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A Comparative Analytical Study of the Conversion Form of Minaret in Contemporary Mosque Architecture

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Keywords: Contemporary mosque, Mosque Architecture, Minaret, Modern mosque design

Abstract: Every year many mosques are built around the world which imitate the traditional elements of historical mosque that are repeated everywhere without considering the time and place. The minaret has a specific role in mosque architecture which continues to be built around the world especially in modern times despite of the loss of the main function. The selected case studies are nine mosques which won of Aga Khan Award, are the most innovative design which avoids the direct imitation of the inherited elements of traditional mosque. The aim of this research is to shed the light on the significant mosque examples in contemporary architecture by analyzing the form of minarets. Moreover, analyzing the comments of the jury on these instances in order to evaluate them, as a result, highlight the new characteristics of minaret in contemporary mosque. This paper presents a comprehensive study on the transformation of contemporary minaret.

1. Introduction

1.1. THE PROBLEM AND MOTIVATION

There are many mosques that have been built around the world which follow the traditional style without considering the evolution of construction technology, facilities and contemporary aesthetic norms. This makes them old-fashioned designs, as if coming from the middle ages.

As of 2012, there are 84684 mosques in Turkey which were increased from 75941 since 2002 and most of them are following the historical style according to TUIK (Agenda, 2013). Imitating the styles of past centuries, mostly the 16th-century mosques (Kuban, 1967), has been the general approach in mosque designs in Turkey for the last fifty years (Kalayci and Celdkc, 2014).

Many architects are still designing mosque projects in familiar and traditional frameworks, but they are inclined to use modern materials and construction methods (Farazmand & Sarbangholi, 2014). Most of the current mosques do not reflect the architectural principles of the Spirit of Time (Zeitgeist) and the Spirit of the Place (Genius Loci).

The minaret has greatly lost its main function since the invention of the loudspeakers and the other developed audio technology (Najmul Imam, 2003). In other words, the minaret has lost its original practical purpose, but it is still continued to be constructed in contemporary mosques because it has other higher purposes and symbolic meanings.

The inherited historical elements such as dome, minaret...etc. are not sacred by themselves. On the other hand, imitating and repeating them in every mosque with the same method, make them like sacred elements which have associated with mosque architecture for centuries. This opposes the Islamic regulations which concentrates on the oneness of Allah without objecting

and materializing the symbols. In addition to that, the political and economic circumstances of Muslim countries caused a decline in innovative evolutionary movements in art and architecture (Yousef, 2012). This led to a nonstop process of copying, whether temporally from the past or geographically from the West, regardless of both regional and cultural identities (Yousef, 2012). Unfortunately, the most common approach is to repeat traditional forms of mosques using modern materials in all the contemporary Muslim countries (Bloom, 2013). There are uncountable instances of concrete Mamluk or Ottoman-style minarets that spread in all over the world (Bloom, 2013).



Figure 1. TOKI Mehmet Akif Ersoy mosque in Turkey, Istanbul, Kayasehir, Basaksehir. The copied mosque prototype (Photo taken By the Author).

1.2. OBJECTIVES OF THE RESEARCH

The aim of the research is to shed the light on the significant architectural practices in contemporary mosque design, which are honored by Aga Khan Award by analyzing the selected case studies of minaret in order to reinterpret, evaluate and develop mosque design in the Contemporary world. The outcome of the research, is to figure out the main characteristics of contemporary minaret through the familiar characteristic appearances of traditional minaret. These case study mosques could be considered a representative of the contemporary

mosque and the contemporary Islamic Architecture simultaneously, minaret represents the mosque itself. It is difficult to study contemporary mosques without an understanding of traditional mosque architecture and its role in the modern design (Uray, 2013). Hence, the characteristics of contemporary minaret will be compared with the characteristics of traditional minaret in order to show the similarity and differences between them.

Furthermore, the contribution of the architects in creating new concepts to the contemporary mosque design cannot be ignored (Uray, 2013). The output of the research can be utilized and considered by the architects, designers and the patrons in order to innovate mosque architecture in the contemporary age.

On the other hand, the design of the mosque is mainly an architectural matter (Buhlfaia 2000) which don't have to do with Islamic *sharia*³ law which prevents the innovation only in rituals and worshipping. Therefore, the research is intended to encourage innovation and creativity of mosque design.

1.3. LITERATURE REVIEW

Most of the previous studies are either descriptive and documentary or historical archaeological studies focusing on the historical information of minarets. Moreover, the previous studies lack generalization and punctuation and do not follow the scientific methods for assessing minarets. Unfortunately, most of these studies are about historical minarets and it is difficult to find a study about contemporary minaret of the mosque therefore there is kind of scientific gap. Some of the important studies on similar topics are as follows:

The study of Ürey (2013) titled "Transformation of Minarets in Contemporary Mosque Architecture in Turkey". This academic article is a bold attempt to express the new phenomena, but far away from covering the problems of the contemporary mosque with its limited content and descriptive scientific approach.

This study aims to describe the conversion of minarets in contemporary mosque architecture in Turkey by analyzing the way of usage, form and function of the contemporary minaret with a comparative analysis of six outstanding selected cases. In this study, these case studies started from 1960's which are discussed in terms of their common architectural features, the function of the minaret and reinterpreting the minarets in their designs concept. Ürey compared the contemporary minaret with the traditional Ottoman minaret in terms of modification of forms and functions (Ürey, 2013).

Kasim's study (1996) titled: "Design characteristics in Islamic architecture an analytic study of minarets" (1996), is a beneficial and important study because of focusing on the historical minarets in Islamic world with a profound analytical study. Although Kasim (1996) does not study the contemporary mosque, it is still an important thesis because it proposes a scientific methodology of the research in analyzing the historical minaret. It has a general theoretical framework purposed for studying minaret through the Islamic world. In this dissertation, the minaret is studied through eight aspects: 1) etymology; 2) architectural origin, 3) the relation of the minaret with the main building, 4) parts of a minaret, 5) technical construction, 6) function, 7) symbolical meaning, and 8) provision of Islamic law. The study also suggests dealing with an architecture as a language therefore it is necessary to classify the methodology of the study in three levels; 1) pragmatic, 2) semantic and 3) syntactic. (Kasim, 1996). The study (Kasim, 1996) only covers the syntactic level, but it is applied on a wide range of specimens (485 minarets) of historical mosques from different countries and cultures.

Ismail Serageldin, (1999) is an Egyptian architect and

planner who served on the Aga Khan Award for Architecture Steering Committee. James Steele (1999) is an assistant professor of architecture at the University of Southern California. Their study which documented in a book titled: "Architecture of the Contemporary Mosque" (1999), is very significant which deals with the architecture of contemporary mosques with their recent architectural approaches and describes examples of contemporary mosque design. This book provides a respected new vision into design theory of the contemporary mosque. The book analyzes the case study mosques from different Muslim countries with comparative study and architect's approaches. The book does not diagnose the problem of the contemporary mosque architecture, but it is important to understand the notion of the contemporary mosque with their approaches.

2. The Mosque of the Prophet and Minaret with Historical Background

2.1. THE MOSQUE AND MINARET

The concept of the mosque was derived from the Prophet⁵ Muhamad Mosque in Medina² in Saudi Arabia which has been the typical prototype for all mosques in the world (Johns, 1999). Unfortunately, the Prophet mosque does not exist nowadays, but some descriptions from the history and tradition. The mosque or the house of the prophet was a simple, flat-roofed and practical building (Omer, 2010).

The minaret was not known during the time of Prophet so that the prayers were called from the flat-roof of the houses or directly from public space in Medina² (Imdat, 2002).

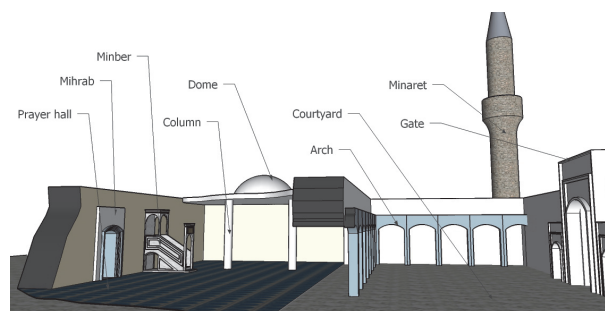


Figure 2. The Inherited elements of mosque architecture (By Author)

The architecture of mosques started to progress quickly at the beginning of the Umayyad period (661-750); Some elements after the Prophet's time were added such as the minaret, dome and niche imitated from the churches (Buhlfaia, 2000) and other historical building of the old civilizations. The most characteristic element in mosque architecture, is minaret. A minaret is a tall vertical slender tower that attached to the city's mosques from which *muezzins*¹ call the faithful to prayer five times a day (Bloom, 2002).

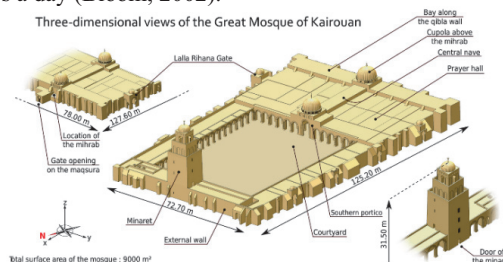


Figure 3. Rendering of the Great Mosque of Kairouan, Tunisia. One of the earliest mosque and the famous earliest minaret (graphic: Tachymètre)

2.2. CONTEMPORARY MOSQUE

Contemporary mosque architecture means any mosque which is built in modern time, which is a clean and correctly oriented space which face the *Kiblah*¹. But in a narrower sense, the contemporaneity is embraced in expression, form, functionality, structure and materials. Neither the Qur'an nor the Prophet's tradition (hadith) gives detailed instructions in terms of design, form or content (Jahic, 2015). Thus any clean space, that provides the functional need, is suitable for prayer and worship (Serageldin & Steele, 1999). Consequently, it is not mandatory that a mosque takes a certain type or restricted to specific mosque elements that did not exist in the Prophet mosque (Hoteit, 2015).

2.3. AGA KHAN AWARD

The Aga Khan Award for Architecture (AKAA) is an architectural prize which was established by Mr. Aga Khan IV in 1977. It aims to identify and reward architectural concepts that successfully address the needs and aspirations of the Islamic societies in the fields of contemporary design, social housing, and improvement of the environment ...etc. It presents monetary prizes totaling one million US dollar in three-year cycles for multiple projects (Aga Khan, 2016).

2.3.1. Sherefudin's White Mosque



Figure 4. Sherefudin's Mosque (AKDN Sh).

The Sherefudin's Mosque is located in Visoko, Bosnia-Herzegovina, which designed by the architect Zlatko Ugljen, honored at the 1981-1983 cycle. It has a geometrically simple plan that surrounds a complex, sloped-ceiling, skylight volume, pure, abstract, and sparsely ornamented and white painted. The impact of the conflict is between the elementary plan and the complicated hierarchy of the roof cones. The principals of the symbolic elements of the mosque have a fresh folk art characters subtly enriched by the avant-garde geometries forms of their background (AKDN Sh).

The jury commends the mosque for its confidence, ground-breaking and intelligence," and "full of uniqueness and innovation (In spite of a doubtless imitation from the Ronchamp church), burdened with the architect's notion and spirit which are related widely with the community, and linking the future with the past" (AKDN Sh).

The mosque represents a significant attempt to create an abstracted forms and spaces in which the connection with the past is greatly weakened and almost disappears. The minaret expresses through the proportions of this cylindrical element and the articulation of its cap with green metal pipes. Moreover, there is a steel mesh elements separate its form from any specific historical prototype (Al Asad, 1999).

2.3.2. Bait Ur Rouf Mosque

The Bait Ur Rouf Mosque is situated in Dhaka, Bangladesh, which was designed by Marina Tabassum, honored at the 2014-

2016 Cycle. The Mosque was raised on a plinth on a site axis creating a 13-degree angle with the *Kiblah* direction, which called for innovation in the layout. A cylindrical volume was inserted into a square, simplifying a rotation of the prayer hall, and forming light courts on four sides. Ancillary functions are located in spaces created by the outer square and the cylinder. The most distinctive characteristic of this mosque which should be noticed, is the absence of minaret. It funded and used by inhabitants, and inspired by Sultanate mosque architecture, it breathes through porous brick walls, keeping the prayer hall ventilated and cool. Natural light brought in through a skylight which is ample for the daytime (AKDN BAR).

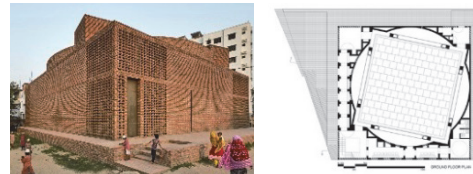


Figure 5. Bait Ur Rouf Mosque (AKDN BAR).

2.3.3. Bhong Mosque

The Bhong Mosque (awarded at the Cycle 1984-1986) is situated in Rahimyar Khan, Pakistan; which was designed by the local master builders and craftsmen. The mosque design is a collection of different sources which come from Muslim and Western countries which called a hybrid design. The multiple minarets in this mosque are transformed into decorated elements which cannot be climbed up. The jury stated: Bhong mosque preserves and embodies the popular taste in Pakistan with all its vigor, pride, tension and sentiment. Furthermore, its use, and misuse, of signs and symbols expresses appropriate growing pains of an architecture in transition (AKDN Bh).

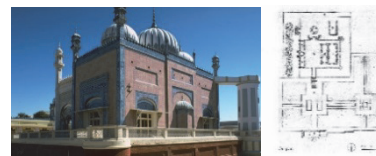


Figure 6. Bhong Mosque (AKDN Bh)

2.3.4. Corniche Mosque

The Corniche Mosque located in Jeddah, Saudi Arabia, which was designed by Abdel-Wahed El-Wakil and; was granted the Aga Khan Award in the 1987-1989 Cycle. The mosque's minaret has a square-based shape with an octagonal shaft. The jury praised the architect for his effort to combine the formal elements in ways that signify the present and simultaneously reflect the shining history of the Islamic societies (AKDN Cor).



Figure 7. Corniche Mosque (AKDN Cor).

2.3.5. Great Mosque of Riyadh

The Great Mosque of Riyadh is positioned in Riyadh, Saudi

Arabia, which was designed by Rasem Badran, and was awarded in the 1993-1995 Cycle. Badran has re-formed and converted a specific character of the indigenous Najdi architectural vocabulary without exact copying it. The mosque has two square minarets that indicate the *Kiblah* direction which break the skyline of the city. The jury summarizes that the mosque has already got received interest in the intellectual elite because of its fundamental design methodologies that may influence the mosque designs for the better advancement in the future (AKDN GMR).

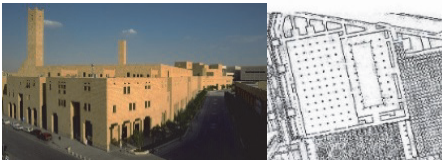


Figure 8. Great Mosque of Riyadh (AKDN GMR).

2.3.6. Great Mosque of Niono

The Great Mosque of Niono is situated in Niono, Mali, which was designed by Lassina Minta, and conferred in the 1981-1983 Cycle. This mud brick mosque is the work of an indigenous master mason who conceived and constructed it almost exclusively with local materials, utilizing only craftsmanship from Niono's people. The jury noted that: "The ongoing presence of the traditional forms (both complicated and primitive) is one of our most powerful allies in retaining architectural character and cultural identity as a large-scale in modern industry and building models world-wide which emphasize on their existence. Therefore, the wish and the conscious intention to preservation and continuation of the tradition should be praised and stimulated (AKDN Nino). This mosque has four minaret tower-like which have huge scale.

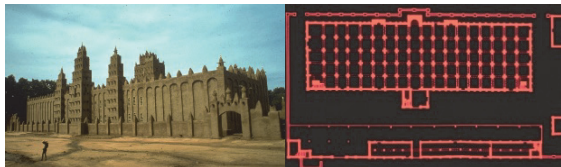


Figure 9. Great Mosque of Niono (AKDN Nino).

2.3.7. Saïd Naum Mosque

The Saïd Naum Mosque is positioned in Jakarta, Indonesia, which was designed by the Architects Atelier Enam Architects and Planners / Adhi Moersid, which was awarded in the 1984-1986 Cycle. The mosque is designed in the Indonesian Hindu-Javanese architectural tradition. In this mosque, traditional Javanese idioms have been skillfully re-interpreted to produce a modern regional architecture compatible with the best indigenous work (AKDN Said). This mosque does not have the inherited element such as minaret and dome.

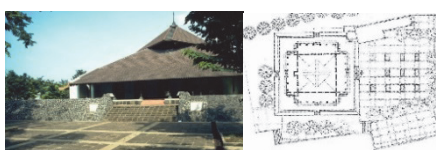


Figure 10. Saïd Naum Mosque (AKDN Said).

2.3.8. Mosque of the Grand National Assembly

The Mosque of the Grand National Assembly is located in Ankara, Turkey, that was designed by Behruz & Can Cinici, also it was bestowed in the 1993-1995 Cycle. The mosque has a low structure, with a stepped pyramidal roof, and a fully glazed *mihrab*⁶ (AKDN Nation). The minaret was transformed into a small balcony. (Dogan, 1999). There is a tree on the roof of the pyramid, which also participates in the expression of the vertical direction, and was implanted in order to be the reminder of the form of the minaret (Uray, 2010).

The designer disposes of the usual inherited architectural vocabularies which recognize the building as a mosque (AKDN Nation). Therefore the jury commended the mosque for its innovative character and its challenge on getting rid of the traditional mosque vocabulary. (Dogan, 1999)

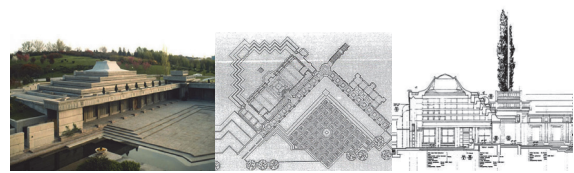


Figure 11. Mosque of the Grand National Assembly (AKDN Nation)

2.3.9. Yaama Mosque

The Yaama Mosque is situated in Tahoua, Niger, which was constructed by Master Mason Falké Barmou, and won in the 1984-1986 cycle. Each of the four corner minarets towers-like of the mosque which each of them is an individual sculpture with banded, tapering walls that become gradually more elaborated toward its pinnacle. The construction process of it depends on the community collaboration with primitive construction methods using simple materials like local mud brick. The jury celebrated the traditional techniques which used in a creative manner, to experiment with them and to achieve results that induce a new awareness of their possibilities (AKDN Y).



Figure 12. Yaama Mosque (AKDN Y).

3. Methodology, Result and Discussion

This study began with a literature review of the mosque design in general and the role of the minaret in particular. During the research, it has been realized that "The work can be dealt with architecture as a language because it needs a vision with the total point of view as Kasim categorized in pragmatic level, semantic level and syntactic levels (Kasim, 1996).

3.1. METHODOLOGY OF RESEARCH

The study base on a comparative analysis of several case studies in terms of the following criteria:

3.1.1. The typology of mosque design approach.

The mosque design approach can be recognized according to its design attributes such as experimented approach, postmodern approach, vernacular approach, conservative approach and adaptive approach (Serageldin & Steele, 1999). These approaches depend on the architect and patrons' who choose the design approach of the mosque or can be submitted to the context of the mosque.

3.1.2. The main parts (elements) of minaret (Kasim, 1996).

It can be made a comparison between traditional minaret's elements such as 1) Base 2) Shaft 3) Balconies 4) Neck 5) Spire and the contemporary elements in order to know if the contemporary minaret has the same traditional element.

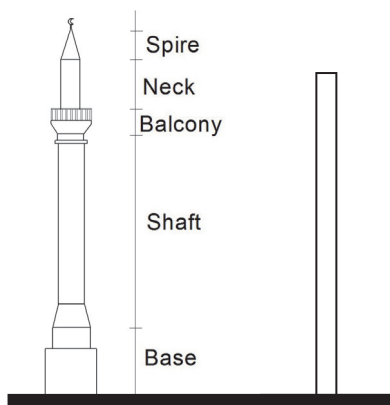


Figure 13: The main elements of minaret in traditional mosque and the contemporary minaret (By Author)

3.1.3. The shape grammar of the sections design of minaret (Kasim, 1996).

The sections of the minaret can be analyzed from the base to the peak. The gradation of minaret can be observed for the purpose of study the method of generating the form of the minaret. Omary is a professor of Islamic architecture speculate that the gradation in the minaret has been disappeared in the contemporary mosques that agree with the current study (Omary, 1988). If the section of the minaret does not change, it would be continued with the same section to the spire which is one of the characteristics of the contemporary minaret.

3.1.4. The emphasize of minaret in mosque's composition

It represents the influence of minaret or how much the minaret is powerful within the whole composition of mosque. So if there are more than one minaret, it would be stronger emphasize than just one minaret. If the minaret dominate over the whole mosque therefore, it would be the strongest emphasize. If there is no minaret, it would be zero emphasize. If the mosque has a small minaret or very thin minaret, the representation would be weak emphasize (Ardalan, 1980).

3.1.5. The location of minaret with relation of the main hall prayer (Kasim, 1996).

It can be assessed by the existence of minaret, if the location refers to the direction of *Kiblah*, if the minaret located on the corner, minaret attached to the main hall prayer and the number of minaret.

3.1.6. The abstraction and the secondary elements of the minaret (Kasim, 1996).

The abstraction can be assessed by evaluation of minaret whether it is simple minaret or complex with secondary elements. The secondary elements which means the traditional details of minaret such as ornamentation, Arabic calligraphy, symbols and crescent (Kasim, 1996). If the minaret has a huge scale, it is considered as edifice scale. It can be observed that generally the contemporary minaret tends to be simpler and more abstracted than traditional one.

3.2. THE RESULT AND DISCUSSION

Table 1. The typology of mosque design approach are analyzed in the following table.

Mosque	Adaptive approach	Conservative approach	Vernacular approach	Populist approach	Postmodern approach	Experimented approach
Great Mosque of Niono			●			
Yaama Mosque			●			
Said Naum Mosque			●			
Bhong Mosque			●	●		
Corniche Mosque		●			●	
Great mosque of Riyadh	●					
The Grand National Assemble	●					●
Sherefudin's White Mosque						●
Bait Ur Rouf Mosque			●			●

- 1- There are two case studies which follow the vernacular design approach.
- 2- There is only one case study which follows the populist approach
- 3- There are three case studies which follow the experimented mosque design approach
- 4- There are three case studies which follow the adaptive mosque design approach.
- 5- There is one case study which follows the conservative design approach.

Table 2. The main elements of minaret are analyzed comparatively.

Mosque	Base	Shaft	Balcony	Neck	Spire
Great Mosque of Niono	●	●	●	●	●
Yaama Mosque	●	●	●	●	●
Said Naum Mosque					
Bhong Mosque	●	●	●	●	●
Corniche Mosque	●	●	●	●	●
Great mosque of Riyadh	●	●			
The Grand National Assemble					
Sherefudin's White Mosque	●	●			
Bait Ur Rouf Mosque					

- 1- There are four case studies out of nine which have all the main element of the traditional minaret of the mosque.
- 2- There are two case studies out of nine which have only two elements of minaret. These minarets have only base and shaft of the elements.
- 3- Most of the mosques which follow the traditional and conservative mosque design approach, have all the main parts of the minaret.
- 4- The experimented approaches have no minaret or only one unfamiliar minaret which have two elements of minaret.

Table 3. The shape grammar of the design sections of the minaret.

Mosque	Base	Shaft	Balcony	Neck	Peak	The result
Great Mosque of Niono	□	□	□	□	○	Graduation
Yaama Mosque	□	□	□	□	○	Graduation
Bhong Mosque	○	○	○	○	○	Graduation
Corniche Mosque	□	◡	○	○	○	Graduation
Great mosque of Riyadh	□	□				No change
Sherefudin's White Mosque	○	○				No change

- 1- It is obvious that the mosques which follow the experimented design approach (Two cases) have minaret with one section without graduation because it is easier and cheaper in construction.
- 2- There are four case studies that follow the traditionalist and vernacular approach, have diversity of sections.

Table 4. The Minaret case studies are compared.

Mosque	Weak emphasize	Normal emphasize	Strong emphasize	Very Strong emphasize
Great Mosque of Niono				●
Yaama Mosque				●
Said Naum Mosque				●
Bhong Mosque			●	
Corniche Mosque		●		
Great mosque of Riyadh				●
The Grand National Assemble	●			
Sherefudin's White Mosque			●	
Bait Ur Rouf Mosque				

- 1- Most of the case studies (five cases) have very strong emphasize on the minaret.
- 2- There is only one case which has normal emphasize that Corniche mosque has only one minaret with fair height.
- 3- There is only one case study which has very weak emphasize which is TBMM mosque that minaret was transformed into a tree (Uray, 2013).

Table 5. The location of minaret is analyzed

Mosque	The existence of minaret	Attached to the main hall prayer	Minaret on the corner	referring to direction of Kiblah	The number of minaret	The form
Great Mosque of Niono	●	●		●	Four	
Yaama Mosque	●	●	●	●	Four	
Bhong Mosque	●	●	●	●	Ten	
Corniche Mosque	●	●	●		One	
Great mosque of Riyadh	●	●		●	Two	
Sherefudin's White Mosque	●				One	

- The minaret
- The line by the minaret and the mihrab refer to the direction of Kiblah
- ↑ The entrance gate
- ◡ The mihrab

- 1- There are four cases which have minaret which oriented to the direction of *Kiblah*.
- 2- There are five cases which have a minaret attached to the main hall prayer.
- 3- There is only one case which has a minaret that separated from the hall prayer.
- 4- The average number of the minaret in the case study mosques is two.
- 5- There are three case studies have the minaret in the corner of the mosque which follow the minaret in traditional mosque.
- 6- In the most of the contemporary praised mosque architecture, the minaret goes beyond of the practical usage and classical forms by means of abstraction as it shown in the previous table.

Table 6. The abstraction and the secondary elements of minaret

Mosque	The absence of minaret	Simple minaret	Ornamentation	Arabic calligraphy	The edifice scale
Great Mosque of Niono		●			●
Yaama Mosque		●			●
Said Naum Mosque	●				
Bhong Mosque			●	●	
Corniche Mosque					
Great mosque of Riyadh		●			●
The Grand National Assemble	●				
Sherefudin's White Mosque		●		●	●
Bait Ur Rouf Mosque	●				

- 1- There are three case studies which do not have a minaret for some reason.
- 2- Most of the minaret cases (Four cases) have simple style which do not have Arabic calligraphy, ornamentation and complex forms.
- 3- Most of the minarets in case studies have edifice scale (Five cases).

Overall, through the close comparative examinations of the case studies, characteristics of the contemporary minaret can be summarized as follows:

- 1- Generally, the contemporary minarets tend to be simple and without traditional details especially the experimented design approach. Advanced technologies in methods and materials of construction and economic advantages of these technologies led designers to be freed from constructional constraints in building minaret.
- 2- The balcony of the contemporary minaret is unlike the traditional minaret because the balcony is not in the form of the cantilever. The contemporary minaret may have a window or opening instead of the balcony which may not use to climb up, but it is used as a decoration. The number of balconies in the most cases is one since there is no need for more than one balcony.
- 3- The contemporary minaret tends to be abstracted without ornamentations and Arabic calligraphy.

- 4- Some of the case studies have lost the gradation to the spire because the gradation that was a need for building a high minaret with the old construction methods. There is currently no need for gradation because of the advancement of construction methods and materials which make it easier and more economical.
- 5- In a contemporary mosque, the minaret is not a mandatory element in designing a mosque that is submitted to the need and context. Therefore, there are some mosques that do not contain minaret for some reason, but it is still considered as a main symbolic element of mosque architecture. Therefore, the minaret is continued to be constructed in the most of the mosques to the present time because it is considered as a symbol of the mosque's presence and a symbol of Islam, too (Bloom, 2013). Thus, the minaret is the most powerful symbolic element of mosque architecture.
- 6- The number of the minaret is one or two in most cases, depending on the mosques design approach and construction methods.
- 7- The contemporary minaret tends to use modern materials and modern forms in order to rethink the concept of a tower that attached to a mosque (Bloom, 2013).
- 8- There is a minaret which is absent and transformed into a tree (Uray, 2013) in order to be the reminder of minaret's existence. It serves as a complementary element because there is no need for the minaret in the TMMB mosque because there is no population and urban fabric near to the mosque, which is located within the complex of the national assembly.



Figure 14. The vertical impression of the tree which indicates to the absent minaret (AKDN Nation).

- 9- In most of the case studies, the minarets are attached to the main hall prayer.
- 10- In most of the case studies, the minarets have a strong emphasis with all composition of the design.
- 11- It can be noticed that there are some of the minarets which are not using for climbing up, but as decorated element such as the Bhong mosque in Pakistan.
- 12- Nowadays, the contemporary minaret, which follows the experimented approach, do not have a specific form because it is transformed into a decorated complementary element of mosque. This kinds of minaret is subjected to the personal experience of the designer.



Figure 15 .Case study minarets (By Author).



Figure 16. The unlimited forms of contemporary minaret in different contemporary mosques which follow the experienced approach (By the Authors).

Endnotes

- 1- *Kiblah*: The direction of the Kaaba shrine in Mecca toward which all Muslims turn in ritual prayer.
- 2- *Medina*: The first Islamic city which is and the second sacred city for Muslims which the prophet Muhamad was lived in it.
- 3- *Muezzin*: a Muslim who calls for the hour of daily prayers.
- 4- *Sharia*: Islamic law based on the Koran.
- 5- The prophet: Used as another name for the prophet Muhammad, the founder of Islam.
- 6- *Mihrab*: a niche in the *kiblah* wall of a mosque which indicate to direction of *Kiblah*.

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