

RESEARCH ARTICLE

A Typological Study of West African Mosque at Djenné, Mali

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ABSTRACT

This paper presents a comprehensive typological study of the iconic mosque in Djenné, Mali, situated in the heart of West Africa. Djenné is renowned for its exceptional adobe architecture and its historical significance as a center of Islamic culture and learning. The primary objective of this research is to investigate and categorize the various architectural typologies and generic forms employed in the construction of the mosque, shedding light on its historical evolution, cultural significance, and enduring architectural traditions. The study uncovers the evolution of mosque architecture in Djenné over the centuries, illustrating how local materials and building techniques have been adapted to create awe-inspiring structures that blend seamlessly with the environment and reflect the Islamic heritage of the region. Furthermore, this research delves into the cultural and social aspects of the Djenné mosque, exploring its role as a center of communal worship, education, and cultural preservation. It highlights the intricate relationship between the mosque and the local communities, showcasing how this architectural marvel serves as a focal point for cultural identity and community cohesion. In conclusion, the typological study of West African mosques in Djenné offers valuable insights into the architectural heritage of Mali and West Africa at large.

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INTRODUCTION

The West African mosque that is studied in this essay is located in Djenné, an ancient mud town in the Niger Delta region of Mali in West Africa. It is situated on the flood plains between the Bani River and the Niger River, 220 miles southwest of Timbuktu (Sarin, 2015, p. 173). The town was included in the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Centre in 1988 due to its archeological, religious, cultural, and historical importance. The town comprises four important archeological sources, namely Djenné-Djenno, Hambarketolo, Kaniana, and Tonomba, along with the Great Mosque of Djenné. The Mosque of Djenné is particularly representative of Islamic architecture in sub-Saharan Africa. This paper will focus on the historical importance, typology, architectural elements, and role of indigenous factors in the construction of the Djenné Mosque.

The mosque's construction, along with an explanation of the floor plan with the help of illustrations and the framework provided by Nader Ardalan in *The Visual Language of Symbolic Form: A Preliminary Study of Mosque Architecture* will be used to explore the typology of Djenné Mosque and its unique architectural elements—all of which have been influenced by the local culture and geography.

THE CONSTRUCTION OF THE DJENNÉ MOSQUE

Before the 13th century, Djenné was already an established focal point and an entrepot for the dissemination of Islam into the Sahel region. Cotter notes that Islam “had been filtering in on trade routes from the Mediterranean coast and the Middle East for centuries. Along with salt, gold, and slaves, merchant caravans brought scholars and scribes, many of whom stopped along the road to set up Koranic schools and manuscript ateliers” (Cotter, 2012). However, the town gained greater importance in the Islamic world when Koi Konboro, who was the 26th king of Djenné, became the first ruler to accept Islam in the 13th century.

The rich historical background of the mosque starts with Konboro converting his palace into a sizeable mosque on the advice of a Muslim sage named Ismaila. Bourgeois (1987) documents the narrative behind the construction of the mosque, stating that after accepting Islam, Konboro asked Ismaila, “How may I please God?” Ismaila replied, “Plant a tree, and for years the people who enjoy its shade will bless you. Dig a well, and long after your death people who draw water will bless you. And build a mosque. The people who pray in it will bless your name for centuries.” Konboro did all three things. (p. 54). He turned his palace into a large mosque; currently, it is the largest mud mosque structure in the world.

After its construction, the mosque soon became a center for religious, social, and commercial activities. It was reconstructed twice due to a lack of maintenance and political

unrest, as Bourgeois (1987) notes: “Intense political drama marked the construction of each of its two successors” (p. 54). The second reconstruction took place between 1834 and 1836. The Great Mosque that exists today is the result of its third reconstruction, completed in 1907.

The floor plan of the mosque (Figure 1) is elevated on a plinth. It is in the shape of a parallelogram, with a total of six entry staircases coupled with a surrounding terrace. Three flanking pillars are erected on the eastern façade (Figure 2) with the help of pilaster buttresses in an alternating sequence of four and five. The *riwaq*-style prayer hall can be accessed through doors located on the north and south facades of the building.

The interior, measuring approximately 50 meters long by 26 wide and nearly 12 meters in height, is insulated from the hum and the heat of the outside world by the building’s thick mud-brick structure. The interior is essentially a hypostyle hall containing 90 massive pillars that constitute a very considerable proportion of the total floor plan. Like a platoon of gigantic dominoes, the pillars are neatly set out in ten rows of nine each that align with the qibla wall and configure the entire space into a series of long, narrow corridors that traverse the building north-south and east-west. (Marchand, 2015, p. 7)

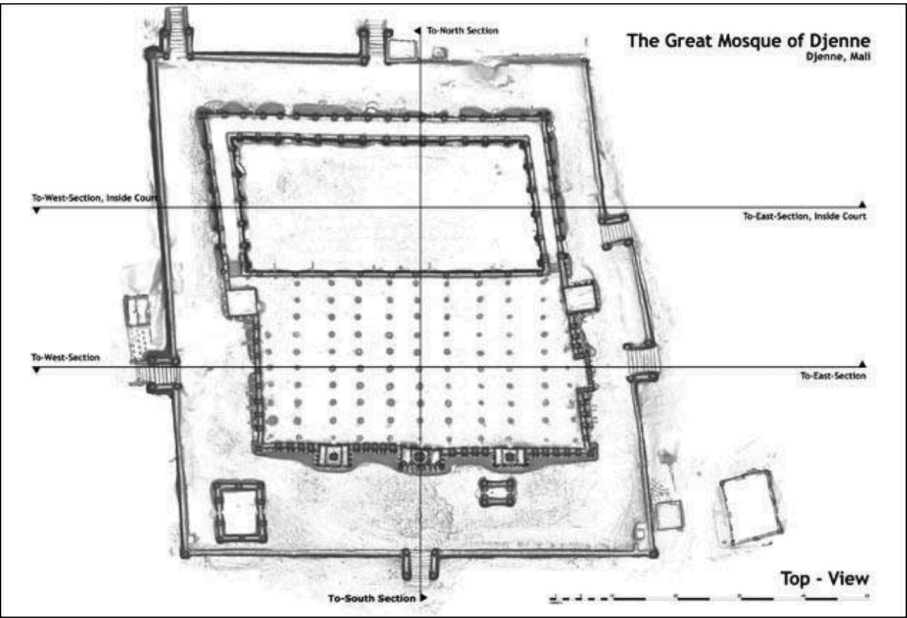


Figure 1. Floor plan. Source: Djenné mosque (zamaniproject.org).

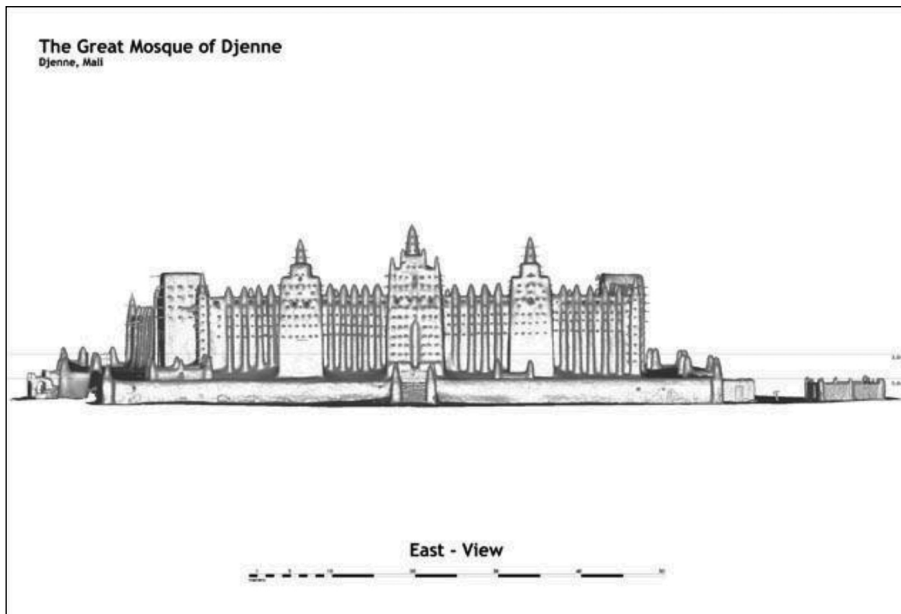


Figure 2. The Great Mosque of Djenné: East view. Source: Djenné Mosque (zamaniproject.org).

Since the prayer hall is filled with numerous pillars, it provides private spaces for the worshippers for meditation, prayers, and reading the Qur'an.

The inner courtyard allows sunlight to enter the mosque, which is an important element in Islamic architecture. Other elements incorporated to allow daylight in the mosque are fenestrations in the north and south walls, arched doorways along the western wall giving access to the courtyard, and small oculi piercing the flat terraced roof. The oculi are protected by round terra-cotta vessels. These function as removable lids, allowing the entrance of light and the exit of hot air, keeping the mosque cool.

The Mosque of Djenné has segregated prayer areas for women located in the corridors surrounding the courtyard on the west side of the mosque. The three corridors act as galleries where women can gather to pray.

TYPOLGY OF THE MOSQUE

To comprehend any architectural work, it is paramount to first understand the typology of the edifice. As Moneo (1978) states, "to raise the question of typology in architecture is to raise a question of the nature of the architectural work itself" (p. 8). The classification of the architecture of mosque typology allows for a better understanding of its form, function, and meaning. It also allows the idea of evolution contrary to the beliefs of some experts

who view it as a frozen mechanism. Typological series are formed by the interaction of architectural elements; the architect usually starts from the type and this is how the work is produced and identified but it can be transformed later on. A later transformation can happen due to the influence of several factors: climatic changes, geographical conditions, and regional traditions. Therefore, the transformation of a building's typology is not a foreign concept as some of the most common 'types' are in fact under constant change, such as domestic homes, shops, and mosques (Koch, 2014, p. 168).

Nader Ardalan's essay sheds light on mosque typology and transformation in different geographic and cultural regions. In his essay entitled "The Visual Language of Symbolic Form: A Preliminary Study of Mosque Architecture," Ardalan explains three main mosque typologies: the trabeated (*riwaq* style) mosque, the Ottoman central dome mosque, and the four-*iwan* mosque (p. 18). He also describes the different transformations that took place in some monumental mosques, such as in the Prophet's Mosque in Medina, Hagia Sophia in Istanbul, the Great Mosque of Damascus in Syria, the Mosque of Cordoba in Spain, and the four-*iwan* buildings found mainly in Iran, Afghanistan, and Central Asia.

To add to the analysis, Ardalan provides a list of generic forms and some principles of spatial organization in mosques all around the world. The first form is the orientation toward Mecca, i.e., the *qibla* direction; this is achieved by the *mihrab*, a niche located in the *qibla* wall. The other forms include a central dome, courtyard, gateway, plinth, ablution place, and portico. However, due to regional and cultural differences, mosques may be built without having a typical dome, e.g., mosques having pyramidal roofs with wooden rafts in southeast Asia. Another example is the Great Mosque of Djenné, which has a flat roof.

SOME NOTES ON THE MOSQUE IN DJENNÉ, MALI

The Great Mosque of Djenné in Mali is a clear deviation from the domed mosque; it is characterized by a flat roof and is considered a highly stylized version of the Sudano-Sahelian mosques. Historians have attributed different reasons to the source of this occurrence. According to Dubios and Charles Montel, the architecture of mosques is said to have been influenced by upper Egypt, while Delafosse believes it originated in Maghreb, especially Morocco. Professor Prussin concludes that the external source of Djenné's architecture originated mainly from Moroccan, Mozabite, and Sudanese architecture (Snelder, 1984, p. 72). Prussin notes that, "while the architecture of the Sudanese mosque derives from North Africa, Islamic architecture in West Africa is nevertheless unique. It is neither Egyptian nor North African form but expresses in its essence and the adjustments and modifications to the highly ritualized character of Islam, which specifically prescribes both the floor plan of a mosque and the activities relevant to its use" (1968, p. 70).

The Sudano-Sahelian mosques do not follow the stereotypical mosque plan. They do not necessarily have domes, minarets, arches, mosaics, and stucco decorations. They might have some of these elements and might lack some too. Usually, these mosques are characterized by buttressing, the use of wooden posts for scaffolding during the yearly process of resurfacing as well as for ornamental purposes, a *mihrab* tower, a flat roof, and

a courtyard. In this way, they are closer to the Prophet's mosque in Medina, circa 610 CE, which was built from mud bricks and palm trunks. The floor is often covered in sand, on top of which mats are placed, and the flat ceiling is supported by pillars. Occuli drilled in the roof provide intriguing lighting to the interior that is simple and reveals the enormous pillars and their arches. The graceful simplicity is a testament to the worshipper's unbroken focus on the Creator. These architectural elements are present in the Djenné Mosque in Mali.

Ardalan provides a taxonomy of eight generic forms in mosques through a survey of 113 mosques around the world. These eight generic forms are: dome, courtyard, plinth, *mihrab*, gateway, portico, ablution place, and minaret. However, it is not necessary to have these architectural elements in the building altogether for it to be called a mosque, highlighting the fact that the only paramount element is the *mihrab*. Therefore, the absence of a dome in the Djenné Mosque does not decrease its significance as a monumental structure in sub-Saharan Africa; and out of the eight generic forms, this mosque has six, including the *mihrab*, courtyard, and minaret, with an emphasis on the gateway, plinth, and ablution place (Ardalan, p. 32).

The Great Mosque of Djenné in particular is classified as a prototype for Sudano-Sahelian architecture, the indigenous style that is common to the African people of Sahel and Sudan. "Founded in West Africa, Sudanese architecture is urban architecture in raw earth. It is mainly found in Mali, Ghana, and northern Nigeria. The construction consists of a mixture of clay and straw, rice husks, etc. This type of architecture has been erroneously attributed to the Andalusian architect Abou Ishaq as-Sahéli" (Siriman & Wang, 2021, p. 86). According to some writers, he introduced the style after his arrival in Mali around the 14th century, at the invitation of Mansa Mu, who was the ninth Mansa of the Mali empire, after his pilgrimage to Mecca. Some examples of Sudano-Sahelian architecture are as follows:

- Mosque at Kawara (Savanes, Côte d'Ivoire, West Africa)
- Sankore Mosque (Timbuktu, Mali)
- Mosque at Bobo Dioulasso (Burkina Faso, West Africa)
- Mosque of Djinguereyber (Timbuktu, Mali)
- The Great Friday Mosque of Niono (Segou region, southern Mali)
- The Komoguel Mosque (Mopti, Mali)

The tomb of the Askias (rulers of the Songhai Empire) in Gao is also an important example of earthen architecture.

BUILDING MATERIALS USED IN SUDANO-SAHELIAN ARCHITECTURE

The buildings of sub-Saharan Africa give more importance to indigenous materials and cultural traditions. Even though mud is not as durable, most of the buildings in Mali are constructed from mud. Prussin (1968) believes that the reason behind such construction is that in West Africa, "monumentality is achieved through a sense of verticality" (p. 34)

rather than permanence and durability. Therefore, “the monumental mud-clay architecture is widely expressed in mosques and civil constructions in Mali (Djenné, Mopti, Timbuktu, and Gao). It is still maintained today despite the urban growth which has imposed, elsewhere (in other cities) much more modern constructions and using sand, gravel, and cement” (Siriman & Wang, 2021, p. 86). The other materials used are:

- Rammed earth, which is basically an amalgam of clay, water, and a grease remover usually of vegetable origin, which is used for plasters, mortars, bricks, and solid earth;
- Hand-molded bricks and raw bricks, where raw bricks are dried directly under sunlight instead of the oven; and
- Straw and rice husks, which are used to strengthen the mud bricks.

Mud buildings are suitable for hot, arid climate zones; they act as a thermal regulator. These buildings get cooler during the day and retain their heat during the cooler months; most of the region resorts to passive building techniques.

INFLUENCE OF CULTURE AND INDIGENOUS FACTORS

Having explained the general plan, this section discusses the influence of culture and indigenous factors on the architecture of the Djenné Mosque.

A universal element present in every single mosque is the *mihrab*, which is a niche in the *qibla* wall oriented toward the Ka'aba. The Great Mosque of Djenné also has a *mihrab*. Architectural elements grounded in cultural and emotional traditions are also present in the Great Mosque of Djenné. “Some of these elements are the pinnacles on the roof parapet, the triple minaret on the front facade, the buttressing of exterior walls and vertical exterior rib effect” (Kahera, 1987, p.15).

The three flanking minarets on the façade create a sense of symmetry. The tall minarets, vertical buttresses, and plinth provide a sense of loftiness and height; hence, the mosque can be seen from far away, towering over the mud houses surrounding it (Figure 3). Moreover, the plinth also functions as an additional space for congregational Friday prayers. Inside the minarets, mud stairs are located, which lead to the roof from where the muezzin calls the *adhan* (the call to prayer). In Timbuktu, the minarets of mosques are usually built from a mass of solid material; hence, they possess only a feeling of mass. In contrast, the Djenné Mosque “achieves a remarkable sense of spatial enclosure. The incorporation of the minarets as an integral element of the façade itself marks an innovation in mosque design” (Prussin, 1968, p. 72).

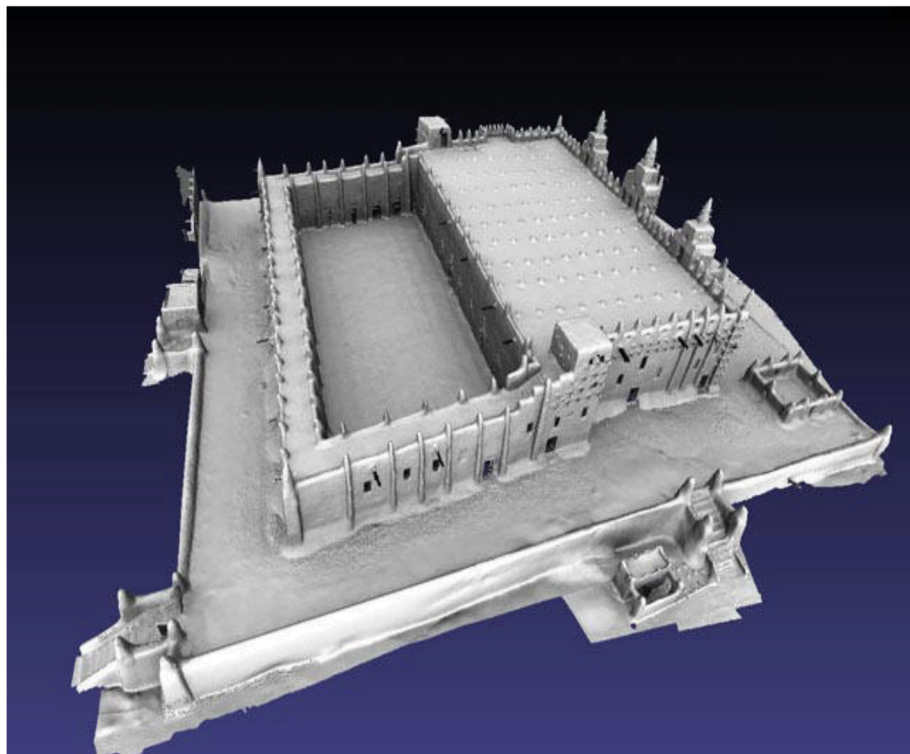


Figure 3. 3D Model: The Great Mosque of Djenné. Source: Djenné Mosque (zamaniproject.org).

Genealogy and anthropology play an important role in the formation of mosque architecture, and are also visible in certain elements of the Djenné Mosque. The elements originate from local traditions and perform their own function, such as the flanking quoins (*sara fa hars*) in the façade of the mosque (Figure 4). The grandeur of the mosque façade represents the importance given to entrances by the local population. Throughout West Africa, all rites and rituals relating to change or transition take place at the entrance such as “outdoorings” or naming ceremonies, which announce a newborn’s arrival into the world and are usually performed at the entrance of the compound (Prussin, 1974, p. 199). Earthen pillars are erected in front of houses, which represent the ancestral shrines of the lineage. In the context of mosque architecture in West Africa, conical earthen pillars are considered a symbol of continuity and fertility (Prussin, 1974, p. 201). These were often projected like engaged pillars from the wall surfaces of mosques. They became a signature of the so-called “Sudanese style” in African architecture. These earthen pillars hold diverse cultural connotations in different areas. Prussin notes that these ancestral pillars were

transposed onto the “portal facades of Djenné’s urban architecture to become *sara fa har* or quoins” (Prussin, 1974, p. 200). It is believed that the earthen pillars signal the graves of two local religious leaders. Another product of cultural imperative is the placement of ostrich eggs at the conical extensions on the top of the pillars, which are considered a symbol of fertility and purity in the Malian region (Figure 5).



Figure 4. Façade of the Great Mosque. Source: Djenné Mosque (zamaniproject.org).



Figure 5. An ostrich egg circled in red at the top of the pillar. Source: Great Mosque of Djenné (Khan Academy).

An important decorative and structural element is the presence of timbre beams throughout the exterior of the mosque at regular intervals (Figure 6). The beams serve as permanent scaffolding for constructing walls. During the replastering ceremony, these are used as scaffolding to help in the plastering of the exterior walls. The “clay clumps applied by hand, together with finger marks, create a sensory skin effect” (Engmann, 2017, p. 190). The placement of these wooden planks at regular intervals allows the residents of the town to participate in the replastering festival while working together in harmony, creating a sense of belonging. The residents are extremely protective of their heritage, and this event allows them to demonstrate their deep attachment to their cultural roots.



Figure 6. Mosque entrance. Source: Djenné Mosque (zamaniproject.org).

Despite the challenges and limitations faced by floods and rain due to its location in the Niger Delta, the residents would build the mosque out of mud. The reason lies in the craft of masonry, which has been a specialized trade in Djenné for centuries (Royal Anthropological Institute, 2013, p. 2). Local materials and traditional design techniques that were used in the building of local houses were also implemented by the masons in the construction of the mosque. Questions are often raised as to why the mosque was built out of mud. The simple answer would be that all other buildings and houses in the town of Djenné were made out of mud as well (Figure 7), so it was a natural decision that the mosque would also be built using the same techniques over more modern methods of construction.

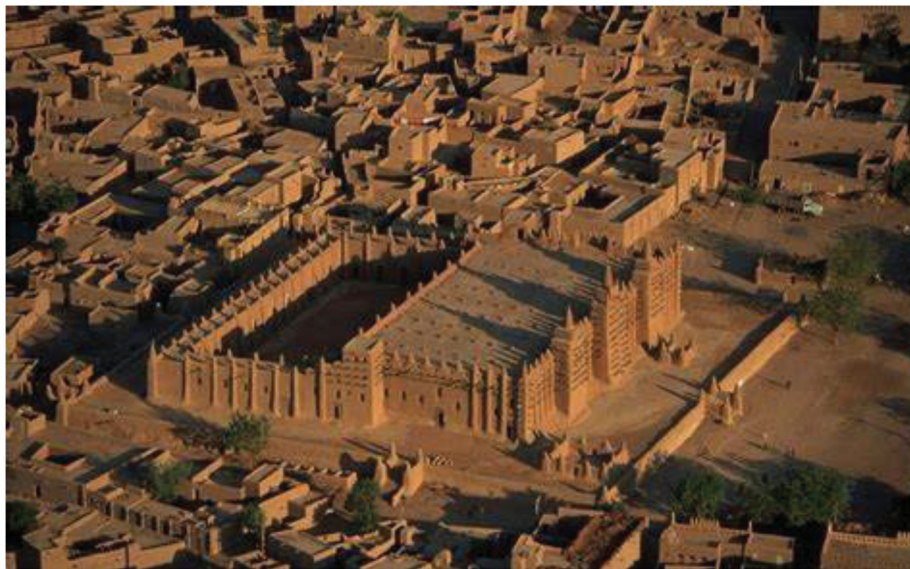


Figure 7. The Great Mosque, surrounded by mud houses. Source: Great Mosque of Djenné, Mali (SteemKR).

THE REPLASTERING CEREMONY

Residents take great pride in the replastering ceremony, which takes place annually and is called *Crepissage de la Grand Mosque*. The entire population contributes by kneading mud plaster into the walls. The plaster is made from a mixture of butter and fine clay from the alluvial soil of the nearby Niger and Bani rivers. The ceremony is celebrated as a festival in which the whole community gathers and socializes with each other (Figure 8). The building is pivotal to the collective identity of the residents as *Djennénke*. The postcolonial governments in Mali played a significant role in the appropriation of Djenné's architecture as a marker of regional, cultural, and local tradition. President Alpha Konare

prioritized cultural heritage in his developmental strategies between 1992 and 2002. Now, “the mosque has become a seminal icon of Mali’s distinct world-class heritage on a global stage. As expression of tangible and intangible heritage, respectively, the mosque and its spectacular annual re-claying ceremony feed social and political imaginings of pre-colonial roots, authenticity, and sustained tradition, while their integration into the economics of tourism and development allow them to be productively brought into line with national ideologies of cultural uniqueness and modernity” (Marchand, 2015, p. 5).



Figure 8. Scene of the annual replastering ceremony. Source: Archnet.org.

CONCLUSION

After the typological study of the Great Mosque of Djenné, we can conclude that the mosque is a clear deviation from the dome-style mosque. This mosque has six of the eight generic forms described by Ardalan in his article. The *mihrab*, courtyard, and minaret are strongly emphasized, with medium emphasis on the gateway, plinth, and ablution place. The dome and porticoes are completely absent, proving the argument that it is not necessary to have all these architectural elements in the building together for it to be considered a mosque. The only paramount element that must be present is the *mihrab*. The absence of a dome is due to ecological and geographical conditions. The earthen flat roof with openings covered by terracotta lids is a much more suitable feature than the dome because it allows light and fresh air, even during the hottest days. The mosque has cultural, traditional, and geographical imperatives, which made it a prototype for other mosques in West Africa like the mosques in Mopti. In a nutshell, it can be said that the Great Mosque of Djenné is a trademark of Sudano-Sahelian architecture, displaying mud architecture at its finest.

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