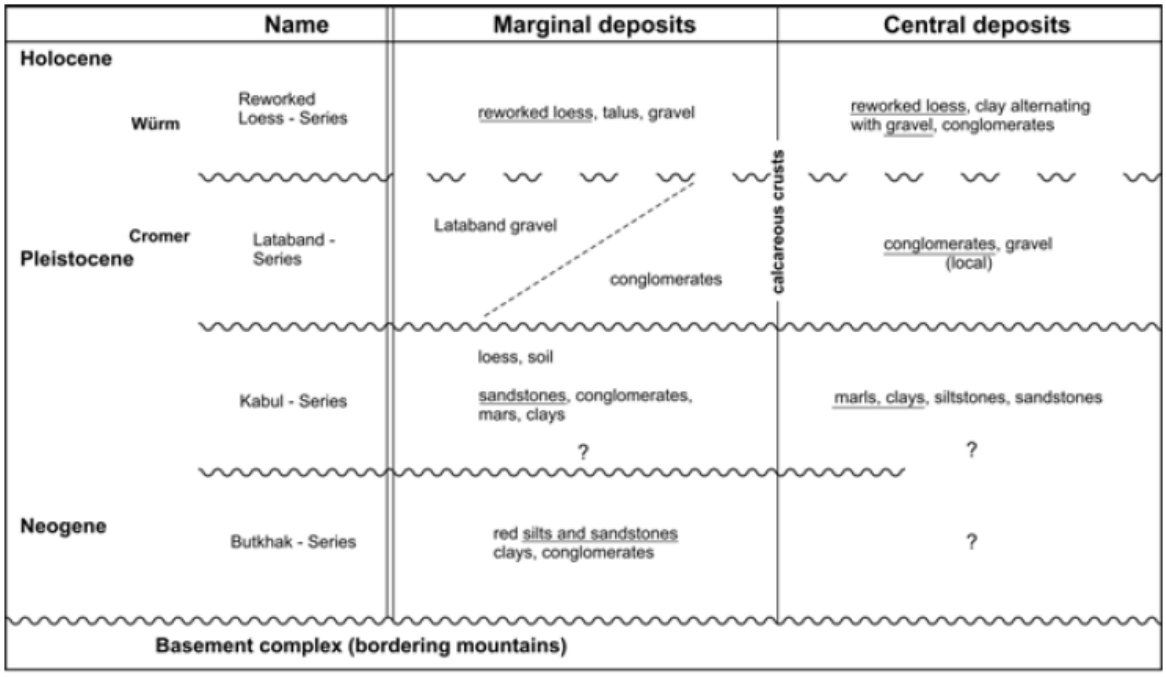
Appendix 14, Planary view (A) and generalized hydrogeologic cross section (B) of the Kabul Basin (USGS 2005)



Appendix 15, Generalized hydrogeologic representation, including numerical- model layers of Kabul Basin (USGS 2005)



Appendix 16, Schematic stratigraphy of the Kabul Basin



Basin deposits in the Kabul area
after GREBE and HOMILIUS 1968 (simplied)