Proceedings of Symposium on Mosque Architecture, Vol. 3B, pp 59 – 70, College of Architecture & Planning, King Saud University (1419H-1999)

The Importance of Mosque Design in the Urban Environment of Pakistan's New Capital - Islamabad

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Abstract: The historical perspective of Mosque Design in the Indo-Pakistan Sub-Continent with its rich architectural heritage includes some of the finest examples of Mosque Architecture. Badshahi Mosque, Lahore Jamia Masjid and Delhi Mosque may be considered as classic representations of grand mosque design. Prior to taking any major decisions, an important debate took place among the architects and decision-makers in Islamabad regarding the relative merits of adopting Islamic Traditionalism or that of Contemporary Architecture in the external expression of the architectural image of Islamabad. A deliberate decision was taken to adopt a new architectural expression for the design of buildings having traditional functions, using the full benefits of modern technology.

Islamabad has been carefully planned on the basis of Neighbourhoods or Sectors (2000 yds x 2000 yds.), each with complete neighbourhood facilities for the residents, such as local shops, primary schools within walking distance. Each neighborhood has been further subdivided into sub-neighborhoods and the local mosque has been planned to play a pivotal role in the life of the residents for conducting their daily prayers. The hierarchy of mosques also provides for the construction of a larger neighbourhood mosque in each Sector for Friday prayers. Finally, the principal mosque (King Faisal Mosque) has been designed to meet the needs of the entire city, including major congregations on special occasions such as Eid or large funerals. King Faisal Mosque has been also considered as the nucleus for the Islamic Research University in Islamabad.

Examples of mosque design adopted for the various categories of functions mentioned above are described in this paper, with special emphasis on the design features in King Faisal Mosque. It is clear from these designs that no typical prototypes were adopted for mosque designs in each category of the hierarchy, as it was felt that this form of architectural expression would become too monotonous for the individual character envisaged of Islamabad.

Introduction

Although Pakistan emerged on the world map and in the comity of nations only half a century ago as an ideological Islamic state, yet the cultural history of the territory now forming Pakistan dates back to over four thousand years. During this period of the Indus Civilization, there was remarkable development of conscious urban planning as evidenced in the cities of Taxila, Moenjodaro, Harappa and Kot Diji. Never before had such a rich civic culture been available, at least in this part of the world. Coupled with this wonderful urban background, the Muslims had also inherited the most magnificent and glorious architectural history of their own, as reflected by significant examples of large and small monuments of Muslim architecture within the Indian Sub-Continent.

With this rich heritage of urban planning and architecture, a conscious decision was taken in the year 1959 to shift the temporary capital from the business and commercial city of Karachi to a more congenial environment somewhere in the north of Pakistan. The need was also felt for asserting our separate individual, cultural and religious identity by building the new Capital to be named Islamabad. Extensive surveys and investigations were carried out to determine the most appropriate site and environment for the new Capital. A high-powered commission and a team of technical experts were

appointed to carry out this important task. Detailed studies and reports were prepared to cover the subjects of (a) Climate and Health, (b) Communications, (c) Defence, (d) Food and Water Resources, (e) Fuel and Power, (f) Susceptibility to Floods and Earthquakes, (g) Labour and Construction Materials, and (h) Aesthetics.

As a result of the final deliberations, it was decided at a Cabinet meeting of the Pakistan Government held at the Shakarparian Hill in Islamabad on May 24, 1960, to build the Capital in the Potohar plateau in the north of Pakistan, not far from the city of Rawalpindi. It was located against the magnificent scenic background of the Margalla hills. An additional advantage which was considered was, that in the initial transitional period, Rawalpindi could act as the "sister satellite city", for launching the construction operations before finally moving the Capital to a more congenial atmosphere for housing the "thinking part" and the nerve centre of the new Government, which could be placed in a reasonably safe haven form the defence point of view, Rawalpindi being the existing Army Headquarters of Pakistan.

The Urban Design of Mosques

The new Master Plan of Islamabad was entrusted to the world-famous town planner Dr. C.A. Doxiadis who developed the novel concept of "Dynapolis", or an ever-expanding city, through a series of self contained-communities of different sizes and income groups and residential densities. Each sector was approximately 1.2 miles x 1.2 miles in size but was further sub-divided into four sub-sectors, which were to be developed to accommodate even smaller communities of the size of "Mohallas" or pedestrian sub-neighbourhoods. Each of these communities or sub-sectors was provided with its own housing, shopping center and a mosque. While the town planner was well aware of the provisions to be made in the Master Plan for the urban needs of the population, he was particularly advised to specifically cater for the religious and spiritual needs of the public, hence reflecting Pakistan's ideological orientation.

"In Islam, prayer is established at four levels: the individual, the congregation, the total population of a town, and the entire Muslim world. For three of these there are distinct liturgical structures. The first is the Masjid, a Mosque used for daily prayer by individuals or small groups but not for the Friday worship: it therefore has a Mihrab, but no Minbar (pulpit). The prayer rug also corresponds to this level. The second is the Jami, the congregational or Friday Mosque, used for the main weekly service, and it is normally much larger than a Masjid and provided with a Minbar. The third is the Eidgah (place of prayer). Within these liturgical types a range of architectural variation is possible."[1 p.18]

In order to follow this philosophy, it was planned to provide an adequate number of mosques and prayer areas within the Capital. For this purpose, a hierarchy of mosques was provided for the varying sizes of the planned communities. Thus, beginning with the smallest "Mohalla mosque", located within walking distance and catering for a population size of 5,000 persons, the next category of mosques was located in communities of 10,000 to 15,000 population each, and the main Sector mosques were planned for an average population of 15,000 to 30,000 people, which could be treated as the "Jami Masjid" located in the centre or "Markaz" of each Sector. Finally the Capital's principal mosque for Eid prayers and other special occasions was given the pride of place by locating it as a terminal building on the important avenue of the Islamabad Highway, a north-south artery named as the "Path of Islam", leading to the "House of God." This mosque was to be located on high ground overlooking the city of Islamabad, so as to be visible from a great distance and yet be reasonably central to the urban development of Islamabad, which was planned to grow in south-east and south-west directions.

It will thus be evident that in determining the principal characteristic features of the new Capital, due importance was given to the spiritual requirements of the residents. This was achieved by evolving a system of mosques to be designed and built in the various communities or sectors into which the

Capital was divided and this has been diagrammatically illustrated on the Schematic Master Plan (Fig1). A CDA departmental study has also indicated that apart form the mosques designed and built by the CDA, a fairly large number of mosques were also built by the general public, as well as some old mosques which were already in existence in the area and had to be regularised in the plan.

Architectural Patterns and Styles of Mosques

In evolving the designs of the different sizes of mosques in Islamabad, the Architects and Planners were conscious of the fact that the single most significant building in a Muslim Community is the mosque. The visual language of symbolic forms found in the architecture of the mosque was therefore kept in view. Historically, "the mosque occurs in varying shapes and sizes, as a fundamental part of city planning in all Muslim cultures from Spain to China and because it possesses the most charged set of visual symbols." [2 p 55]

In a detailed study on "Mosque Architecture" by Nader Ardalan, it has been stated that, " to achieve an understanding of the visual language of mosque design, a two-part methodology was employed. First, by analysing the origins of mosques and studying the transformation of ancient pre-Islamic building

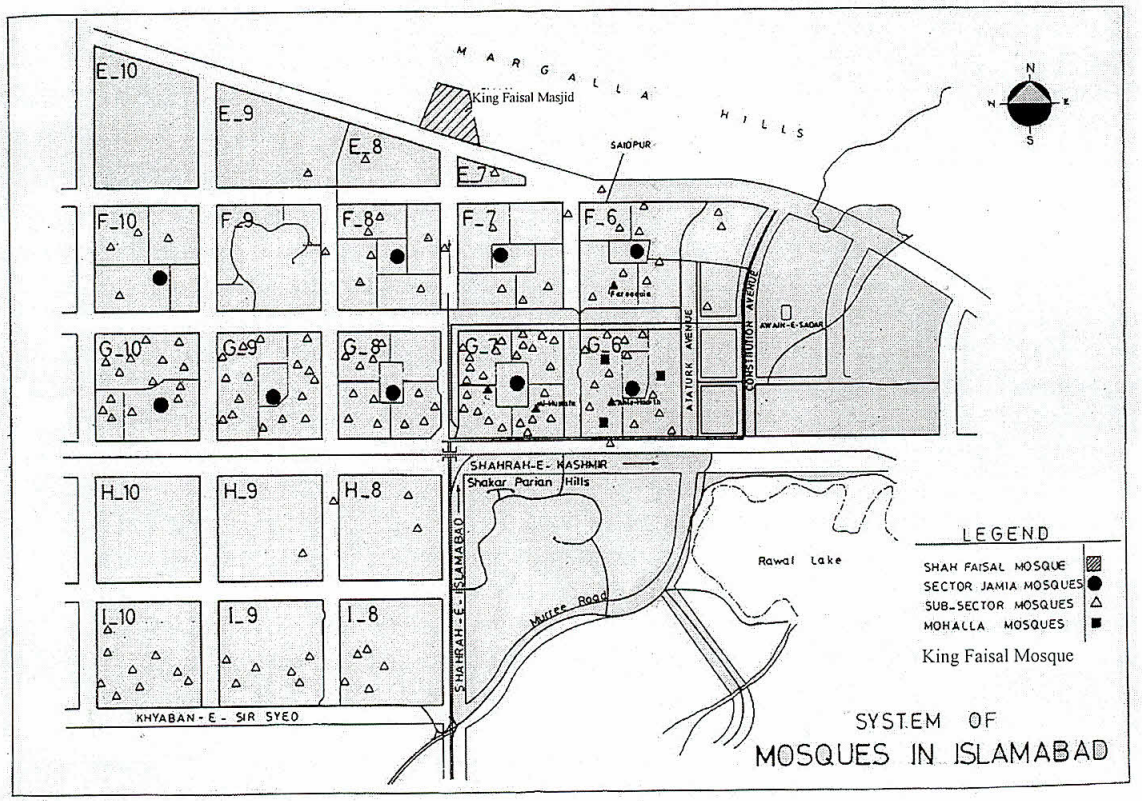


Fig. 1: System of Mosques in Islamabad.

types into mosques, it was possible to discern a distinct set of generic Islamic forms and typologies of spatial organisations; second, a comparative survey of the major mosques of the Muslim world made it possible to catalogue the occurrence of these generic forms and typologies over the last fourteen hundred years."

The visual characteristics of mosque architecture have been listed as follows:

(i) Concern for orientation in space expressed both in the cosmic orientation of the Ka'ba and in the terrestrial alignment of mosques towards Makkah, the architectural device for this purpose being the Mihrab.

(ii) The principle of introversion characterised by the courtyard and central dome planning. In Southeast Asia and other forest ecologies, a pyramidal wooden roof instead of the usual central dome usually covers the special sacred space or hall.

(iii) From the ritual of daily and congregational prayer, two other generic forms have evolved the Minaret and the place of Ablution.

(iv) The Gateway or Portico as a "positive space."

(v) The plinth as the provision of a single plane courtyard design set upon land with minimum topographical slope." [2. P.55,56]

The Design of the Principal Mosque and Typologies

The designs of individual mosques adopted in Islamabad would indicate that as a matter of deliberate policy, the following guidelines were laid down for the benefit of the participating Architects: -

i) The avoidance of prototypes or attempts at replication of existing mosque designs.

ii) Although the principal characteristic features of mosques were carefully preserved in Islamabad, no attempt was made to impose a specific traditional "style", on the architecture of mosques.

A glance at the designs of various mosques built in Islamabad indicates that each individual architect was allowed complete freedom to adopt a vocabulary of his own, without ignoring the characteristic features of mosques traditionally adopted, interpreted however in an innovative contemporary manner using the full benefits of modern technology. Seminars and debates were also arranged to promote a dialogue and discussions between the architects and decision makers in Islamabad regarding the relative merits of Islamic traditionalism or contemporary architectural expression in portraying the ultimate image of the new Capital. A number of Architects of the CDA were responsible for the design of different mosques in the sub-sectors of Islamabad, catering for communities of various sizes and populations. The most significant contribution however, was made by Anwar Saeed, CDA's Principal Architect who was commissioned to design several mosque types for Islamabad. For this purpose he adopted innovative structural solutions together with traditional design elements. For example the Ahle Hadith Mosque "was built for a community of 6000 people on a flat open site in a residential area of Islamabad (See Fig. 2 & 3). It accommodates 280 worshippers in the prayer hall, and about 650 in the court and on verandahs. The project was begun in 1969 and was completed in 1973. The mosque represents a departure from the conventional designs that had been prevalent on the Indian Sub-continent; it is rather an attempt to use traditional design elements in combination with a bold new structural method. The design is based upon a grid of 8ft or 2.44M. The form relating to this grid is a concrete groin vault supported by four reinforced-concrete columns."[3 p.121-123] Other mosques designed by Anwar Saeed, such as the Al-Mustafa mosque in G-7/4 and in F-7/4 are variations on the same theme. The Farooquia mosque in F-6/1 is however a departure, the Architect having adopted cylindrical barrel vaults for a design in the contemporary idiom (Fig. 4-7).

A proposal was initiated by the Minister in charge of Islamabad to shift the location of the Grand National Mosque, shown on the Master Plan by Doxiadis and build an exact replica of the famous Jami Masjid, in Delhi on the roundabout located at the junction of the two

main highways namely the Islamabad and the Murree or Kashmir highways. The idea of replecating the Jami Masjid was met with opposition and the concept of the Master Plan was affirmed. During a visit to the site of the new Capital Islamabad in 1966, the late King Faisal Bin Abdul Aziz of Saudi Arabia offered to defray the entire expenses of the new mosque. Today it stands as an abiding symbol and a magnificent expression in moern mosque architecture.

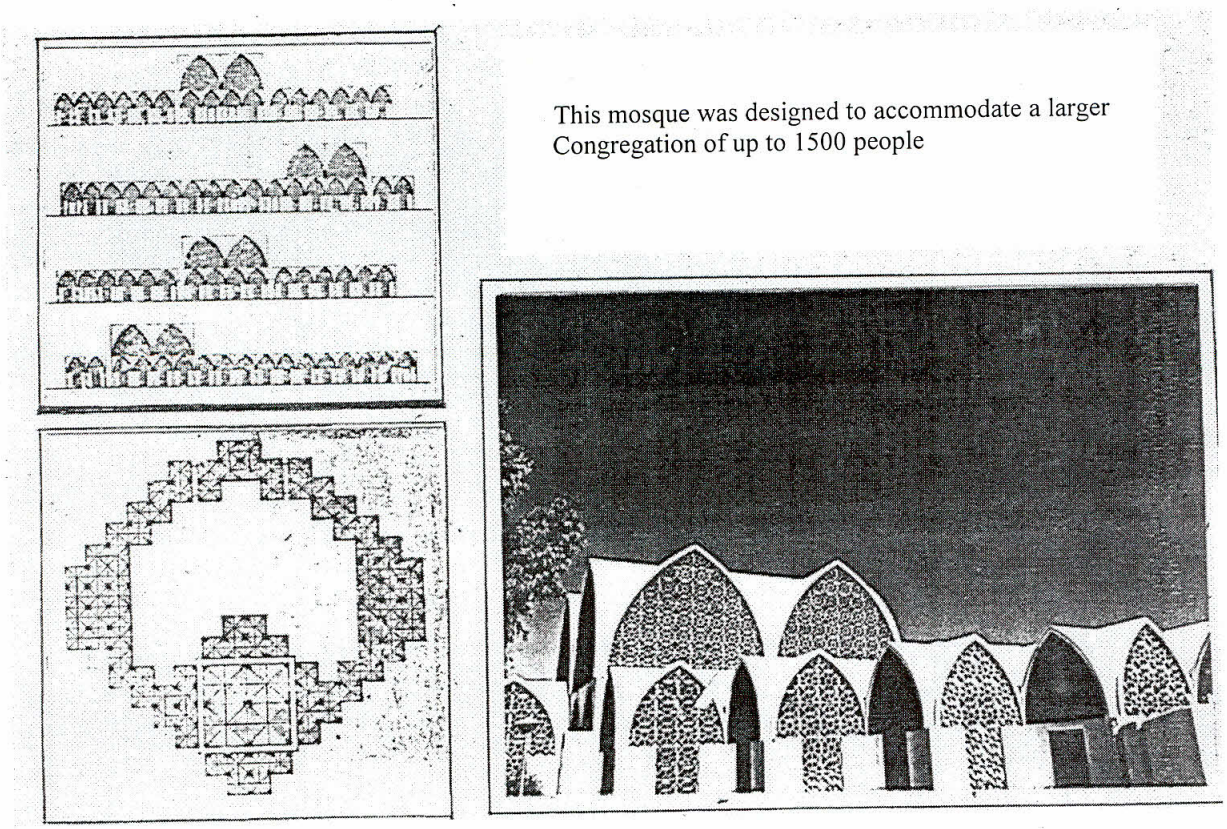


Fig. 2: Ahle-Hadith mosque in sector G-6/1 designed by Mr. Anwar Said.

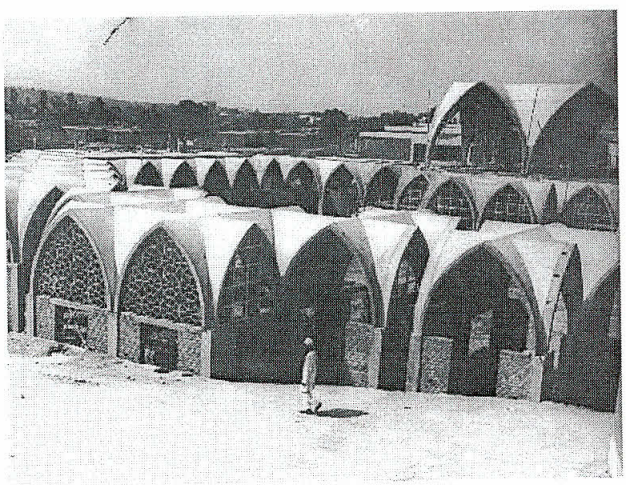


Fig. 3: Another view of the Ahle-hadith Mosque.

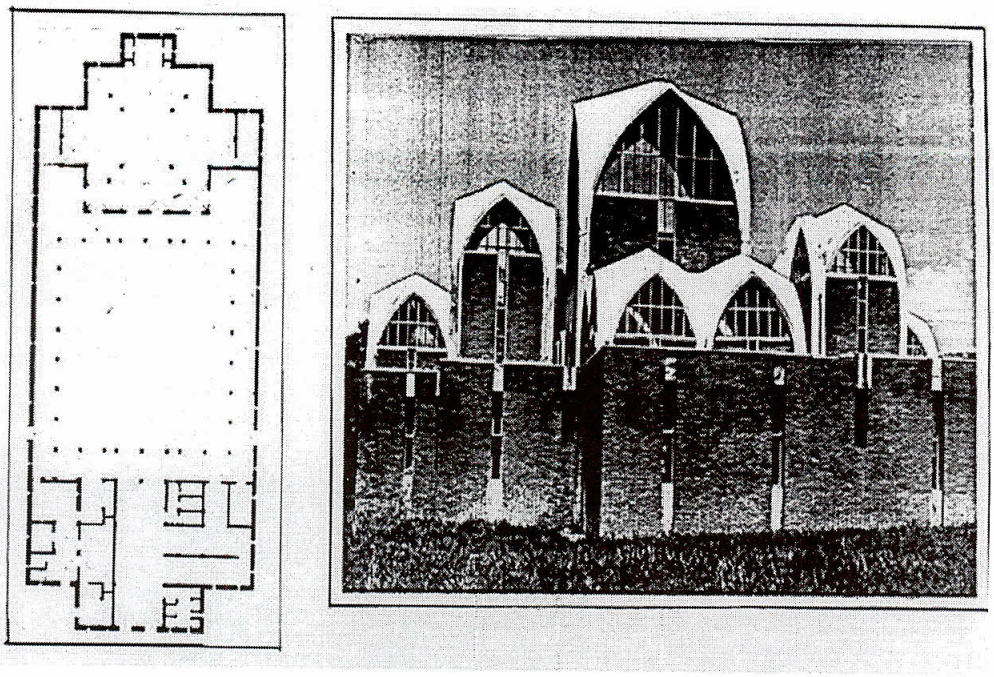


Fig. 4: Al-Mustafa Mosque in G-7/4, designed by Anwar Said, can accommodate nearly 800 persons.

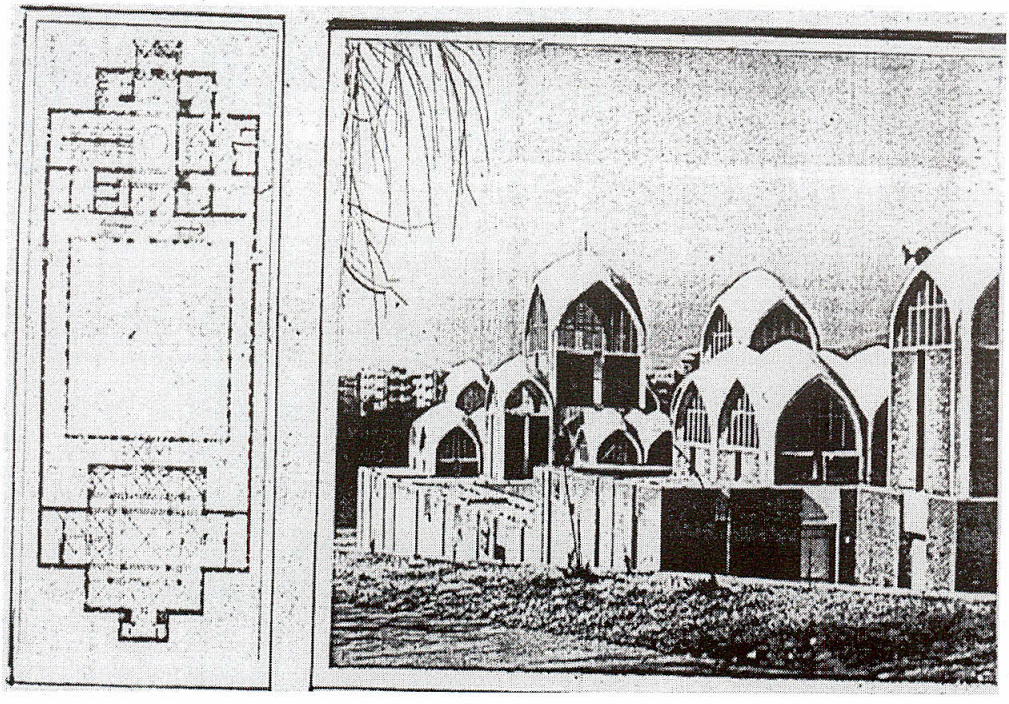


Fig. 5: Another innovative Mosque designed by Mr. Anwar Said, in Sector G-7, constitutes a variation of the Al-Mustafa Mosque in Sector F-7/4 in terms of arch forms.

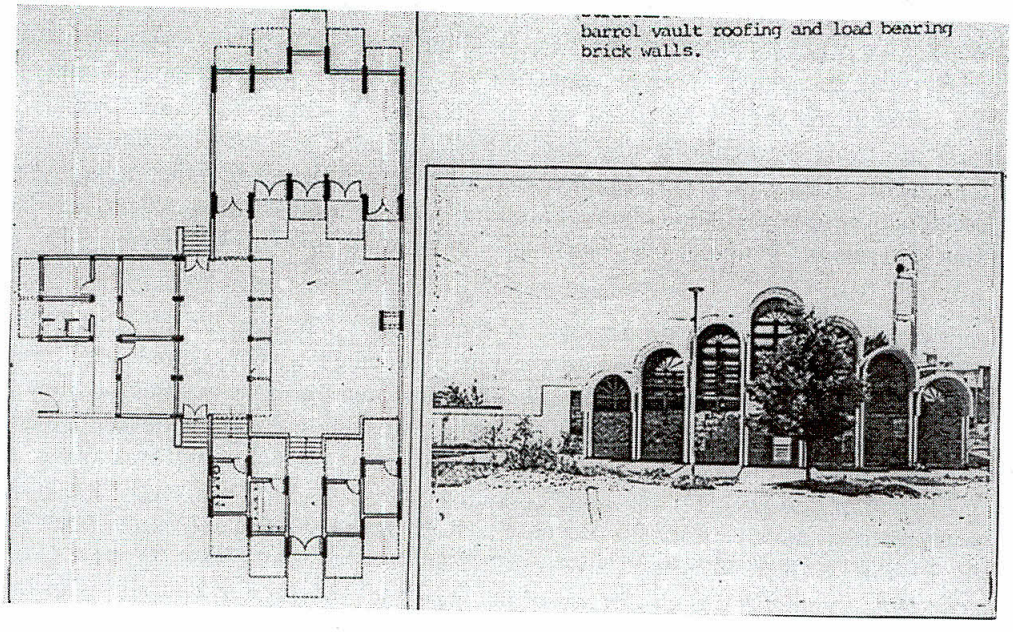


Fig. 6: Farooquia Mosque designed in a contemporary idiom by Mr. Anwar Said, in Sector F-6/1, with a somewhat smaller capacity.

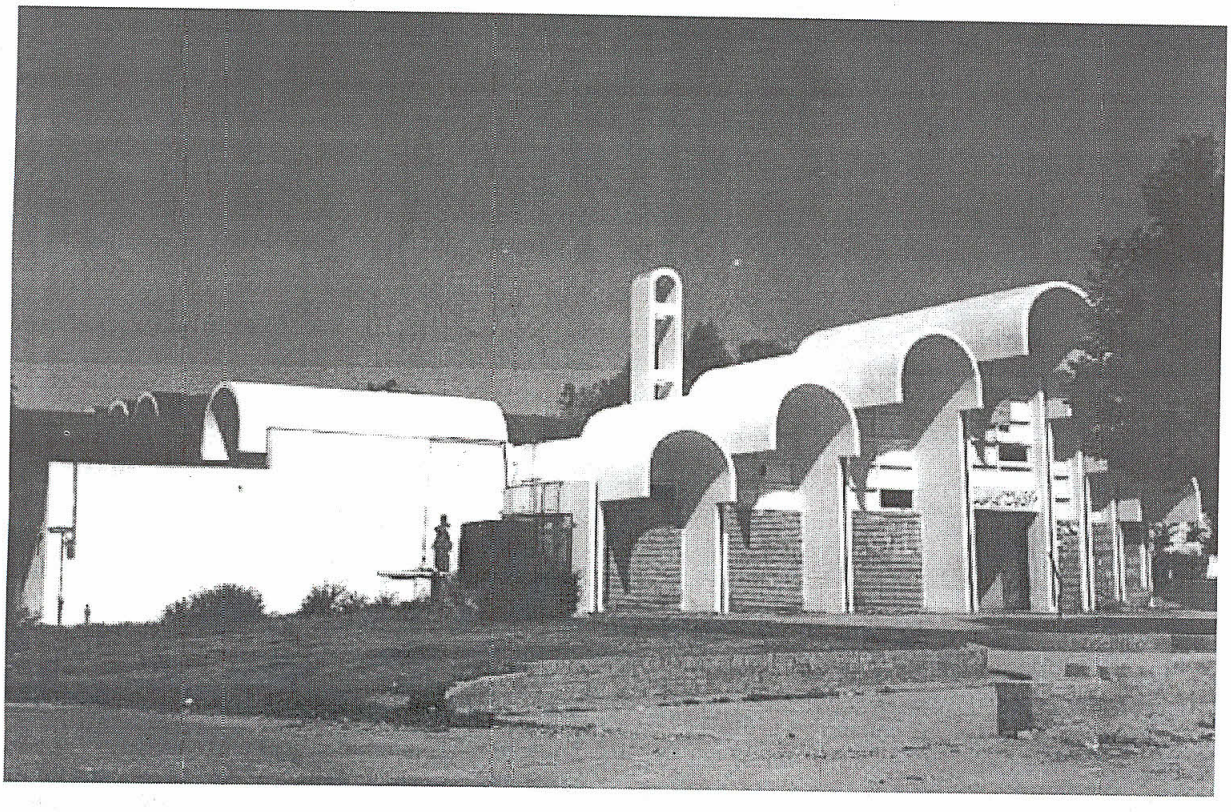


Fig. 7: Another view of the Farooquia Mosque.

An International competition was launched in 1968 which was limited only to the Muslim architects, under the sponsorship of the International Union of Architects (IUA). Architects from 13 countries participated in the competition. The International Jury recommended that the award of first prize should be given to the well-known Turkish architect Vedat Dalokay, who employed a team of architects and engineers to develop the detailed designs in Ankara. However, the entire work was carried out by a Pakistani firm from the public sector, M/s National Construction, under the direct monitoring and control of a team of local and foreign technical experts including a specialist construction firm, the Swiss M/s Losinger Ltd.

The following section comprises a description of the mosque's design, its structural complexity, construction problems and its interior décor consisting of an elegantly simple treatment, preceded by an outline the features of the site, the schedule of requirements and the accommodation provided. Initially, a site of approximately 50 acres (20 hectares), outside the main commercial, business and industrial areas of Islamabad, was earmarked for the new Mosque. A major goal was also to provide a completely green and pollution-free environment deemed compatible with the religious function of the mosque. Subsequently, however, it was decided that King Faisal Masjid should form the central "core" of the Islamic University, which was established in the year 1980 through a Presidential Ordinance. In 1985, with the establishment of the Daa'wa Academy for the training of Imams and Khatibs and the Sharia Academy for the study of Islamic Laws, it was renamed the International Islamic University. From the administrative point of view, the Islamic University has been made the Custodian of the Faisal Mosque and the Daa'wa Academy now controls the administration of the Mosque.

King Faisal Masjid, (originally called the Grand National Mosque) was commenced in 1970 and finally completed in 1986, after considerable modifications and additions to the original concept of the building programme. As built, it now includes the following facilities:-

♦ The Main Prayer Hall	for 7,500 persons
♦ Women's Gallery.	for 1,500 ladies.
♦ Entrance Verandah	for 2,000 persons
♦ Main Courtyard (open)	for 40,000 persons
♦ Main Courtyard Porticoes.	for 22,000 persons
♦ Podiums including North Platform	for 27,000 persons
♦ Green area devoted for prayers on the East and South of Masjid.	for 2000,000 persons
♦ Parking	for 600 cars.
♦ Cycle stand around East entrance.	for 2,000 cycles.
♦ Central Ablution area.	for 16 persons at a time

Turning to the basic concept of the Mosque, the architect states that it was King Faisal, who provided the opportunity for the noble efforts of the two countries to construct this powerful masterpiece of contemporary religious architecture, the external pyramid of our age, as a message to future generations. As stated earlier the Architect was also influenced by the history of urban planning of nearly 5000 years and also inspired by the historic events and monuments of Islamic religion that transformed the faith and culture in the Indus Valley after 712 AD. The proposed Mosque was therefore meant to be the crowning memorial in the name of Islam to be built within Pakistan's modern Capital and a symbol of the religious dedication and independence of the Muslim State of Pakistan. It was to be an eloquent call of architecture of religion, the most valuable heritage from the present generation to future ones.

In planning King Faisal Masjid in the grand tradition of Muslim architecture, due regard was kept of our previous classic international examples. They include the Great Mosques at Cordoba and Damascus, and within the sub-continent itself, the Jami Masjid, Delhi and the Badshahi Mosque in Lahore, all were taken as sources of inspiration.

The background to King Faisal Mosque was provided by the splendour of the Margalla Hills, which was one of the important factors in moulding the design of the Mosque. Harmony and rapport was reached between the silhouette of the Mosque, reflecting that of the hills, the pointed peaks piling over one another in the form of recurring triangular facets and this was reflected in the tent-form of the Mosque closely related to the mountain texture. Having given the relationship of the design to its physical background, it must also be stated that the basic concept was deeply inspired by the universally revered cubical form of the Holy Ka'ba. The design of the Masjid has therefore been based by the architect on a perfect cube of 100 meters x 100m, with the four minarets rising to a height of 100 meters in "the glory of God". This imaginary cube had within itself a smaller pyramidal covered area for congregational prayers. This hall has a structural provision with four numbers, twin- legged girders with secondary and hinge beams with skylights, and deep foundations and an intricate hollow roof system. (See Fig. 8 & 9)

The joy of living is expressed in the design through the medium of a well-lighted and effectively ventilated simple interior décor with pleasing colours. The judicious use of interior and exterior water effects, depict the main theme and spiritual content of its architectural design. The interior of the Masjid is therefore a unified space without mysticism and isolation from the exterior. The visual contact between the interior and the exterior has been achieved through the East and the Qibla wall's clear glazing which provides an expression of continuity of life within and outside the Prayer Hall.

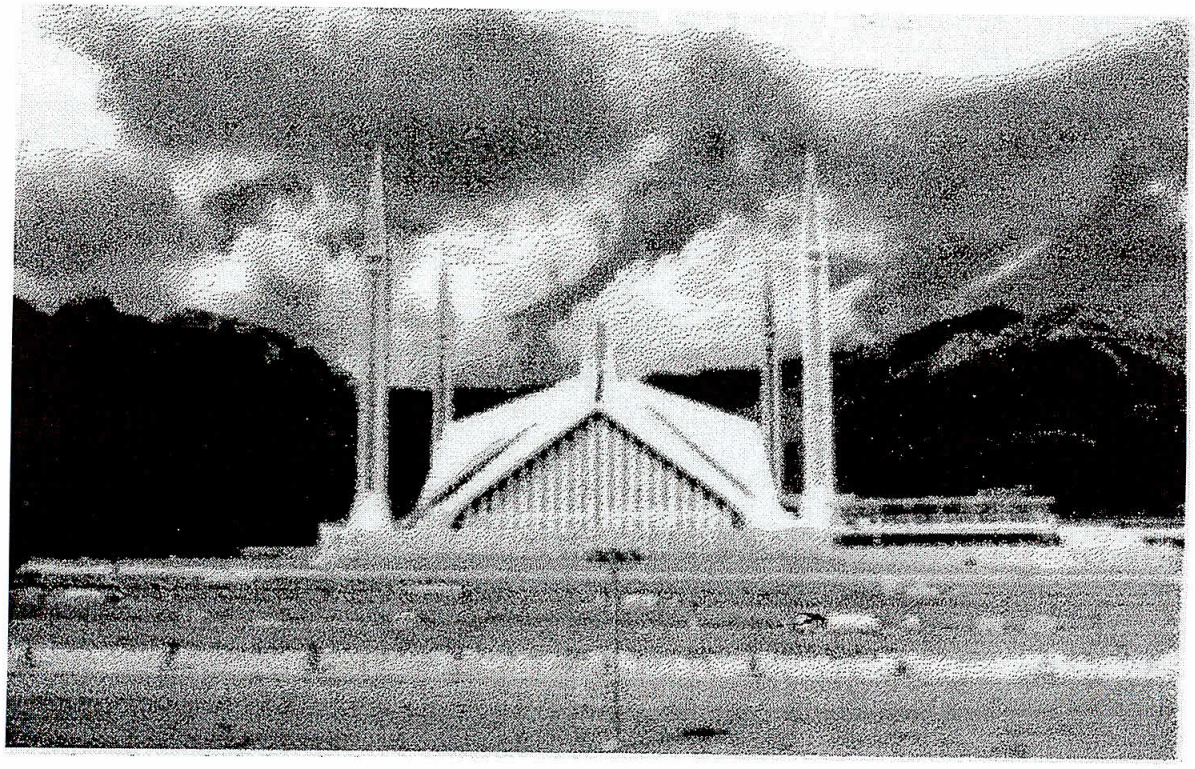


Fig. 8: Exterior view of King Faisal Masjid as built.

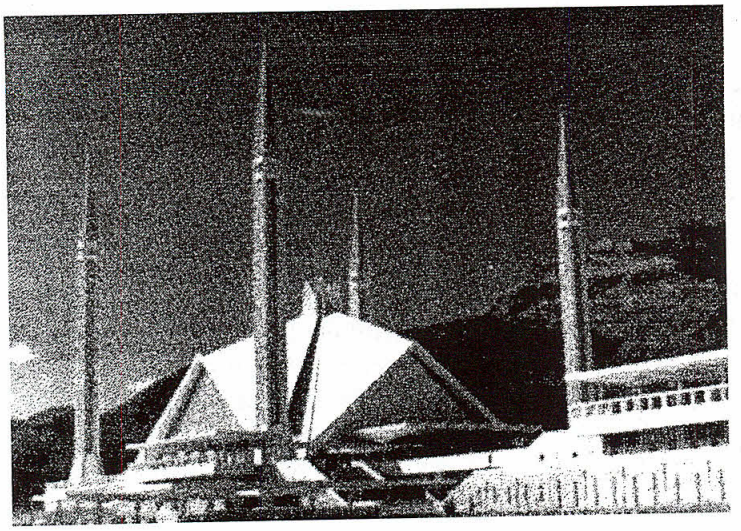


Fig. 9: King Faisal Masjid in relation to the International Islamic University, on the right.

The unusual *mihrab* was designed by the famous Pakistani artist Guljee in the form of an open Quran and stands in front of the *Quibla* wall, exquisitely decorated with calligraphic work of the well-known modern Pakistani artist Sadequain (1930-87). According to Renata and Hasan-uddin, "the dramatic volume of the prayer hall with its central chandelier emphasises a unified single space in the manner of Sinan's 16th century Ottoman mosques in Istanbul" (Fig. 10).[3 p. 76 - 80]

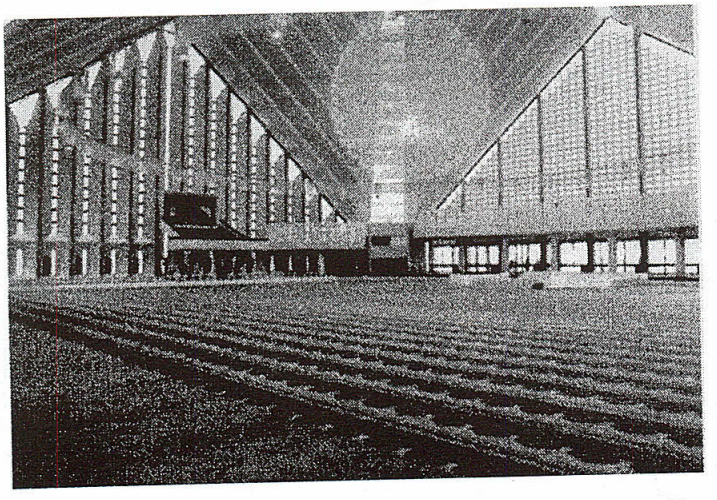


Fig. 10: Interior view of the Mosque.

A Complex of this magnitude invariably requires in-depth and concerted efforts on the part of all those who are involved in the planning, design, evaluation, organisation, financial management, construction and supervision of King Faisal Mosque. The structural design of the Prayer Hall was analysed on

computers with appropriate structural analysis programmes of all horizontal and vertical loads. The main structure has been designed for an earthquake intensity of G/5, a wind velocity of 100 miles per hour, and for the effects of shrinkage, creep, uniform and sudden temperature differentials as well as any differential settlements of the foundation. It has been claimed that the correctness of the geometry of this huge structure as finally completed, was controlled and monitored within an accuracy of plus/minus one millimetre.

Conclusion

In conclusion, it may be stated that in the over-all urban design of Islamabad, a complete hierarchy of mosques had been carefully worked out for the individual needs of communities of different sizes. However in the detailed designs of mosques, innovative structural design solutions were adopted in combination with the traditional design elements of mosque architecture. Finally, the King Faisal Masjid was appropriately, the climax in the urban landscape of Islamabad.

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أهمية تصميم المسجد في البيئة العمرانية لعاصمة باكستان الجديدة – إسلام أباد

زهير الدين خواجا

الهيئة العليا لتطوير العاصمة

إسلام أباد، باكستان

ملخص البحث: يشتمل تاريخ تصميم المساجد في شبه القارة الهندية – الباكستانية بما تحتويه من ثراء في طرزها المعمارية المحلية على أفضل النماذج في عمارة المساجد. ويعتبر كل من مساجد بادشاهي, جامع لاهور, ومسجد دلهي من النماذج العريقة والرائدة في تصميم المساجد في شبه القارة الهندية. و قبل اتخاذ أي قرار يتعلق بتحديد الطرز المعمارية على مستوى العاصمة جرا حوار مهم بين المعماريين وصناع القرار في مدينة إسلام أباد حول فوائد اتباع الطراز الإسلامي التقليدي مقارنة بالطرز المعمارية الحديثة كقاعدة نمطية يتم اتباعها في تقرير الطراز المعماري الخارجي لمنشآت المدينة. واتخذ القرار باتباع طراز معماري جديد في تصميم المباني ذات الوظائف التقليدية, و باستغلال أفضل السبل التقنية الحديثة. وقد تم تخطيط مدينة إسلام أباد بعناية على أساس مناطق سكنية أو قطاعات ذات اطوال(٢،٠٠٠ × ٢،٠٠٠ ياردة), تحتوي كل منها على كامل الخدمات السكنية، مثل الخدمات التجارية، والمدارس الابتدائية، وفي نطاق المشي. كما تم تقسيم كل منطقة سكنية إلى مجاورات سكنية. ويلعب المسجد المحلي دورا محوريا في حياة السكان الذين يؤدون الصلاة يوميا. وتشتمل هرمية المساجد المعتمدة على بناء مسجد جامع على مستوى المنطقة. أخيرا، روعي في تصميم مسجد الملك فيصل الذي يشكل رأس تلك الهرمية تحقيق أغراض على مستوى العاصمة، ومن ذلك الفروض الخاصة كصلاة العيدين والجنائز. كما يكون مسجد الملك فيصل المركز للجامعة الإسلامية للبحث في إسلام أباد. تم تضمين الورقة أمثلة لتصميم المساجد على مختلف المستويات الوظيفية لتلك المساجد, مع التركيز على الخصائص التصميمة لجامع الملك فيصل. ويتضح من استعراض التصاميم المختلفة أنه لم يتم اتباع نموذج موحد في تصميم تلك المساجد لتلافي صفة الملل إلى المدينة.