

The traditional irrigation system in the Toatregion-AlFaqara-

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Abstract

Water is considered the source of life, and human existence has been linked to it since God created it. It is the most important element in life after air. Therefore, water has been the most important factor for the emergence and development of civilizations since ancient times, such as the civilization of Mesopotamia and the Nile, in addition to the civilization of China and India...

Because the desert is devoid of ever-flowing rivers and valleys, in addition to the lack of rain, as well as the difficulty of storage due to evaporation and other difficult conditions, which made people search for other sources to meet their water needs by exploiting underground water, except for its great distance from the surface of the earth in some areas, such as the Tuat region, for example. It made man innovate a system for use in irrigation and drinking, called the faqara system.

Keywords: Al-Faqra, Tuat, water division

Introduction:

The Algerian desert is an open-air museum, boasting archaeological sites and manuscript collections that are unparalleled in the world, particularly from the Islamic period. This era witnessed the emergence of thousands of small cities or ksour (plural of ksar) in the desertfully-fledged cities in every sense of the word. These cities included essential life components such as dwellings, markets, mosques, emirates' headquarters, trade agencies, and even military fortifications that protected them from external raids.

Among the most significant regions of the Algerian desert is the Tuat area, renowned for its diverse architectural and artistic heritage represented by the ksour, which exceed 300 in number. These ksour were established for various purposes: as dwellings for the tribes inhabiting the region, rest stations for trade caravans, or markets for the exchange of goods.

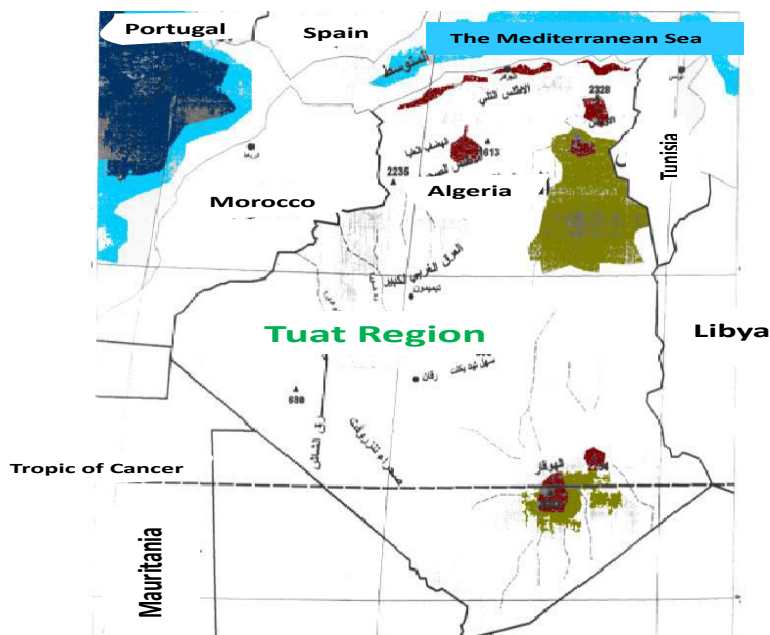
The establishment of these numerous ksour in a harsh and resource-scarce desert environment, particularly lacking in water, led the inhabitants to seek alternatives to the non-existent surface water. They explored methods to extract underground water for drinking and irrigation. In this endeavor, the inhabitants of the Tuat region succeeded by employing a technique known locally as "Al-Faqra," which allowed them to extract and supply groundwater to the ksour. This achievement enabled these settlements to flourish and develop.

1. Definition of the Tuat Region:

Tuat is a region in the Algerian desert, located in the southwest of Algeria. It is a historically significant area bordered to the north by the Grand Erg Occidental and Wadi Mqaiden, to the south by the Tanzerouft Desert, Wadi Qarait, and the Moudra Mountains, and to the east by the Tadmaït Plateau. The region is divided into three vast geographical sections: Gourara in the north, Tuat in the center, and Tidikelt in the south. Geographers collectively refer to these three regions as Tuat.

Tuat begins at the upper ksour (plural of ksar) of Buda, at the point where Wadi Massoud shifts westward, changing its direction from north to south. This area consists of an archipelago of ksour and oases extending to Reggane and is known as Original Tuat¹. Its most prominent ksour include Buda, Timi, Tamentit, and Zawiyet Kenta. Tuat Central also includes the ksour of Tsabit, south of Dghamsha, approximately 30 km from Wadi Saoura, a cluster of ksour starting from the ksar of Arian al-Ras.

The ksour of the Tuat region are distributed along the banks of well-known wadis such as Wadi Mqaiden and Wadi Massoud, as well as around salt flats like Sebkhâ Timimoun and Sebkhâ Tamentit. The total number of ksour in the region is approximately 300². Together, these three geographical sections, along with the Tanzerouft Desert, form the Adrar province. The region's astronomical coordinates are between 1° east and 3° west longitude, and between 26° and 30° north latitude³ (Refer to Map No. 01).



Map No. 01:Represents The Location Of The Tuat Region In Algeria And The Surrounding Terrain

2. Definition of the Term "Faqara":

The theories surrounding the term "Faqara," its nature, and its origin vary. Some researchers suggest that the word "Faqara" is derived from the verb *faqr*⁴, which in this context signifies the poverty that may afflict those who work on it due to the strenuous and labor-intensive nature of the work, potentially leading to impoverishment.

Others trace it to the verb *fajr* (فجر), asserting that the source of "Faqara" is "Fajara" from the act of bursting forth, as water is caused to gush forth in these systems⁵. This interpretation is supported by the Quranic verse: " وَقَالُوا لَنْ نُؤْمِنَ لَكَ ۖ ۞۞۞ حَتَّىٰ تَفْجُرَ لَنَا مِنَ الْأَرْضِ يَنبُوعًا، أَوْ تُكُونَ لَكَ جِنَّةٌ مِّنْ نَّحِيلٍ وَعِنَبٍ فَتُفَجِّرَ الْأَنْهَارَ خِلَالَهَا تَفْجِيرًا ۞۞۞ 6.

In Arabic, the term *tafajjara* refers to water that flows and gushes forth. The verb *fajjara* is used to describe causing water to flow in abundance, emphasizing quantity⁷. This interpretation aligns with the arrangement of Faqara wells, which are organized in a straight line resembling the vertebrae of a human spine. This alignment has led some to connect the term "Faqara" to this resemblance, although this explanation is more recent compared to linguistic derivations. Thus, the linguistic derivation appears to be the most accurate.

Another view suggests that the term "Faqara" originates from *faqr* (poverty) because constructing Faqara systems often impoverished their builders due to the high costs of the work. Conversely, some argue the opposite, stating that Faqara eliminates poverty, as wealth at the time was measured by the share of water one possessed, with the wealthiest owning the largest share⁸.

Additionally, some believe that the name "Faqara" is derived from its structure, as it starts from the highest point of the land and descends to the lowest point. The term is thought to be a combination of "fawq", meaning "above," and "qara", meaning "a high place." It is also referred to as "tunnels" due to its composition of interconnected wells joined by underground channels⁹.

There is a definition provided by the researcher Faraj Mahmoud Faraj, who describes the Faqara as a system consisting of a series of wells that start from a high point where groundwater accumulates. The water from these wells flows into a channel with openings, covering long distances. This flow occurs slowly due to the gradual slope of the channel, which ends in a large basin called the *Majen*, where the water collects. From the *Majen*, canals carry the water to the orchards of the Faqara owners, each according to their share¹⁰.

The Faqara is essentially a series of wells connected by a tunnel, with steps resembling a staircase between each well. The work begins at a high point, and the slope continues gradually from the top to the bottom. In some wells, the depth may exceed 40 meters, eventually decreasing until the water reaches the surface¹¹.

The term "Faqara," as it is known in the Algerian desert, particularly in the Tuat region, differs from the terminology used in other countries that adopted similar methods for extracting groundwater. For example, in Iran, it was known as *Qanat* and was often nicknamed "the Death," due to the high number of workers who lost their lives during its construction.

Its construction involves significant effort, with wells reaching depths of up to 150 meters or more¹². Similarly, in Afghanistan, it is known as *Kharas*¹³.

In Medina (Saudi Arabia), it is referred to as *Sharaj*, while in Yemen, it is called *Sahrij*. In Oman, it is known as *Falaj*, with over 4,000 *Falaj* systems identified across the Sultanate, varying in length¹⁴.

In North Africa, the Faqara has been recognized under different names. In Tunisia, particularly in the cities of Manshiya and Al-Qassar, it is called Anqula or Khribqa. Similarly, in Morocco, specifically in the cities of Sijilmasa and Marrakech, the same technique is known as Khattara.

Below is Table No. 01, listing the commonly used names for Faqara systems in the main countries where they were implemented and utilized.

Table No. 01: Names of Faqara Systems by Country

Country	Name	Location
Algeria	Al-Faqara	Adrar
Morocco	Al-Khattara	Sijilmasa – Marrakech
Tunisia	Anqula – Khribqa	Al-Manshiyya – Al-Qassar
Levant (Al-Sham)	Al-Afnia	Al-Sham
Hijaz	Al-Kheif – Al-Shiraj – Al-Sarb – Al-Kadhma	Medina
Yemen	Sahrij	Yemen
Oman	Al-Falaj	Oman
Iraq	Al-Kahrez	Iraq
Iran	Qanat	Iran
Afghanistan	Khiras or Kharas	Afghanistan
Italy	Ankritati	Italy

3. History of the Faqara's Introduction to the Region:

The studies addressing the origin and history of the Faqara in the Tuat region reveal significant differences and variations in its source. If we examine local sources, particularly manuscripts, we find varying accounts. For instance, Abdelrahman Al-Mahdawi suggests that a group of Jews who migrated from Medina to the region introduced the Faqara, known to them as Sharaj¹⁵.

Among the manuscripts that also discuss the Faqara is Durat Al-Aqlam fi Ma'rifat Akhbar Al-Maghrib Ba'd Al-Islam. It attributes the introduction of the Faqara to certain nomadic tribes from Sijilmasa, who settled near Ksar Buda. Finding the waters of Wadi Qir dried up, they explored the wadi, dug a series of interconnected wells, extracted water, and cultivated some lands¹⁶.

Another perspective is presented by Muhammad bin Abdul Karim Al-Bakri, who asserts that the Copts of Egypt were the ones who introduced the Faqara to the region¹⁷.

Researcher Ismail Al-Arabi, in his work derived from Al-Idrisi's Nuzhat Al-Mushtaq, posits that the Faqara entered the Tuat region through Morocco, specifically from Marrakech. This occurred following the construction of the ksour of Tamentit during the Almoravid era. The first Faqara from that period was named "Hanu," and from that time, the Faqara system spread throughout the entire region¹⁸.

Another hypothesis suggests that this technique originated in Persia and was brought to the southwestern desert by migrants during the Rustamid era from the Nisapur region, which alone contained more than twelve thousand of such canals¹⁹.

Several foreign studies have also addressed the origin of the Faqara system in the region, among the most notable being a study by the French captain "LO." He suggests that this technique has been known in Tuat since the 10th century CE and exists in Iran, Afghanistan, Yemen, the Western Desert of Egypt, and the desert extending from the Caspian Sea, near the Iranian border, where it is referred to as "Kajaziran"²⁰.

Researcher Muhammad Houtia provides additional perspectives on the introduction of the Faqara irrigation system to the region. He highlights a view that attributes the system to the Barmakids, who, after their downfall under the Abbasid Caliph Harun al-Rashid, migrated to the lower ksour of Tuat, particularly the oases of Sali. According to popular accounts, they introduced the method of digging Faqara wells, which were similar in design to those used in Iran²¹.

Houtia also cites Captain Martin, who argues that after the fall of the Fatimid state in Egypt, some of its members migrated to the Tuat region. They established ksour, organized irrigation, and extracted groundwater to the surface, naming this technique "Faqara"²².

While these perspectives vary widely regarding the true origin of the Faqara, they converge on a single point: the Faqara system was introduced from outside the Tuat region. However, it is widely accepted that the Faqara developed in conjunction with the ksour of the region, forming the foundation and lifeblood of these settlements. Its history is thus intertwined with the architectural and urban history of the area.

4. The Technique of Constructing the Faqara:

The Faqara represents life itself for the ksour of Tuat, as it is the artery that delivers the most vital element in the universe, and it is impossible to imagine human habitation in the region without it. Given its importance in the life of the Tuati community, all individuals contribute to its construction according to their knowledge and capabilities, as its construction is a challenging process.

The scholar Ibn Khaldun described the process of its construction, stating: "In these desert lands, beyond the sand dunes, there is a remarkable method of extracting flowing water not found in the hills of the Maghreb. The well is dug deep, with a far-reaching shaft, and its sides are reinforced until the excavation reaches solid rock, which is then broken through with pickaxes and tools until its crust is thinned. The laborers then ascend and throw an iron implement upon it, breaking its layer to release water, which then rushes upwards to fill the well and flows out as a stream. They claim the water rises rapidly with great speed. This unusual method exists in the ksour of Tuat, Tingourarin, Raghla, and Wargla. Truly, it is a wonder of God's creation, the Great Creator."²³.

To construct a Faqara, several steps must be followed:

a. Site Selection:

The selection of a site for constructing the Faqara is influenced by several factors, the most important being the topography of the area. In the Tuat region, the location is typically chosen on the slope of the Tadmait Plateau, which descends from east to west. This can be observed in the majority of Faqara systems in the region, as they run from east to west. Planning the ground and site for the Faqara is one of the initial steps undertaken by the Faqara community. Usually, a senior expert from the ksar or a neighboring ksar with existing Faqara systems is consulted.

The workers rely on simple traditional calculations that ultimately enable the successful construction of the Faqara²⁴. This process is carried out by specialized individuals called "Al-Ma'alim" or "Al-Mu'allimin," who are the technical experts responsible for locating water. They use a metal rod to detect the movement of underground streams, with the rod moving in response to water flow.

b. Providing Labor:

As previously mentioned, the construction of the Faqara involves the participation of all members of the community, each contributing according to their role and task. These roles include:

- **Al-Waqaf:** A person responsible for overseeing the work and monitoring every detail. This position is usually held by someone with significant experience and expertise.
- **Al-Qatta':** A group of individuals who take turns digging the soil.
- **Al-Jabbad:** A person responsible for pulling soil out from the bottom of the well using a rope and a bucket.
- **Al-Khaddam:** A worker who prepares and kneads the clay before the measuring process.
- **Al-Kayyal:** A specialized expert whose job is to measure the quantity of Faqara water and determine each individual's share.
- **Al-Shahid:** The recorder of the Faqara register (*Al-Zimam*) on distribution days. This role is usually assigned to a respected individual, often the imam or someone known for their honesty and integrity.
- **Al-Hissab:** Responsible for calculations, one of the most challenging tasks in dividing Faqara water. The Hissab determines each person's share based on the Kayyal's measurements and is also consulted in cases of water shortage, surplus, or when dividing water among heirs.

In addition to these roles, individuals unable to contribute physically may participate financially, securing a share of the water in return for their monetary contribution.

c. Direct Execution:

Observing the Faqara, it appears as a series of interconnected wells, locally known as "Hasyan." These wells are connected by covered channels called "Nafad," meaning the channel. The wells are dug for maintenance and cleaning of the channel, with a distance of 15 to 20 meters between each well. The water flows in the channel from a higher to a lower level, reaching the water distribution point, locally known as "Qasriya," and then flows through each channel to an individual reception basin, called "Majen."

The time required to complete a Faqara varies depending on its size. Smaller ones may take one year or more to construct, while larger ones can take up to 20 years.

A notable characteristic of its construction is that it begins in the lowlands and progresses to higher elevations. This approach is intended to manage the relatively small amounts of water generated and utilize them effectively. Starting from the higher elevations would result in difficulty controlling the gushing water without a proper outlet.

Upon confirming the presence of water, a circular area with a diameter of 1 to 2 meters is designated for digging. The excavation is done vertically until reaching the limestone layer. At this point, the square area is reduced to approximately 60 cm², and work continues intensively until the well reaches a depth of 30 to 65 meters, where water emerges²⁵.

Once the desired depth is achieved, a channel is extended at the same depth as the well, directed toward the second well. This process involves lowering a person into the well to carve the channel, known locally as "Nafad," which appears to derive from the Arabic word "Nafadh" (meaning "penetration"), with the "dh" pronounced as "d" in the region. The channel is so named because it allows water to flow through it.

The Nafad is excavated using an iron tool shaped as needed. Workers strike the Nafad, and their colleagues in the opposite well listen to the sound of the strikes to determine their direction. The process continues until the Nafad is completely connected between the wells (see Image No. 01).



Image No. 01: The excavation process and soil extraction from within Al-Faqra.

The slope of the channel is managed by the expert (Ma'alim). The length of the Nafad between wells ranges from 10 to 60 meters, with a channel diameter of 0.95 meters and a height of 1.20 meters.

The number of wells in a single Faqara varies from 20 in small systems to 1,200 in large ones, spanning a distance of up to 20 kilometers (see Figure No. 01). The Faqara "Aqreinj" in Adrar is the longest in the region ²⁶. The depth of the wells decreases as they move further from the mother well.

After excavation and the creation of the channels, the openings are leveled and walls are built around them to protect people and animals from falling in (see Image No. 02). Once the water reaches the surface, a Qasriya is constructed for water distribution to the orchards, using a tool called "Shaqfa."

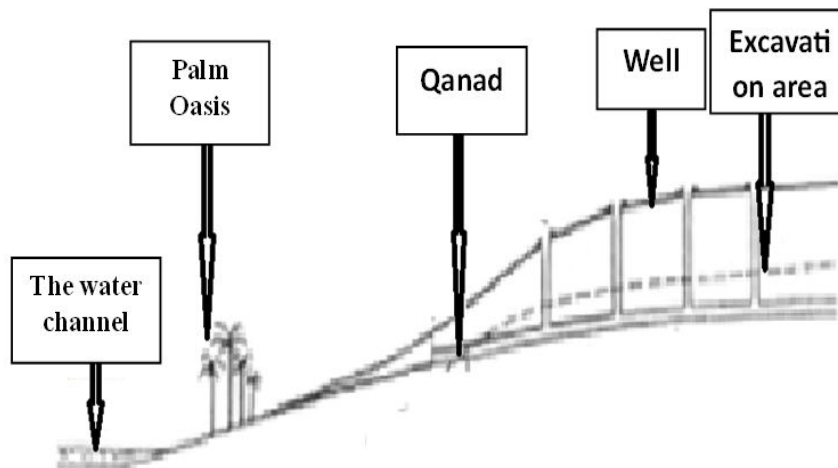


Figure No. 01: Parts of Al-Faqra



Image No. 02: Openings of Al-Faqara.

5. Factors Affecting the Functioning of the Faqara:

a. Slope (Gradient):

The slope plays a significant role in the operation and efficiency of the Faqara. It must be moderate and not too weak, as insufficient slope leads to sediment accumulation, resulting in increased maintenance work. Conversely, a steep slope causes soil erosion inside the Nafad. Generally, the slope is estimated at 5 to 6 mm per meter²⁷ but may vary depending on the topographical nature of the area.

b. Shape of the Nafad:

The shape of the channel also greatly impacts the functioning of the Faqara. Narrow sections, with a width of 0.4 to 0.5 meters, increase water flow speed and assist in self-cleaning. On the other hand, wider sections, measuring up to 1.2 meters, allow individuals to enter and move through the channel in a bent position for cleaning purposes.

Cleaning the Faqara of sediment is crucial, as the accumulation of soil carried by water reduces its flow. Many Faqara systems in the region suffer from reduced water flow or depletion due to insufficient cleaning of sediment inside the channels²⁸.

6. Parts of the Faqara:

a. Wells:

As previously mentioned, wells are the openings made in the ground to extract water. In the Faqara, there are two types of wells. The first is the main well, which is used to access groundwater and transport it through channels. The second type consists of auxiliary wells, primarily used for ventilation and accessing the Nafad for cleaning sediment. The depth of the wells decreases the farther they are from the mother well.

b. Nafad:

The Nafad is the channel designated for transporting water between wells, with its length corresponding to the overall length of the Faqara.

c. Qasriya:

The Qasriya is the location where water collects after exiting the main channel carrying it from the Faqara. It is a triangular-shaped basin with holes at its base for water distribution and its apex serving as the main water inlet. Its size varies depending on the volume and flow of water from the Faqara. From this basin, water is distributed to the fields via smaller channels (Saqiya) (see Image No. 03).



Image No. 03: A water distribution basin from which channels branch out.

There can be several Qasriyas depending on the water capacity of the Faqara and the number of beneficiaries. Typically, there is a main Qasriya for all the residents of the ksar, from which channels lead to smaller Qasriyas belonging to the larger families who contributed significantly to the Faqara's construction. These smaller Qasriyas further distribute water to individual family members via channels.

The Qasriya is usually constructed using solid stones that prevent water leakage, bound together with clay mortar. Continuous water flow through the Qasriya ensures it is self-cleaning. Water is distributed to public facilities and orchards based on the following considerations:

1. **According to Contribution to the Faqara's Construction:** Financial contributions from individuals play a significant role, as those who contribute more receive a larger share of the water.
2. **According to Physical Effort:** In addition to financial contributions, physical labor also determines water shares. Families with more workers receive larger shares. Those unable to work could hire others to labor on their behalf for a fee or use their slaves as workers. The value of physical labor also varies by expertise: skilled workers (*Mu'allim*) receive the most water, followed by diggers, then soil pullers (*Jabbad*), and so on.
3. **According to Public Facilities:** Public facilities such as community spaces, mosques, and religious schools (*Zawiya*) also have dedicated water shares, recognizing their essential roles in the community.

d. Saqiya (Water Channels):

The Saqiya consists of channels that emerge from the Qasriya and branch out into the orchards. They can be either open or covered with small stones to prevent sand and soil from falling into them. The channels are constructed using stones in the shape of the letter "U," with non-porous, solid stones bound together with clay. Their lengths and sizes vary depending on their use.

Some Saqiyas connect one Qasriya to another, requiring larger dimensions, while others connect the Qasriya to individual basins, locally known as Majen. Recently, cement has been introduced in their construction to prevent water leakage, as clay material tends to cause water loss (see Image No. 04).



Image No. 04: The water channel (Saqia).

e. Majen (Water Basin):

The Majen is a water basin located within a palm orchard where the Saqiya discharges water. It is rectangular in shape and dug into the ground. Its size varies depending on the amount of water allocated to the orchard owner. The length ranges between **5 meters and 8 meters**, the width between **2 meters and 4 meters**, and the depth between **0.50 meters and 0.70 meters**. Larger dimensions may be required for larger orchards that receive substantial amounts of water. After digging, clay is placed inside the basin and compacted using a wooden mallet. The walls are then coated with clay mortar to minimize leakage. The Saqiya continuously discharges water into the Majen, which, once filled, is emptied, distributing its water throughout the orchard (see Image No. 05).

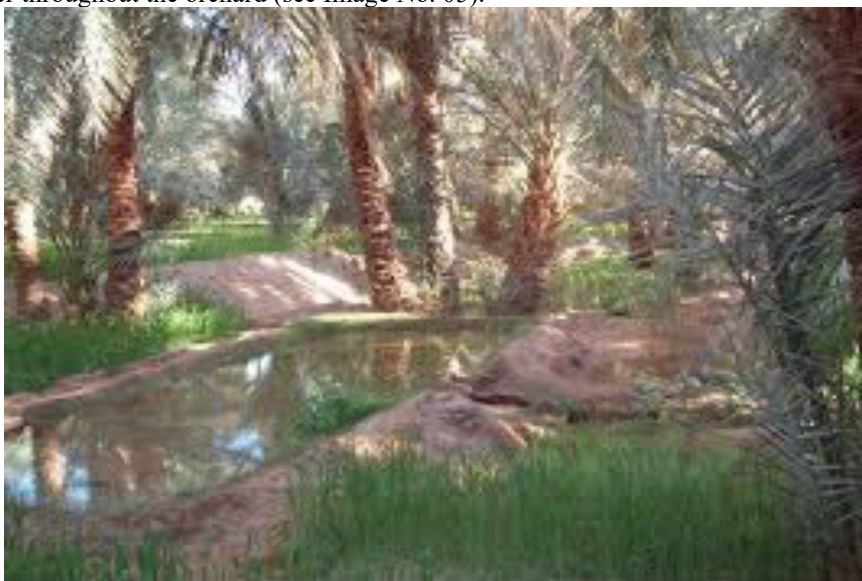


Image No. 05: Water collected in the Majen (reservoir).

7. System of Measuring and Distributing Water in the Faqara:

The distribution of Faqara water follows strict regulations, with fairness being a key principle. As mentioned earlier, access to this precious resource in the desert requires compensation, whether financial or physical. This meticulous system of water allocation is considered remarkable. There are two main methods of distribution:

a. The First Method:

This method involves distribution based on time, where a specific time duration is allocated to each beneficiary. The Faqara's water is directed to one owner, and after their allotted time, it is redirected to the next. This method is rare in the Tuat region, except in cases like the Faqara "Hanu" in Tamentit.

b. The Second Method:

This method, predominant in the region, involves allocating each individual a specific share of water, which they can manage as they wish. The distribution is based on precise water measurement, using several tools, including:

1/ Shaqfa (Water Measuring Tool):

The *Shaqfa*, also known as *Halafa* or *Musht* in the Tuat region, is a rectangular copper plate with holes through which water flows to measure its quantity. The size of the *Shaqfa* varies depending on the size of the *Faqara* being measured. Its length ranges from **0.40 m to 1.5 m**, sometimes reaching up to **2 m**, while its width ranges from **0.15 m to 0.40 m** (see Image No. 06).



Image No. 06: Al-Shaqfa

Each hole represents a basic unit of measurement called *Haba*. The name of this unit varies across regions; some call it "Haba Zreq," while others refer to it as "Haba Ma'boud." The *Haba* can be divided into smaller units, represented as *Qarariṭ* (plural of *Qirat*), with the following equivalences:

- 1 Haba = 24 Qirat
- 1/5 Haba = 12 Qirat
- 1/3 Haba = 8 Qirat
- 1/4 Haba = 6 Qirat
- 1/6 Haba = 4 Qirat
- 1/8 Haba = 3 Qirat

When writing the unit *Qirat*, it is symbolized by dots:

- 1 Qirat = .
- 2 Qirat = ..
- 3 Qirat = ...
- 4 Qirat = a vertical line (I)

Thus, a vertical line (I) equals four dots, representing **4 Qirat** (see Table No. 02).

Name	Symbol
Qirat	.
TwoQirats	..
Eighth of a Haba	...
Sixth of a Haba	I
Fifth of a Haba	.I
Quarter of a Haba	..I
Third of a Haba	II
Half of a Haba	III
Haba minus a third	IIII
Haba minus a quarter	IIIII
Haba	IIIIII

Table No. 02: Names and Symbols for Measuring Faqara Water

2/ Al-Zimam (Water Register):

The *Zimam* is a register used to record the amount of water extracted from the *Faqara* and to determine each beneficiary's share. It is divided into two types ²⁹:

- a. **Construction or Development Zimam:**

Known in some areas as Al-Jarida, this type of Zimam is established on the day the Faqara is constructed, renewed, or when its water supply increases. This Zimam must be in the possession of the measuring committee during water level assessments. It is used after the Faqara's operations begin to record any increases or decreases in its water supply and to allocate shares to individuals in case of an increase.

b. Ownership or Measuring Zimam:

This type records each individual's water ownership or leased water shares. It also details the distribution of water from each Qasriya. The entries in this Zimam correspond to allocations recorded in the Construction Zimam and include all cases of water ownership transfers (see Image No. 07).

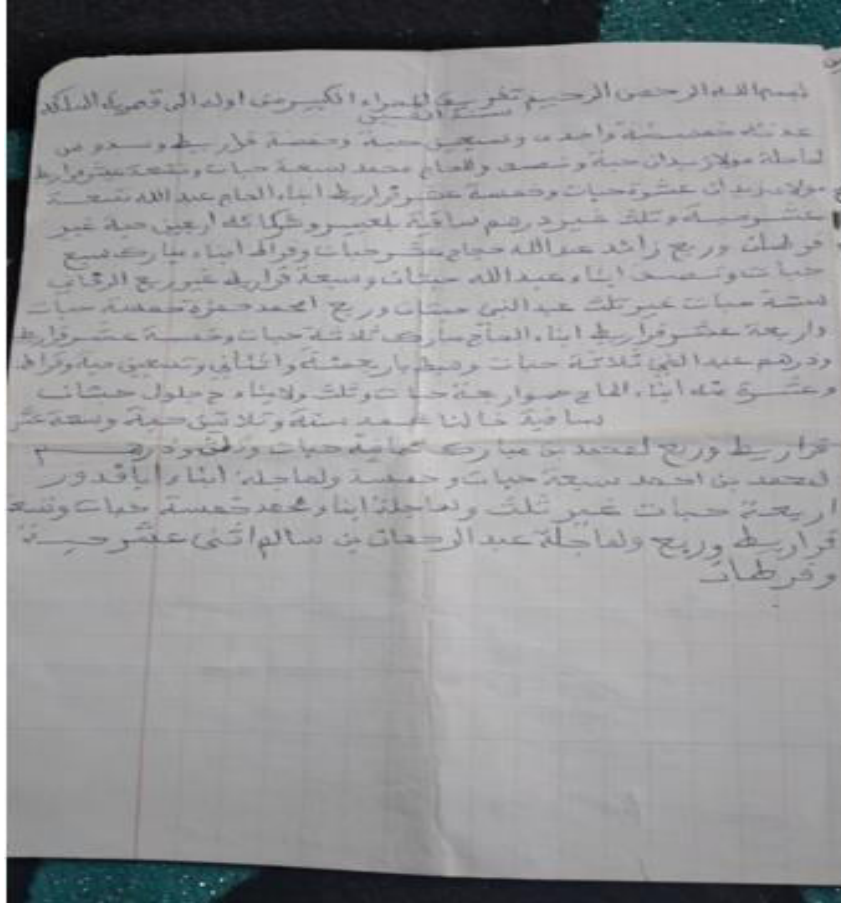


Image No. 07: Al-Zimam

8. Terms Used in the Faqara System:

It is noticeable that the terms used in the Faqara system predominantly reflect the Zenati dialect. This is due to the settlement of Zenata tribes in the region, making the Zenati dialect an integral part of daily life, including the Faqara system. Some of these terms are presented in Table No. 03.

Term	Explanation
Amzer	The place where water flows (jumps) from a higher level to a lower level.
Adfar	A technique used to overcome solid rocks during excavation.
Amserah	A channel longer than usual.
Anfif	A wall built inside the Faqara to stop water flow during maintenance work.
Al-Qamoun	A unit of land measurement, a plot 2 meters long and 1 meter wide designated for cultivation.
Al-Matraq	A larger area than the Qamoun, representing a group of parallel Qamoun plots.
Anfiq	A blockage opening where water gets stuck inside the reservoir (Majen).
Abadou Kabira	A main canal that transports water from the Qasriya to a group of orchards.

Abadou	A secondary canal that distributes water between orchards irrigated by the Faqara system.
Hadd	A large Qamoun next to the reservoir (Majen) where crops requiring significant water are cultivated.
Khadah	An opening in the edge of the Qamoun through which water enters.
Qamouna	A smaller area than the Qamoun, added along the edges of water channels to grow crops.

Table No. 03: Terms Used in the Faqara System

Conclusion:

If Egypt is the gift of the Nile, then Tuat is the gift of the Faqara. It is, without doubt, a miraculous technique that enabled life to flourish in an environment that can only be described as harsh. Despite the various theories about its origins in the region, this technique successfully compensated for the lack of rainfall in this desert area.

The construction of the Faqara reflects the ingenuity and dedication of the Tuati community, which, using simple means, managed to extract water from deep underground and channel it through subterranean conduits to irrigate their orchards. What is most impressive is their method of water distribution. Justice was the core principle of this system, where an individual's share of water was determined by their effort and contribution to the work. To ensure fairness, tools for measuring and recording were invented, safeguarding everyone's right to their share of water.

The Faqara irrigation system facilitated the creation of vast palm oases that thrived thanks to its water. Consequently, an individual's wealth in Tuat was measured by the amount of water they owned more water meant more cultivated land. Agriculture in the Tuat region has always been intrinsically linked to Faqara water.

However, today, neglect has led to the decline and depletion of many Faqara systems, resulting in a reduction of irrigated areas. It is now imperative that everyone takes responsibility for preserving this treasure, which is both a cultural heritage of great value and an essential element of the region's economic and social well-being.

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