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Architecture of mosques and Islamic centers in Non-Muslim context



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Abstract Islam is the fastest growing religion in the world. The Muslim population increases as Islam spreads around the world, which leads to an increasing demand for Islamic buildings such as mosques and Islamic centres. Mosques play an important role in Islam and Muslim life. In several countries, in particular, the Western mosques are seen as a newcomer whose building type is both unique and foreign to local people who are unaccustomed to the visual expression of Islam in the West.

The mosque is one of the most visual expressions of global Muslim religious identity in non-Muslim context. The significant numbers of countries have a lot of different architecture styles of their Islamic buildings. Each mosque has its own individual touch. The most important factors behind this variation in form and styles can be divided into nature impacts as (local materials and environment), followed by man-made impacts by (Muslim immigrants, colonialism, funding, and laws, culture, and traditions).

The study aims to examine each factor and their influences on the architecture of mosques and Islamic centers in non-Muslim context through analysis and a comparison of a number of examples. © 2017 Faculty of Engineering, Alexandria University. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

In many Western capitals such as London, Washington, or Paris where the mosque or Islamic centre functions as a point of reference for Muslims in the city, mosques serve to express a Muslim presence as a symbol of Islam as well as space for social gatherings, education, and community service [1].

Usually, these buildings are financed by groups of Muslims of different origins and backgrounds. They also serve as indi-

cators of the role in which immigrant groups see themselves within the context of a foreign culture [2].

In this context, there are many factors contributing to the shaping of the typology, design, and role of the mosque in a multicultural atmosphere. Among those factors are immigrants to these countries, laws of the country, the materials available for construction, the funding available, colonialism influence, culture, and tradition.

In this paper, these factors will be discussed and their influence on the architecture of mosques and Islamic centers through analysis and comparison of a number of examples in a non-Muslim context that will help create a sample of Islamic buildings suitable while also achieving harmony with their

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locations. In addition to express Muslim presence, its identity, and its sacredness without a loss of validity, identity, or value.

2. Research methodology

The study will be based on a descriptive, deductive, and analytical approach as follows:

- Firstly, this paper begins with the assumption that there are some factors that influence the design of mosques.
- Secondly, study and analyze a selection of samples of mosques and Islamic centers span several different continents around the world such as Africa, Asia, the Americas and Europe.
- Thirdly, examine the main factors in each building that determined the architecture and construction.
- Fourthly, explain how each factor impacted the design and construction of the mosque.
- Fifthly, analyze results and begin a discussion based on analyzed examples.

3. Influential factors on architecture of Muslim in different countries

The major factors shaping the form and function of a mosque.

3.1. Muslim immigrants backgrounds

The great variety of religious diversity and ethnicity among Muslims in western countries is reflected in the variety of building design and construction.

People from different countries have their own ethnicities and cultures. When immigrants arrive in a different country, they often retain many of their traditional customs and beliefs, which may range from language to food and clothing styles and, perhaps most importantly, to religion [3].

A large number of Muslim migrants began emigrating from a different array of countries, the vast majority of which moved to England, France, and other parts of Europe as well as North America during the 1950s and 1960s. About a third of Muslim migrants to Europe came from the Middle East-North Africa, and more than five million came from the Palestinian. At the same time, nearly half of Muslim migrants arrived from the Asia-Pacific region. A significant number of Muslims also left Pakistan, Bangladesh and India during the partitioning of the Indian subcontinent and the withdrawal of the British in 1947. Russia's Muslim migrant population (approximately four million) comes mainly from neighboring countries like: Kazakhstan, Uzbekistan and Azerbaijan. Over three million (nearly half) of Germany's foreign-born Muslim immigrants came from Turkey, but they also include large numbers from Kosovo, Iraq, Bosnia-Herzegovina, Morocco, and Iran. About three million of Muslim immigrants in France are from the former French colonies of Algeria, Morocco, and Tunisia [4].

Projects for mosques expressing Muslim presence in non-Muslim countries essentially started to take shape in the late of 1940–1950s, which coincided with the end of colonial rule

and the rise of the independent states achieved by Muslims population of the Islamic world [2].

By the 1960s the immigrant communities began to feel the desire to express their presence by articulating new mosques. Projects that had been initiated in the 1950s like the Imam Ali Mosque in Hamburg, Fig. 1 built between 1960 and 1973 and funded jointly by the Iranian community in Germany and religious institutions in Iran [5].

3.1.1. Mosques and Islamic centers in France

World War I in 1914 was the main reason for direct migration between Europe and North Africa. A lot of North Africa countries such as Algeria, Tunisia, and Morocco sent soldiers to fight alongside the French. In the early decades of the twentieth century, these North African settlers interacted in the culture process on the French mainland [6].

The photos show influence of Moorish architecture or Mudéjar style architecture (Berber–Islamic architecture of West North Africa, Al-Andalus (Spain), Al-Garb Al-Andalus (Portugal)) on France's Islamic buildings. The square minaret of grand mosque in Paris and Islamic Cultural Centre of the Servant of the Holy Mosques in France were inspired by North African architecture from the Zitouna mosque in Tunisia (Fig. 2). Some elements of Paris mosque as: horseshoe arches, its courtyards, and green-tiled roofs were borrowed from the El-Qaraouiyyin Mosque in Fez, Morocco (Fig. 3).

3.2. Funding

Funding and financial resources, an essential element that affects mosque development can affect the size of mosque, form, style, construction, architecture elements, and details.

More significant funding can create a wealthy mosque while poor funding generally creates minimum facilities in the mosque.

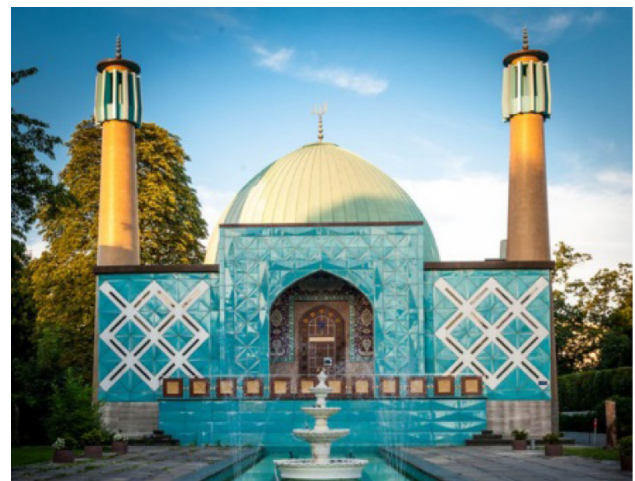


Fig. 1 The influence of Iranian Muslim immigrants on architecture of Imam Ali mosque, Germany <http://www.deutsche-islam-konferenz.de/DIK/EN/Magazin/Lebenswelten/Ramadan2013/ramadan-2013-node.html?docId=4601970>.

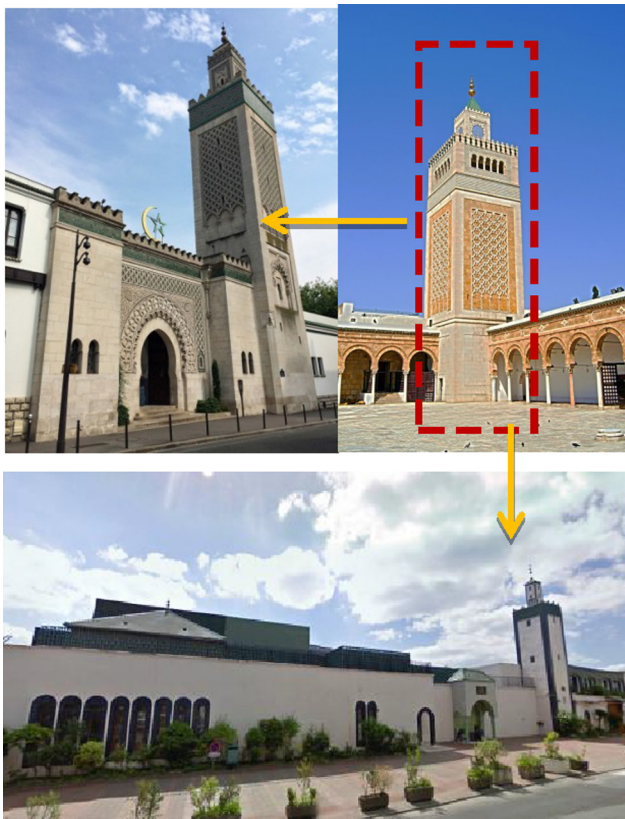


Fig. 2 Left: Grand mosque in Paris, Right: The Minaret of al zitouna mosque Tunis. And bottom: Islamic Cultural Centre of the Servant of the Holy Mosques – France. Edit by: researcher.

Mosques in the West built as statements of Muslim identity are usually financed either entirely or in part by Muslim governments, especially those in the Arab world, which have been responsible for financing more mosques outside of their countries than any other Muslim group [2].

In some western countries, mosques as any other house of worship either churches or synagogues—are not legally able

to receive any state funding. As a result, the main source to fund new mosques projects is through donations from individuals, charitable organizations, and outcome grants.

The examples show the different resources of funding, whether a grant from outside (King Fahad Islamic Center) or from individuals (Masjid Chulia) and its impact on shaping the form and function of the mosque.

3.2.1. Islamic centers in Latin America

King Fahd Islamic Cultural Centre, one of the largest mosques in South America, it was completed in 1996 with total area measures 34,000 m², which was granted by the Argentinian government. The main source of funding was provided from the Custodian of the Two Holy Mosques. The construction was financed by the Saudi king who amounted to US \$15 million, the mosque contains prayer hall, library, two schools and residences with a park. It was designed by Saudi architect Zuhair Fayez. The mosque size and landscape has been criticized for its sterile appearance, particularly the strange minarets [7].

- The design of the Islamic centre was inspired from both Mecca building style and Latin American. In this sense, the design reflects the self-identity and aspirations of the group that takes the initiative in the project (Fig. 4).

On the other side, an example of individual financial source.

3.2.2. Mosque in Asia, Singapore

Masjid Chulia, or Jamae Mosque, is one of Singapore’s oldest mosques built by Chulia Indian migrants who came to work mostly as traders and money changers in 1826 [8].

Jamae Mosque has an eclectic architectural style, taking elements from both East and West like a curious oddity in Chinatown. The mosque components are a foyer, the main prayer hall, and the ancillary prayer hall and a shrine.

Less funding can make poor design; the mosque has a mixture between Indo-Islamic style and neoclassic, in addition to architectural style from the west as shown by the pitched roof in Fig. 5.



Fig. 3 Left: The courtyard of Grand mosque in Paris, Right: The courtyard of Qaraouiyyin Mosque in Fez, Morocco. Source: <https://nz.pinterest.com/pin/493003490435431403/>.



Fig. 4 The King Fahd Islamic Cultural Centre and its minaret. Source: <http://www.skyscrapercity.com/showthread.php?t=1876884>.

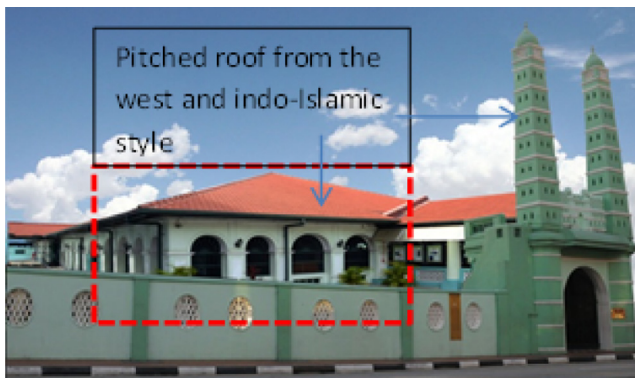


Fig. 5 The photo explains elements that borrowed from east and west in Masjid Chulia, Singapore. Source: www.masjidjamaechulia.sg edit photo by: researcher.

3.3. Laws and regulations

The building of religious buildings in some western countries often raise concerns about an increase in traffic in prayer times, and some people fear the mosque will make too great a mark on the cityscape.

- In Novogrudok, Belarus mosques are built of wood, owing to a law only allowing churches to be built out of stone, as an evidence of Christian favoritism over Islam [9].

Many countries like Switzerland have banned the construction of new minarets and in many other European states some politicians have demanded a ban on new mosques [10].

- In Germany, the law forbids the call to prayer, so the Azan is “written” on the minaret of the mosque Fig. 6 as calligraphy [9].

3.4. Colonialism

Just as many previous factors, such as immigrants, funding, and laws can explain their influence on mosques elements, colonialism too can explain the points of the variety in architecture style in different countries.

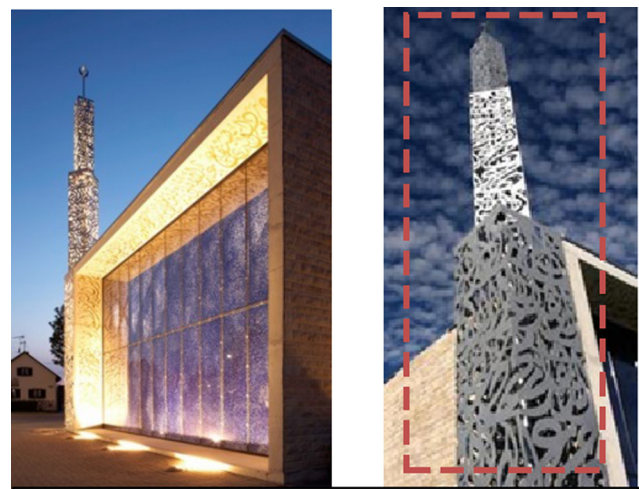


Fig. 6 Penzberg's cubic mosque, Germany. The Azan is “written” as calligraphy on the minaret. Source: <https://www.pinterest.com>.

3.4.1. In Nigeria

The emergence of the colonial style in Nigeria has affected the culture and traditions that weakened the connection between the traditional form and modern architecture [11].

Before the British colonization of Nigeria, mosques were built and designed mainly with the traditional forms by local builders and their families while, after the British rule, mosque construction was built by community members and some few by foreign engineers [11].

After the independence of Nigeria in 1960, the traditional mosques began to disappear and in their places, new different spaces with multi-functional elements appeared such as the seminar room and multipurpose hall. Furthermore, some of the symbolic and visual elements had disappeared like the domed mud roof construction, supported by mud arches. The ablution/entrance in the Zaria mosque was replaced with four iwans as shown Fig. 7. The Kano mosque and traditional symbolism along with motifs were replaced with abstract motifs and painted Arabic inscriptions [11,12].

- The architecture of the mosque shifted from traditional building materials to new construction and different materials.

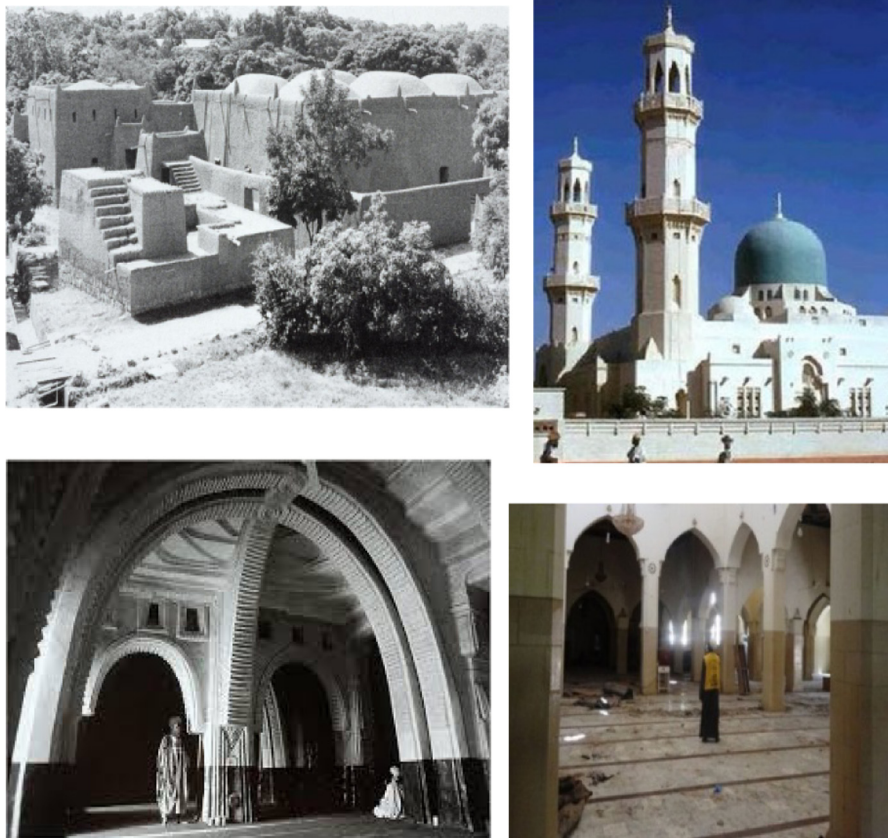


Fig. 7 Left :Zaria mosque . Right: Kano mosque the photos show mosque architecture, from pre-colonial to post-colonial period. Source: <https://www.pinterest.com>.

3.5. Local culture and tradition

3.5.1. In West of Africa

The Great Djenné Mosque in Mali, Africa is the centre of the religious and cultural life of Mali and the community of Djenné. As well as the site of a unique annual festival (Plastering of the Great Mosque) known as “Crepissage de la Grand Mosquée” (Fig. 8).



Fig. 8 The Great Djenné Mosque in Mali, Africa in Crepissage festival. Source: <http://newsdesk.si.edu/photos/mud-masons-mali-replastering-grand-mosquestanding-meet-the-masons-of-djenne-mali-224225/>.

During the annual festival, the Djenné’s community participates in the maintenance of mosques and the re-plastering of the external mosque through an annual festival. In the days leading up to the festival, the plaster is prepared in the pits, it requires several days to cure and requires being periodically shaken, a task usually falling to young boys who play in the mixture, thus stirring up the content. Another group of men carries plaster from the pits to the mosque’s workers while women provide water for the mixture. Elder people also participate in the festival by being on site, sitting on the terrace walls and offering advice [13].

3.6. Local material and environment

Differences appear in the architecture of Muslims living in places like Africa, India, and China where local materials and regional traditions, with little influence from the architecture of Islamic countries.

For instance, Mosque of Djenné, the first Great Mosque built in Africa and the largest mud-built structure in the world with a unique West African style in using earth as the primary building material [13,14].

The mosque is made up of a number of materials including adobe, sand, mortar, plaster, as well as bundles of ronian palm which used for decoration and serve as scaffolding for annual repairs Fig. 8. The Niger River is the main source of the mud used for the adobe bricks and plaster. The mud is mixed with rice husks and straw and fermented for a month when it becomes very tough, viscous, and rain resistant Fig. 9. Mud

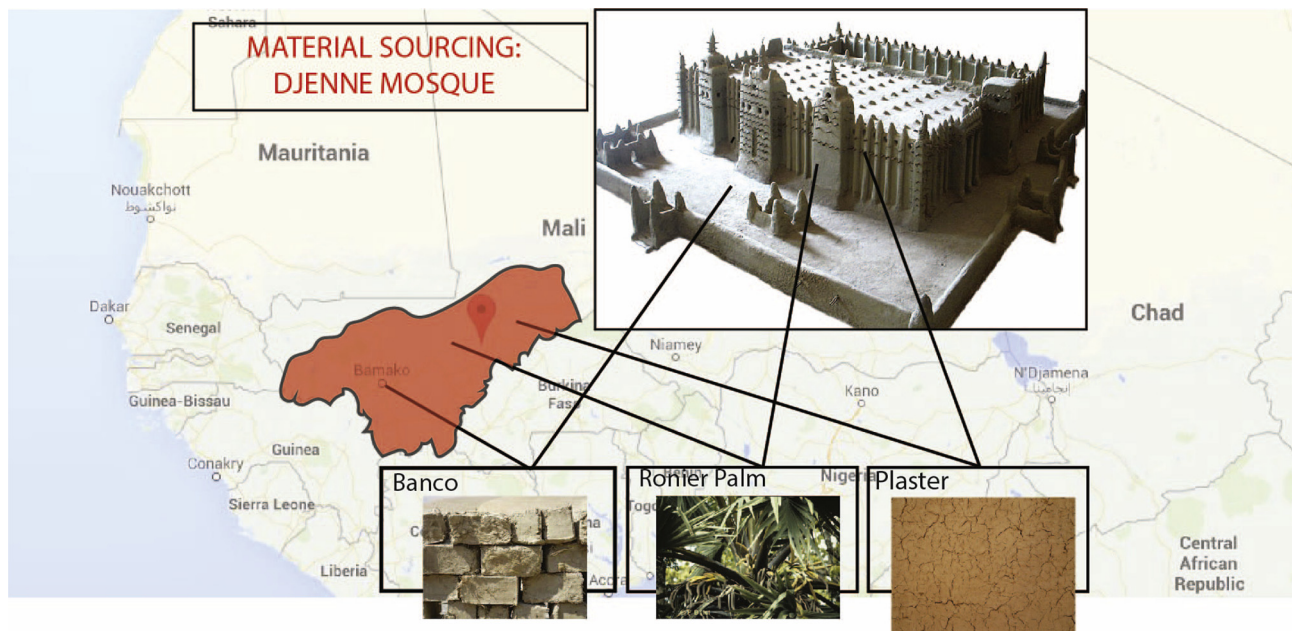


Fig. 9 The photo shows material sourcing of djenne mosque. Source: UNESCO.org Diagram by Sally Aul. <https://aulesystemssites-building.wordpress.com/2014/09/>.



Fig. 10 The Mosque of Larabanga, Ghana. Source: <http://wildeafrica.blogspot.com/2015/03/this-building-may-well-be-oldest.html>.

is also used in Djenné to decorate fabrics which has been dyed with local vegetable dyes [15,16].

- A significant number of mosques in Africa (Ghana and Nigeria) are made by mud [1] also such The Mosque of Larabanga, Ghana [17] (Fig. 10).

3.6.1. In India

In ancient India, the majority of the building was wooden because wood was so available while the masonry in arches and domes were unfamiliar. In the middle Ages when wood became rare, the Indians replaced the wood as a framework construction with stone instead of timber [15].

The Jama Mosque, Fig. 11 is cladding with red sandstone, and white marble in the domes, ceilings and the floor of the prayer hall [18].

3.6.2. Mosques in China

The main reason of using local material in china was maintained. Earth or crude stones were popular building materials in Chinese architecture. Bricks and Stones, wood were used in a lot of construction areas for centuries [19]. Traditional large Chinese buildings were mainly built of timber wood as a local material in construction. All the weight of the building is supported by a wooden frame usually, large trimmed logs are used as load-bearing columns and lateral beams for framing buildings and supporting the roofs [19]. For example: The Niujie Mosque Fig. 12 was one of the first to be constructed in in 996 A.D in China. It was constructed in Chinese style with a building structure of brick and wood [20].

4. Results and discussion

- There are two main impacts (man-made – natural) which including these factors that influence on mosques architecture in non-Muslim context (Table 1)
- The main factor of influence and control on architecture of Islamic buildings in a large number of countries is Muslim immigrants (Table 1). For many Muslim immigrants, the importance of creating familiar mosques with the same attributes that are found in their origin countries to express the Muslim presence in a multicultural context, thus a lot of religious buildings don't belong to their location (Iranian style in Germany – Moorish style in France).
- Funding (financial resources) plays an important part in the building of mosques. Such mosques usually reflect the taste of their sponsors, such as the Saudi Arabian style of the King Fahd Islamic Centre in Latin America.



Fig. 11 jama-masjid-in-Delhi, India. Source: <http://www.mapsofindia.com/my-india/travel/jama-masjid-in-delhi-a-mosque-with-an-awe-inspiring-grandeur>.

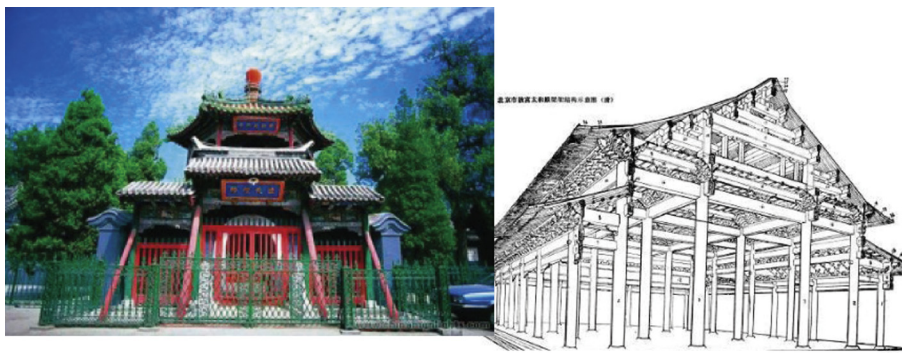


Fig. 12 Left: Niujie Mosque in Beijing in China. Right: wooden structure system in China. Source: <https://www.pinterest.com>.

Table 1 Factors that affect the architecture of mosques and Islamic centers in non-Muslim countries. Source: Researcher, 2017.

Factors that influence of mosque's architecture		Africa	Asia	America	Europe
Manmade factors	Muslim immigrants	●	●	●	●
	Funding	●	●	●	●
	Laws and regulations			●	●
	Colonialism	●	●	●	●
	Local culture and tradition	●	●		
Natural factors	Local materials and environment	●	●		

- The construction of new mosques in a number of western countries are a highly charged issue, This is evident in laws and regulations towards mosques thus, that is reflected on mosques architecture in this countries.
- The traditional mosques in Nigeria from the onset of the colonial to the post-colonial era have discarded that traditional symbolism, building materials, their construction methods, their styles, and design of Northern Nigeria.
- Regarding the culture and local environment: the mosque means a lot for the citizens of West Africa as shown in Mali mosque in West Africa. It is more than a mosque – it is the most prominent symbol of the city and a community space for festivals and market square.
- In term of material, it performs an important role in shaping the mosques. Earthen mosques are the most seen in Africa because of the available materials for construction completely made of the earth, such as straw for walls and pillars, mixed clay with fibrous materials and available timber in the roof.
 - There is more than one factor which influences on mosques architecture in the same country as seen in France: Muslim migrants, funding, laws, and colonialism.
 - -Based on the above examples mentioned in the analysis, the affective factors on architecture of mosques in some different countries can be classified as follow:

5. Conclusion

The functional and visual characteristics of mosque architecture have to deal with its new environment and context—one that has its own pre-existing historical, culture, traditions and visual vocabulary.

Mosques built in foreign context are characterized by two tendencies: Firstly, the design is influenced by the local context, modified by the Muslim immigrant's community, the group who fund or by local regulations and laws; and secondly, the design makes references to regional traditions.

Finally, the architectural form and design of Muslim buildings are usually influenced by one dominant style from one country or region, depending on who is financing, designing, or leading the project.

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