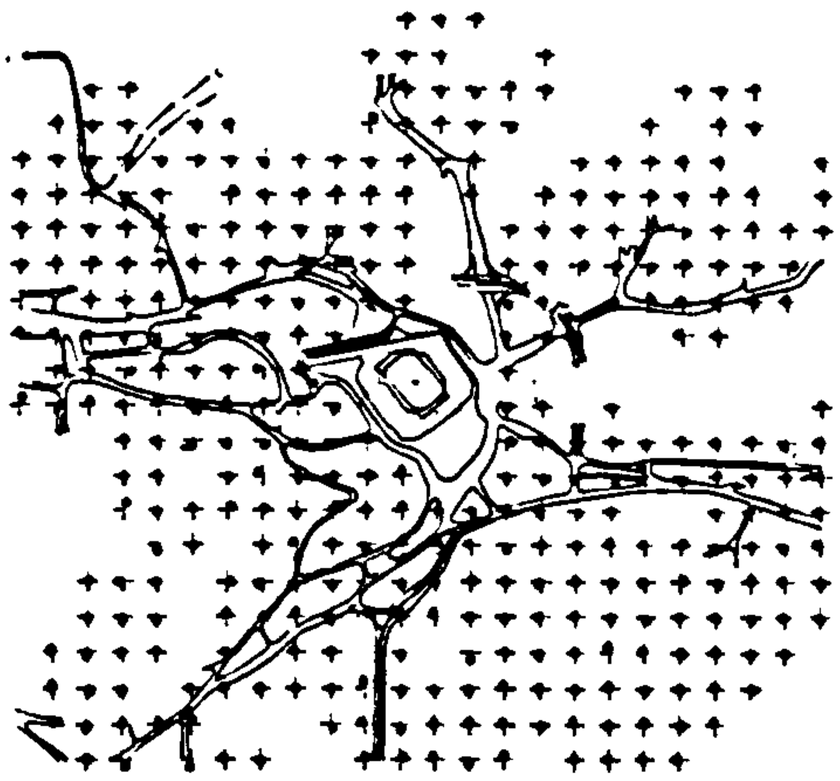

Housing in Central Makkah :

the influence of Hajj

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Extracts from this research may be reproduced provided the source is acknowledged.

ABSTRACT

Historic cities are of special importance to all researchers; this is especially so when one considers that which is claimed to be the oldest city known in history, the city of Makkah. Makkah has represented the civilisation of its community throughout the ages, but now we find that for economic or socio-cultural reasons, the city is facing considerable problems which could destroy its cultural value for future generations.

This research has been prepared with a view to studying the housing situation in the old city of Makkah. An awareness of the types of problems and their effects on the urban pattern have led to the recommendation of appropriate measures of control. For this purpose, a large survey was carried out on 415 buildings and then analyzed using a computer. Three case studies were also discussed in detail.

The main points considered in this research cover the problems of high vacancy rate around the Holy Mosque, the condition of the types of residential buildings, annual and Hajj rent values, the effect of Hajj on housing and the building design and the condition of the infrastructure services. Finally, this research looks at the housing issue in general, with regard to accommodation for the residents and pilgrims.

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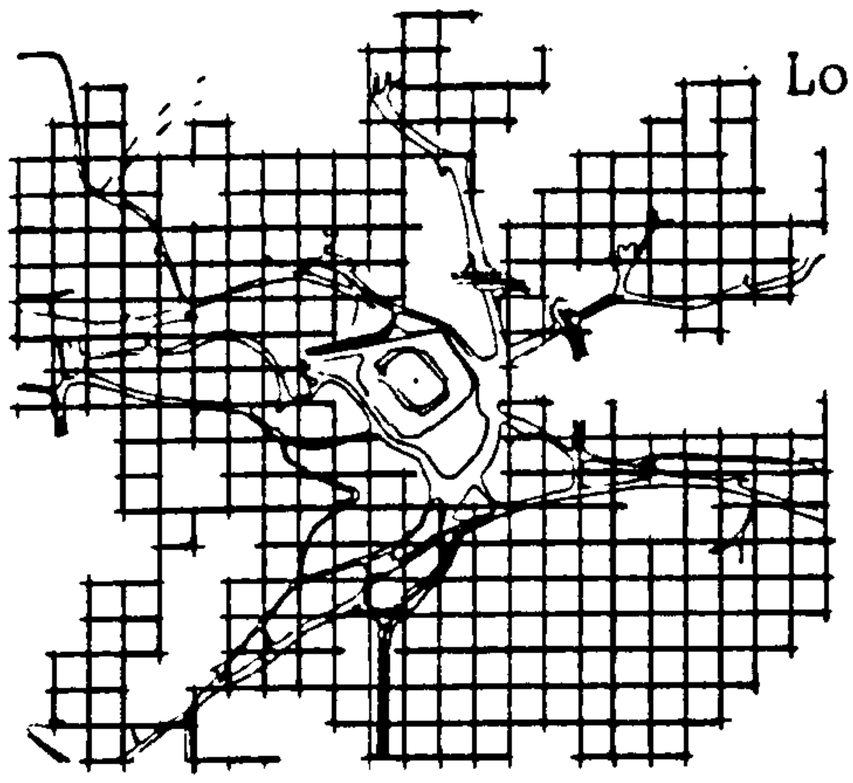

CHAPTER 1

INTRODUCTION

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CHAPTER ONE

INTRODUCTION

Makkah city is at the heart of the Muslim world. Its position is unique amongst other cities, not only because it has the Holy Mosque in its centre, which every Muslim must face during his daily prayers, but also because it is the place where the Prophet Muhammad (peace be upon him) was born. In addition, the origins of the religion of Islam are to be found here. Until the end of the nineteenth century, Makkah had maintained its traditional, magnificent character. However, in recent years, after the sharp increase in the number of pilgrims and due to the introduction of modern Western planning concepts, the city has changed dramatically.

There is a huge amount of literature about the history of Makkah from the time of Abraham (Ibrahim, peace be upon him) until the present day. In recent years, much research has been centred on pilgrims and pilgrim accommodation, in which the Hajj research centre at Umm Al Qura University has played an important role. However, during this research, there has been great concentration on the social and economic side of the issue. Studies have been made about transportation in Makkah and related sites and the prediction of the number of pilgrims of the future and their nationality. Other popular topics are problems the pilgrims face, and the services and facilities, which are available to them, topics which many

researchers are very keen to write about. On the other hand, the local residents and the urban form of the city have been somewhat neglected, as can be seen from the limited amount of research made in these aspects.

1.1 THE PURPOSE OF THE STUDY

It is very clear from the previous discussion that most studies have not focused specifically on the housing problems in the city centre of Makkah. The government itself is concentrating on transportation problems while giving less attention to improving the existing housing condition. The residents, pilgrims and visitors are in urgent need of appropriate housing provision in the city centre. Therefore, this research will focus on the housing problems in Central Makkah.

The purpose of this study is to investigate the housing situation and to measure the effect of Hajj on the housing characteristics of the central districts of Makkah, in terms of:

1. Vacancy rate: the focus here will be to investigate how Hajj affects the density of occupants during the rest of the year.
2. Rent value: the aim here will be to show the effect of Hajj on annual and Hajj period accommodation rent value. The main purpose is to measure whether Hajj rent has increased the annual rent or vice versa, and to study what is the causal relationship

between the two factors.

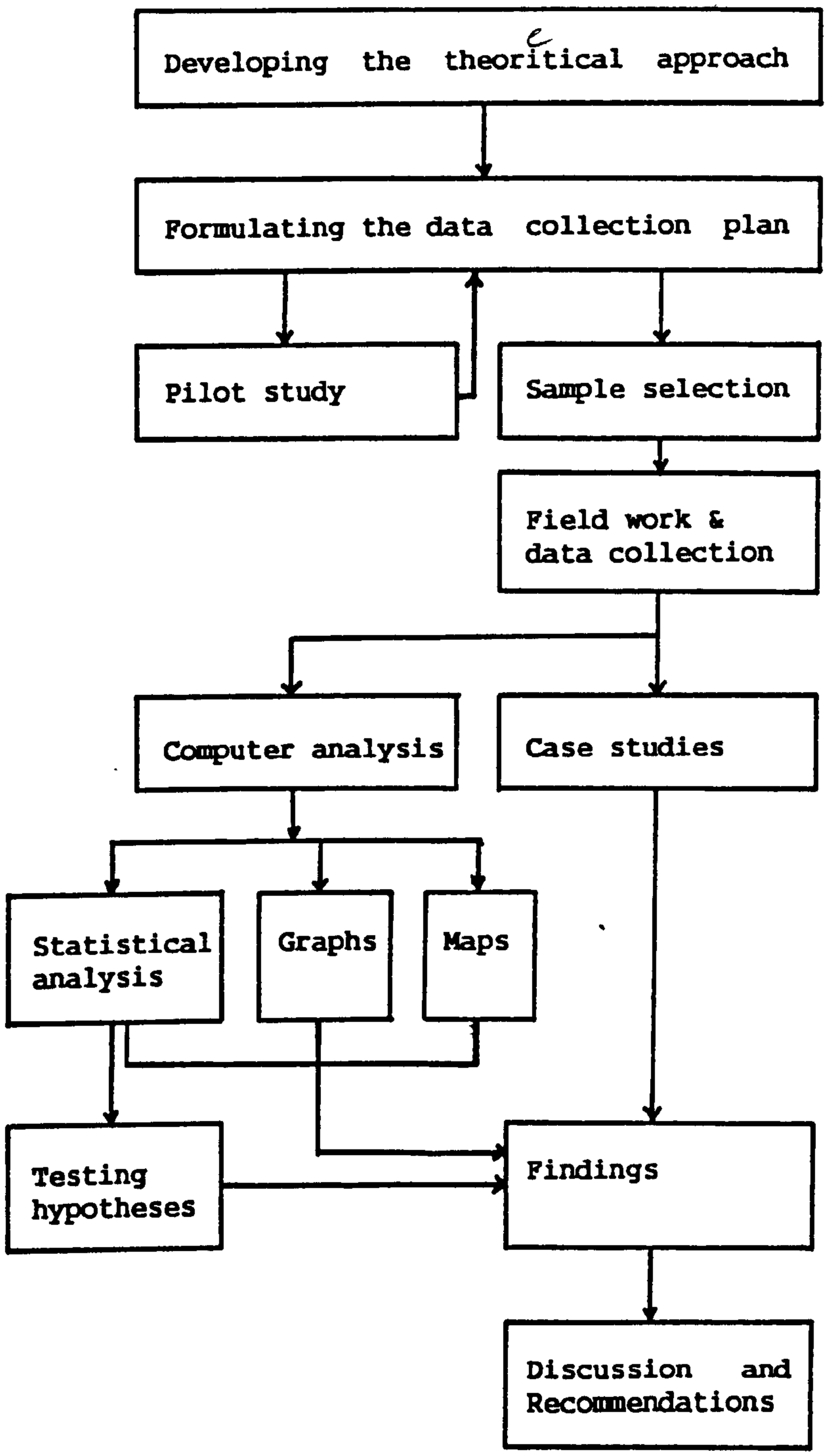
3. Housing and building design: this part seeks to show the effect of Hajj on the housing pattern.
4. Infrastructure: the existing infrastructure services will be linked to the above factors and the constraints which such infrastructure services could cause will be examined.

1.2 RESEARCH HYPOTHESES

The hypotheses of this research are as follows:

1. High rates of dwelling vacancy, in central Makkah, except during Hajj, are desirable for landlords for economic reasons.
2. Hajj rents and the building location have a significant effect on the annual rent value of housing in central Makkah.
3. It is possible to increase year round residential density in central Makkah with only minor restrictions to Hajj renting opportunities.
4. Water supply and parking are major limitations to increasing year round densities.
5. The large number of pilgrims and the great demand for accommodation during Hajj has a significant effect on housing in general and on the building design in particular.

Figure 1: Study outline



1.3 STUDY OUTLINE

To reach the goals of this research the study outline shown in figure 1 was followed. Developing the theoretical approach started in October 1983 and the pilot study helped in formulating the data collection plan. After selecting the samples, data were collected by two methods. The first was by interviewing occupants in the city centre and the second was by surveying three representative case studies. The questionnaire data were analyzed by the computer. The important findings from the statistical data, graphs, maps and case studies were the basis of the research recommendations.

After a brief commentary on the background on Makkah in this chapter, the traditional and contemporary houses in Makkah and the Hajj itself are discussed in the following two chapters. It is the writer's belief that this prior information is essential before any discussion concerning the problem of housing in Makkah can be undertaken.

1.4 MAKKAH LOCATION

Makkah is located on 21° 25' north of the Equator and 39° 44' 30" East of Greenwich. It is located in the Sirat Mountains inland from the Red Sea. It stands at the half-way point on the caravan route between Yemen and Syria[1] (see map 1). Makkah is connected by six important highways leading to Jeddah, Madinah, Taif and Al-Laith. The regional roads to and from Makkah are primarily designed to cope with the peak load during Hajj and are under-used at other times. This has created imbalances in ease of access in the Region. The new Makkah-Madinah expressway has three lanes in each direction and a 20 metres median. Makkah-Al-Hawiyah highway leads to Taif and links with Riyadh and the Zalim area. Makkah-Al-Laith road is a two-lane highway with a branch to Al-Shuaibah. The main road continues to Jizan and Yemen. The Jeddah-Makkah highway has four lanes in each direction. It also connects with King Abdul Aziz International Airport and Jeddah Islamic Seaport and downtown Jeddah (see maps 2 & 3).

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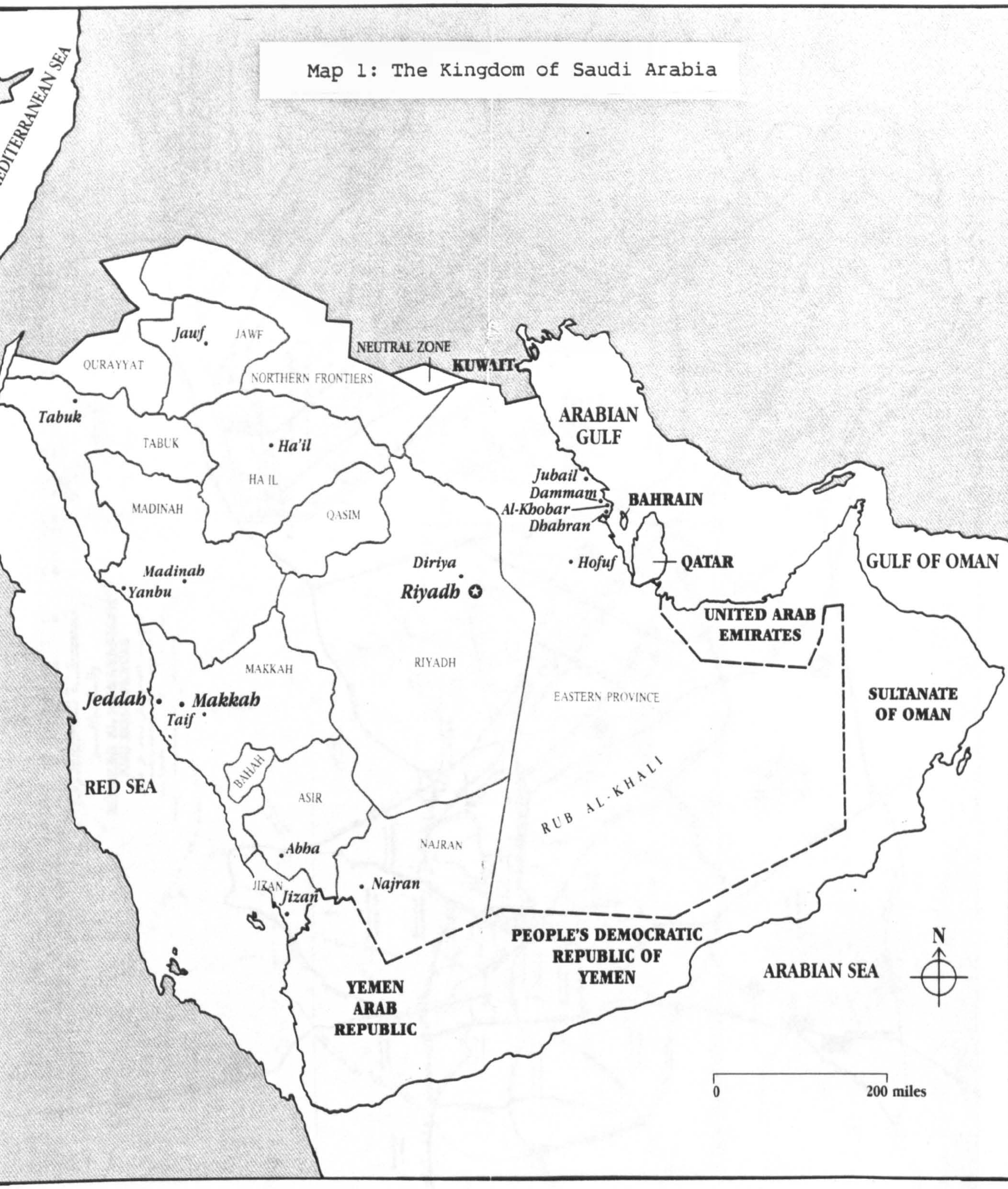
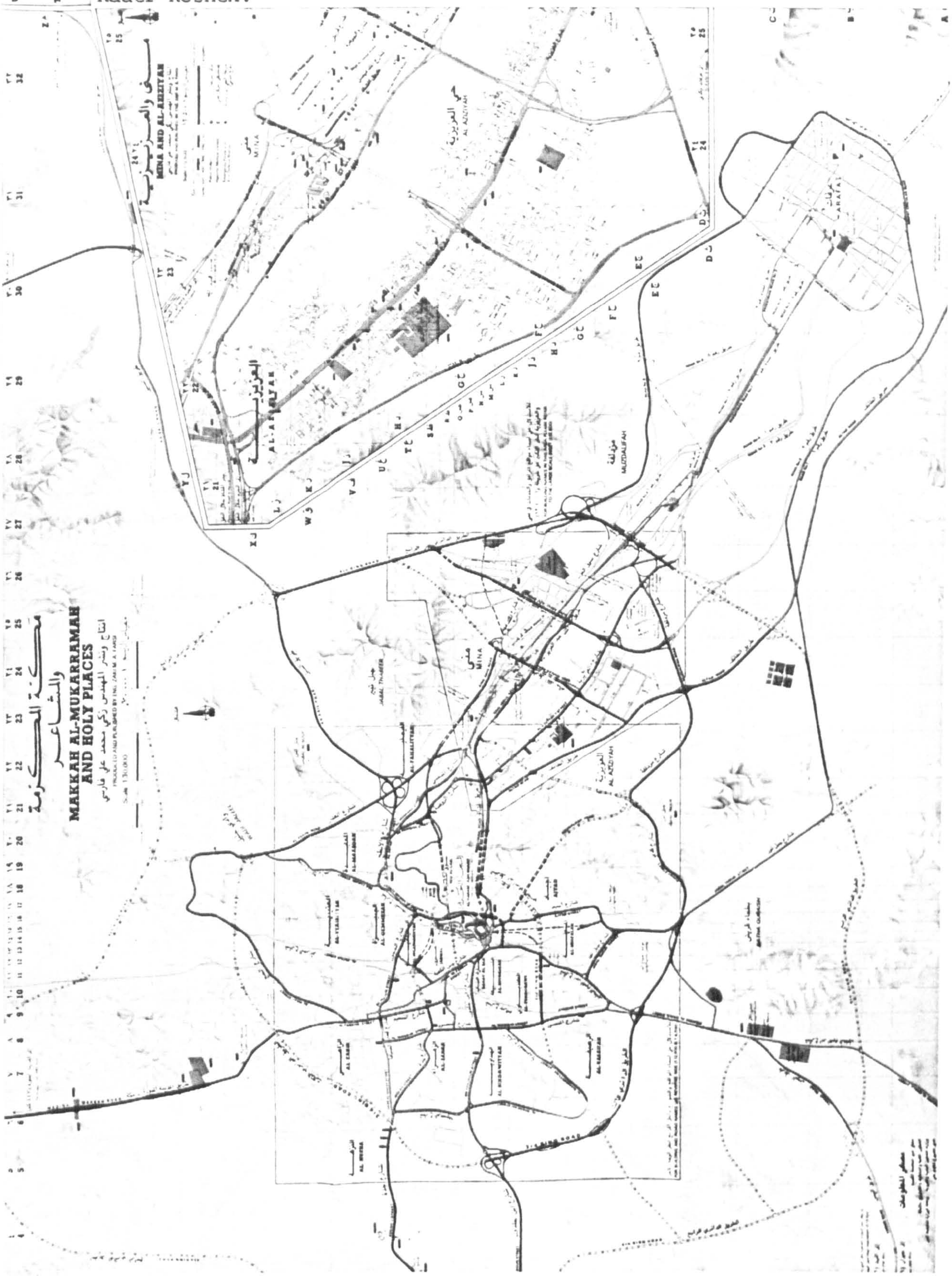
[1] Ghazy Makky. "Mecca: The Pilgrimage City." A study of pilgrim accommodation. Hajj Research Centre, King Abdul-Aziz University, Jeddah, Saudi Arabia. London, Groom Helm Publishers. 1978. p:21.

Map 1: The Kingdom of Saudi Arabia



Map 2: Makkah and the Holy places

Source: Farsi Z. 1983. City map and Hajj guide of Makkah. Prepared by the Municipality of Makkah under supervision of the Mayor Mr. Abdul Kader Koshek.



Map 3: City map of Makkah

PRODUCED AND PUBLISHED BY ENG. ZAKI M.A. FARSI

Source: Farsi Z. 1983. City map and Hajj guide of Makkah. Prepared by the Municipality of Makkah under supervision of the Mayor Mr. Abdul Qader Koshek.

1.5 HISTORICAL GROWTH OF MAKKAH

The city was initiated when Ibrahim (peace be upon him) moved with his wife Hajir and baby son Ismail (peace be upon him) from Al-Sham (Syria and Jordan) to this place. There was no community life in this area. Allah ordered him to leave his wife and son in the wilderness. He prayed to Allah to provide his family with food and water and to encourage people from other places to visit them[1]. Soon after that, the tribes of Jorham and Al-Amalik in the south migrated to Makkah and from then the site started to grow slowly as a permanent settlement.

1.5.1 Makkah after the Prophet Mohammed (peace be upon him)

The advent of Islam was the most important thing in the history of Makkah. Muslims were asked to face the Holy Ka'ba when praying the five daily prayers and to perform Hajj once in their lifetime. People from other countries migrated to Makkah looking for a more spiritual environment. Most inhabitants and migrants built their houses on the foothills and slopes of nearby mountains, preferring to be near the Holy Ka'ba.

Makkah continued to grow in size and by 132 A.H. (750 A.D.), Makkah covered about 34 ha. During the Fatimid Caliphate period,

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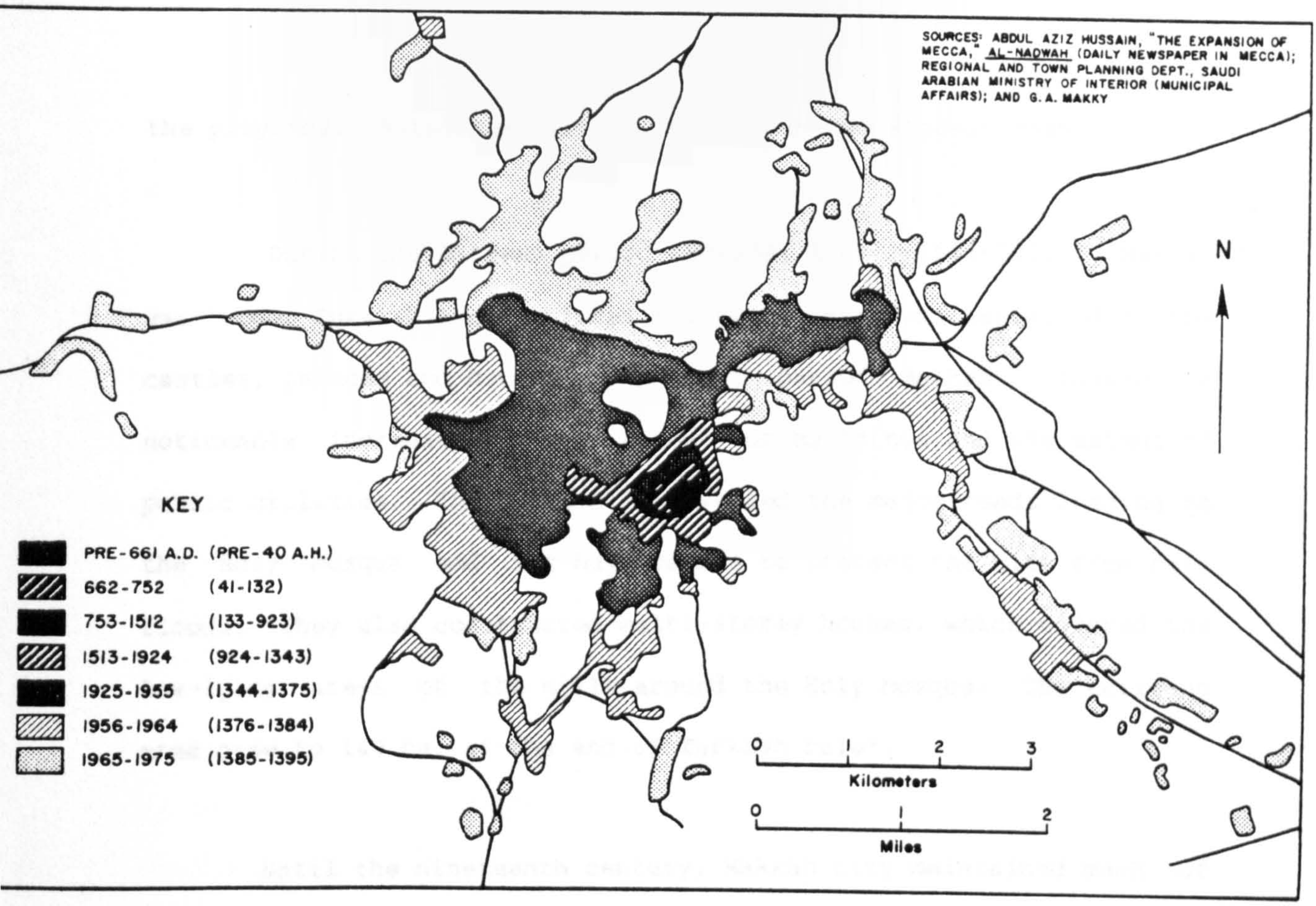
[1] Verse 37, Sura Ibrahim, The Holy Quran.



Map 4: The growth of Makkah

Source: Hajj Research Centre Studies. Makky (1978). "Mecca the pilgrimage city." King Abdul-Aziz University, Jeddah, Saudi Arabia.

around 923 A.H. (1517), Makkah was an example of an Arabian Muslim town, where the Mosque and squares around it represented the primary centre of the city. Makkah's famous narrow lanes converged from all directions on the central area. Markets and shops dealing with myriad merchandise began to cluster around the Holy Mosque to serve

the pilgrims. Buildings were not more than two storeys high[1].

During the Ottoman period 980-1341 A.H. (1572-1923), Makkah was under Turkish architectural influence which was expressed in the castles, palaces and houses. In that period Makkah witnessed a noticeable increase in the number of buildings and the extent of public utilities. The Turks also levelled the major roads leading to the Holy Mosque and dug huge canals to protect the city from rain floods. They also constructed multi-storey houses, which covered the low-lying areas of the hills around the Holy Mosque. The built-up area grew to 140 ha. at the end of Turkish rule[2].

Until the nineteenth century, Makkah city maintained much of its ancient urban structure. The Holy Mosque, social and cultural facilities surrounding it and market places formed the living centre of Makkah village. Outside the central districts, the urban development seems to have corresponded to the contour of the foothills. The major roads normally radiated from the Holy Mosque. From these major roads the main roads of the quarters extended through the valleys, with irregular narrow alleys extending into tiny, residential squares along the foothills. These hillsides have provided Makkah with physical boundaries between adjacent

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[1] Dar Al-Handasah Consultants Preliminary Report. Makkah Region Planning and Development Project. Ministry of Municipal and Rural Affairs, Riyadh, Saudi Arabia. 1983. p:5.

[2] Ibid. p:5.

neighbourhoods, leaving the main streets of the neighbourhoods as main access routes used only by residents.[1]

1.5.2 Modern Makkah, 1341-1407 A.H. (1923-1986)

After King Abdul Aziz Ibn Saud established the Saudi government in 1923, and petroleum was discovered, Makkah witnessed a rapid growth. The city began to expand in all directions. By 1955 it had grown to cover an area of 1112 ha. Modern planning, focusing on efficient traffic and communication systems, and substantial augmentation of public services has contributed to the rapid growth. By the year 1975, a large number of multi-storey buildings were built especially in the central districts. The city expanded beyond the surrounding hills and along the main highways that led outside the city. By the end of 1982, several areas were witnessing higher buildings. At the same time, some older areas, such as Ajyad, had been almost totally cleared by demolition. A large number of tunnels have come into being connecting inaccessible areas in the city centre and a system of ring roads is currently under completion. A number of multi-storey car parks were constructed in the central districts. Dar Al-Handasah Consultants claimed that in the year 1982, the total area of Makkah city was about 150,000 ha. while the built-up areas

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[1] Yousef Fadan. "Traditional Houses of Makkah: the influence of socio-cultural themes upon Arab-Muslim dwellings." Unpublished paper presented at the Islamic Architecture and Urbanism Symposium 5-10 January 1980. Organized by the College of Architecture and Planning, King Faisal University, Dammam, Saudi Arabia. p:301.

was around 4800 ha[1]. Map 4 illustrates the historical growth of the city through the ages.

1.6 TOPOGRAPHY

The shape of Makkah is like a star with the Holy Mosque as its centre. The city lies amid a complex of mountains and alluvial valleys. The Holy Mosque is situated in a low part of the the city called "the valley of Ibrahim" and is surrounded by a number of hills: Jabal abu Qubays, Jabal Qa'iqu'an, Jabal Al Ka'ba, Jabal Umar and Jabal Qalat Jiyad[2]. The elevation of the Holy Mosque is 277 metres above sea level. These topographic conditions (see map 5) pose strong physical constraints on residential development and also cause many problems during the rainy season, as most areas suffer from floods. Makky[3] (1978) described the above mentioned mountains, which have unique historical and physical characteristics, as follows:

1. Jabal abu Qubays:

   Located to the east of the Holy Mosque, this mountain rises to an elevation of about 372 metres above sea level, and slopes roughly toward the east and the north-east where the peak of Khandamah mountain rises to an elevation of 420 metres.

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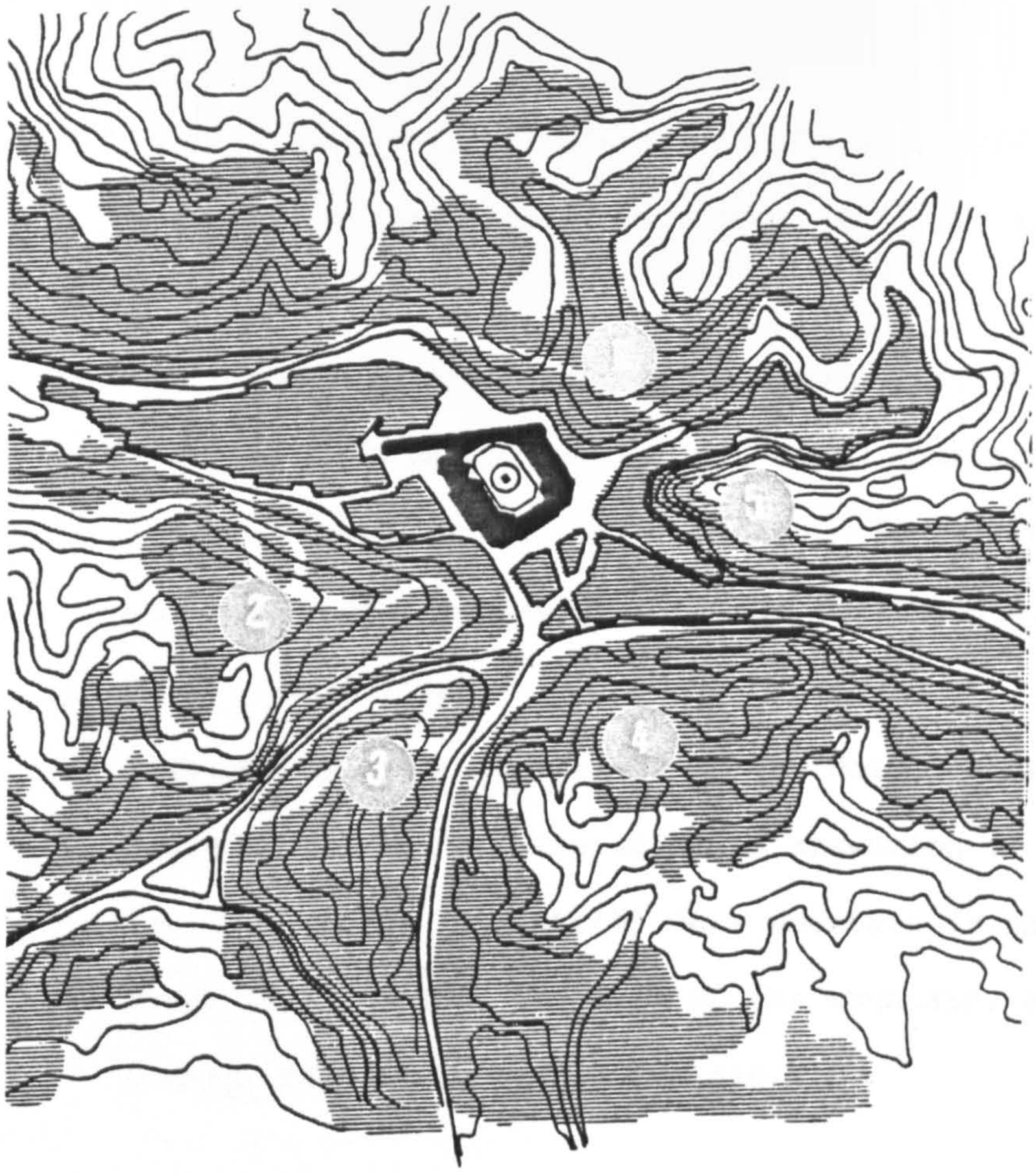
[1] Dar Al-Handasah Consultants Preliminary Report. Op cit. p:7.

[2] Ministry of Municipal and Rural Affairs, Makkah Region Comprehensive Development Plans. Volume 5: Land use and activity patterns. February 1985. p:26.

[3] Ghazy Makky. 1978. Op cit. pp:32-33.



Map 5: The topography of central Makkah

Source: Mohammad Said Farsi, 1982. p:60.

2. Jabal Qa'iqu'an:

It is part of a complex mountain chain which has several names depending on the location. The best known name is Hindi mountain. It rises to an elevation of 427 metres and slopes steeply toward the east, south-east and the west.

3. Jabal Al Ka'ba:

Located to the north-west of the Holy Mosque. It rises to an elevation of 340 metres and slopes gently in all directions.

4. Jabal Umar:

The name is used for the northern part of the mountain chain which is parallel to the Qal a't Jiyad mountain chain. It rises to an elevation of 380 metres. It is very densely settled, especially on the parts facing the Holy Mosque.

5. Jabal Qalat Jiyad:

Located to the south-east of the Holy Mosque between Jiyad and Misfalah Streets and rising to an elevation of 406 metres sloping gently towards the north, this mountain is named for the castle which is located at the peak of the mountain, also facing north towards the Holy Mosque. See map 5.

1.7 CLIMATE

Because comprehensive climatic records are not available for a long period of time in Makkah, only a rough picture of the climatic conditions can be given. The single meteorological station in Makkah began to operate only in 1970[1]. The weather is very hot and dry in summer and warm in winter. In some years there is little, if any,

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[1] Meraj N. Mirza. "The Impact of Selected Physical Factors on Settlement Development in Makkah, Saudi Arabia." Un published M.Sc. thesis, Eastern Michigan University, U.S.A. 1979. p:97.

rainfall. Wind conditions are variable.

1.7.1 Temperature

Annual average temperature is about 31°C. Seasons maximum and minimum temperature are given below[1]:

	Average Maximum	Average Minimum
Spring	38°C	26°C
Summer	42°C	32°C
Autumn	38°C	26°C
Winter	32°C	18°C

The absolute maximum temperature record was 48 °C and the absolute minimum was 10.6°C.

1.7.2 Rainfall

The total average annual rainfall for Makkah is 157 mm. The average rainfall in October is 9.8 mm, in December 10.8 mm and in January 61.7 mm. Therefore, the winter season is the only wet season. Of the winter months, January has the heaviest rainfall. However, the entire rainfall for a month may occur within one or two days, causing flash floods[2].

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[1] Records of the Makkah Meteorology Station.
Dar Al Handasah Consultants Preliminary Report. 1983. Op cit. p:15.

[2] Ibid. p:15.

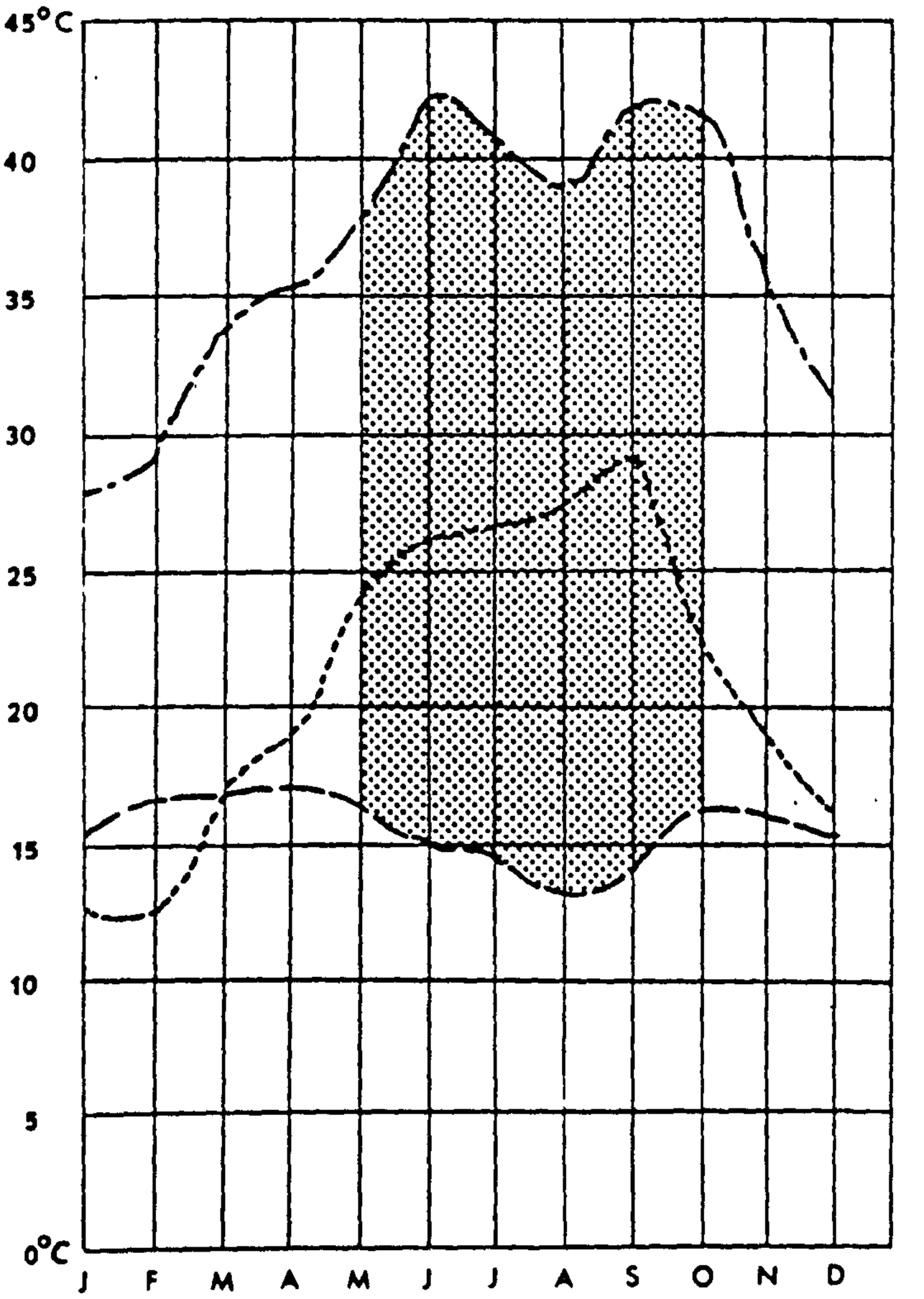

Figure 2: Temperature characteristics of Makkah

Source: Meraj Mirza. 1979. p:102.

1.7.3 Wind direction

During summer Makkah is influenced by northwesterly, northeasterly and occasionally southwesterly winds. Northwesterly winds are mostly dry because no large water bodies are present to serve as sources of water vapour. The northeasterly winds are also dry because they pass over the desert region of the Arabian Peninsula. The monsoon winds come from the southwest and cause occasional rainfall. In winter Makkah is influenced by northeasterly and northwesterly winds. Northeasterly cool winds do not affect Makkah much, since the mountains prevent them from reaching the area. The northwesterly winds bring occasional wet storms from the Mediterranean Sea[1].

1.8 DEMOGRAPHY

1.8.1 Population

Makkah is a traditional administrative centre, and serves the most populated and largest emirate in the Kingdom - the Emirate of Makkah. This includes Jeddah where some of the newer administrative functions are located. The Emirate contains 25 per cent of the total population of the Kingdom of Saudi Arabia[2].

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[1] Ghazy Makky. 1978. Op cit. pp:34-35.

[2] Ministry of Municipal and Rural Affairs. Makkah Region Comprehensive Development Plans. 1985. Op cit. pp:6-8.

Summary of the population, facilities and services in Makkah, in 1983:

The urban population was		611,543
Number of Mosques		579
Number of Schools:	Secondary	18
	Intermediate	58
	Primary	195
Health services:	Hospitals	3
	Major or minor clinics	14
Postal services		5
Police stations		15
Number of agricultural farms:	Large	8
	Small	253

Source: Makkah Region Comprehensive Development plans. Op cit. p:7.

The percentage increase in population from 1974 to 1983 in Makkah Region was 55.5. In urban areas this increase was 63.7 per cent. The annual population growth rate in urban areas is 5.6 per cent which is high due to the large amount of economic development[1].

1.8.2 Age / Sex structure

In Makkah in 1983, 40.3 per cent of the Saudi population was less than 15 years old and the percentage for non Saudis was 37.2 per cent. Age structures of this type are common in Middle Eastern countries. The percentages of adults who are able to work (16-64 years) amongst Saudis and non Saudis in the region are 57.0 and 61.2

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[1] Ministry of Municipal and Rural Affairs, Makkah Region Comprhensive Development Plans. Volume 2: Population and peoples' characteristics. December 1984. pp:3-4. (Arabic)

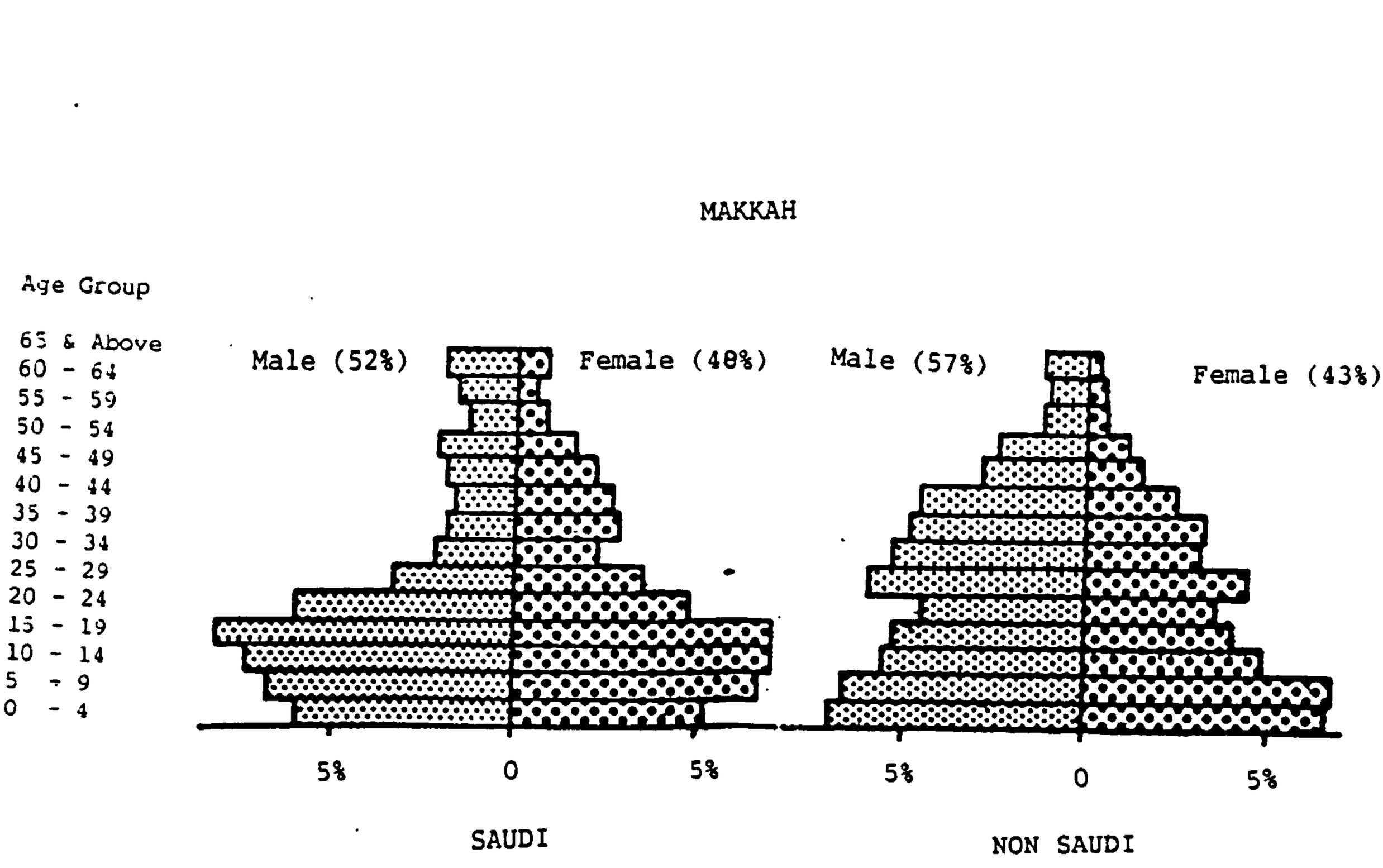

Figure 3: Population pyramid for Makkah

Source: Ministry of Municipal and Rural Affairs, Makkah Region Comprehensive Development Plans. Volume 2: Population and peoples' characteristics. December 1984. p:13. (Arabic)

respectively. The percentages of those 65 years old and over of Saudis and non Saudis in urban areas are 2.8 and 1.6 respectively[1]. See figure 3.

1.8.3 Household

In Makkah, the household size is 5.4 people with no change between the Population Census of 1974 and 1983. The distribution of household types in Makkah in 1983 is shown below:

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[1] Ministry of Municipal and Rural Affairs. Makkah Region Comprehensive Development Plans. 1984. Op cit. pp:6-12.

Head only	4.5%
Head plus non-kin	2.5%
Childless couple	9.0%
Couples with children	75.0%
Extended families	5.5%
Other groups	3.5%

The household types are changing in Saudi Arabia in general and in Makkah in particular. Nuclear families are increasing and extended families are decreasing. The percentage of extended families decreased from 14.46 in 1971[1] to 5.5 in 1983[2].

1.9 THE MUNICIPALITY

The Mayor of Makkah is appointed by Royal decree. He is directly responsible to the Ministry of Municipal and Rural Affairs. The Council consists of the Mayor and representatives selected from different neighbourhoods comprising the city Municipality. The Mayor of Makkah is a member of the Supreme Committee for the development of Makkah. For functional management, the Municipal staff is grouped into three sections:

1. Technical and Planning Section.
2. Environmental Health Services.
3. General Municipal Services and Administration.

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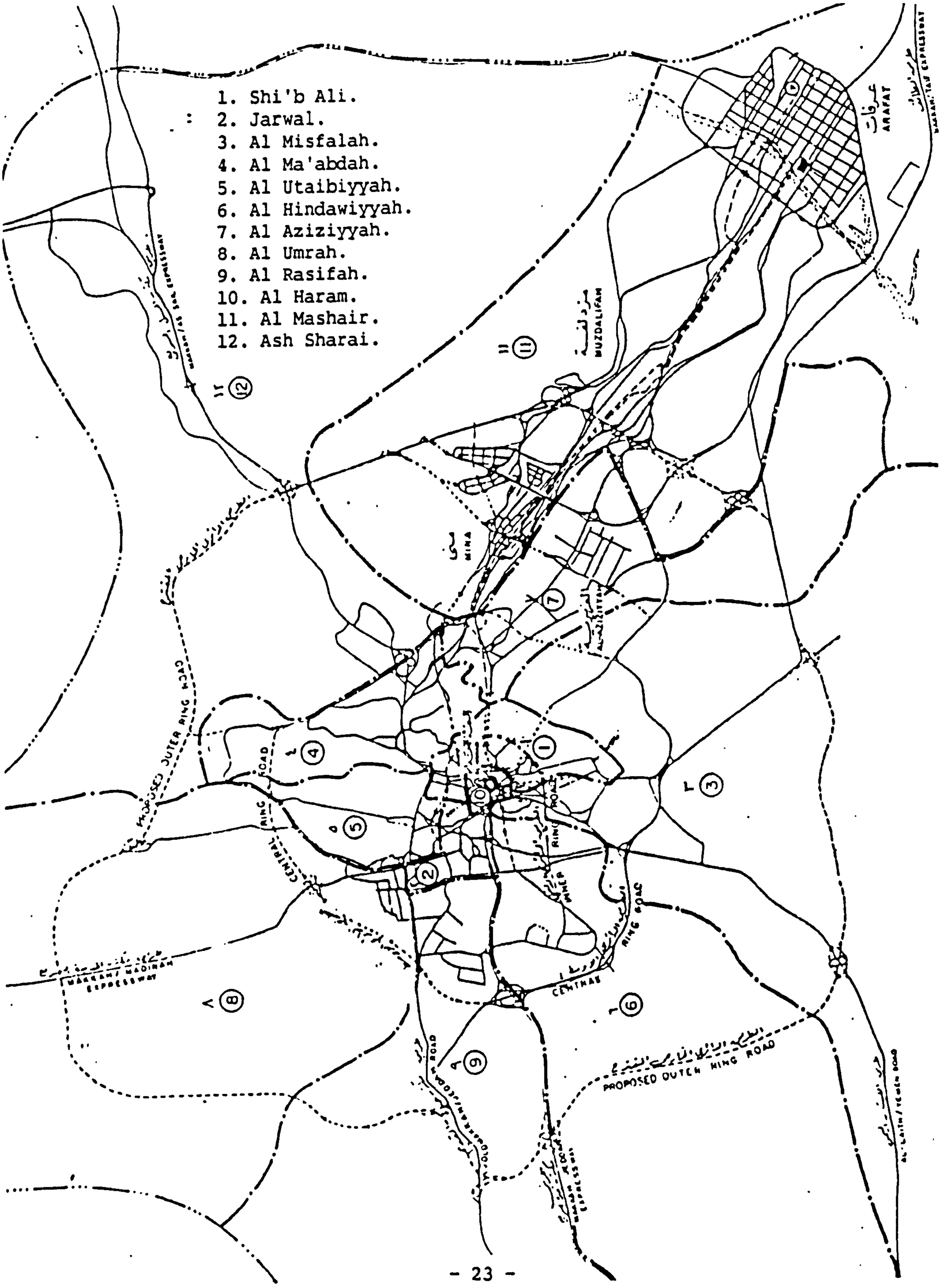
[1] Dar Al-Handasah Consultants Preliminary Report. 1983. Op cit. p:24.

[2] Ministry of Municipal and Rural Affairs. Makkah Region Comprehensive Development Plans. 1984. Op cit. pp:38-40.

Map 6: Boundary of the sub Municipalities of Makkah

Source: Ministry of Municipal and Rural Affairs, Makkah Region Comprehensive Development Plans. Volume 5: Land use and activity patterns. February 1985. p:21.



The Municipality is subdivided into twelve branches (sub Municipalities) shown in map 6. In addition to the sub Municipalities, The Municipality works through nineteen units (neighbourhoods). Each one has its own local chief called 'Umdah', who helps to resolve local problems that may occur between the inhabitants and helps to express the needs felt by the community for various services[1]. The neighbourhoods within the Municipality of Makkah are further subdivided into a total of 28 'hara' which are commonly known areas of the Holy City. See map 7.

1.10 LAND USE IN MAKKAH

Dar Al-Handasah claimed that at present, only over 17 per cent of the built-up area in the developed part of the City is under residential use. This development is concentrated mostly along the narrow valleys. In Makkah, 62 per cent of residential buildings are multi-family lodging type, the definition of which is 'a building containing three or more dwellings'. Traditional buildings are the second most common type (24.1 per cent)[2].

Most dwellings in Makkah are reasonably large. Only 21.4 per cent have less than three habitable rooms and 3.7 per cent are one room dwellings. Most dwellings serve one household only. 4.6 per

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[1] Ibid. pp:11-12.

[2] Ministry of Municipal and Rural Affairs. Makkah Region Comprehensive Development Plans. 1985. Ibid. p:61.

Map 7: Locations of the different 'hara' of Makkah

Source: Ministry of Municipal and Rural Affairs, Makkah Region Comprehensive Development Plans. Volume 5: Land use and activity patterns. February 1985. p:61.



1. Al Gashashiya.
2. Ajiyad.
3. Al Misfalah.
4. Al Shubayka.
5. Harat Al Bab.
6. Al Shamiyah.
7. Al Gararah.
8. Suq Al Lail.
9. Jarwal.
10. An Nagah.
11. Shi'b Amir.
12. Al Aziziyyah.
13. Jabal Thor.
14. Bathah Quraish.
15. At Tandabawi.
16. Al Sulaimaniyah.
17. Al Jamizah.
18. Al Utaibiyyah.
19. Al Ma'abidah.
20. Al Faisaliyyah.
21. Mina.
22. Ar Rasifah.
23. Al Hindawiyyah.
24. Az Zahra.
25. Az Zahir.
26. An Nuzhah.
27. At Tan'im.
28. The Haram.

cent of dwellings have multiple households within them. The total number of occupied dwellings in Makkah is 102,550. Only Saudi Nationals can own their dwellings. Just over half the occupied dwellings in Makkah are rented. Very few dwellings are provided by the Government or employers[1].

In Makkah city there are 55,920 residential plots, ranging from less than 100 m^2 up to 1,000+ m^2 in size. 47.3 per cent of these plots are smaller than 100 m^2 in area. These small plots are found near the city centre and on the hilltops which reflects a compact form of traditional urban development typical of many Arab towns. For the time being the smallest approved subdivision layout is within the 300 m^2 range[2].

Most buildings in Makkah are relatively new (54.2 per cent are less than 10 years old). Only 3.3 per cent are over 50 years old. Buildings in bad condition account for 28 per cent but more were considered in good condition (30 per cent). The majority were in fair condition (42 per cent)[3].

The highest densities occur around the Holy Mosque area. While the net residential density is 570 persons per hectare, the

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[1] Ibid. pp:65-66.

[2] Ibid. p:68.

[3] Ibid. p:72.

overall gross density for Makkah is only 35 persons per hectare. The net residential density of 570 persons per hectare is due mainly to the hilly terrain of Makkah and the fact that a substantial percentage of land is used by the street network. What is generally lacking in the traditional urban pattern is public open space and areas for neighbourhood interaction[1].

1.11 LAND USE BY HARA IN CENTRAL MAKKAH

Nearly all of the haras have a similar percentage of residential uses (20 to 30 per cent) and of commercial uses (3 to 9 per cent). Certain important land-use characteristics for each hara can be summarised as follows[2]:

1. Al Gashashiya:

   Highest residential density and oldest part of the city. It has been under extensive redevelopment for tunnels, palaces and a government guest palace.

2. Ajiyad:

   Extensive redevelopment in recent years for roads, tunnels, a multi-storey car park and the first five-star hotel in the city centre.

3. Al Misfalah:

   Lowest residential density in the city centre, with some

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[1] Ibid. p:72.

[2] Ministry of Municipal and Rural Affairs. Makkah Region Comprhensive Development Plans. 1985. Ibid. pp:47-49.

commercial use. Large area of Mutawif housing, along with urban farms, and stone brick production.

4. Al Shubaikah:

High residential density in an old deteriorating section of the city centre. Housing located on steep, hilly slopes with poor accessibility.

5. Harat Al Bab:

High residential density with some institutional uses. Abrupt variation in topography from plain areas to high, steep hills.

6. Al Shamiyah:

High residential density mixed with commercial strips on ground floors. Large area of pilgrim housing, and lowest proportion of land under hilly areas.

7. Al Qararah:

Intensive commercial uses mixed with residences on upper floors. Highest residential density in a compact and deteriorated area.

8. Suq Al Lail:

Active commercial use along Masjid Al Haram Street. Branches of all banks and money exchangers and Makkah's main jewellers' market are located here.

9. Jarwal:

Varied mixture of land uses, from the wholesale food and vegetable market to Makkah's maternity hospital, within a high density residential area.

10. Al Naga:

High residential density with commercial strips and the General

Post Office.

11. Shi'b Amir:

High residential density with a spill-over of the city centre along the east side of Masjid Al Haram Street.

1.12 ACTIVITIES IN THE CITY CENTRE

The Holy Mosque was and will remain the real centre of the city. It is situated in the valley of Ibrahim surrounded by a number of hills. The city centre is characterised by very high density land use and an intensive activity pattern. There are also two major sub-centres in Al Aziziyyah and Az Zahir haras. Nearly all the ground floor use along major roads in the city centre is commercial. Shops are found even in access roads and lanes. The area offers a wide variety of retail and service establishments especially those related to the needs of the pilgrims visiting for Hajj and Umrah. Only 9.57 ha., or 9.23 per cent of the land in the city centre, is exclusively commercial. The city centre also contains branches of all banks, the offices of a large number of medical practitioners, and some business offices and establishments. However, there are predominantly residential areas reflecting the demand by pilgrims for accommodation[1].

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[1] Ministry of Municipal and Rural Affairs. Makkah Region Comprehensive Development Plans. 1985. Ibid. pp:26,38.

1.13 BRIEF DISCUSSION OF SOME PREVIOUS STUDIES

In this section, several previous studies will be mentioned to complete an overall picture of the research made on housing or topics related to housing in Makkah in general, and the central districts in particular.

In Saudi Arabia, many cities are in the process of being replanned, and this work is being carried out by Western contractors who are using Western planning concepts. Makky[1] (1981) stated that a redevelopment schedule was planned and during the first five-year period of this plan (1971-1976), the resident population of Makkah city was expected to increase by 20,000, but no major changes were foreseen within the built-up area of the city[2]. However, since 1975, the price of land and construction costs of houses have doubled or even tripled, and increases in rent have rapidly accelerated. One of the projects during these five years involved demolition of buildings, mainly those containing housing accommodation, in order to open and widen streets, the cost of which was estimated at

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[1] Ghazy Makky. "Characteristics of Pilgrim Accommodation in Mecca." Unpublished Ph.D. thesis, University of Michigan. 1981. pp:36-37.

[2] Robert Matthew, Johnson-Marshall and Partners, Consultants. Master Plan Report: Mecca, Western Region Plan, a report for the Kingdom of Saudi Arabia. Riyadh; Ministry of the Interior, Municipal Affairs, Regional and Town Planning Departments, 1973. p.53. Referred to by Makky 1981. Op cit. pp:36-38.

811,433,793 riyals[1], or about $240 millions. As a result, according to the plan, some 7,000 persons needed to be rehoused[2].

Standard accommodation units were also planned for the second five-year period (1976-81) as follows:

1. Large villas (50 x 50m) assigned to the high income people. These villas were to be surrounded by luxurious garden units.
2. Standard detached villas (25 x 25m) with gardens assigned to medium- to high-income people.
3. Medium cost housing (10 x 25m) assigned to medium income people. This housing is generally not detached.
4. Low-cost housing (9 x 15m) assigned to low-income people.
5. Apartments built in high density areas for those with incomes below the above category[3]. These apartments were to be on average five stories high, with floor space per family of 100 m². The plan was based on ability to pay and it is possible that this plan could lead to segregation, based not only on race but also on tribe.

To avoid such a problem, planners need to be aware of the present housing situation in the west, and in addition development projects

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1 Ibrahim Abdul Kareem Alhakil, Municipal Service. Riyadh: Ministry of Municipality and Rural Affairs, 1976-1977. p.46. Referred to by Makky 1981. Op cit. pp:36-38.

2 Saudi Arabia, Master Plan. 1973. p.53. Referred to by Makky 1981. Op cit. pp:36-38.

3 Saudi Arabia, Master Plan. 1973. p.50. Referred to by Makky 1981. Op cit. pp:36-38.

in Mecca should be of the highest quality in order to respect the Islamic codes[1] of practice.

In a field-work study conducted by Ghazy Makky in the Holy City of Makkah, it was found that the Holy Mosque represents the central function around which land values as well as housing costs decline with increasing distance from the centre. The fluctuations in rent costs were related to changes in housing quality. It was also found that accessibilty played an important part in land value and rental costs. Mountains that are closer to the Holy Mosque had a higher land value than those at a greater distance. Nearly all available literature confirms that rental housing, in locations that attract renters, tends to be more expensive than housing of comparable quality in other locations. Makkah is no exception, for pilgrims pay higher prices to be close to the Holy Mosque, where many kinds of religious activities are concentrated[2].

Bushnak (1977) studied the need for a comprehensive plan to integrate the transportation system to achieve appropriate transportation techniques. Alternative local movement systems for the pilgrims within Makkah and its environs were evaluated, and from the evaluation it was discovered that walking, as a generic mode of movement, had the highest utility score relative to other modes. A

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1 Makky 1981. Op cit. p:36-40.

2 Makky 1978. Op cit. Makky 1981. Op cit. p:42-46.

local movement system composed of walking and bus transit had the best performance compared to alternatives involving passenger cars or rail transit[1].

Shair (1977) studied the spatial patterns of the pilgrims' circulation and the historical development of the number of pilgrims, as well as predictions for the increasing number in the future[2].

Models for the years 1983 and 1993 for forecasting the major problems facing the authorities over the next twenty years and showing how these problems can be overcome were most valuable in El-Hamden's work. Part of the solution offered in this study was to control the number of foreign pilgrims with the cooperation of the Muslim countries[3].

Long (1973) made a study of the historical aspects of Hajj. Various services and organizations that provide health care services

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[1] Adil Ahmed Bushnak. "Planning and Evaluation of Special Event Transportation Systems With Application to the Hajj" Unpublished Ph.D. dissertation, University of Michigan, 1977. Referred to by Makky 1981. Op cit. p:55-56.

[2] Issa Musa Shair. "Spatial Patterns of Muslim Pilgrim Circulation" Unpublished Ph.D. thesis, University of Kentucky, 1977. Reffered to by Makky 1981. Op cit. p:56.

[3] Soliman Aquil Soliman El-Hamden. "The Pilgrimage to Mecca: A study of the Physical Planning Problems with Special Reference to the Increasing Numbers of Pilgrims and Changing Modes of Travel" Unpublished Ph.D. thesis, University of Sheffield, 1976.

were examined, as well as the implications of Hajj for Saudi Arabia[1].

The Hajj Research Centre, Umm Al Qura University and the Applied Economics Research Centre, University of Karachi, instituted a series of research studies in June 1981 to study the phenomenon that rentals during the period of Hajj are very high in relation to the quality of the housing stock placed on the market. The third part of the series was a study of the impact of housing stock demolitions on the rent. It was found that the rise in rent declines with distance and that the rate of decline in rent increments is at the rate of 16 per cent per kilometre[2].

In 1983 Adnan A. Yafi studied the management of some major logistical problems of Hajj. He developed a large-scale network model to analyze the movement and congestion problems. It showed that the causes of congestion could not be realistically assessed with a linear programming model. Thus a new nonlinear model with accompanying new mathematics was developed together with a new constructive method of approximate solution[3].

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[1] David Edwin Long. "The Hajj Today: A Survey of the Contemporary Pilgrimage to Makkah" Unpublished Ph.D. thesis, George Washington University, 1973. Referred to by Makky 1981. Op cit. pp:57-58.

[2] Hajj Research Centre. "Impact of Demolition on Rents of Pilgrim Housing in Makkah." A report prepared for the Hajj Research Centre, Umm Al Qura University, Makkah, Saudi Arabia, August 1983.

[3] Adnan A. Yafi. "Management of some Large-Scale Logistical Problems of Hajj." Unpublished Ph.D. thesis, The University of Texas at Austin, U.S.A. December 1983.

The impact of selected physical factors such as the complex of mountains and alluvial wadis, sudden heavy rains, site and location factors and climatic conditions on settlement development in Makkah was studied by the geographer Meraj Mirza (1973)[1].

Architectural studies about Makkah in general and the city centre in particular are very few. Fadan (1980) wrote an article on traditional houses of Makkah. His definitions of the traditional houses' plan and facade typology is mentioned in chapter two. He concluded that the important factors which influenced the form of Makkah's traditional houses were site, topography, climate and socio--economic factors[2].

The Mayor of Jeddah, Architect Muhammad Said Farsi (1982) made a study on Hajj cities which have become integrated by all planning and urban standards. The historical discussion of their origin and the choice of their location and their relation to Hajj itself and the effect of all that on their planning and development was a valuable general discussion. In the third part of his thesis he discussed the first of the Hajj cities, Makkah, and its modern plans for development and he anticipated the results of such plans.

Revival of Islamic architecture all around the holy Mosque, exterior

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[1] Meraj N. Mirza. "The Impact of Selected Physical Factors on Settlement Development in Makkah, Saudi Arabia." Unpublished M.Sc. thesis, Eastern Michigan University, U.S.A. 1979.

[2] Fadan 1980. Op cit. pp:295-326.

painting in white, revision of the hillside and mountain planning, and restriction of traffic in the vicinity of the Holy Mosque were some of his architectural and planning recommendations[1].

Ghazy Al-Otaibi (1980) studied the existing housing situation in Makkah city in terms of systems, patterns, dwelling environment and income. He presented four case studies (one of them in Central Makkah) analyzed at four levels; locality, selected segment, selected block and typical dwelling unit. The evaluation part of the study which includes the time process perspective and the land utilization comparison of the case studies, is interesting and gives a complete broad picture of the urban dwelling environment in Makkah[2].

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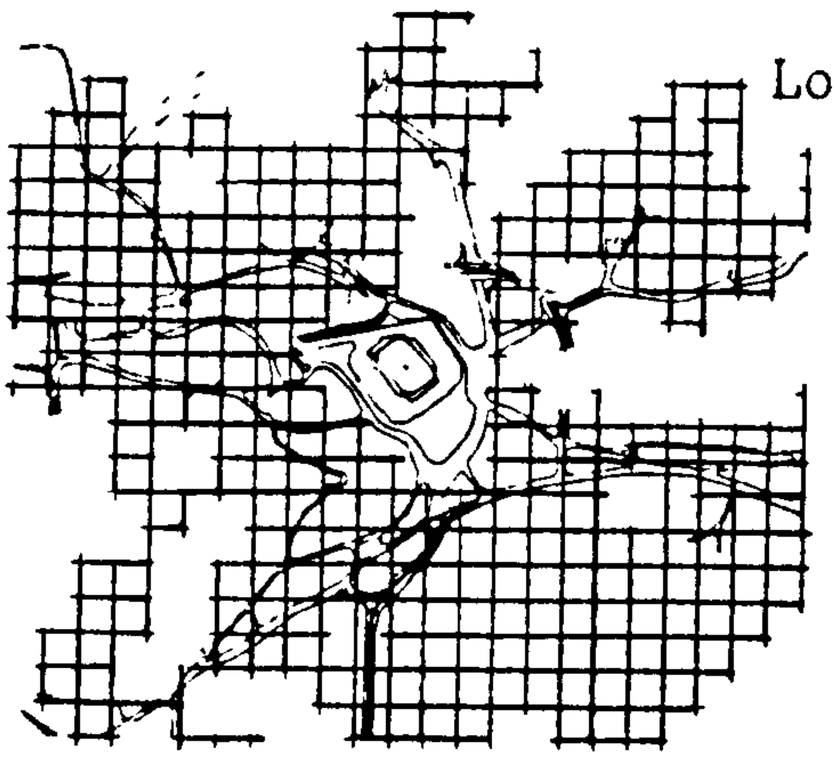
[1] Mohammad Said Farsi. "Architecture and Urban Pattern of the Pilgrimage Cities in Saudi Arabia." Dar Al Asfahani, Jeddah. 1982. Reprints text of unpublished M.Sc. thesis, Alexandria University, Egypt. 1982.

[2] Ghazi S. Al-Otaibi. "Urban Dwelling Environment in Rapidly Growing Cities." Unpublished M.Sc. thesis, Massachusetts Institute of Technology (MIT), Cambridge, U.S.A. May 1980.



CHAPTER 2

TRADITIONAL AND CONTMPORARY HOUSING

2.1 A description of houses in Makkah in the past
2.2 The traditional houses in Makkah
    2.2.1 Plan typology
    2.2.2 Facade typology
    2.2.3 Construction and building materials
2.3 Contemporary living environment
2.4 Housing in Makkah in recent years
2.5 Contemporary dwellings

CHAPTER TWO

TRADITIONAL AND CONTEMPORARY HOUSING IN MAKKAH

The pattern of Islamic urban settlement is based on individual houses. Since the form that the houses take is influenced by social life which, in turn, is determined by religion in Islamic societies, Islamic architecture has a distinctive style.

In the Muslim world the urban environment is characterized by two types of construction. The first type is the monument, the second is the vernacular building. Monuments such as the principal Mosque, madrasah, hammam, castle, caravansary and palace serve public needs. These buildings are characterized by a certain uniqueness, permanence and luxury in the manner in which they are constructed, which normally attracts the attention of researchers interested in Islamic architecture.

The vernacular houses represent the greater part of the physical environment and receive less attention, although they form most of the built environment and reflect the Islamic planning concepts of the typical Arab city.

The typical dwelling environment within Muslim cities of the Middle East is characterized by an inwardly oriented central courtyard house with one or two floors. This is true for the

majority of Muslim countries. However, other types of houses also do exist. The traditional houses in Makkah are characterized by several floors and wide facade openings (rowshan). The tower houses of San'a and Shibam in the south-western Arabian peninsula differ from those of Makkah. These differences are most likely due to the variable factors distinguishing one city from another, in accordance with specific local building materials and the topographical and climatic conditions of various regions.[1]

The constants for Islamic architecture are the values which Muslims practice and which, in turn can be seen in the built environment. These constants, such as the segregation between men and women, boys and girls, close relatives and others, are one of the key reasons behind the design elements. A further aspect is the tradition of being generous to guests and offering them accommodation.[2] In each house there is a private and a semi-private section for such purposes.

Due to the lack of flat residential land in Makkah around the Holy Mosque, and due to the fact that many Muslims would prefer to be

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[1] Fadan 1980. Op cit. pp:295-323.

[2] On the authority of Abu-Huraira, that the Messenger of Allah (may blessings and peace of Allah be upon him) said: "... and let him who believes in Allah and the Last Day be generous to his neighbour, and let him who believes in Allah and the Last Day be generous to his guest." It was related by Al-Bukhari and Muslim. An-Nawawis Forty Hadith. Translated by Ezzedin, Ibrahim and Denys, Johnson-Davies. The Holy Koran Publishing House, Damascus, Syria. 1977. p:60.

as close as possible to the Holy Mosque, most buildings and houses were built adjacent to each other; as a result there are very few open spaces to be found. The streets are narrow and the yards are small. Even the existence of the courtyards which are considered as one of the important features of Islamic Architecture is rare. Makkah maintained its traditional character until 1925. The houses were built of stone with wooden facades. The Holy Mosque was the centre of the city, where the religious, administrative, cultural and commercial activities were centred. The traditional houses provided the family with all their needs. They reflected the wealth of the family by their facade, detailed woodwork, the size of the built area and the number of entrances for inhabitants and visitors. The traditional houses of Makkah differ from those of Jeddah and Madinah in many ways. In Makkah they normally try to preserve a small area in the plot to carry out certain activities[1] before and after Hajj. There is also a place for the mutawif and his workers to sit and there is a special space for the big cooking pans used for pilgrims. Finally there might be a place called 'Al Barza' where pilgrims would sit after sunset to listen to the recitals of the Holy Quran and to relax in the cool evening air[2].

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[1] Such as maintaining and preparing the pilgrims' tents.

[2] Mohammad Said Farsi. 1982. Op cit. pp:68-70.

2.1 A DESCRIPTION OF HOUSES IN MAKKAH IN THE PAST

Shams Al-Din Abu Abd Allah Al-Muqaddasi described Makkan houses in the tenth century A.D.[1] as follows:

> "The houses of Makkah are built of black, smooth stones and also of white stones; but the upper parts are of brick. Many of them have large projecting windows of teak wood and are several storeys high, white-washed and clean."[2]

Two centuries later, Ibn Jubayr, a well known traveller in the twelfth century A.D.[3], mentioned the function of the roof in the house. He said:

> "We passed the nights on the roof of the place where we stayed, and sometimes the cold of the night air would fall on us and (we) would need a blanket to protect us from it."[11]

No description of the interior of the houses in Makkah is available and no existing houses have survived from such an ancient period. However, such types of houses described earlier are still in evidence, reflecting this suitability and appropriateness.

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[1] Fourth century in the Muslim lunar calendar.

[2] Al-Muqaddasi, Shams Al-Din Abu Abd Allah. Ahsan Al Taqasim Fi Marifat Al Awalim. (Written in 985 /375 in the lunar calendar/ in Arabic. Ed. by M.J. de Goeje. Leiden, E.J. Brill, 1906) G.S.A. Ranking and R.F. Azol (eds.), Vol. 1. Calcutta, The Baptist Mission Press, 1897, p.137. Fadan (1980).

[3] Sixth century in the Muslim lunar calendar.

[11] Ibn Jubayr, Abu'l-Husayn Muhammad Ibn Ahmad. The Travels of Ibn Jubayr. Translated by R.J.C. Broadhurst. London, Jonathan Cape, 1952. p:120.
Fadan(1980).

2.2 THE TRADITIONAL HOUSES IN MAKKAH

The external appearance of the late nineteenth and early twentieth century house is identical to that which Al-Maqaddasi described ten centuries earlier. The house is a tall, multi-storey building with several screened windows projecting from massive wall facades. The upper parts were usually built of brick and were often whitewashed. Makkah's traditional houses are terraced or row houses. While a central courtyard is rarely found, a lateral courtyard[1] is frequently found. The traditional architecture of Makkah houses has its own distinct Islamic character, similar in many respects to the architecture of the Red Sea area, which was influenced by Turkish architecture during the Ottoman period. Hegazi stated:

> "During the Ottoman period, building in Makkah was influenced by Turkish architecture. Palaces, gardens and forts were built on the hills and in the valleys of Makkah. The best examples of these were the houses in the Ajiyad quarter of Makkah, which no longer exist."[2]

Distinctive features of the traditional Makkah multi-storey buildings which are seen along narrow streets and footpaths, and which normally start from the Holy Mosque and radiate outwards, are

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1 An open space located beside the house, within the boundary of the lot.

2 Sarwat Hegazi.
"Ancient Houses of Makkah." Ahlan Wasahlan. Saudi Arabian Airlines Magazine, Vol. 7, No. 5, pp:50-53. August 1983.

the large projecting teak wood windows[1] These windows were highly decorated and well designed to provide privacy for the inhabitants, to control the air velocity and to break the glare caused by the intense sunlight by the use of horizontal shutters. Decorated wooden doors and screens were quite common.

Another feature of the traditional architecture is the colourful brickwork parapets[2] on the rooftops where tiny spaces between the horizontal layers were left to provide a private and ventilated open space. Beautiful geometrical patterns were created normally in white, blue and red colours.

2.2.1 Plan typology

According to the organization of the plan, the number of elements and the size of the plot, Fadan(1980) has defined three types of plans.

1. The simple plan house:

   Small in size and consists of basic elements. On the ground floor adjacent to the entrance hall (dihliz), there is a sitting room (maq'ad) which is frequently used as a business office and reception room for intimate male friends. On the upper levels there is at least one living unit with its own water closet (bayt

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[1] Called rowshan, plural: rawasheen.

[2] Called shabourah.

al-ma), which is usually located one flight down. This living unit is regarded as a multi-purpose space. As one goes up, the surface area of the storeys diminishes in order that the necessary terraces may be provided. Seee figure 4.

2. The compound plan house:

This type is more common. The entrance hall (dihliz) usually rises up to one and one-half times the floor height. This variation in height of floor levels of the house is one of the reasons why most Makkah houses do not have a typical floor plan. On either or both sides of the hall, one can find small rooms (maq'ad) which function as business offices for the head of the house when he deals with trade or teawafa[1] or receives intimate acquaintances. These rooms could also be used for renting to others.

In the valley where there is a danger of flooding, the ground floor will be raised to a higher level. In some houses, a few steps below the hall one can find a small room (qabw) used as a storage place for merchandise, tents or luggage. Adjoining rooms may be used for close friends who would never go to the upper floors. On the upper floor levels, there is a main reception room (majlis) with an adjacent anteroom (suffa), and one or more living units. One frequently encounters such units,

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[1] Guiding pilgrims to perform Hajj.

with their own necessary facilities, being used as individual units (bayt) or components within the overall house. On the upper levels, a terrace replaces one or more of the spaces below. See figure 5.

3. The complex plan house:

   The existence of two entrance halls and two staircases which serve different parts of the house is an important feature. The number and size of rooms is comparable. The complexity of this type is also due to the components of the plan and its incremental development. See figure 6.

2.2.2 Facade typology

Fadan (1980) has also defined three types of facades. The flat windows (screened or not screened) and the screened projecting windows (rowshan) are the two major facade elements. It is important to note that the term rowshan is locally used to indicate only the screened projecting windows, whereas the mashrabiya can be either flat or projecting, as long as they are screened.

1. Simple facade:

   This consists of one or two types of windows and the entrance door. The simple facade can be classified into three subtypes.

a. Simple facade subtype A:

This is generally a facade in which the rowshan covers most of the facade space from the first floor level up to the terrace parapet.

b. Simple facade subtype B:

There are two or more types of windows, with a rowshan covering most of the space on one side of the facade, while other windows occupy the other side, corresponding in size to the room behind them.

c. Simple facade subtype C:

In this type the rowshan covers only a single window opening. Its size is according to the width of the room. Other window openings have a relatively small and flat front, which also reflects the secondary function of the room behind. The major difference between this type and the previous one is that in this type the rawashin are separated from each other. The space in between can be as narrow as the thickness of the supporting wall between the two adjacent rooms, or the two can be a full floor apart, in which case the surface between is usually utilized for a flat window.

2. Repetitive facade:

There are two or more types of window openings. A single rowshan and/or flat window is repeated constantly along the facade and they are alternately arranged on top of each other.

3. Freely Composed facade:

This facade contains two or more types of window openings. The

arrangement of flat windows and rowshan do not follow a consistent order. Rather, they indicate different floor levels within one facade[1]. This type is the least common. See figure 7.

The main elements such as the sitting rooms, reception rooms, and living or family rooms are located in the front towards the main facade. A sitting room facing the street allows for flat windows with vertical iron bars for security reasons. In the compound plan, where the sitting room is located on the first floor level, the window opening is covered by a rowshan.

2.2.3 Construction and building materials

For centuries traditional buildings were constructed with local building materials which provided good conditions of comfort internally. Indigenous architecture around the world has often been of an energy conserving design with minimal mechanical environmental control. The thick walled clay houses in old parts of Central Saudi Arabia and the large wooden windows in the houses of Jeddah and Makkah, West Saudi Arabia, are but few examples.

In contemporary buildings the use of concrete, steel and glass often does not appear to have been designed with any particular

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[1] The windows' lintels not being constantly along one horizontal line.

climatic conditions in mind. The internal climate of these buildings is controlled, at considerable expense, by air conditioning units. The buzz and whine of air conditioners during summer is a new urban noise of many Middle Eastern cities. In dry inland locations, simple evaporative coolers have become popular over the last twenty-five years. In Riyadh and Makkah there are more than seven manufacturers producing over 42,000 units every year and this is apart from the imported units.

The primitive early builders in Makkah used the limited materials available to create a harmonious urban environment which satisfied both the climatic and cultural requirements. Houses were built from granite stones available in the area, hand made burnt clay bricks and teak wood. The stones were used traditionally for load bearing walls and partitions where the thickness varied from 40 to 120 cm. The mortars employed were silty clay, loam enriched with lime, and semi hydraulic lime, in which fine grained siliceous limestone was mixed with clay and burnt together. Stones were cut and sawn manually and roughly without standardization, and sometimes collected near the building site; thus, they came in all shapes and sizes. Generally any thick wall consisted of exterior and interior parts, with flat cut facing stones, and the centre part consisted of odd shaped stones. Stones were fixed together using mortars and wedges like stone chips at the inner joints to give more stability.

In tall buildings, small planks of timber were used horizontally between stones to stop vertical cracks from developing as well as to tie the stones, which were placed across the wall depth, securing both exterior and interior parts of the wall in place. The thickness of walls was reduced by using reinforcing struts or columns of rubble stones fixed behind and within the wall at short spans of 60 to 120 cm. This system was used to construct partition walls.

For the construction of doors, cut stones were used to form an arch on top of the open court doors and in the case of windows, horizontal wood lintels were used. The traditional houses, which had regular sized stones, were left unplastered externally; whenever walls of irregular sized stones were built, they were usually covered with a layer of 2 to 4 cm. of silty clay or lime plaster. All houses were plastered internally.

The upper floors were made of wooden mats and wooden beams, the wooden beams supporting smaller fronds laid diagonally. On top of that a layer of a mixture of mud and lime formed the hard surface. The upper roof maintained a small slope of three to five percent towards spouts to drain rainwater quickly away from the wall sides. A large number of traditional buildings were also built of clay bricks. The bricks were used for walls, partitions, roof parapets and in some cases for small arches and domes. The colour of the bricks was generally red, but other colours, such as yellow, blue and

brown were produced, and were used in roof parapets forming multi colour-patterns.[1]

Danby (1980)[2] stated that traditional construction is found to demonstrate a folk knowledge of the thermal performance of the walls and roof. In such a hot dry climate with extensive solar radiation, the thick heavy wall is used to give a sufficient delay to the heat passing through from the outside to the inside surface. The internal surface temperature would start to rise after the outside air has cooled after sunset. The adaptation of a suitable technology to the climatic and cultural requirements of the community has taken place over a long period of time so that a set procedure of building is taken for granted as the solution appropriate to its immediate needs.

Finally, it is proposed that such traditional buildings should be preserved. They should be restored and maintained along with the area surrounding them. In relation to surrounding buildings, the architectural features should be harmonious in size,

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[1] Sami Abdul Karim Mirza.
"A study of the Insulation Properties of Building Materials and their applications in Middle Eastern Climates." Unpublished M.phil Thesis, Loughborough University of Technology, Loughborough, United Kingdom. August 1980. pp:1,27-30.

[2] Miles Danby.
"The Islamic Architectural Tradition and the House: with special reference to the Middle East." Unpublished paper presented at the Islamic Architecture and Urbanism Symposium 5-10 January 1980, organized by the College of Architecture and Planning, King Faisal University, Dammam, Saudi Arabia.

shape, building materials and colours so that the urban pattern of the area can create a spiritual environment[1].

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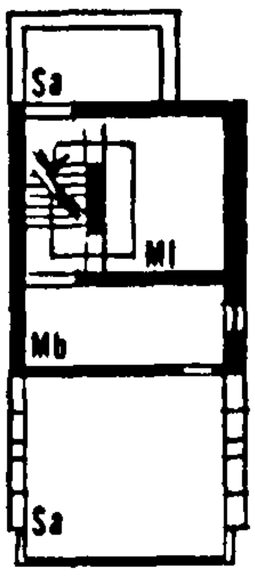
[1] Op cit. Farsi (1982). p:82



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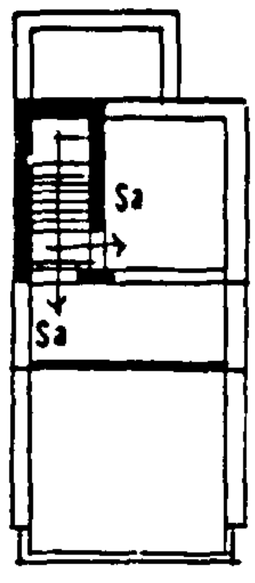

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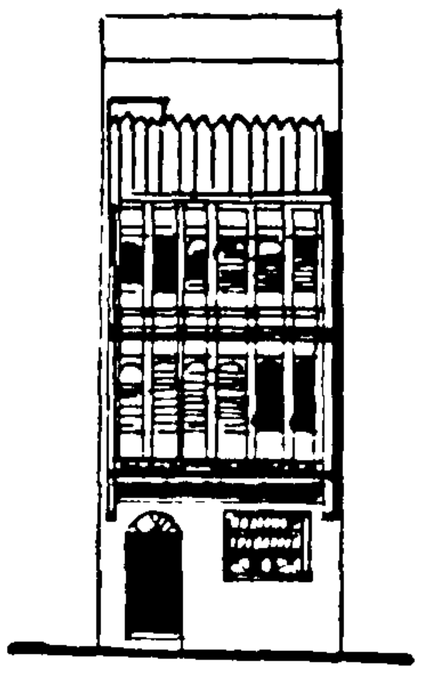
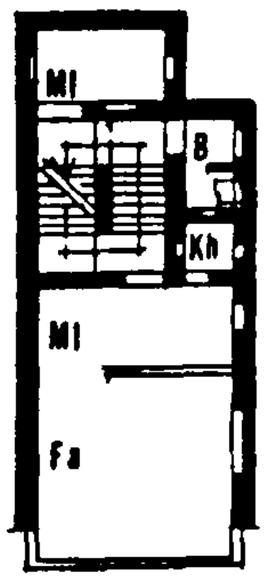


Main facade



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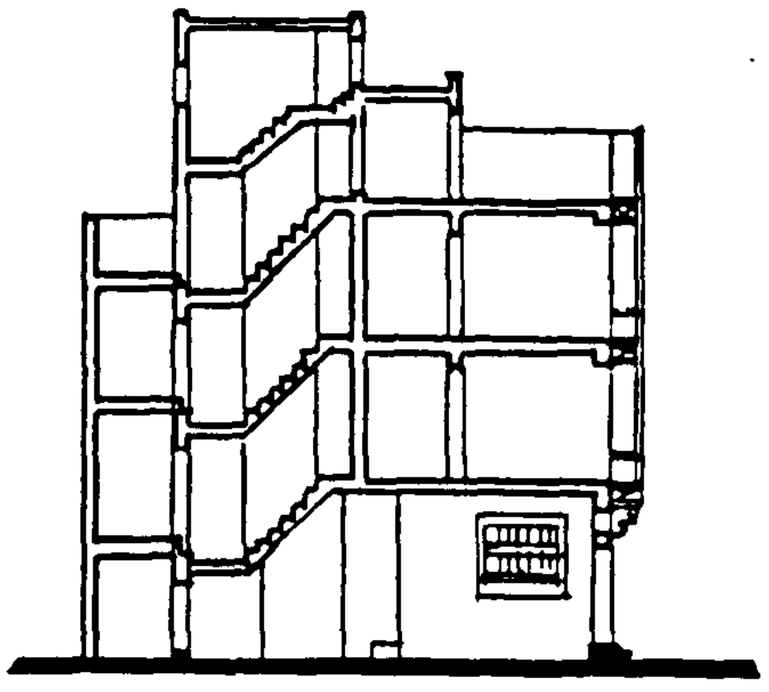
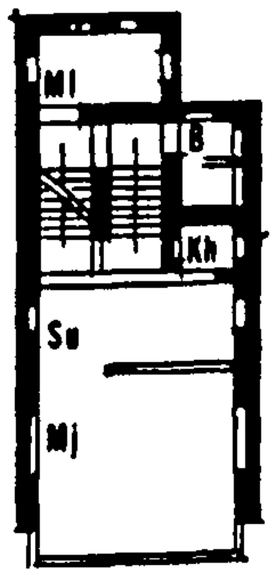


Section A.A



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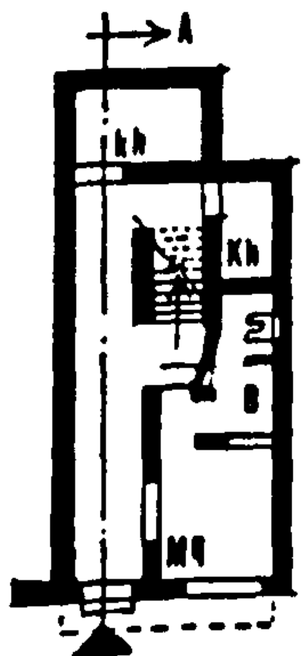


Ground level

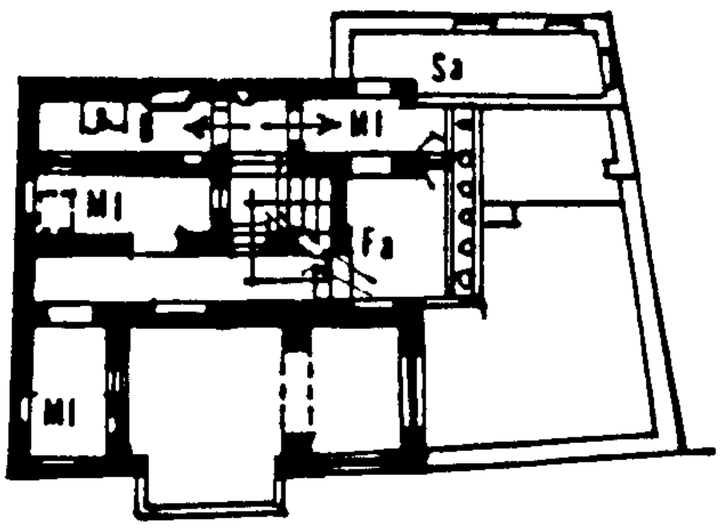
Fig. 4: SIMPLE-PLAN HOUSE

Da Entrance hall (dihliz)
Mq Sitting room (maq'ad)
Mj Reception room (majlis)
Su Ante-room (ṣuffa)
Fa Family room
Kh Storage space (khuzâna)
Mu Small room (mu'akhkhar)
Mt Kitchen (maṭbakh)
B Water closet (bayt al-mâ')
Q Basement (qabw)
Dq Storage space (diqajsi)
Mb Night room (mabit)
Sa Terrace (kharja)
Ml Multiple use



Figure 4: Simple plan. house

Source: Fadan 1980.



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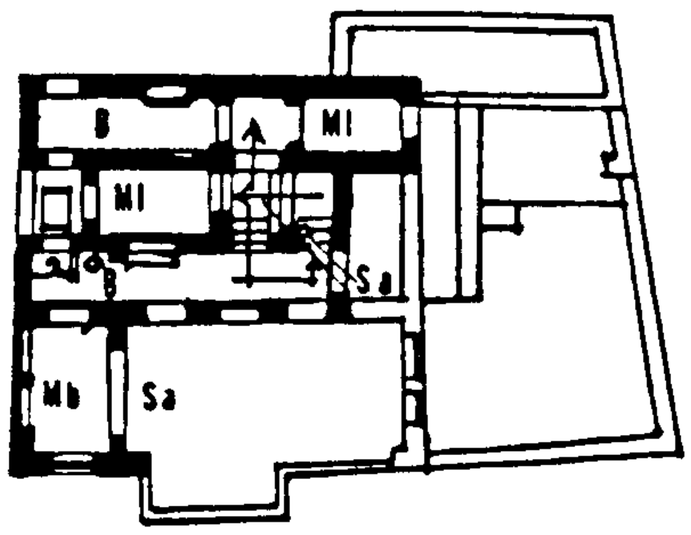

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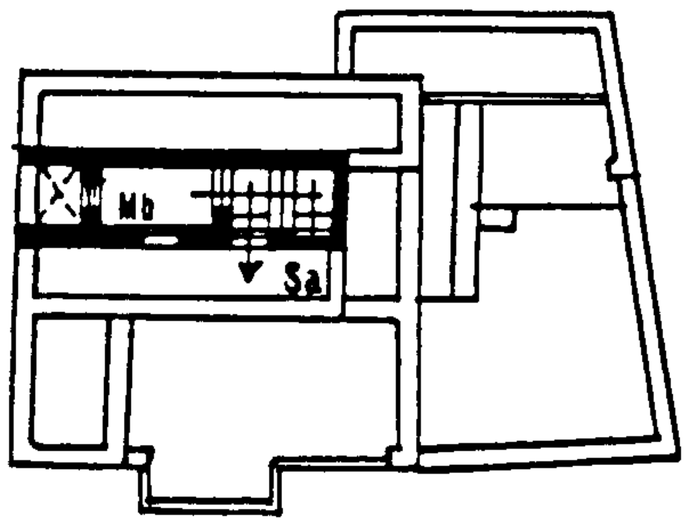

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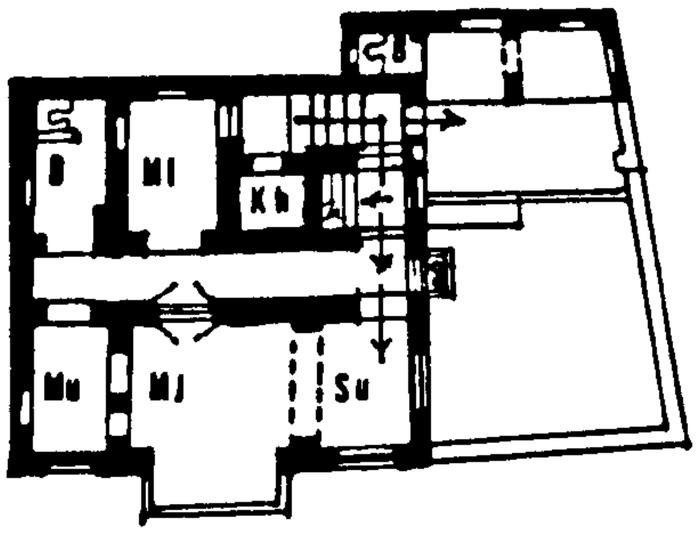

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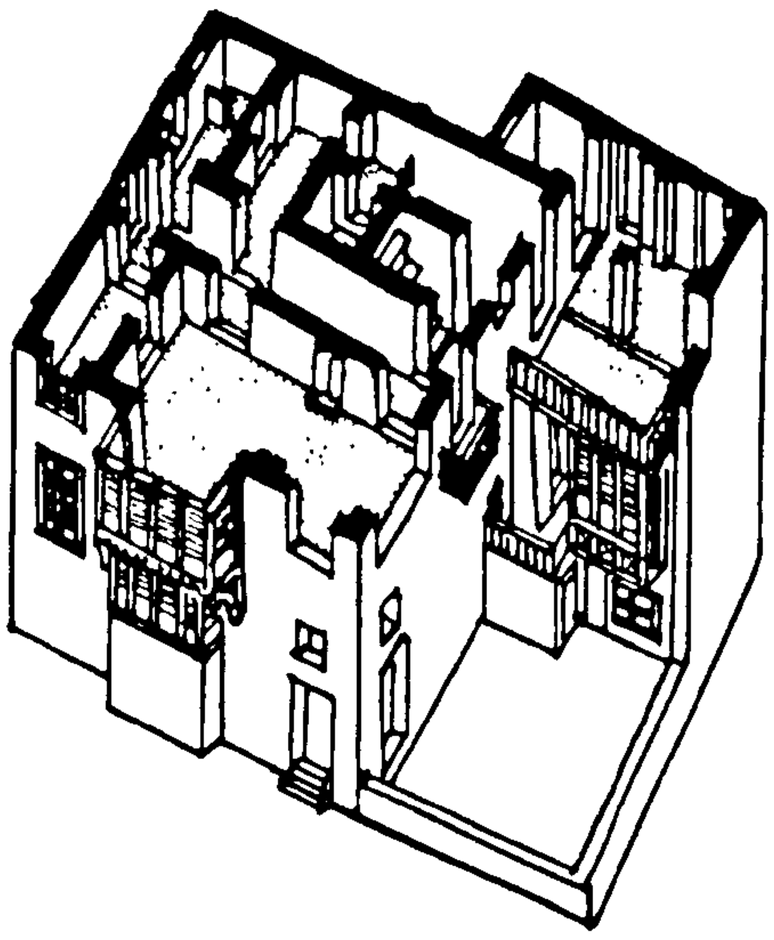

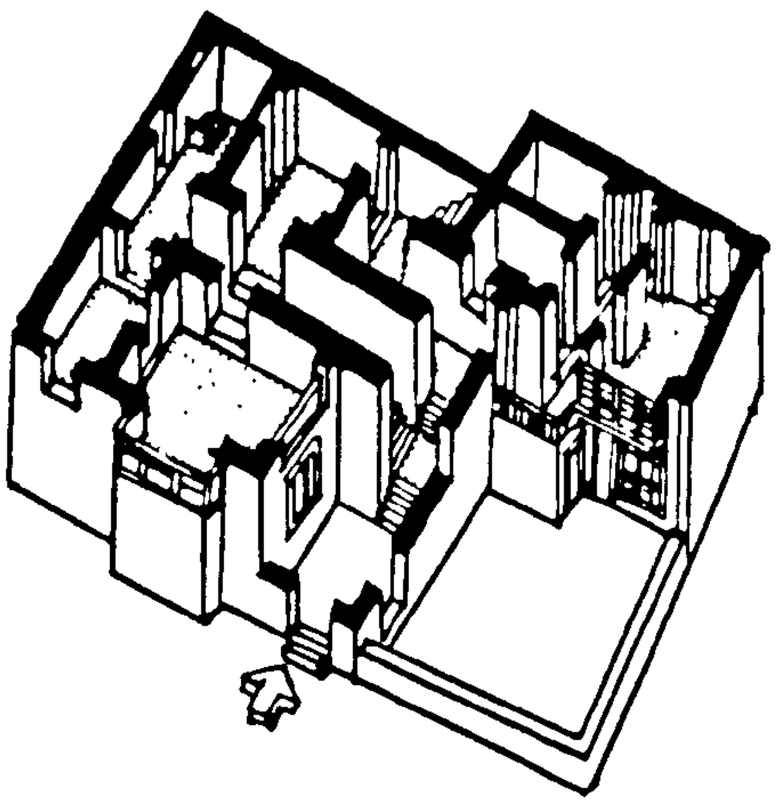

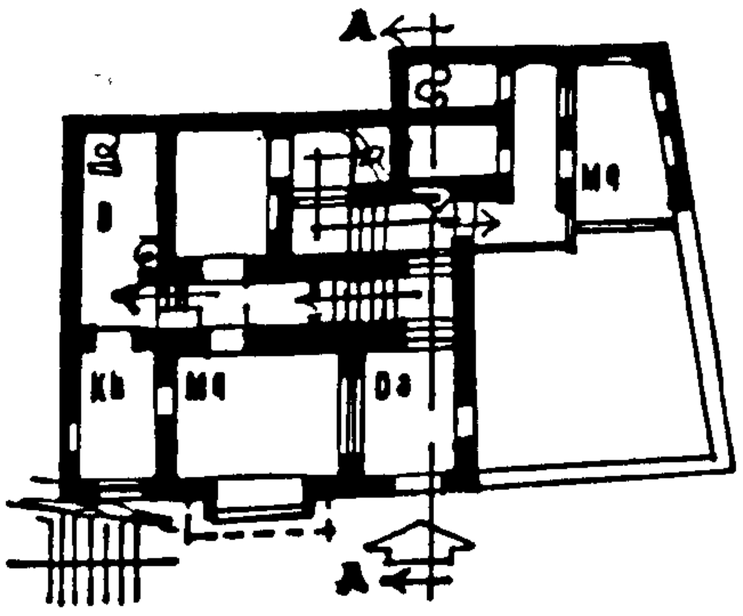

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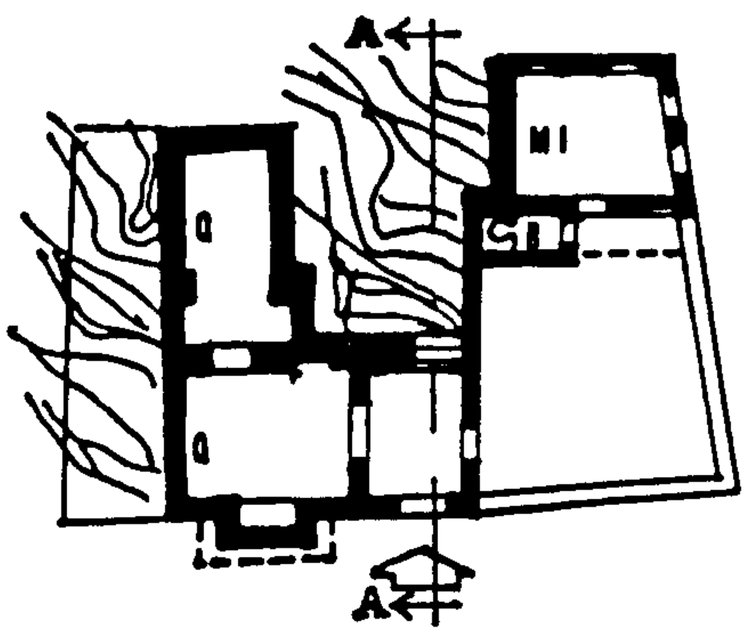
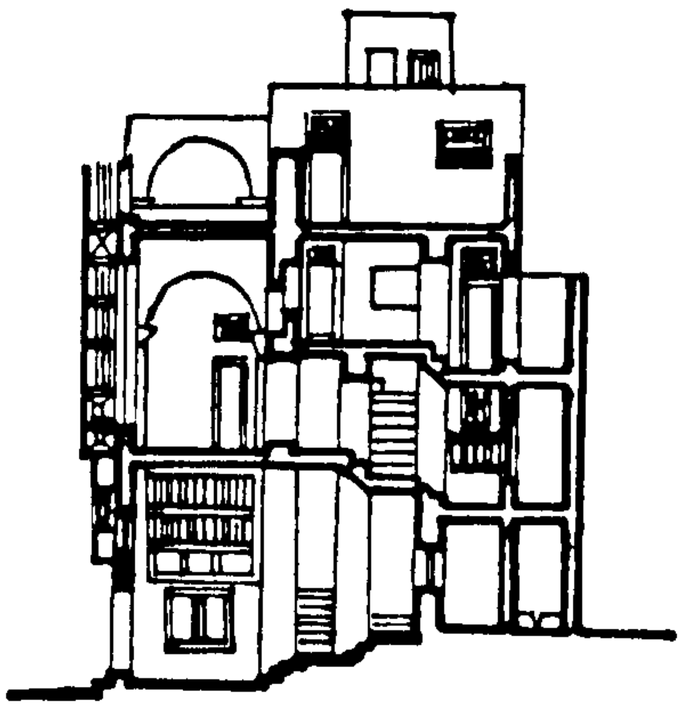


Ground level



Section A.A

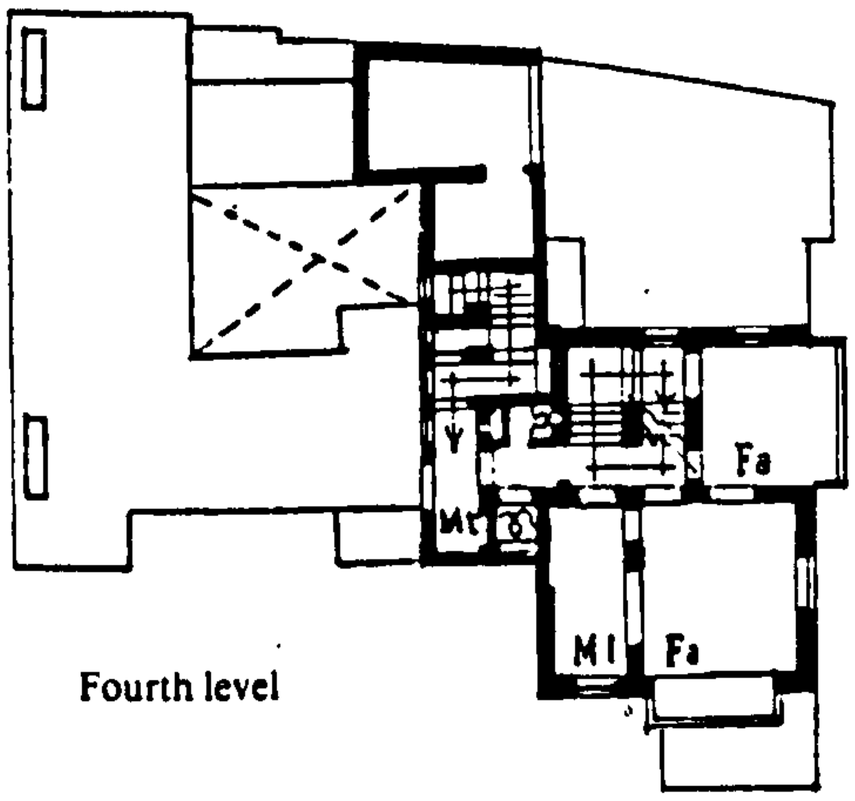
0 4 8 12 16

Fig. 5: COMPOUND-PLAN HOUSE

Da Entrance hall (dihlīz)
Mq Sitting room (maq'ad)
Mj Reception room (majlis)
Su Ante-room (ṣuffa)
Fa Family room
Kh Storage space (khuzāna)
Mu Small room (mu'akhkhar)
Mt Kitchen (maṭbakh)
B Water closet (bayt al-mā')
Q Basement (qabw)
Dq Storage space (diqajsi)
Mb Night room (mabit)
Sa Terrace (kharja)
Ml Multiple use

Figure 5: Compound plan house

Source: Fadan 1980.



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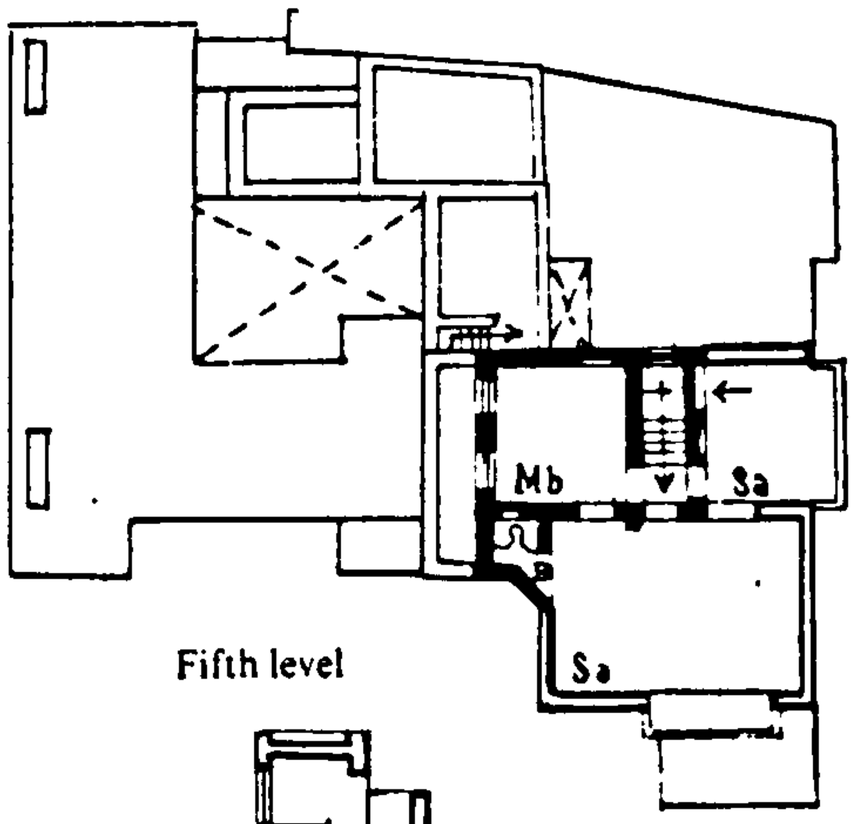

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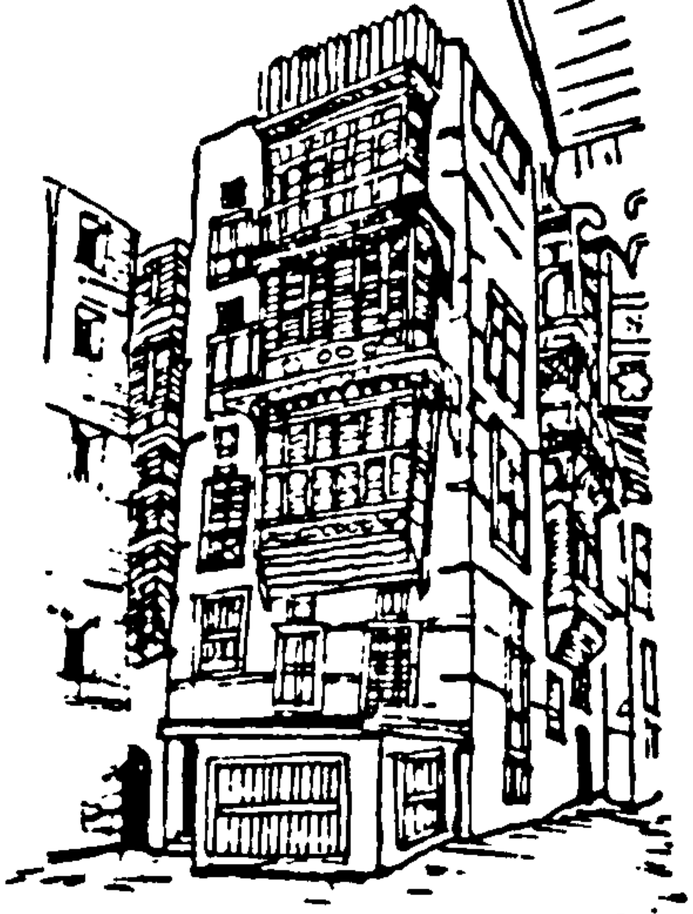
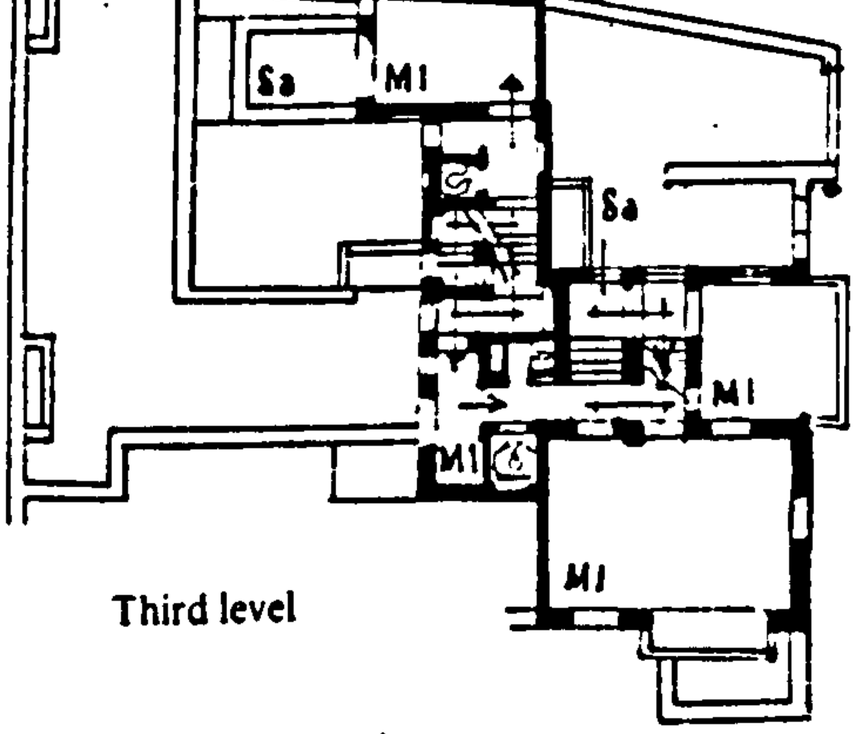


Main facade



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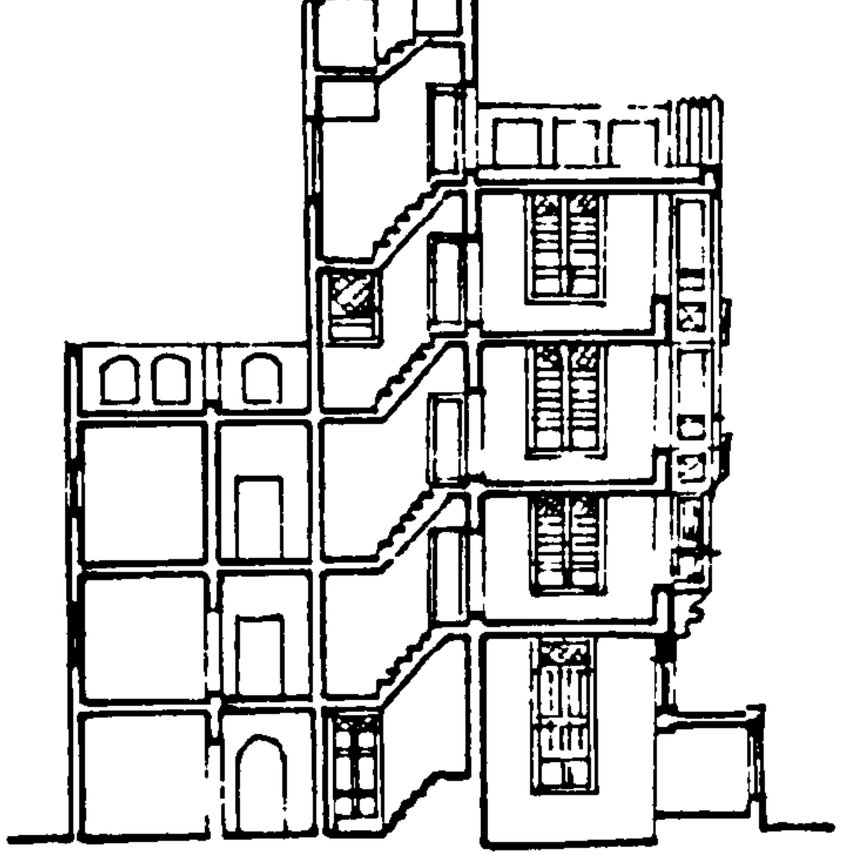
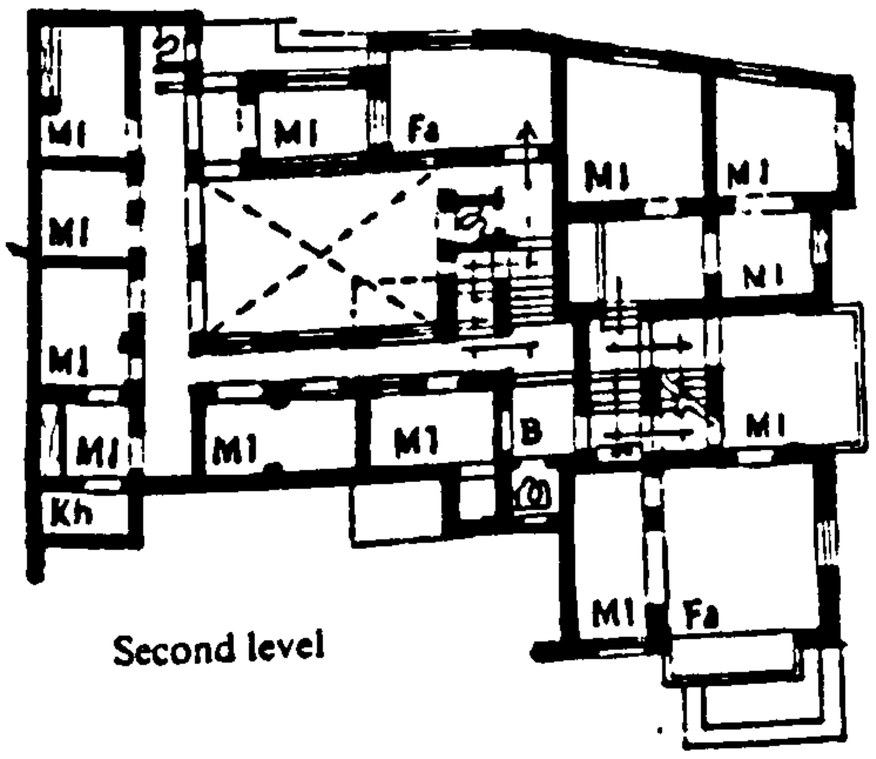


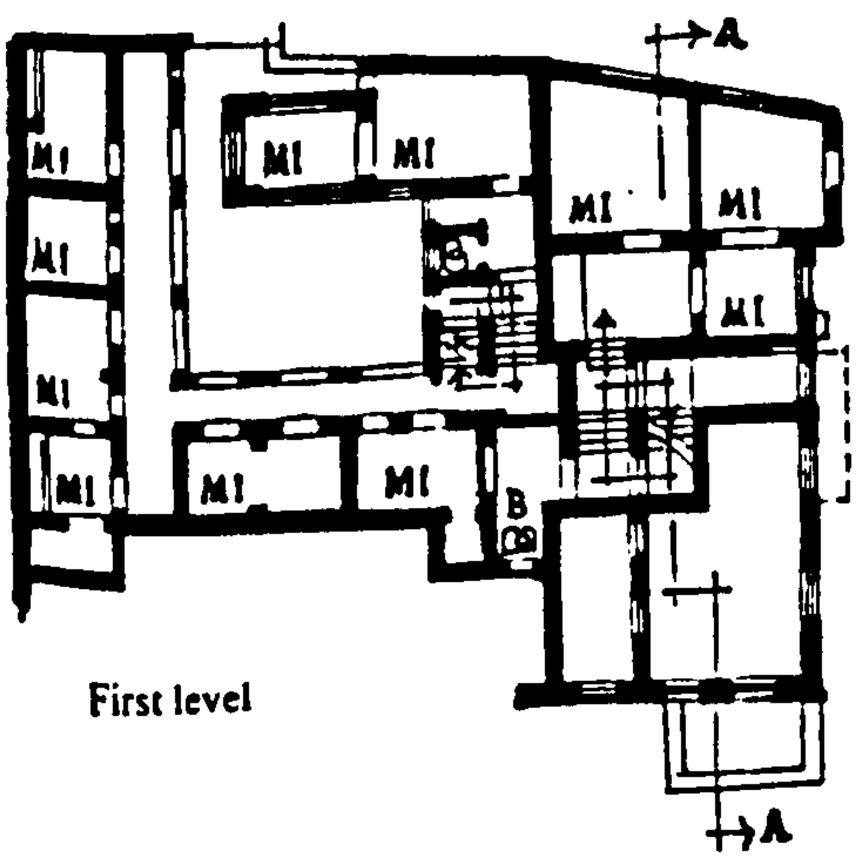
Section A.A



Second level

Fig. 6: COMPLEX-PLAN HOUSE

Da Entrance hall (dihliz)
Mq Sitting room (maq'ad)
Mj Reception room (majlis)
Su Ante-room (ṣuffa)
Fa Family room
Kh Storage space (khuzâna)
Mu Small room (mu'akhkhar)
Mt Kitchen (maṭbakh)
B Water closet (bayt al-ma')
Q Basement (qabw)
Dq Storage space (diqajsi)
Mb Night room (mabit)
Sa Terrace (kharja)
Ml Multiple use



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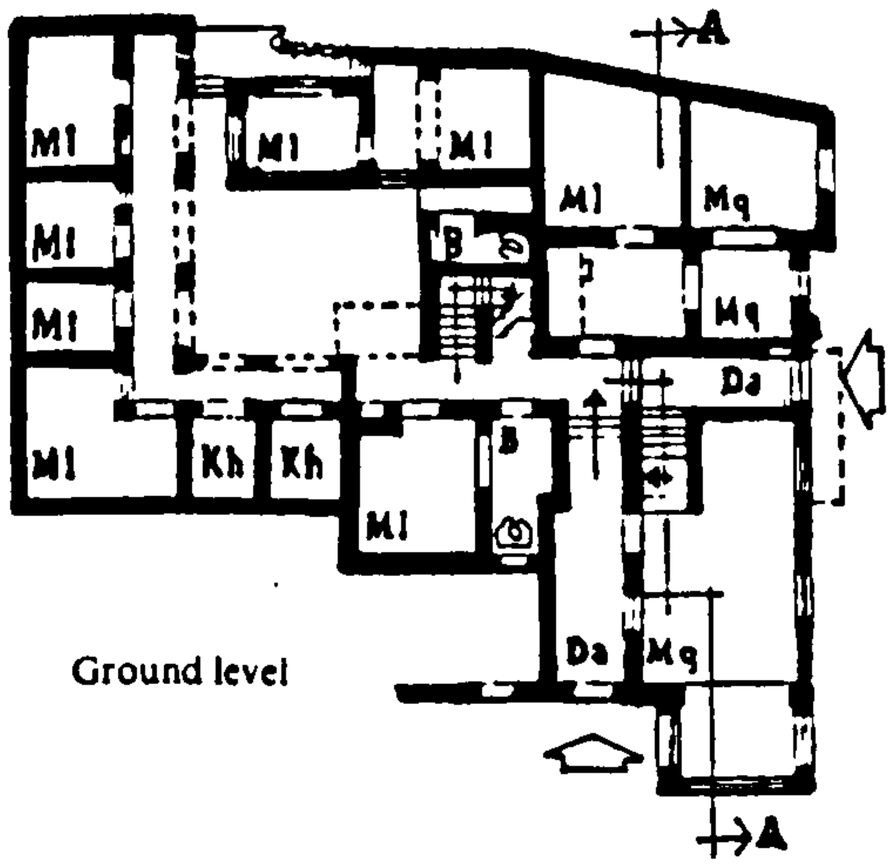


Ground level



Figure 6: Complex plan house

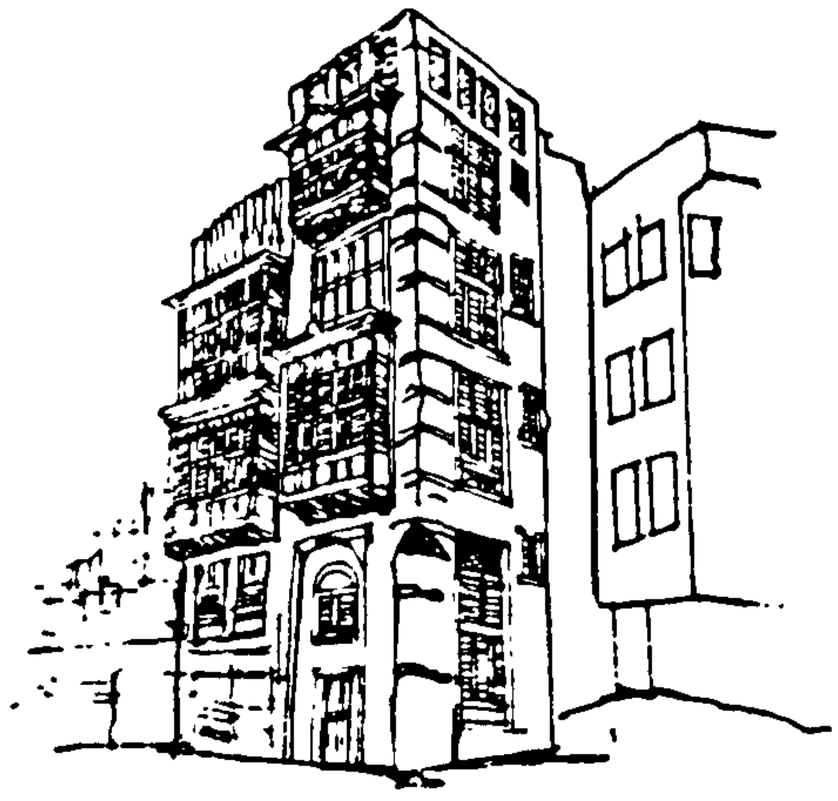
Source: Fadan 1980.



Simple-Facade
Subtype A



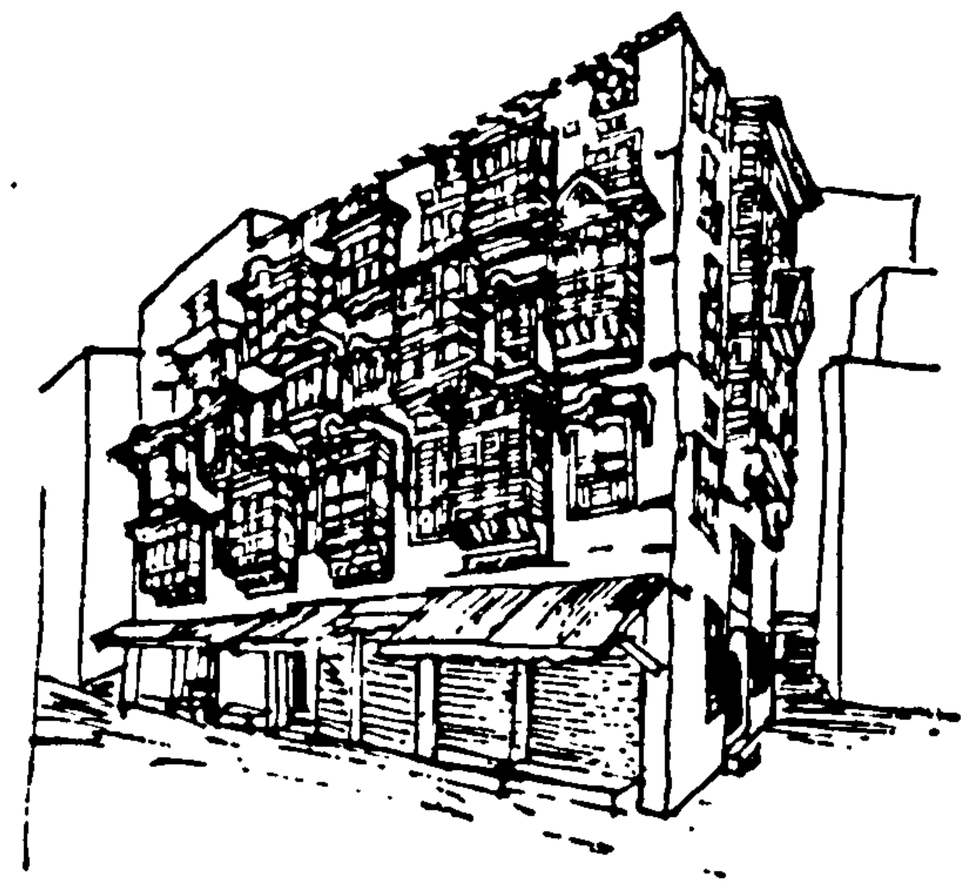
Simple-Facade
Subtype B



Simple-Facade
Subtype C



Repetitive-Facade
Subtype A



Repetitive-Facade
Subtype B



Freely-Composed Facade

Figure 7: Facade typology

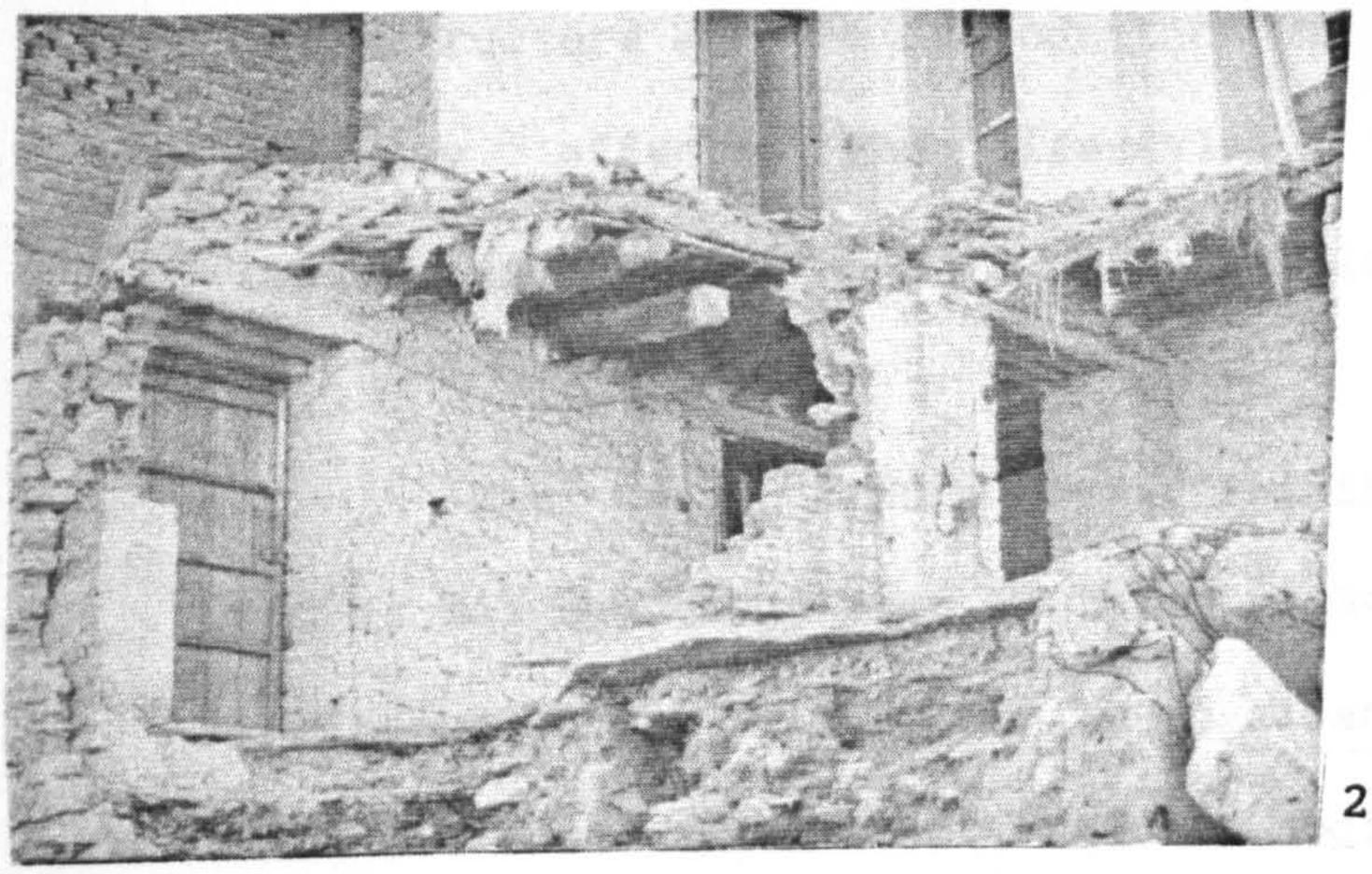
Source: Fadan 1980.



1

Photograph 1 & 2 :

Traditional building materials are clear in this partially demolished building where stones, wooden beams, fronds and mud are seen.



2

Photograph 3 :

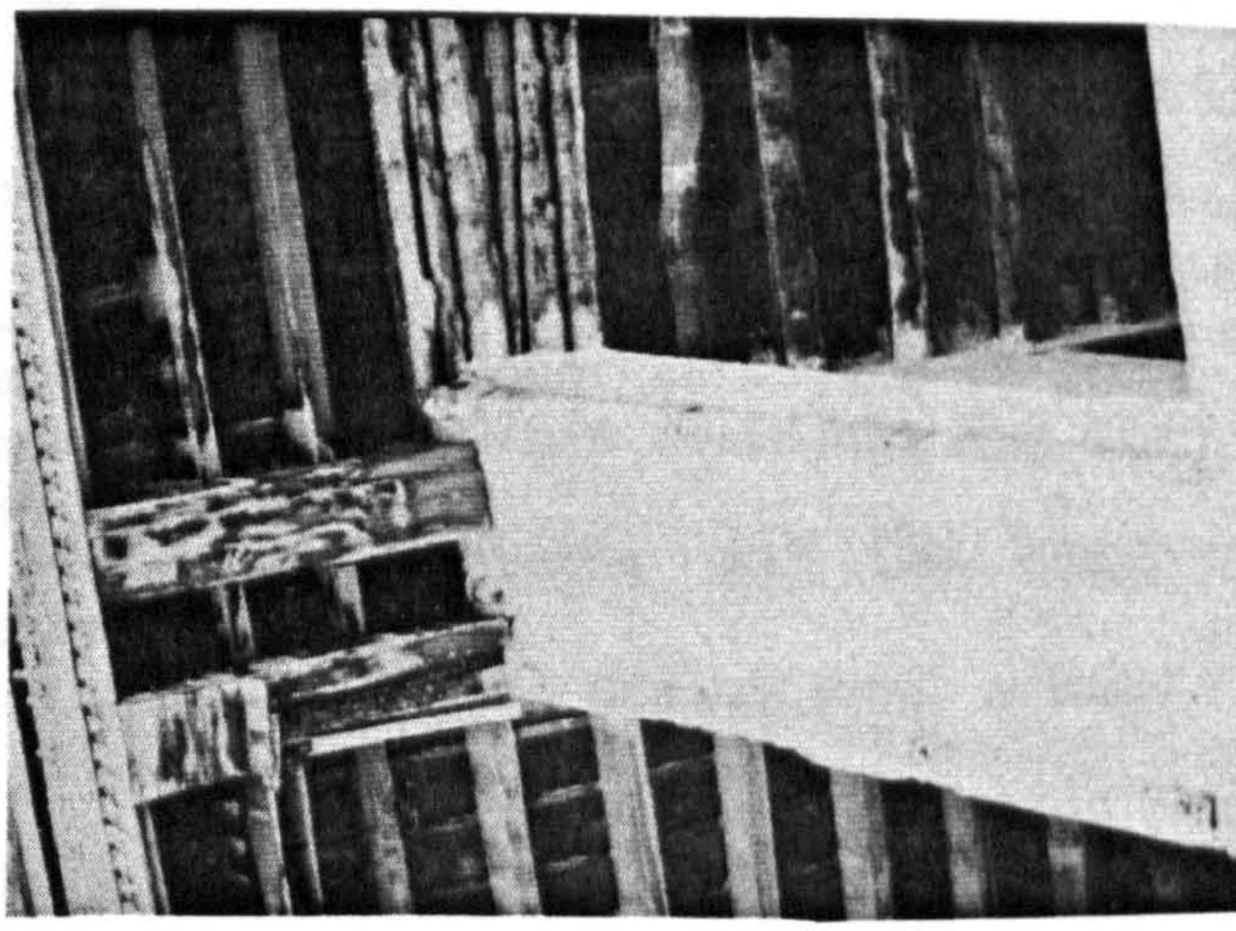
Irregular sized flat stones.

Photograph 4 :

Wooden beams of the roof supporting the smaller fronds and a large projecting window.



3



2.3 CONTEMPORARY LIVING ENVIRONMENT

Remarkable changes in the living environment in Saudi Arabia in general have occurred in the last thirty years. These changes are due to various reasons such as the greater wealth and increasing economic activity, the importing of new goods, a change in the basic infrastructure and the introduction of new ideologies which have strongly affected the lifestyle. The media and communication facilities have played an important role in the changes.

The neighbourhood area remains the centre of Saudi society and as has been suggested by Talib (1984)[1], in spite of factors which influence urban life and cause alienation, the Saudis steadfastly maintain their own cultural values, social patterns, family life and community relationships through contact with 'original' communities or neighbourhoods, villages or towns. According to the report of the Ministry of Planning, the reasons for the newly-perceived alienation in the urban areas among Saudis are:

1. Economic stratification between the very rich and middle-income families.
2. Continually changing economic groups and status of individuals.
3. Moving into new areas and beginning life among 'strangers'.
4. Differences in attitude between the older urban residents and the newly-arrived immigrants from other areas.
5. The generation gap between the educated young and the older generation who have little formal education.
6. More specialized occupations developing into occupational groups

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[1] Kaizer Talib.
Shelter in Saudi Arabia. St. Martin's Press, New York, U.S.A. 1984. p:113-115.

or similar interest groups.

7. Changing attitudes and cross-cultural influences affecting social behaviour in a modernizing society[1].

Wolfe said in an attempt to explain the trends of post-war American architecture:

> "In short, this has been America's period of full-blooded, go to hell, belly-rubbing wahoo-yahoo youthful rampage - and what architecture has she to show for it? An architecture whose tenets prohibit every manifestation of exuberance, power, empire, grandeur, or even high spirits and playfulness as the height of bad taste."[2]

This was the post-war scene in the United States and for this reason Talib commented on the Gulf architecture saying that, in a very different context, contemporary architecture is going through a similar process of 'youthful rampage' and asking what has architecture to show for the booming economy[3]. The influence of Western architecture is very evident in Saudi Arabia. The majority of buildings bear little resemblance to traditional architecture and their identity has changed dramatically. The form, design and building materials do not adequately meet the basic needs appropriately, although most people are still impressed by the modernity of the international styles. It is also worth noting what Talib wrote about existing housing in Saudi Arabia:

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1 Kaizer Talib. 1984. Ibid. pp:113-115.

2 Tom Wolfe. From Bauhaus to Our House. Jonathan Cape, London, 1982. Kaizer Talib. 1984. Op cit. p:113.

3 Kaizer Talib. 1984. Op cit. p:115.

> "Housing in Saudi Arabia is currently based on this International Style. It is not derived from the concepts of living in the past or the present needs of a contemporary Saudi society. The traditional shelter patterns of Saudi Arabia have been replaced by, in many instances, new forms of housing during the last twenty five years."[1]

When housing or houses are considered one ought to consider how appropriate they are to fulfilling hygienic, social and climatic requirements in an increasingly modern world. The facilities new technology offers are also important aspects to be considered. What then are the criteria of an appropriate house in Saudi Arabia in general and in Makkah in particular? Aba Al Khail (1979) claimed that the criteria are specified in the light of modern varieties and environmental discrepancies. For instance, very old houses which have no modern adequate facilities, were suitable at the time they were built but now they have become inappropriate. Scandinavian houses are inadequate for people in the Arabian Peninsula and vice versa, due to differences in climate, customs, traditions and the family size. When there is a great demand for houses, a one room house may be inhabited by a big family. Therefore, detailed studies are required in order to provide the modern house with adequate facilities.[2]

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[1] Kaizer Talib. 1984. Op cit. p:115.

[2] Ibrahim Aba Al Khail.
"Housing". Albenaa Architecture Magazine. First year, Number 4, August-September 1979. p:65.

2.4 HOUSING IN MAKKAH IN RECENT YEARS

In the "Alternative Urban Strategies of Mecca and Madinah" report[1] it was said that because of Makkah's topography, the incidence of detached houses is lower than in other cities. The percentage of apartments is higher than in Madinah but lower than in Jeddah and Taif. The common type of dwelling is the non-detached dwelling (65 per cent of all dwellings) which is normally built on fairly sloping land.

The population density in Makkah is also greater than in other cities. In the central districts[2] the density is 360 persons per hectare, and of course it is much higher around the Holy Mosque. The density is less in the neighbourhoods which are situated further from the Mosque, where it can be 95 persons per hectare. This difference in densities seems not to affect the persons per room ratio. Thirty five percent of the population has more than two persons per room[3].

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[1] The Ministry of Interior and Municipal Affairs, Regional and Town Planning Department, Riyadh, Saudi Arabia. Alternative Urban Strategies of Mecca and Madinah. Robert Matthew, Johnson - Marshal & Partners, Consultants. 1972. pp: 45-50.

[2] The central districts are: Ajiyad, Al-Shubayka, Al-Shamiyah, Shi'b Ali, Souqe Al-Lail, Al-Gararah, Al-Misfalah.

[3] Ministry of Interior. Ibid. pp:45-50.

In general, the housing situation in Makkah is nearly the same as the average housing situation in other cities, but the percentage of tenants is slightly lower. In table number 1 the housing characteristics of Makkah are compared with those of Jeddah and other cities to reveal this similarity.

In the central districts the percentage of apartments and tenants is higher than in other parts of Makkah. They also have the lowest percentage of residents who live with more than three persons per room (14.6 per cent). This low ratio per room might occur due to the fact that people in that area are expected to rent the available space during Hajj. In table number 1 the scale used for the number of persons per room is ambiguous.

The percentage of the dwellings which do not have sanitation facilities and water closets is very low and that is the case also for households whose monthly income is less than S.R. 400.00.

Finally, the percentage of Saudi nationals in the central districts is 72.1. The percentage of residents who live in apartments is 30.6 while the percentage of tenants is 59.9 per cent.

Table 1: Housing characteristics in Makkah compared with other cities in Saudi Arabia

	Makkah	Jeddah	Other cities in Saudi
Dwelling type:			
Detached	1.4%	4.3%	3.1%
Non detached	65.3%	51.1%	61.6%
Apartment	21.3%	28.3%	23.4%
Shanty	11.4%	15.7%	10.0%
Other	0.6%	0.6%	1.8%
Tenancy:			
The percentage of rented accommodation	52.4%	64.6%	57.0%
Persons per room:			
less than one per room	14.0%	11.5%	14.9%
one per room	17.9%	14.6%	16.3%
1-2 per room	32.7%	32.0%	34.0%
2-3 per room	18.6%	22.4%	19.5%
3-4 per room	9.8%	9.7%	8.5%
More than four per room	6.6%	9.7%	6.7%
Services:			
Pipe water supply	51.0%	46.2%	48.4%
Electricity	71.5%	68.3%	68.6%
Toilet / Shower	31.8%	34.7%	32.7%
Water closet	33.2%	41.7%	36.5%

Source:
Alternative Urban Strategies of Makkah and Madinah. 1972.

2.5 CONTEMPORARY DWELLINGS

It is true to say that dwellings in the past were built in a harmonious environment where all traditions, customs and external conditions were catered for. At present the dwellings are different. They have lost their former character. Privacy is not satisfactory as one sees that most apartments face each other and that is why curtains are always closed. The contemporary dwellings are dependent on high technology for the provision of material comforts while the traditional dwellings were built with appropriate building materials which suited external conditions. There are many design problems both inside and outside the contemporary dwellings. Economically there are wasted areas inside the dwellings in the form of lobbies or corridors. Aesthetically there are many colours and decorative features on most facades. Al Shetwee and Al Farraje has identified the main reasons for these factors mainly as follows:

1. The planning and building regulations and the conditions of the Real Estate Development Fund are not appropriate or sufficient.
2. The lack of architectural knowledge within society of the neighbourhoods and dwellings.
3. The lack of qualified architects who can provide the appropriate environment for the Saudi resident[1].

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[1] Saud Al Shetwee and Sulaiman Al Farraje. "Dwelling Architectural Form in Riyadh: Reasons for the contrast between the traditional and contemporary dwelling" Reprints text of unpublished Bachelor project, University of King Saud, Riyadh, Saudi Arabia. 1980. p:24.

The above mentioned problems are true for dwellings in Makkah in general but not for dwellings in the central districts with which we are more concerned.

Because of the unique position of central Makkah which accommodates large numbers of pilgrims during Hajj, the housing conditions differ from those seen in other parts of Makkah as well as in other cities. For the reasons described earlier in this chapter with regard to traditional houses in the past, there are no detached houses (villas), courtyard houses and shanties in the central districts of Makkah at present. The only type of contemporary accommodation is the walk-up apartment building and the improved or extended traditional building. These types are discussed in chapter five, where each type will be taken as a case study. Other types which are not found in the central districts are not discussed but for further information about the contemporary dwelling environment in Makkah city one can refer to Al Otaibi's thesis[1]. He selected four case studies showing low, middle and high income dwelling environment situations within the Makkah urban area at the present time. The case studies were selected on the basis of income groups, housing systems, location, and the percentage of population that each system houses.

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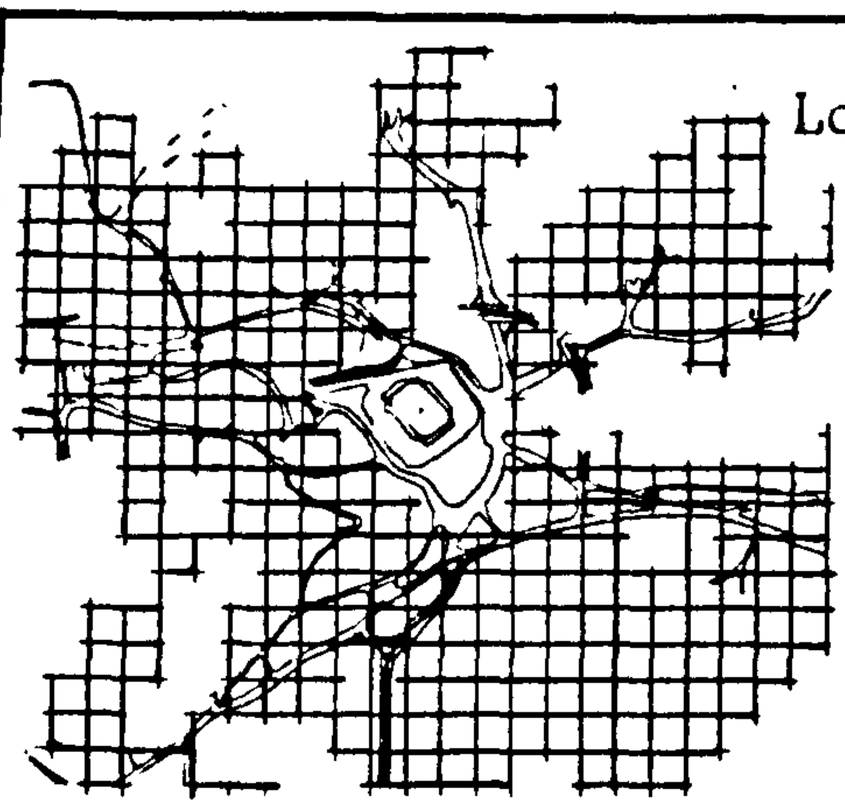
[1] Ghazi Sahal Al Otaibi. 1980. Op cit.



CHAPTER 3

THE HAJJ

3.1 The meaning and procedure of Hajj
3.1.1 The Umrah
3.1.2 The Manasik
3.2 The Hajj and Umrah Seasons
3.3 The Increasing Number of Pilgrims
3.4 Organisation and management for the Hajj
3.4.1 The High Committee for Hajj
3.4.2 Central Committee for Hajj
3.4.3 Ministry of Hajj and Awkaf
3.4.4 Ministry of Communications and Transport
3.4.5 Ministry of Public Works and Housing
3.4.6 Directorate of Harmain Al-Shariefain
3.4.7 The Hajj Research Centre
3.4.8 Ministry of Municipal and Rural Affairs
3.4.9 Makkah Municipality
3.4.10 High Committee for Makkah Planning
3.5 Tewafa (The guiding of pilgrims)
3.5.1 The mutawif
3.5.2 The wakil
3.5.3 The dalil
3.6 Mutawif dalil, and wakil establishments
3.6.1 Mutawif Establishment
3.6.2 Dalil Establishment in Medina
3.6.3 Wakil Establishment in Jedda
3.7 Summary

CHAPTER THREE

THE HAJJ

> "Hence, [O, Mohammad] proclaim thou unto all people the duty of Pilgrimage : they will come unto thee on foot and on every [kind of] fast mount. Coming from every far-away point [on earth]".
>
> The Holy Quran, Surat Al-Hajj

Hajj is one of the five "pillars of Islam", a compulsory duty carried out by every Muslim. The other four "pillars" are as follows: testifying that there is no other god but Allah and that Muhammad is the Messenger of Allah, Salat (regular worship), Zakat (alms) and Saum (fasting)[1].

Hajj is a duty which has to be performed at least once in every Muslim's lifetime. It differs from the other four pillars of Islam in that it has to be performed in a particular area at a particular time of the year and lasts no longer than four days.

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[1] On the authority of Abu-Abd ar-Rahman Abdullah, the son of Umar ibn al-Khattab, who said: I heard the Messenger of Allah (may the blessings and peace of Allah be upon him) say: "Islam has been built on five pillars: testifying that there is no god but Allah and that Muhammad is the Messenger of Allah, performing the prayers, paying the Zakat, making the pilgrimage to the house, and fasting in Ramadan." It was related by Al-Bukhari and Muslim. An-Nawawis Forty Hadith. Translated by Ezzedin, Ibrahim and Denys Johnson-Davies. The Holy Quran Publishing House, Damascus, Syria. 1977. p:34.

Makkah (Mecca) is considered to be the spiritual heart of the Muslim World because the Holy Mosque is to be found in its centre. This is the Holy Mosque which pilgrims must visit whilst performing the Hajj and which Muslims face for daily prayers. Makkah is one of the four ritual places where the Hajj is performed. The other places are Muna, Muzdalifat and Arafat.

This distinctive feature affects the whole of Makkah, but has a greater impact on the city's central districts which have to cope with the pilgrims' various shelter, services and circulation requirements. Housing is seriously affected because of the great demand for accommodation, and a great number of problems arise under these circumstances. For these reasons, the meaning of and how to perform Hajj will be explained. Secondly, the Ministries and organisations involved in Hajj and their role will be discussed. Finally, the increasing number of pilgrims, the tewafa and the motawif establishments will be mentioned.

3.1 THE MEANING AND PROCEDURE OF HAJJ

Hajj[1] is an Arabic word which means 'to visit the holy places'. It is required once in a lifetime of all adult, sane, free and physically and financially able Muslims, male and female. In the

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1 The main source of this section is a leaflet called "Hajj, The journey of a life-time." Muslim Information Service, London.

case of women the accompaniment of a 'mahram'[1], is essential. Financial requirements include freedom from all forms of debt and the ability to provide for dependants, if any, who are left behind during the journey.

It is the custom of people from many religions, including Jews, Christians, and Hindus, to visit ancient religious sites each year. Except for the Muslim, such visits are not obligatory. Other religions have sacred locations to which the faithful make visits. Both Christians and Jews visit the Holy Land, whereas multitudes of Hindus perform pilgrimages to sacred places throughout India[2], and thousands of Buddhists perform pilgrimages to the holy sites in Shikoku in Japan[3]. Pilgrimage is widespread even though its importance in the industrialized Western nations has decreased. Although the concept of pilgrimage exists in each of these religions, its meaning within each context varies.

Unlike pilgrimage in other religions, Hajj is in no way devoted to or concerned with glorification or sanctification of either the prophet Mohammed, peace be upon him, or any of the places

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1 Mahram is someone the women cannot legally marry

2 Surinder Mohan Bhardwaj, Hindu Places of Pilgrimage in India. Berkeley: University of California Press, 1973. p:1. Referred to by Ghazy Makky. 1981. Op cit. p:2.

3 H. Tanka, "Geographic Expression of Buddhist Pilgrim Places on Shikoku Island, Japan." The Canadian Geographer. 21 (Summer 1977):111. Referred to by Ghazy Makky. 1981. Op cit. p:2.

and shrines being visited. Its actions are a re-enactment of Prophet Ibrahim's (Abraham) obedience and submission to the will of God - the essence of Islam. The individual is directly linked to God, giving the acts and rituals a real personal touch. It is also an opportunity for the individual to start a clean righteous life renewing his relationship with God, the merciful Creator. Several other benefits are gained during the Hajj; meeting fellow Muslims from other parts of the world, attending or participating in Islamic conferences which are organised especially to coincide with the Hajj season and establishing business and social relations and contacts. However these, although approved and recognised, are rated secondary to the prime purpose of the trip.

Hajj is a unique experience. Most of those who perform it return overwhelmed and overpowered, and it usually takes them a few weeks or even months to begin to talk of it and express their impressions. The most fascinating feature of this experience is that in spite of the large number of people present, one can still enjoy the feeling that he or she alone has the privilege of being 'the guest of God'. Nearly two million people gather in one place, each striving to discharge the noble and sacred duty of 'submitting to God' without obstructing or hampering others striving for the same goal and seeking to assist and cooperating with them. This is a test for sincere and genuine brotherhood and tolerance.

Another feature of Hajj is that it is an accurately timed schedule of activity that must be executed and carried out conscientiously and with precision, according to the prescribed manner within the time allowed. In order to complete the Hajj several places, approximately six miles apart, must be visited involving a considerable amount of travelling and packing and unpacking. Physical health and stamina are, therefore essential. Medical facilities are usually well-provided and vaccinations before setting out for the journey are recommended.

3.1.1 The Umrah

Of those who are not resident in Makka, 'Umrah'[1] is required on arrival to offer greetings and pay respects to the noble 'house of Allah'. It involves ihram, tawaf and sa'ayee (see below). It is not a substitute for Hajj and can be conducted either separately, before or after it, or in conjunction with it. This leads to the three forms of procedure in performing the Hajj-Umrah combination;

1. Attamatto'a in which Umrah is offered separately before the Hajj but within the so called months of Hajj, viz., Shawwal, Dhul Qi'edah and the first eight days of Dhul Hijjah, the tenth, eleventh and twelfth months of the Islamic lunar calendar. This is then followed by Hajj whose observances are concentrated

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1 Umrah is an Arabic word that means to visit the 'Ka'ba' (house of Allah) and it involves fewer rituals than those practiced during Hajj.

mainly on the 8th, 9th and 10th of Dhul Hijjah.

2. Al-Qiran; in which both Hajj and Umrah are performed jointly with the same ihram.

3. Al-Ifrad in which Hajj preceeds Umrah which is offered after completing the Hajj and with a separate ihram.

For both the first and second procedures the offering of the hadyee[1] is required.

3.1.2 The Manasik

The 'Manasik' are the essential observances and activities which constitute the Hajj proper; they are;

1. IHRAM. The state of physical and spiritual consecration to Allah which is observed before approaching Makka. The pilgrim takes a full bath, cuts the nails and trims the hair before putting on the ihram dress. This is two plain, white unsewn garments of cloth, one covering the lower part of the body from the waist down to below the knees and the other thrown over the shoulders covering the upper parts except for the head and face, and a pair of sandals or slippers instead of shoes. These are worn through the Hajj and must not be removed even during sleeping hours. Women wear clean plain clothing covering their arms, legs and hair.

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[1] Hadyee: Slaughtering of an animal.

This is followed by offering a two raka'a[1] prayer and the niyyah, intention, which is a conscious and deliberate feeling of full devotion to Allah in entering into ihram for the sole purpose of performing Hajj in full obedience to Allah and as a fulfilment of one's obligation towards Him. When making niyyah, the pilgrim must be conscious of what Hajj-Umrah combination he has in mind to perform.

The other essential part of ihram is the place where it should begin. There is a defined area around Makka inside which a pilgrim must not go without being in ihram. Depending on which direction one approaches Makka from, these points, known as mawaqueets, where ihram begins are well known.

The pilgrim then recites talbiyyah as follows:

"Labbaika allahumma labbaika. Labbaika la shareeka laka labbaik. Innal hamda wanni'emata laka walmulk la shareeka lak."

These are repeated at intervals all during ihram. They express the pilgrims' harkening to Allah's call for the performance of the Hajj, an obligatory duty. They are chanted individually or as a group.

Once in ihram the pilgrim refrains from wearing tailored clothing or jewellery or perfumes and he may not shave, cut his hair, pick

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1 Raka'a is the single unit of a Muslim prayer. It involves some sayings and practices.

any vegetation, hunt, become a party in marriage or, if married, engage in sexual activity. All forms of misconduct, gossip, back-biting, argumentation and vain-talk must be avoided.

2. TAWAF. This is the act of going round the Ka'aba seven times. On arrival, the pilgrim performs tawaf al-qudoom, starting from the corner housing the Black Stone and moving in an anti-clockwise direction, with the Ka'aba on the left. The right-hand shoulder is left exposed and the pilgrim attempts to reach the Black Stone, and kiss it if possible; but if that cannot be achieved, he raises his right hand in its direction and proceeds to circle the Ka'aba. Men hasten to a jogging pace for the first three laps and walk the rest. Prayers, dua'a are said during tawaf and each lap is ended with the prayer:

"rabbana atina fiddunia hasanatan wafil akhirati hasanatan waquina athaba annar."

At the end of the seventh round, the pilgrim offers two raka'as at maqam-e-Ibrahim, then heads for Zamzam[1] to drink its water before proceeding for sa'ayee.

3. SA'AYEE. This is to walk between Safa and Marwa, two small hills near Ka'aba about 400 metres apart, a total of seven times. The pilgrim ascends as-Safa and starts coming down saying praises and prayers, then walks all the way to Marwa, climbs it and then

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[1] Zamzam : Holy water in Makkah.

walks back to as-Safa. This is carried out seven times, counting each journey between the two hills, in either direction as a full march, speeding up the pace between two green marks on the way down and reading from the Qur'an or making dua'a all through sa-ayee. In case of Hajj-attamatto'o, this will be the point to end the ihram and go back to one's normal routine and habits.

4. ARAFAT. By the 8th of Dhul-Hijjah, pilgrims prepare for leaving Makka for Arafat, via Mina. They begin to recite talbiyyah whichever means of transport they are using. They spend the night in Mina and start to leave for Arafat after sunrise the next day, 9th Dhul-hijjah. At Arafat, 25 km east of Makka, they spend the afternoon standing in prayer, dua'a, on and around the hill of Arafat. Every pilgrim must be present on this part of Hajj, which is the most important of its observances, and must not leave Arafat until after sunset. At Arafat the full magnificence and spectacle of Hajj can be witnessed, with nearly two million people of all colours, races, social status and from all walks of life, large and small, rich and poor, male and female, king and serf all standing equal in devotional prayer to the One Merciful God.

After sunset, the pilgrims proceed, en masse, towards Mina, stopping at yet another important site of Hajj known as Muzdalifah, about 10 km from Arafat. Here they spend most of the night, visiting a small hill called al-masha'ar al-haram where

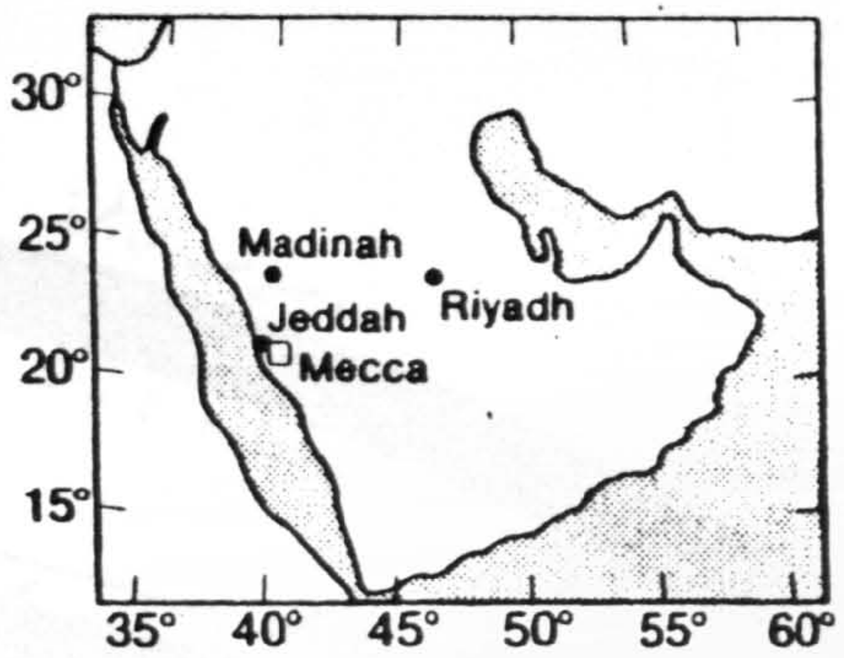
they make dua'as. It was the Prophet's practice to combine zhuhr and asr prayers at Arafat and maghrib and isha prayers at Muzdalifah. See figure 8.

5. MINA AND THE JAMARA. On the 10th of Dhul-hijjah, the pilgrims return to Mina, a small village 3 km from Muzdalifah, which was passed earlier on the way from Makka to Arafat. Here they perform the ritual of ramyee, i.e. the stoning of the three concrete pillars, called jamarat, which symbolize the devil. For this, small pebbles are needed and these are collected on the way to Mina. The three jamarat are designated as the 'greater' (also called jamaratul aqabah), the 'medium' and the 'smaller'. The 'greater' jamarah only is stoned on arrival the first day, 10th Duhl-hijjah, by throwing seven pebbles and saying "Allahu-akbar, God is the Greatest", on each throw. On the following two days all three jamarat are stoned each day starting with the 'smaller' one, which is also the nearest to Muzdalifah, and ending with the 'greater' one.

Once the first stoning is carried out, pilgrims stop reciting talbiyah and proceed to offer the haydee, the slaughter of an animal. This ritual is celebrated by all Muslims all over the world on the 10th of Dul-hijjah and marks one of the two major festivals in Islam and is known as Eidul-adha. On this occasion every Muslim who can afford to, sacrifices an animal in commemoration of Prophet Abraham's willingness to sacrifice his son Ishmael, in obedience to God's command. The pilgrim gives

Map 8:

Boundaries of the Individual Holy Places



Source: Ministry of the Interior, Municipal Affairs, Kingdom of Saudi Arabia. Makky 1981 p:7.

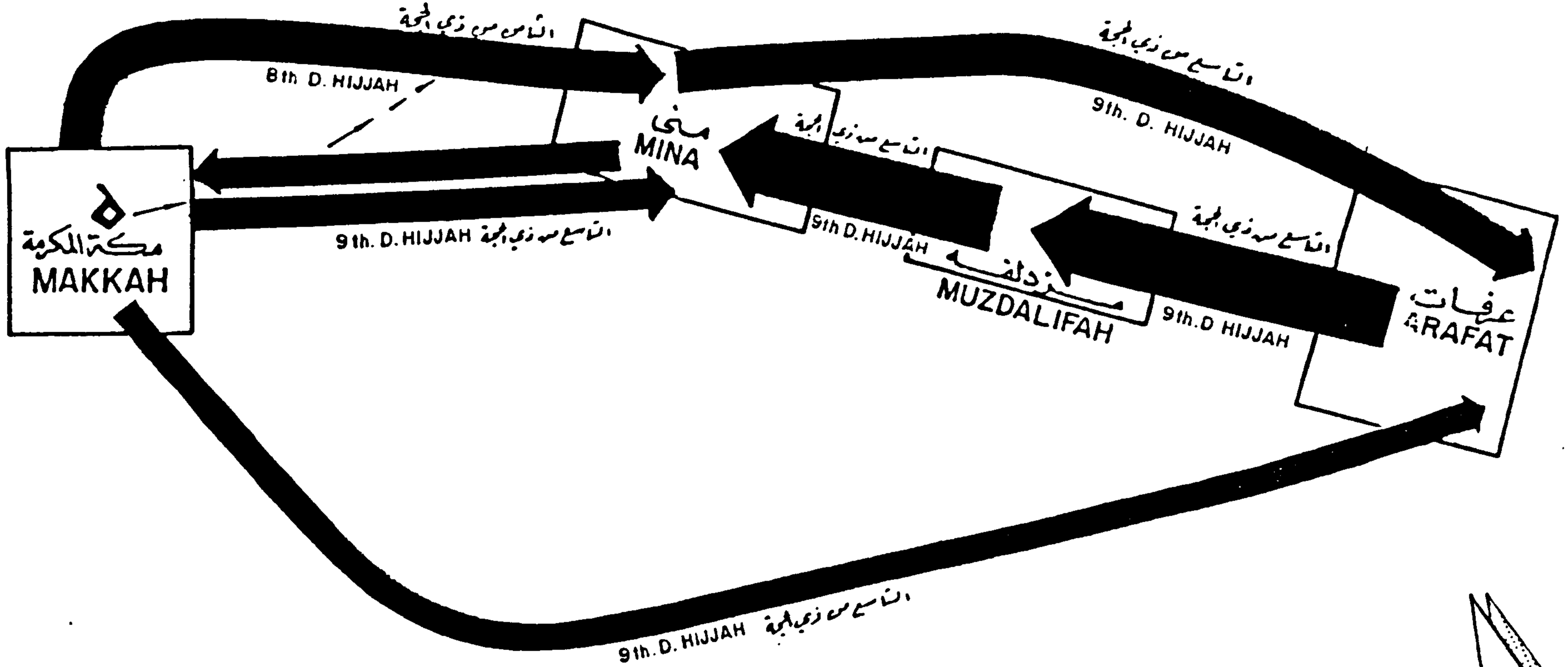


Figure 8: Pilgrims' movement on 8th & 9th Zul Hijjah.

Source: Dar Al-Handasah Consultants Preliminary Report. 1983. p:97.

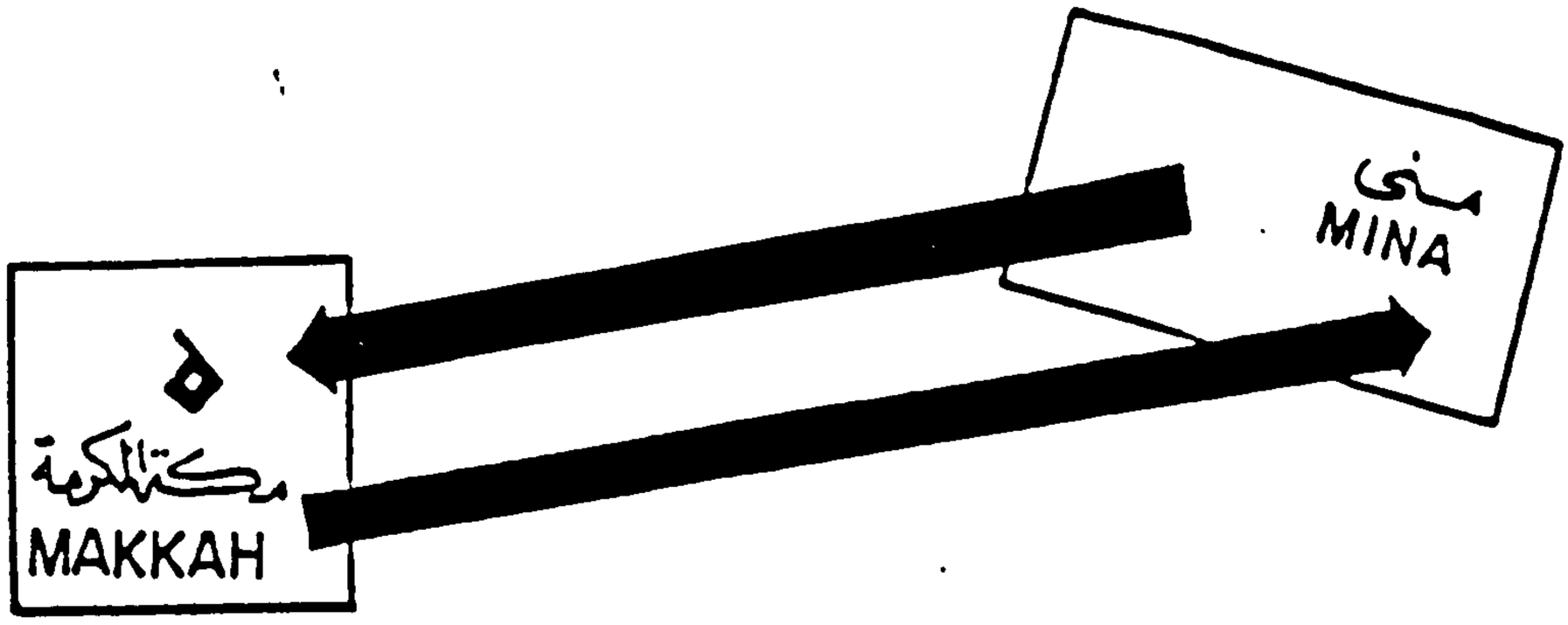


Figure 9: Pilgrims' movement on 10th & 11th Zul Hijjah.

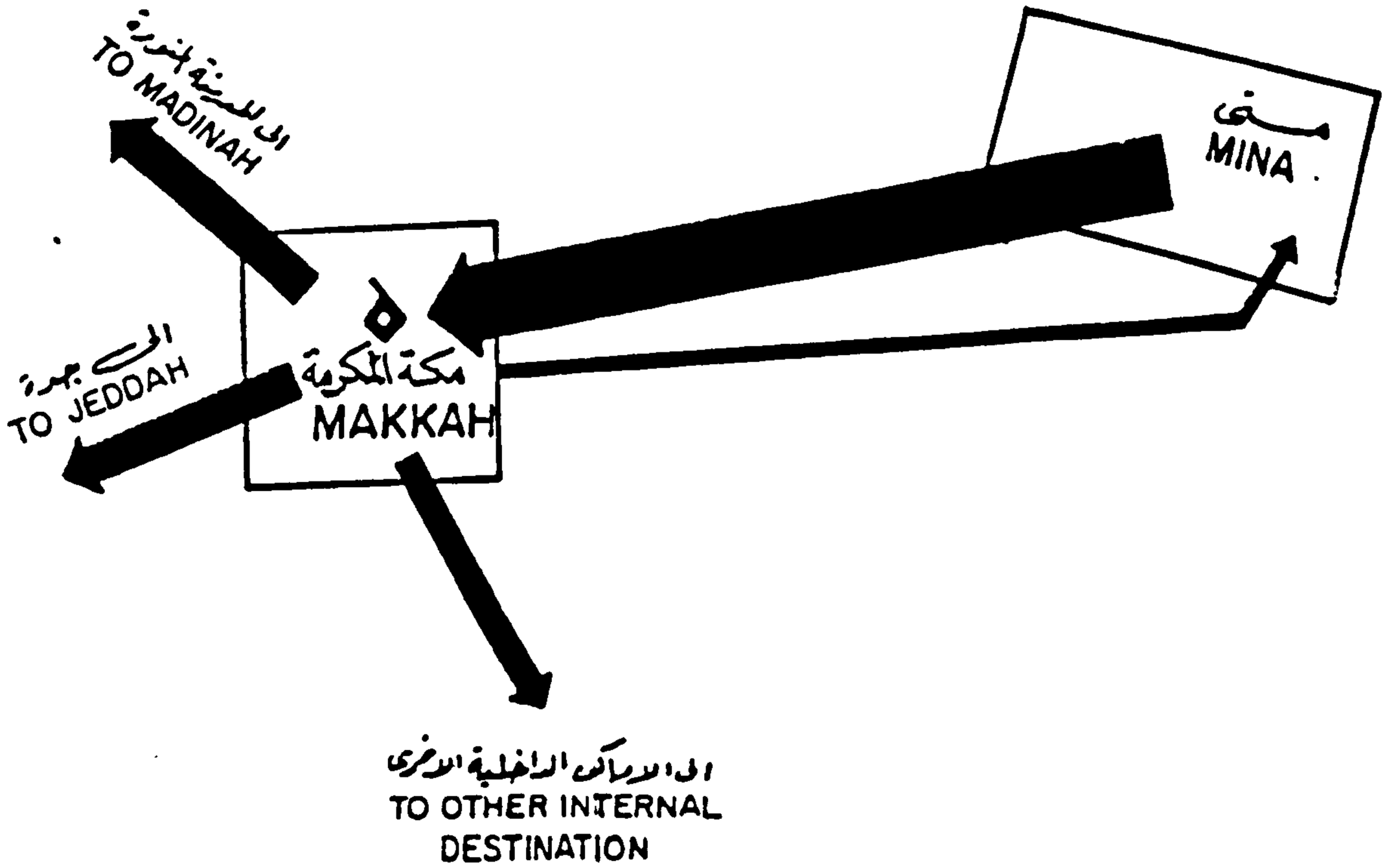


Figure 10: Pilgrims' movement on 12th Zul Hijjah and after.

Source: Dar Al-Handasah Consultants Preliminary Report. 1983. p:97.

most of the meat of the animal away to the poor and needy and to friends and companions. This also terminates the ihram except for marital relations, which are only allowed after returning to Makkah and performing tawaf al-ifadha.

This tawaf completes the formal rites of the Hajj and is followed by sa'ayee as in the case of tawaf al-qudoom. All the ihram restrictions are now lifted and pilgrims go back to their usual dress and daily routine.

Pilgrims remain in the town of Mina for two or three days after the 10th of Duhl-hijjah stoning the jamarat as indicated earlier. Some pilgrims spend the day in Makka, returning to Mina by nightfall where they must spend the night. See figure 9.

Most pilgrims, having completed the Hajj, go to visit Medina, the city of the Prophet, 450 km north of Makka. However this is not obligatory nor is it part of the Hajj observances.

3.2 THE HAJJ AND UMRAH SEASONS

Although Hajj is to be performed on certain specified days of Dhul-hijjah month, Umrah can be performed along with the Hajj or at any time throughout the year. Although Umrah has no specific or prescribed season, many people, especially those living in Saudi Arabia and its neighbouring countries, prefer to perform Umrah during Rajab and Ramadan. Ramadan is a popular month as Prophet Mohammed once said, "Umrah during Ramadan is the equivalent of Hajj with me." In addition there is the privilege of fasting in the Holy City. During the last ten days of Ramadan, the rush to spend the time at the Holy Mosque becomes intense. Other popular months for Umrah are the last week of Rajab, (27 Rajab) and the beginning of Rabi Al-Awal.

Unlike the Hajj, Umrah is performed within the environs of the Haram, that is Tawaaf around the Holy Ka'ba and Sa'ai (running) between Safa and Marwa. Umrah does not include going tò Arafat or staying at Mina or Muzdalifah[1].

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1 The major source of this section and the next two sections is: Dar Al-Handasah Consultants Preliminary Report. 1983. Op cit. p:95-110.

3.3 THE INCREASING NUMBER OF PILGRIMS

In the past, it has been very difficult and dangerous to reach Makkah as the pilgrims depended on camel caravans. Therefore, the numbers of pilgrims were few. Due to the long distances involved, very few people from other countries were able to come to perform Hajj.

Since the means of transport have improved along with safety, the Hajj journey has become easy for pilgrims. Muslims can now reach Makkah within hours. Most air pilgrims therefore reach Makkah only a week or two before the prescribed Hajj days. This is also the case for pilgrims from Saudi Arabia and its neighbouring countries, who can reach Makkah more easily as the road network has substantially improved. The new roads link the Kingdom's villages and cities, and high vehicle ownership enables almost anyone to come to Makkah for Hajj or Umrah.

The total number of pilgrims in 1406 A.H. (1986) amounted to over 1,600,475 whereas it was about one million only in 1970. The pilgrims from Saudi Arabia increased from 648,490 in 1970 to 743,757 in 1986[1] and the number of pilgrims from outside Saudi Arabia

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[1] 1. Hajj Research Centre. Total Statistics of Al-Hajj 1404 A.H. and Pilgrim Statistics 1404 A.H. Umm Al-Qura University, Makkah, Saudi Arabia. 1984. Table: 1.1.1 and
2. The Ministry of Interior, the Directorate General of Passports. "Pilgrims Statistics for 1406 A.H. 1986 A.C." Riyadh, Saudi Arabia.

increased from 431,270 in 1970 to 856,718 in 1986[1]. The number of cars in Hajj 1986 was 101,940[2].

By looking at Figures 11 to 13 one can see the sudden increase in the last twenty years very clearly. The highest total number of pilgrims was 2,502,855 in 1983. The number of pilgrims from outside Saudi Arabia increased from 90,662 in 1925 to the highest number 1,005,060 in 1983 and then decreased to 856,718 in 1986. Pilgrims travel to Makkah by air, sea and land. The number of pilgrims coming by air increased from 90,980 in 1965 to 698,223 in 1984. In contrast, the number of pilgrims coming by sea decreased from 101,406 in 1965 to 52,928 in 1984. The number of pilgrims coming by land increased from 101,732 in 1965 to 284,960 in 1975 and then decreased to 168,520 in 1984. Resident pilgrims consist of Saudis and non-Saudis. During the last ten years the variation in the number of Saudi pilgrims was small, as it was 292,129 in 1977 and 239,207 in 1986. The difference in the number of non-Saudi pilgrims is greater as this was 496,141 in 1977 increasing to 1,204,833 in 1983 and then decreasing to 504,550 in 1986.

If one takes into consideration the availibility of transport to Makkah, at least one per cent of all the Musliims in the world may eventually wish to come to Makkah to perform the Hajj in any one

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[1] The Ministry of Interior. 1986. Op cit. p:1.

[2] The Ministry of Interior. 1986. Op cit. p:46.

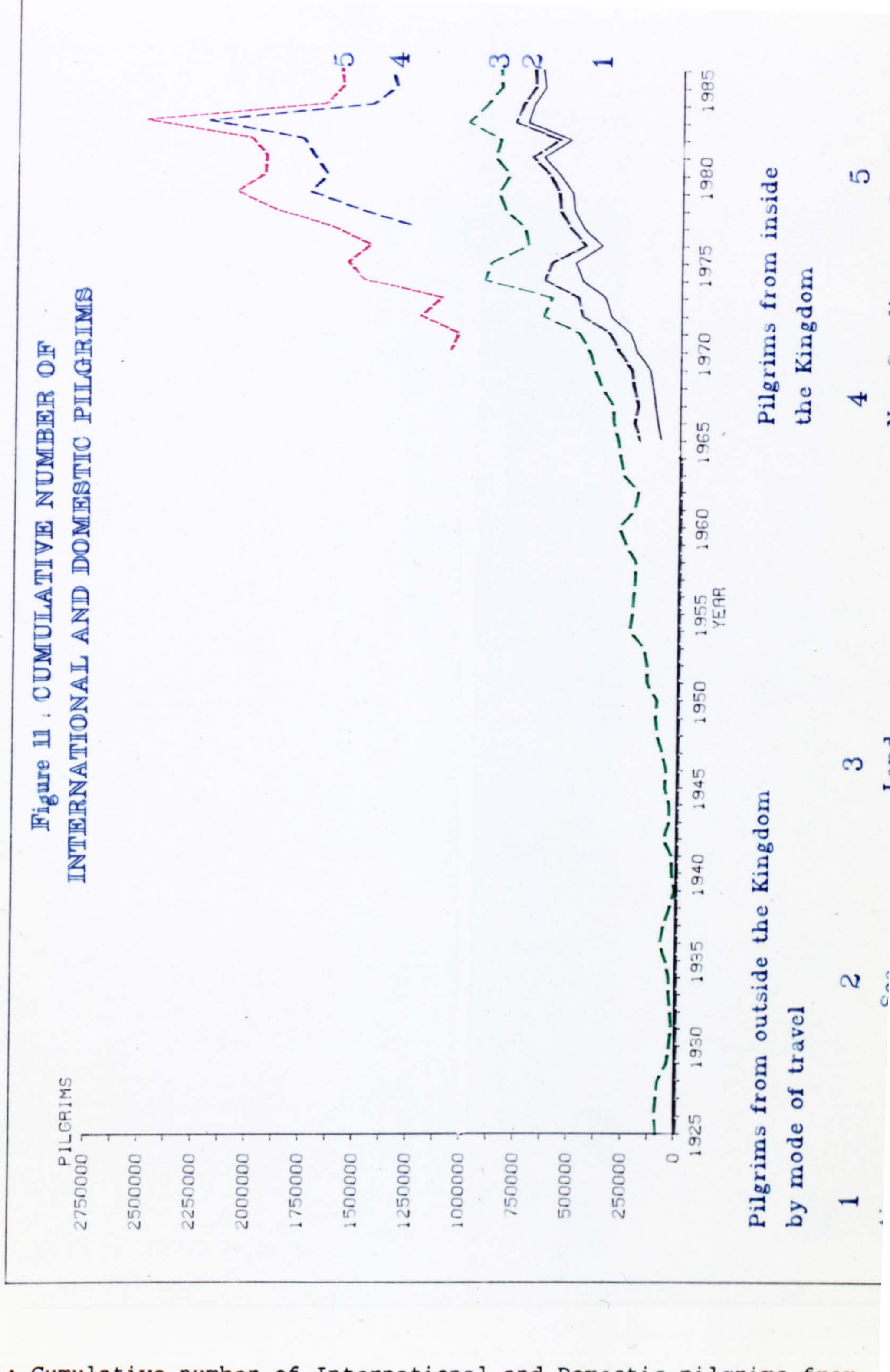
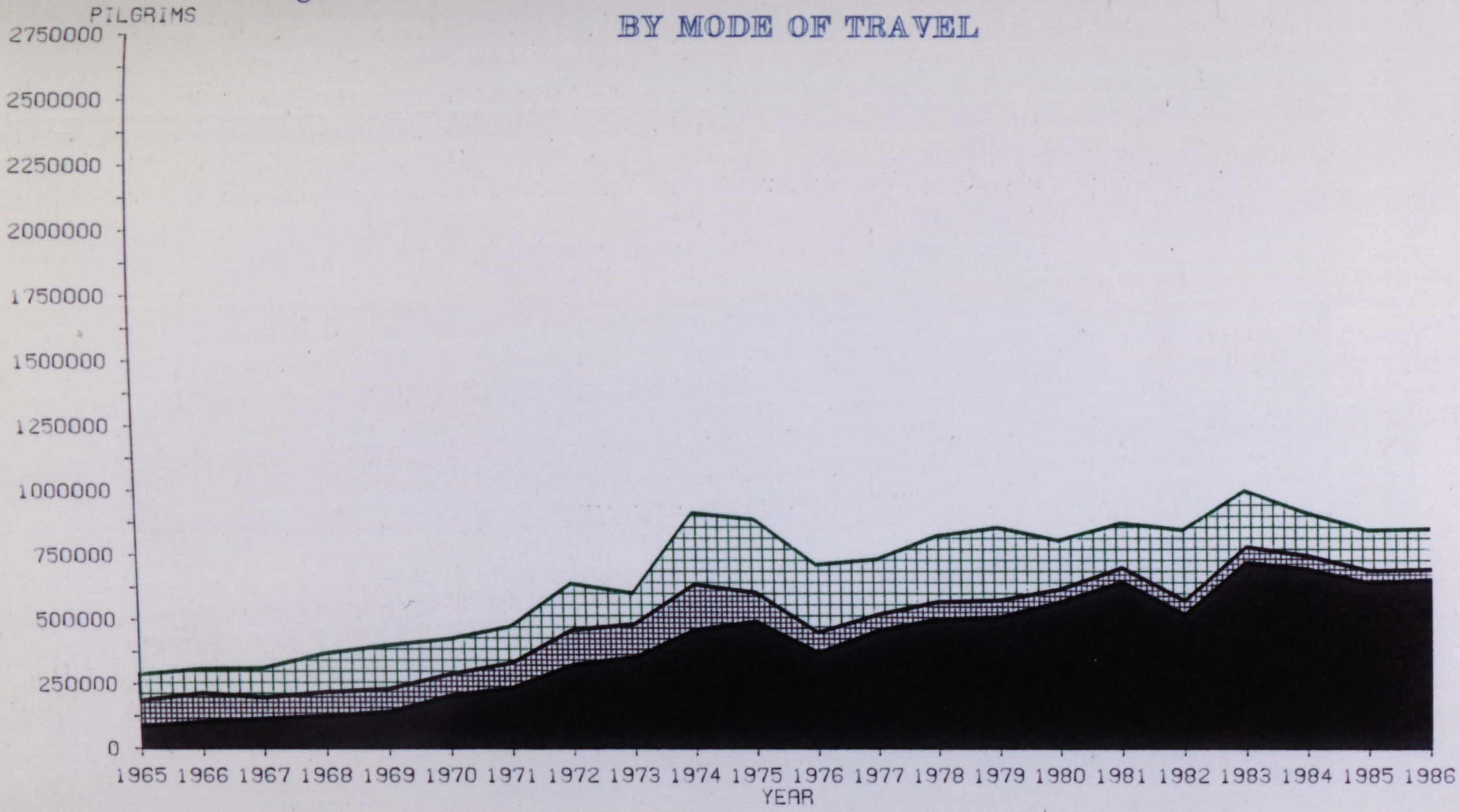


Figure 11: Cumulative number of International and Domestic pilgrims from 1925 until 1986

Data from:

1. Hajj Research Centre. Total Statistics of Al-Hajj 1404 A.H. and Pilgrim Statistics 1404 A.H. Umm Al-Qura University, Makkah, Saudi Arabia. 1984. Table: 1.1.1 and 1.1.3
2. The Ministry of Interior, the Directorate General of Passports. "Pilgrims Statistics for 1406 A.H. 1986 A.C." Riyadh, Saudi Arabia.

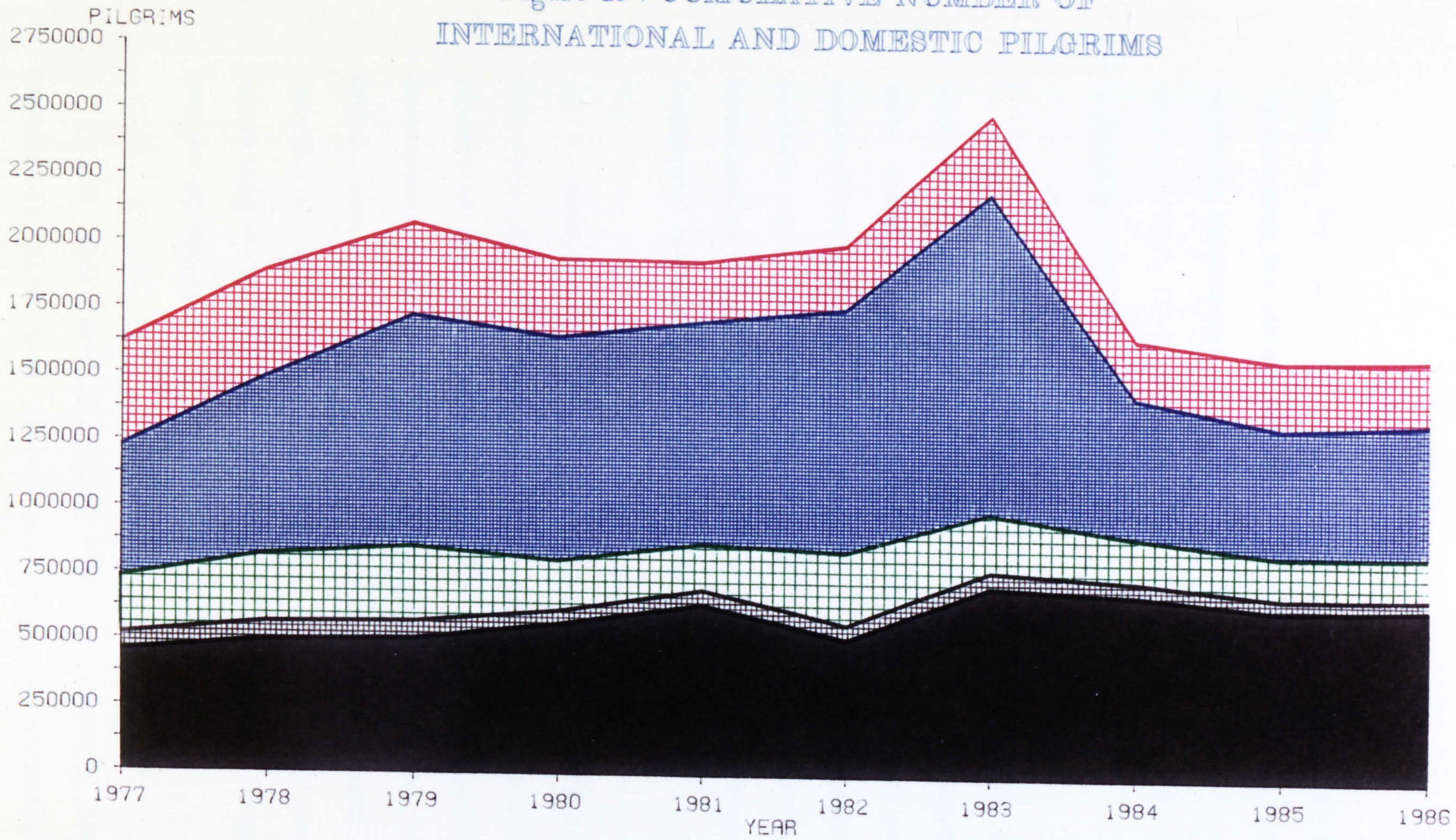
Figure 12 : CUMULATIVE NUMBER OF INTERNATIONAL PILGRIMS BY MODE OF TRAVEL



Pilgrims from outside the Kingdom
by mode of travel

Air Sea Land

Figure 13 : CUMULATIVE NUMBER OF INTERNATIONAL AND DOMESTIC PILGRIMS



Pilgrims from outside the Kingdom by mode of travel

Air

Sea

Land

Pilgrims from inside the Kingdom

Non Saudis

Saudis

year. This one per cent is equivalent to 10,000,000 pilgrims which is too much for Makkah and the Holy Environs to accommodate under existing conditions.

3.4 ORGANISATION AND MANAGEMENT FOR THE HAJJ

From the discussion of the number of pilgrims in the previous section one can realise the organisational and management problems this creates, especially concerning the Muslims coming to Saudi Arabia from other countries which are diverse in nature, language, culture etc. The entire Government down to the Makkah Municipal Administration is involved in some form or another. It is a tremendous task given the numbers and constraints.

Some Ministries and Departments are more directly involved in the Hajj on a continuous basis and are responsible for specific aspects of the annual event. Clearly, almost any planning project or development concerning the Hajj has a direct impact on the city of Makkah, some even affecting its form, structure and functioning. Indeed, it is not easy to make clear distinction between the activities strictly concerning the Hajj and the general activity pattern of Makkah.

In this section, only those Ministries, Committees and Departments have been identified that are directly and deeply involved in administering the Hajj, as it would seem they have an

influence on the city of Makkah. There are five Ministries directly concerned and involved with the physical and spatial aspects of the Hajj. These are the Ministries of the Interior, Hajj and Awakaf, Public Works, Communications and Municipal and Rural Affairs (Deputy Ministry of Town Planning).

3.4.1 The High Committee for Hajj

The most important committee directly responsible to the King and the Council of Ministers is the High Committee for Hajj. This is a Cabinet Committee and is presided over by the Minister of the Interior. Other members are the Ministers having direct responsibilty with Hajj. The Prince of Makkah is also a member of the High Committee. This Committee is the most powerful Committee and it receives and reviews reports on problems of the previous Hajj season and also suggestions for improving the administration in the following year. The committee also receives proposals and projects made by other Ministries and the Central Hajj Committee and accords its approval and sanction. It gives policy directions and adopts measures required to facilitate the next Hajj, both in the short and long term. The decisions of this Committee along with specific recommendations are forwarded to the Council of Ministers for sanction and for provision of the necessary funds for the execution of the projects. After the necessary funds are secured, the concerned Ministry or designated Department implements the project in the prescribed time schedule.

3.4.2 Central Committee for Hajj

This committee is chaired by the Prince of Makkah Emirate and is composed of representatives of various administrative ministries and Government departments. This Committee has at its command three sub-committees which are constituted from time to time. These are:

1. The Technical Sub-Committee deals with all the technical, planning and development matters and activities directly related to the Hajj. It can get the specific projects planned, designed and detailed. The Committee submits them to the main committee which, after examination, submits the proposal or project to the cabinet level Committee for their approval and sanction.
2. The Implementation and Execution Sub-Committee is made responsible for the execution of projects once they are sanctioned in accordance with the agreed time schedule; it also supervises and ensures supply of the essential services and amenities to the pilgrims during their performance of Hajj. The supply of water and electricity, garbage disposal and environmental sanitation services comes under its jurisdiction and are all arranged by this sub-committee.
3. The Land Allotment Sub-Committee is responsible for allotment and assignment of space at Mina, Muzdalifah and Arafat during the Hajj. The committee deals directly with the 'Mutawafeen" each one of whom provides services to the pilgrims during the days of Hajj.

3.4.3 Ministry of Hajj and Awkaf

The Ministry of Hajj is responsible for all problems concerning the Hajj. Its basic responsibilities are:

1. Providing the public transport (by bus) for the Hajjis during the crucial days: from Mina to Arafat and Muzdalifah, etc.
2. Arrangement and management of accommodation at Mina and on the Hajj day through the 'Mutawafeen'.

The Ministry of Hajj also registers the 'Mutawaffeen' who are in turn responsible to the Hajjis under their care.

3.4.4 Ministry of Communications and Transport

Under the Ministry of Transport is the Department of Roads and Bridges, which is responsible for the planning, designing and construction of highways, grade separations, fly-overs, viaducts, express ways, tunnels and bridges.

3.4.5 Ministry of Public Works and Housing

Under this Ministry is being implemented the Mina Development Project including the entire planning, designing and execution of a series of facilities at Mina as well as the facilities and services developed at Muzdalifah, Arafat and its link with the city of Makkah.

3.4.6 Directorate of Harmain Al-Shariefain

This is a high level Directorate and is almost exclusively responsible for the upkeep, maintenance and (where necessary) enlargement of the Holy Mosque at Makkah and the Prophet Mosque at Medina. Any project related to or concerning the Haram Sharief (Holy Mosque) proper and/or its expansion or enlargement is in their trust and responsibility. They report directly to the Council of Ministers and the King, when necessary. Most recently they have been involved in the Souk Al-Saghir area development with a view to creating additional prayer space as part of the expansion plans for the Holy Mosque in Makkah.

3.4.7 The Hajj Research Centre

This is an independent organization and, as the name suggests, is responsible for collecting and collating all the relevant information about the hajj and the pilgrims each year and for conducting such studies and research as might be considered necessary to improve the Hajj activities. It has recently been affiliated to the Umm Al-Qura University in Makkah. Among the useful studies the HRC carries out is a series of research work covering various aspects of the environment and pollution problems during the Hajj. Other activities include a number of surveys covering the Hajjis, their mode of travel, their expenditure pattern and the 'sacrifices' made by the pilgrims during the Hajj as part of the

obligation. Lately, they have been able to get a complete record of the performance of the Hajj through film and aerial photography. They have access to a large computer capable of storing and analysing complex problems concerning the Hajj.

The HRC has an advisory function but no implementation responsibilities. It can, however, assist other organizations and institutions involved in the planning and development of Hajj facilities and related matters.

3.4.8 Ministry of Municipal and Rural Affairs

It may be observed that all the above Ministries, institutes or organizations are involved either directly or indirectly in the developments of the city of Makkah, even though they are not responsible for the planning of the city itself. However, the institution directly involved and which is responsible for the planning of the future growth of Makkah and its surrounding region (The Tentative Study Area) is the Deputy Ministry of Town Planning in the parent Ministry of Municipal and Rural Affairs.

3.4.9 Makkah Municipality

In addition to the Deputy Ministry for Town Planning there is the Amant Al Assima Al Muquadasa (Municipality of Makkah) which is directly responsible for all planning and development matters concerning the city of Makkah. It is its functional responsibility to supervise and control the development of Makkah and to secure development according to an approved Master Plan. Also, it exercises such power and authority as is required to permit building activities, new subdivisions, and other development control to ensure proper development of the city.

3.4.10 High Committee for Makkah Planning

This committee has recently been constituted and has as its chairman, the Prince of Makkah. This is a special high-level committee which will oversee and supervise all matters concerning the development of Makkah and its immediate environs and the 'regions'. It will deal with changes and modifications required in the Plan from time to time and also put forward various projects and proposals for the consideration and approval of the Ministry of Municipal and Rural Affairs.

3.5 TEWAFA (THE GUIDING OF PILGRIMS)

For some citizens, the pilgrimage is important, especially for those who have no source of income except that which they earn from serving the pilgrims. This income has been decreasing rapidly in recent years, a few Makkans who are not financially in need, profit most from the pilgrimage, whilst the vast majority receive very little. The citizens of Makkah, since the time of Abraham, used to serve the visitors to the Holy Ka'ba. Many families have had great experience in serving the pilgrims, but they are unable to compete with newcomers who are not from Makkah, who have recently come into the business, earning greater profit for delivering fewer services.

According to the Ministry of the Hajj in 1979, the main purpose of the 'mutawif'[1] in Makkah, the 'dalil'[2] in Medina, and their agent (wakil) in Jedda is to perform certain assigned services for the pilgrims from the moment of their arrival in Jedda or Yanbu until the time of their departure.

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[1] A 'mutawif' is a person who serves and guides pilgrims from their arrival until their departure. His main function is to provide transportation and shelter for the pilgrims in his care during all Hajj rituals.
For the time being, this system has been cancelled and all mutawifeen are divided into six groups (mutawif establishments) representing the nationalities of the pilgrims. Changing the system did not alter the name of the 'mutawif' as they are still using them for renting accommodation and similar functions.

[2] Dalil is a person who serves and guides the pilgrims while they are staying in Medina

3.5.1 The mutawif

The mutawif or one of his employees should:

1. Receive the pilgrims when they arrive in the reception centres operated by the Ministry of Hajj.
2. Provide suitable accomodation for the pilgrims or assist them in finding accomodation they like. Employees should be assigned to provide the services and advice needed by the pilgrims.
3. Advise and guide the pilgrims through the prescribed religious rites inside the Holy Mosque as well as during the Hajj activities in Arafat, Muzdalifah, and Mina.
4. Arrange with the motor-vehicle syndicate the necessary vehicles to transport the pilgrims from Makkah to the nearby holy places (Arafat, Muzdalifah and Mina) and provide accommodation in tents in Arafat, a task requiring a great deal of time and effort.
5. Make necessary arrangements for those who would like to visit Medina.
6. Be responsible for the safety and security of the pilgrims during their stay in Makkah and also their departure from Makkah according to their timetables[1].

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[1] Saudi Arabia, Ministry of the Hajj, Office of the Minister, Hajj Infrastructre of 1979 Riyadh: Shemrakh Printing Press. 1979. pp: 23-33. Referred to by Ghazy Makky. 1981. Op cit. p:11.

3.5.2 The wakil

The wakil in Jedda, in addition to collecting the service fees from each pilgrim, is required to render the following services:

1. Meet the pilgrims when they arrive in Jedda or Yanbu and assist them in getting their accommodation in the airport or in the port. This accommodation is operated by the government and is designed to allow the pilgrims to rest until they are taken to their mutawifs in Makkah and dalils in Medina;
2. Arrange transportation with the motor-vehicle syndicate to transport the pilgrims either to the assigned dalil in Medina, for those who have enough time before the rites of the Hajj begin, or to transport them to the mutawifs in Makkah.
3. Take responsibilty for the pilgrims' departure on time and in the same mode of transport as they arrived in unless officially changed ahead of time[1].

3.5.3 The dalil

The dalil in Medina is required to perform the following services for the pilgrims:

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[1] Ibid. pp:30-33.

1. Meet the pilgrims when they arrive at the reception centres.
2. Help to provide suitable lodging for the pilgrims as in the case of the mutawifs.
3. Guide the pilgrims to the principal religious shrines, especially the Prophet's Mosque.
4. Arrange with the motor-vehicle syndicate the necessary transportation to take the pilgrims to Makkah, Jedda or Yanbu.
5. Take responsibilty, as the mutawifs do, for the comfort, safety and security of the pilgrims while they stay in Medina[1]

3.6 MUTAWIF DALIL, AND WAKIL ESTABLISHMENTS

In the past some mutawifs arranged with some of their pilgrims to work as pilgrim brokers. In some cases, the mutawifs gave all the assigned money to their agents in order to get the pilgrims assigned to them. The mutawifs could make up for the loss of this profit by charging the pilgrims more for their accommodation and other services. This practice affected not only the pilgrims who paid more for fewer services, but also those mutawifs who did not deal with the pilgrim brokers and consequently did not have very many pilgrims assigned to them. For these reasons following the recommendations of the Supreme Hajj Committee in 1975 (1395), a royal decree was proclaimed to cancel the old system and start a new one.

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[1] Ibid. pp:27-29.

According to the new plan, all the 1,610 mutawifs and their partners, numbering 4,156, and the 1,375 dalils in Medina are divided into six groups representing the nationalities of the pilgrims.

For better methods of planning and modifying the system of the mutawifs a royal decree, No. M/13 4/13/1398, was approved in 1978 to transfer the present system of mutawifs to mutawif establishments[1].

Three types of establishment were recommended: (1) a mutawif establishment in Makkah, (2) a dalil establishment in Medina, and (3) a wakil establishment in Jedda[2].

3.6.1 Mutawif Establishment

This is the single most important establishment in serving the pilgrims. Since various nationalities with different languages, customs, and traditions perform the pilgrimage each year, their groups need to be set up according to a modified system. Six branches were recommended for the mutawif establishment. Each branch serves the group with which it is most familiar. The following were recommended as the main branches of the mutawif establishments:

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[1] Abdullah Bugis, Vice-Minister of the Ministry of Hajj, "Project of the Proposed Rules for Pilgrim Establishments," official report Saudi Arabia: Ministry of the Hajj, Vice-Ministry of the Hajj, 1979, p.1. (In Arabic). Referred to by Ghazy Makky. 1981. Ibid. p:18.

[2] Ghazy Makky. 1981. Ibid., p:20.

1. United Arab Nations. Because of the large number of nations included in this branch, it was recommended that the countries within this branch be divided into three major groups based on their customs and language.
2. South and East Asia and Australia. This branch serves only pilgrims from the following countries: Indonesia, Malaysia, the Philippines, Singapore, the Republic of China (Taiwan), Vietnam, Japan, Australia and Muslim immigrants from these countries to Europe and America.
3. India, Pakistan, Bangladesh, Afghanistan, Burma, Uzbekistan, Turkistan, and their Muslim immigrants in the U.S.S.R., Europe, South Africa, and North and South America.
4. East, West, South, and Central Africa, as well as their Muslim immigrants in Europe.
5. Turkey and Iran and their Muslim immigrants world wide.
6. Zam zami branch. The zam zami are those who provide the zam zam, or holy water, to the pilgrims in the Holy Mosque as well as in their accommodation. This branch was recommended as part of the mutawif establishment because of the close ties in the service objectives[1].

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[1] Ghazy Makky. 1981. Ibid., p:20.

3.6.2 Dalil Establishment in Medina

Dalils hold the second most important position, to serve the pilgrims who wish to visit the Prophet's Mosque and other religious places in Medina. The branches of this establishment are identical to the first five branches of the mutawif establishment[1].

3.6.3 Wakil Establishment in Jedda

This establishment provides the first services to the pilgrims when they arrive at the ports of Yanbu or Jedda. It arranges the travel of pilgrims to Makkah or Medina, and it arranges their departure to their own countries. It was recommended that the wakils should have the same branches as the dalils and mutawifs[2].

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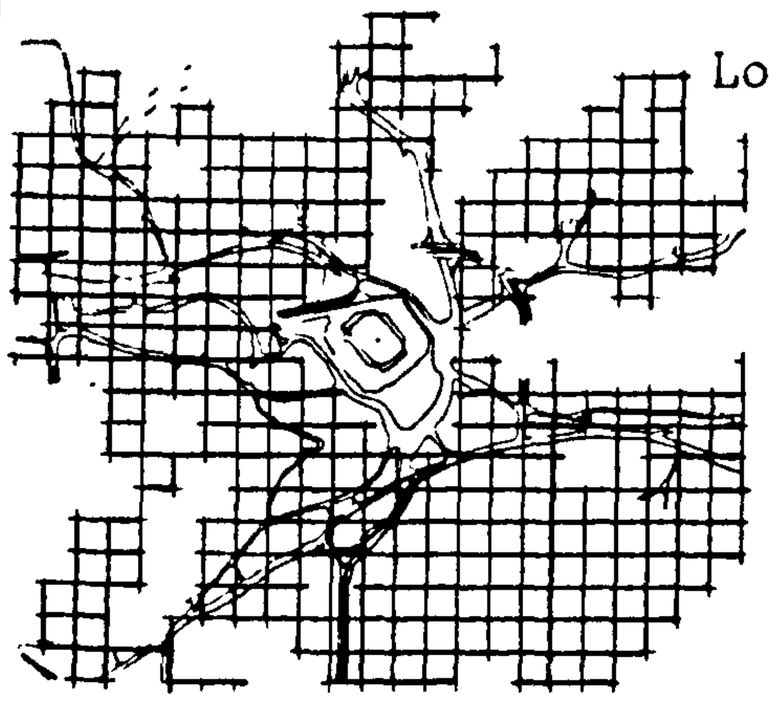
[1] Ghazy Makky. 1981. Ibid., p:20.

[2] Ghazy Makky. 1981. Ibid., p:20.

3.7 SUMMARY

Understanding the meaning of Hajj is very important for any planner or designer dealing with housing in central Makkah. Hajj is performed in four ritual places where Makkah is the most important one. The strict time schedule of activities puts pressure on transportation which in turn affects the road network, particularly in the city centre. The availability of fast means of transport to Makkah has increased the number of pilgrims rapidly. The total number of pilgrims in 1986 was 1,600,475. Because of the large organisational and management problems, the entire Government is involved in Hajj. The system of guiding pilgrims has changed in recent years to mutawif, dalil and wakil establishments in an attempt to improve this service. This prior information is necessary before starting our analysis.



CHAPTER 4

SURVEY RESEARCH METHODOLOGY

4.1 Survey techniques
4.2 The preliminary survey
    4.2.1 Field-work
    4.2.2 Data preparation and computer analysis
    4.2.3 Findings
4.3 The main survey
    4.3.1 Study area
    4.3.2 Sample size
    4.3.3 Sample frame
    4.3.4 Field-work procedure
    4.3.5 Computer analysis
4.4 Summary

CHAPTER FOUR

SURVEY RESEARCH METHODOLOGY

4.1 SURVEY TECHNIQUES

Survey research and data analysis are essential elements in social science research. It is important to know what and how people are thinking as regards housing themselves and pilgrims in the central districts of Makkah. This information is essential before it is possible to recommend any planning regulations concerning them, and this is the important role of the survey in social sciences.

Since it is not practical to ask everyone in the survey area, a representative group is selected from the population. It is very important to obtain a good representative sample and to word questions properly to avoid failure in the validity of the results.

The information that is obtained by surveys is divided into three general categories:

1. Opinions on questions.
2. Attitudes towards basic topics.
3. Facts about the people being interviewed.

" Survey research permits us to study public opinion as well as attitudes. It can also be used to obtain factual information. Academic surveys emphasize explanation of attitudes. Not only is there variety in the types of questions which can be explored with surveys, but there are a variety of survey designs that can be used to accommodate

different substantive needs and problems if those problems are anticipated in the planning of the survey. Survey research can therefore be a flexible technique for ascertaining information about people."[1]

Consequently, a pilot study was designed to test some hypotheses about housing problems in the central districts of Makkah which enabled the writer to develop the main detailed survey appropriately. In this research the writer's aim is to introduce the important results of the main survey with full explanation of each item. The important areas covered in this research are as follows: the types of residential buildings, the year of construction, the number of floors, the number of dwellings in each building, occupants, the percentage of vacancy, renting in Hajj, the annual rent value, the value of renting during Hajj, landlords and tenants arrangements for Hajj renting, infrastructure problems during Hajj and the rest of the of the year, financial resources and occupant attitudes.

This information could help in understanding the influence of Hajj on the housing outlook in general. The results obtained and discussed later were essential for establishing the appropriate recommendations regarding housing plans.

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[1] Herbert F.W. and Bruce D.B. Survey Research and Data Analysis. W. H. Freeman and Company, San Francisco. 1977. p:16.

4.2 THE PRELIMINARY SURVEY

This survey was carried out from the 22nd of Zul-Qidah to the 2nd of Zul- Hijjah[1] 1403 in the Islamic lunar calendar (equivalent to 30th August 9th September 1983) with the help of two students who were employed in data collection.

It was designed in order to consider the problem of vacant houses in the central districts of Makkah and to look at the validity of developing the research further.

Although it was an accessibility sampling[2], carried out in order to study the most accessible buildings and with no guarantee that they are representative of the larger housing stock, this preliminary survey did enable the writer to develop a more appropriate and detailed survey.

The samples were selected from seven neighbourhoods in the central districts. The sample size was thirty-eight (buildings) distributed in these neighbourhoods. The author thought that this sample size was enough to meet the needs of this pilot study. The buildings chosen were on different hierarchy of road types, e.g. major road, access road, foot path etc.

The interviewed people were either residents such as landlords and

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[1] Zul Qidah and Zul Hijjah are the eleventh and the twelfth months of the Muslim lunar calendar. Consequently, Hajj is performed in all different seasons in a thirty three year cycle.

[2] "The pitfalls in term of lack of representativeness are obvious." Barnett V. 1974.
Elements of Sampling Theory. Hodder and Stoughton Educational, Kent, U.K. 1974. p:12.

tenants or non residents such as pilgrim guides (Mutawifeen), deputies or even Guards. It is only possible to interview the above mentioned people during the period of Hajj.

4.2.1 Field-work

The field-work was quite simple compared with the main survey which will appear later in this chapter. It was financed by Umm Al-Qura University and supported by Hajj Research Centre. Seventy five per cent of the work was undertaken by the author. It was essential at that time to be in touch with the real situation in order to gain insight into the problems. All sampled buildings were photographed both internally and externally for visual analysis.

4.2.2 Data preparation and computer analysis

All questionnaires were analysed later in the University of Newcastle where they were edited and the code book used for coding the verbal replies into numbers was designed (see appendix B-1). The data was transcribed onto the coding forms[1] from where it was entered into the computer.

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[1] A coding form is the document onto which the data can be transcribed before it is entered into the computer. Each line of the coding form is marked out with 80 positions corresponding to the 80 columns expected by statistical packages. Values of variables are written onto the coding form in the positions specified in the code book.

The statistical package MIDAS[1] available in the University of Newcastle main computer MTS[2] was used for the statistical analysis such as determining the mean, frequency distribution, cross-tabulate and other statistical measures.

4.2.3 Findings

Seventy-five per cent of the interviews were conducted by the writer himself, which at that time was important for it enabled him to understand the situation and associated problems and also to identify the sort of problems which could face the research team afterwards. If we do not have a clear picture of the situation then factors like people's behaviour, transportation, climate, permission and identification cards and interviewing time could create a lot of problems for the interviewer. The data preparation and computer analysis enabled the author to develop better worded and more sophisticated fixed-alternative questions. Many gaps were discovered in this survey which was evaluated and adapted for the main survey. For example in the preliminary questionnaire there were no questions related to household size or structure. The analysis of this pilot project allowed new areas and hypothesis to be examined.

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[1] MIDAS is a computer program for the statistical analysis of data. Daniel J. Fox and Kenneth E. Guire, Statistical Research Laboratory, the University of Michigan, U.S.A. September 1976.

[2] MTS is the abbreviation of the operating system Michigan Terminal System which is implemented at Northumbrian Universities Multiple Access Computer (NUMAC).

The basic findings from the pilot study were as follows:

(some of these results were not true or have less importance as proved later in the main survey)

1. Less than twenty per cent of the buildings are of traditional design.
2. The majority of buildings were built within the last twenty years (80 per cent).
3. The occupants are mostly landlords (55 per cent).
4. The buildings are several storeys high with a mode of four storeys.
5. The percentage of vacant dwellings in the central districts is high (36 per cent).
6. The majority of people in the area are willing to rent during Hajj (91 per cent).
7. Residents tend to vacate their dwellings either totally or partially during Hajj. Some tenants do not live in their rented dwellings at all and they retain them so that they can be rerented in Hajj.
8. Landlords who rent their property in Hajj time only will earn more income in the year than those renting all the year round.
9. The main infrastructure problems are:
   a. water supply (affecting 91 per cent).
   b. parking spaces (affecting 76 per cent).

All of these findings are represented in the following four chapters after the main survey results were obtained.

4.3 THE MAIN SURVEY

This was carried out from the 14th of Zul-Qidah to the 4th of Zul-Hijjah 1404 in the Islamic lunar calendar (11-30 August 1984). Timing in that period was essential for two reasons:

1. The vacant houses are usually repared one month before Hajj takes place.
2. By the beginning of the month of Zul-Hijjah it is highly likely that the people will be occupied with Hajj itself. Consequently it would be difficult to find a landlord, a tenant or any person who would be willing to be interviewed.

Since no lists of the houses or buildings exist which could be used for a probability sampling, a systematic random sample using aerial photographs of the central districts was used.

4.3.1 Study area

The study area is confined by the tops of the steep mountainous area which surrounds the Holy Mosque in Makkah and which divides the central districts and the old city from the other districts and the newly developed residential areas of the city. This area is covered by a square of 5.3 kilometres in area (see maps 3 and 9).



Map 9: The study area.

Source: Farsi Z. (1983-84). Op cit. Scale 1:12500.

4.3.2 Sample size

The number of buildings in central Makkah is very large (tens of thousands), and the sample size is relatively small (350), so the sampling fraction[1] tends to be less than one percent. In this case the sample size matters, but the sampling fraction does not.

Since we are concerned with vacant buildings, it is the writer's belief that in order to obtain a satisfactory sample size, the level of accuracy of the dwellings' number prescribed error should be within +/- 2. The sample size is determined using the following equation[2]:

$$n = (1+2/n.)s.^2/V$$

where $v = (d/z.)^2$

n = required sample size (number of dwellings to be selected).
n.= sample size (38 buildings) from pilot study.
s.= sample variance of the dwellings' number in each building from pilot study.
d = prescribed error required for the result (2).
z.= 1.96 for a sampling error of 5 per cent.

The approximate standard deviation is known from the analysis of the preliminary survey = 19.245 So

$v = (2/1.96)^2 = 1.0412324$

$n = (1+2/38)(19.245)^2/(1.0412324)$

$= (1.0526315)(370.37002)/(1.0412324)$

---

[1] Sampling fraction is the percentage of the population interviewed.

[2] Barnett V. 1974.
Op cit. pp:32-35.

= 374.42471

The number of dwellings to be selected should be 374[1].

4.3.3 Sample frame

The steps used for determining the population to be sampled were as follows:

1. The central districts were divided into grids of 100 metre intervals (each square = one hectare).
2. To select the building, the one located at the intersection of the lines was chosen (see figure 2).
3. If the intersection of the lines fell on an open space, a large car park or a street it was disregarded unless there was a building nearby (50 metres maximum).
4. If the chosen building was not appropriate or if no one was available with whom an interview could be conducted, the following procedure was adopted; the building immediately to the north was chosen, and if this building also was not appropriate the building to the east was selected. Similarly, if this was not appropriate the building to the south was chosen and if none of these were available the building to the west of the sampled building was chosen.
5. The interviewer chose the ground floor level for the first

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[1] For a survey with 400 interviews based on random sampling from a large population, the sampling error would be about five percent.
Herbert F.W. and Bruce D.B.
Op cit. pp:39-40.

building to be surveyed, the first floor for the following one and so on, until the interviewer was unable to proceed any higher, in which case, he would start from the ground floor again. The first choice of a dwelling was the one to the right of the interviewer, and then the one to the left.

Working within such a sample frame, the total number of cases[1] was 350, of which fifty were along major roads. In order to obtain more cases for stratified analysis against road types another 65 cases were chosen along major roads one hundred metres apart starting from the Holy Mosque and working in an outwardly direction. By doing so three groups of cases were differentiated as follows:

Groups definition:

1. Group A (Grid selection):

   Group A consists of the cases selected by the grid sampling system explained earlier in this section which account for 350 cases. See map 10.

2. Group B (Along major roads):

   Group B consists of the fifty cases of group A which are located along major roads and the extra chosen sixty five cases along major roads which account for a total number of 115 cases along major roads. See map 11.

3. Group C (All cases):

   Group C consists of the total number of cases in both groups

   (350 + 65 = 415 cases). See map 12.

---

[1] A case is the basic unit of analysis. It is a respondent in a sample survey.

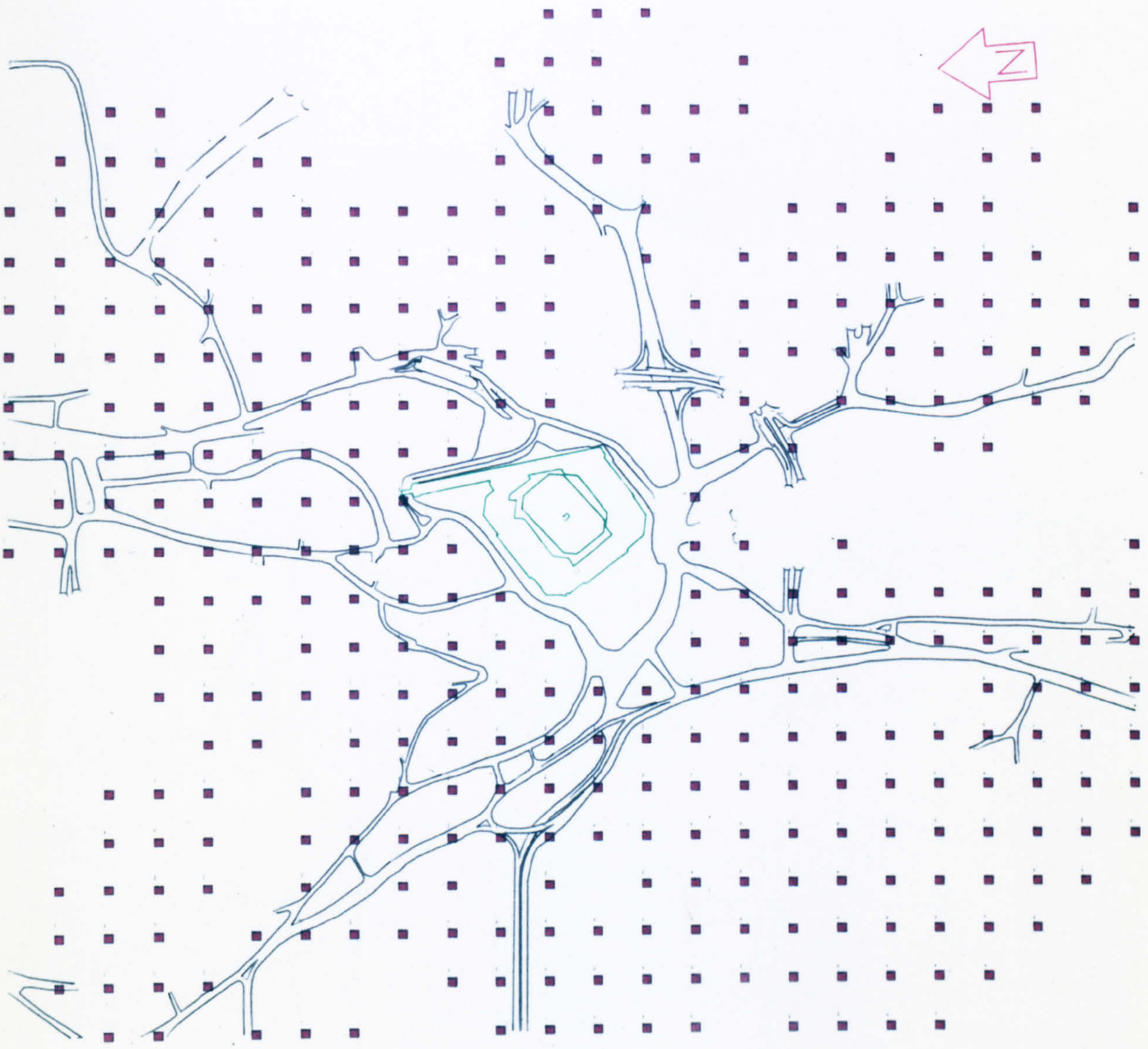
Group A will be used frequently in the statistical analysis so that when no group is specified in the analysis it means that group A is selected. If another group is selected it will be specified.

4.3.4 Field-work procedure

Social surveys are normally time consuming jobs and unless there is a well prepared procedure it can take two or three times the time and effort required. The importance of timing in Hajj period is vital to obtain the maximum data needed. All sorts of administrative and financial problems should be settled before the survey begins. For all of these reasons, the writer assumed that the field-work procedure should be as follows:

1. Obtaining Governmental agreement and financial support.
2. Printing and photocopying the required number of questionnaires and printing one hundred and fifty envelopes for the mail based survey.
3. Selecting the University students to be employed in data collection.
4. Choosing and preparing the appropriate aerial photographs for cases' selection, numbering and the field-work.
5. The main-field work and data collection.
6. Coding all questionnaires.
7. Entering the data in a portable micro computer.
8. Submitting the financial papers and technical report required by the University.

MAP No. 10 : SAMPLES LOCATION



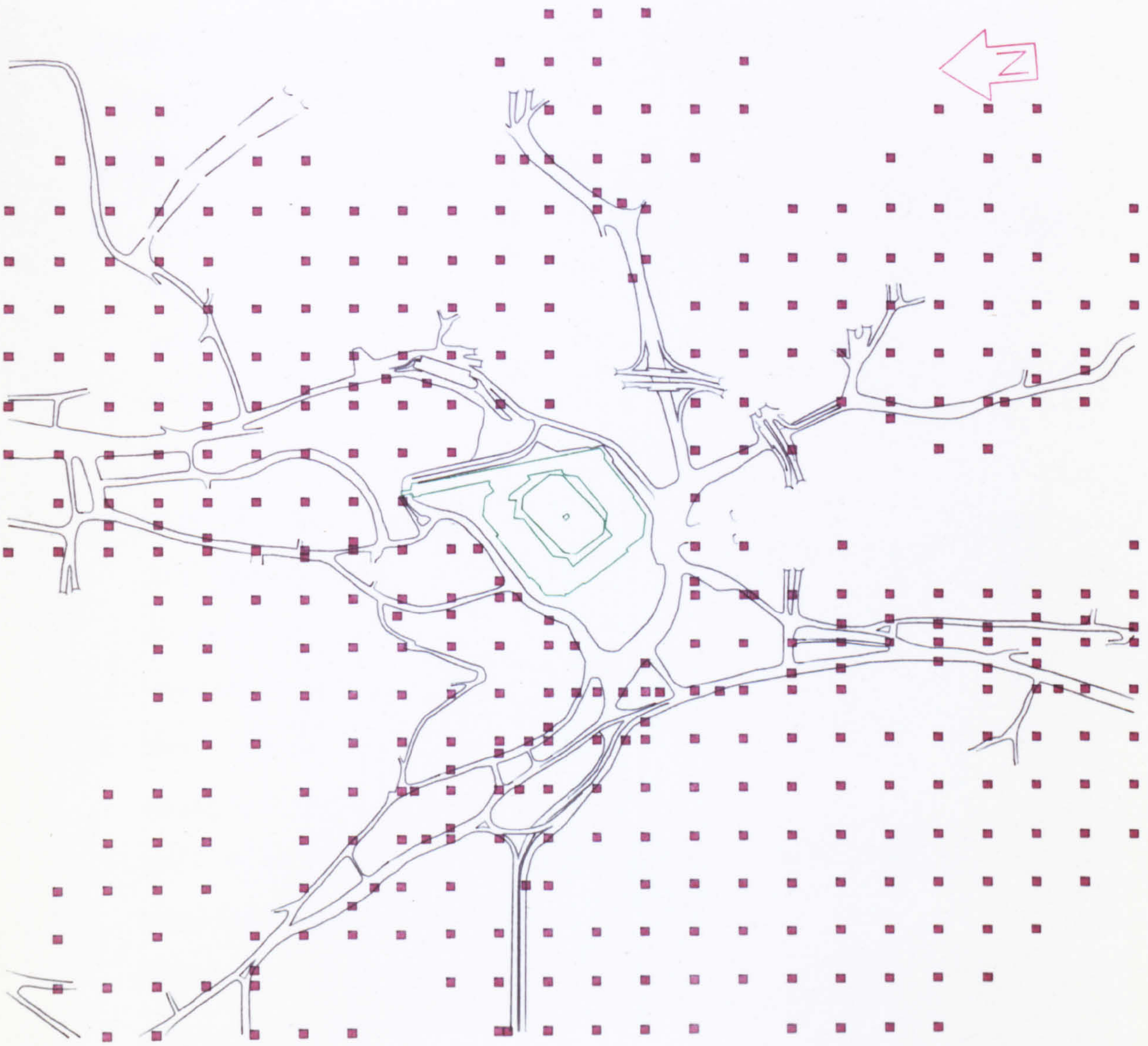
Sampling group : A

MAP No. 11 . SAMPLES LOCATION



Sampling group : B

MAP No. 12 . SAMPLES LOCATION



Sampling group : C

Following the above steps, the writer was able to do most of the intended field-work in time. These steps are described in detail hereafter :

1. Early communications were made with both the University and the Hajj Research Centre to obtain Governmental agreement. This started while the questionnaire was being developed (six months prior to the survey), and was finalised in the first visit (27th May to 4th July 1984) ten weeks before the survey. The second visit was from the 1st of August to the 4th of October 1984 when the financial support followed and the survey was conducted. The research grant (S.R. 15000 equivalent to 3190 Sterling pounds at the time) was given in two weeks time prior to the Survey.
2. The newly designed questionnaire with a selection of fixed-alternative and open-ended questions was printed in Arabic and seven hundred copies of four pages each were made ready one week before the survey (see appendix A-3 in Arabic and A-4 in English). At the same time the Islamic Architecture department's address was printed on one hundred and fifty envelopes which were stamped and distributed in the mail questionnaire interviewing procedure (see appendix D-1).
3. Selecting twelve University students to be employed in data collection was arranged with the University. An announcement letter was written on behalf of the Deputy of the Faculty of Applied Sciences and Engineering to all students in the department explaining the purpose of the survey and encouraging them to join this data collection programme (see appendix D-2 in

Arabic). A time was announced for the personal meeting with students either from the department or from the University who had had previous experience and training in this field of work, two weeks before the survey, then the twelve students were selected (see appendix D-3).

A special Governmental permission card was required which allowed the students to interview people. These cards were obtained from and signed by the Director of the Hajj Research Centre and stamped by the Principality of Makkah.

4. The aerial photograph which best showed the whole study area was selected from hundreds of aerial photographs in the Hajj Research Centre. The negative size was 23 x 23 cm where its scale was 1:15873 approximately. This negative was magnified in two different sizes.

   a. The first size was 120 x 120 cm with a scale of 1:3000 approximately to be used for the selection and numbering of cases (as described previously in the sample frame) and to be used as the reference map. Drawing the grid and numbering the cases took two days[1]

   b. The second size was larger where each quarter of the total survey area was magnified to 120 x 120 cm size with a scale of 1:1500 approximately[2] This size was made to be used by students in the field-work as every selected building was

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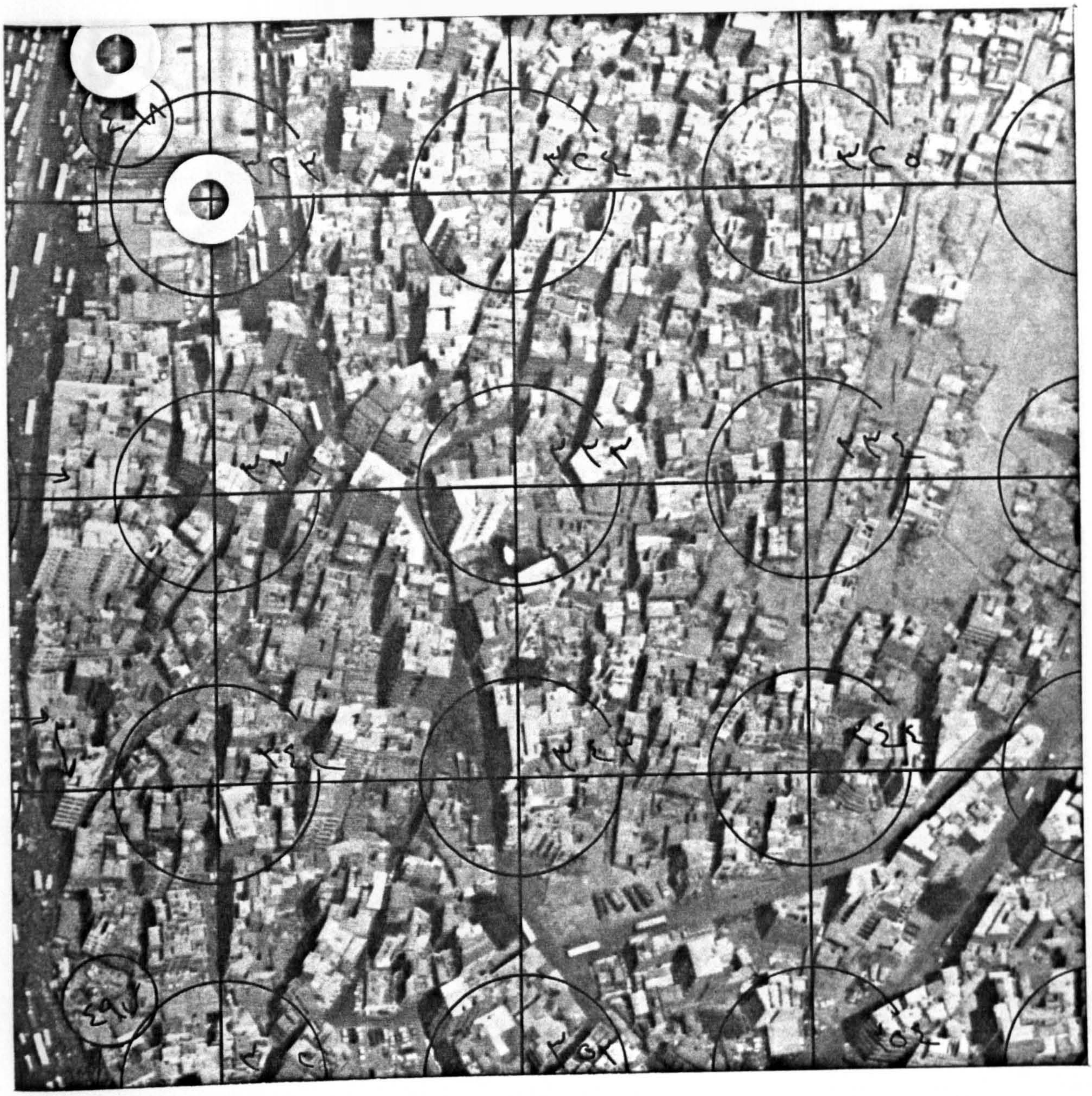
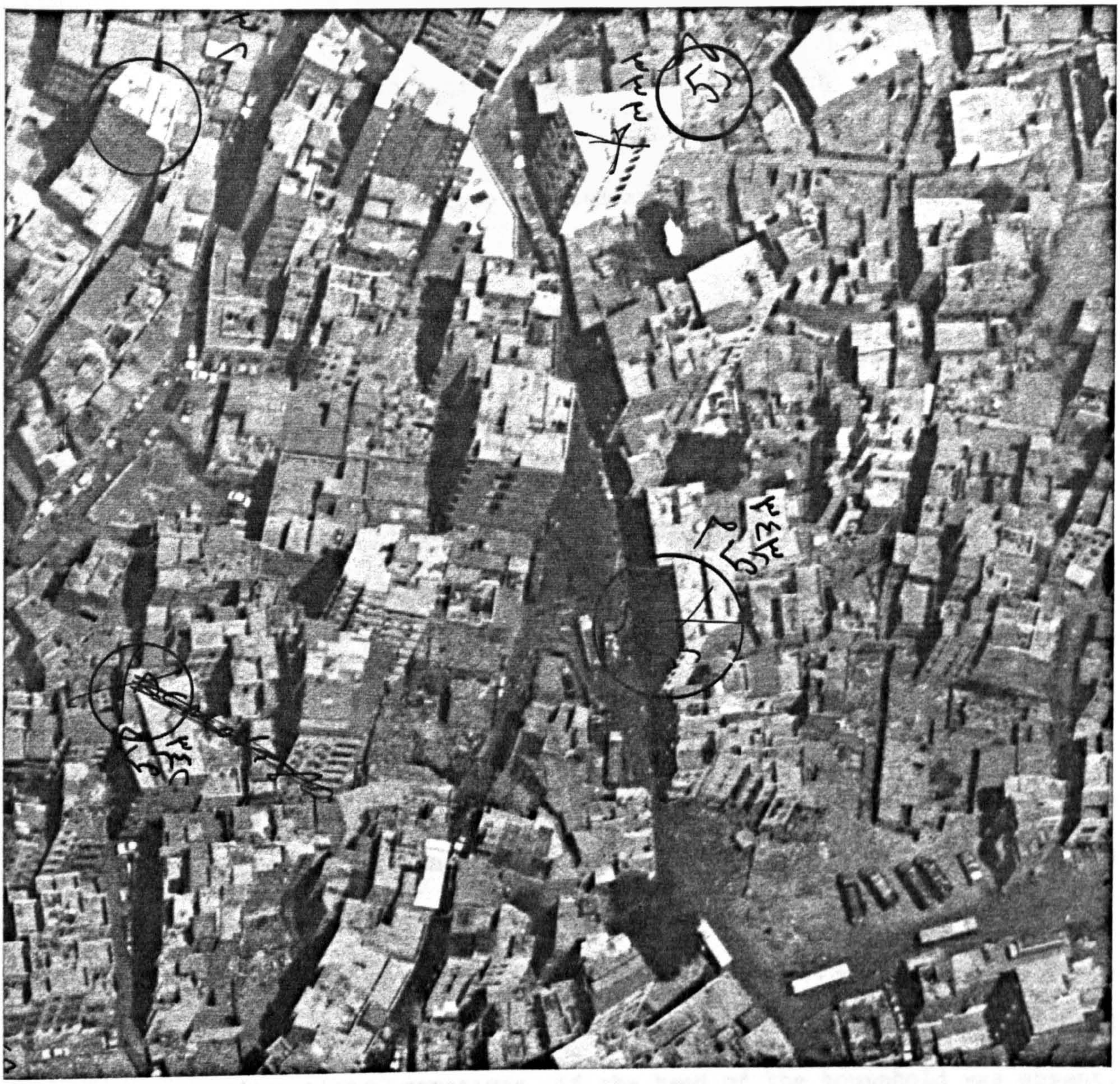
[1] See aerial photograph 5.

[2] See aerial photograph 6.



Photograph 5: Case selection aerial photograph.

The actual size of the first magnified aerial photograph (scale 1:3000) which was used for case selection and numbering. The cancelled cases were marked with large white circles.



Photograph 6: The field-work aerial photograph.

The actual size of the aerial photograph (scale 1:1500) which was used by students while carrying out the field-work. In this scale a circle was drawn around each selected building and its case number was noted.

quite clear at this scale. From the previous aerial photograph a circle was drawn around each selected building and its number was written. This task took about four days before the survey started and two days whilst it was going on.

5. The field-work and data collection was carried out from the 14th of Zul-Qidah to the 4th of Zul-Hijjah 1404 in the Islamic lunar calendar (11-30 August 1984).

Students were asked to complete three questionnaires daily as the approximate time for each one was two hours. In the first week, there was a daily meeting with the students between seven and ten at night to collect the finished questionnaires and to discuss and solve any field-work problems. Afterwards, when the work was going smoothly, the meetings were held every two days. All questionnaires were revised daily and students were asked at the following meeting about any missing or incorrect data, which in some cases they had to check on site again.

The students faced many problems while interviewing people. Sometimes they met elderly people who gave irrelevant information; sometimes if the head of the household was absent, the remaining members of the household would not respond to the interview positively. Some people were afraid of telling the truth, especially landlords when asked about renting values, because they were suspicious of the limits of confidentiality. Transportation is a major problem during Hajj time, where no parking areas nor public buses can be easily found. The sampled

buildings were distributed in a large area and it was important to analyse and draw locational maps for variables[1] so students had to walk long distances in hot weather.

Organising the work of twelve students in such a large field-work of four hundred and fifteen buildings distributed throughout five square kilometres proved to be difficult. The timing of the field-work was another challenge. The whole work was to be completed before the beginning of Hajj. For these reasons the writer drew up a special progress chart (see appendix D-4) containing all sample numbers. This chart was used to follow the progress of each task on a separate sheet. One sheet was used to assure that all samples were drawn on the magnified aerial photographs. This was made by crossing each sample number on the progress chart after drawing a circle around each sample.

Another twelve sheets, one per student, were used to calculate the number of samples conducted by each student. Registering the progress of other tasks such as the total number of accepted and revised questionnaires, cancelled samples, the coded questionnaires and the entered questionnaire data on computer was also put on to separate sheets.

At the same time some of the sampled houses were selected to be photographed internally and externally. Building facades along different road types were also photographed. The accessible tops

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[1] A variable is an observable entity whose value varies from one case to the next. Each question in the survey is considered a variable. Also some variables are generated from combinations of answers to questions.

of mountains provided a good position for photographs to be taken of the central districts. In general, photography was a useful method of fast data collection of all of the observations during the field-work.

The writer tried the mail questionnaire interviewing procedure to collect more data on the central districts and the new developed urban settlements. However, large numbers of people throw questionnaires into their wastebaskets and the typical response rate is between ten and fifty percent.[1]

In our case, one hundred and fifty questionnaires were distributed with self stamped and addressed envelopes but only seventeen were received. This very low response rate did not encourage the writer to follow up the unreceived mail. Consequently, this particular method was not used.

6. Coding[2] all verbal replies to the four hundred and fifteen questionnaires started on the 24th of Zul-Qidah and continued to the 13th of Zul Hijjah 1404 in the Islamic lunar calendar (21st August - 8th September 1984) according to the predesigned code book.[3] (see appendix B-2).

7. Using a portable micro computer the data was entered in a file

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[1] Herbert F.W. and Bruce D.B.
Op cit p:59.

[2] A code is a system of writing in which numbers or letters are used to condense lengthy data. All verbal replies in any questionnaire must be coded before any computer analysis can be performed.

[3] A code book is a document which describes each variable. It includes the meanings of the variables, the codes associated with each variable and their meanings and a brief name to reference the variable.

called 'data file' and then recorded onto cassette starting on the 14th and finishing on the 21st of Zul-Hijjah 1404 (9-16 September 1984). This data was later transferred to the main computer in Newcastle. Because the questionnaire was carefully designed so that each question has a special number of boxes in the left margin for coding (see appendix A-3), the direct data recording from the original questionnaires was applicable and easier. During the above mentioned time two hundred and fifty questionnaires were entered onto the computer and recorded on cassettes and the data from a further one hundred questionnaires were lost in a fraction of a second after pressing one wrong button, which meant the loss of twenty working hours on the computer. There was not enough time to repeat the work nor to complete the remaining sixty-five questionnaires. These were entered later in Newcastle.

To reduce the risk of any further computer errors, a few precautions were taken before transporting the data from Saudi Arabia to the United Kingdom :

a. Two copies of data were recorded onto three cassettes each and then carried in two different ways. One copy was carried in the writer's hand baggage and the other with the luggage.

b. Two hard copies of data were printed and carried as above. This method helped in re-entering very quickly the lost data from the one hundred questionnaires.

c. The memory of the portable micro-computer was left full of data to its maximum capacity (30 K RAM) while travelling.

This was only enough to store the data from one hundred and fifty questionnaires.

All of these precautions were quite important in order to ensure the safe arrival of the data and fortunately nothing went wrong afterwards.

8. On submission of the financial papers and the technical report there needed to be evidence that the spending of the research grant was appropriate and within the limits and that the field-work had been carried out properly. This task took the whole final week of the research period.

4.3.5 Computer analysis

The powerful package *SPSSX[1], which is available in the University of Newcastle main computer MTS was used for the statistical analysis. It was used in determining, for example the mean, frequency distribution, cross- tabulations and such simple descriptive statistics. Other complicated statistical measures of data such as the Pearson correlation coefficient and multiple linear regression were also used.

The second important package used in the analysis was *GIMMS [2]

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[1] The SPSSX is a large and powerful computer program for the statistical analysis of data. Copyright: SPSS Inc., 1983, Suite 3300, 444 North Michigan Avenue, Chicago, IL 60611, U.S.A.

[2] GIMMS is a user oriented, general purpose, geocartographic processing system for use primarily in the analysis of geographic data through the generation of maps, graphs and tabular information of a thematic kind.

which was used in the analysis of the locational data through the generation of maps and graphs.

The magnified aerial photograph (120 x 120 cm) which covers the whole study area and was used for case selection and numbering became the original map for computer analysis. This aerial photograph was digitised in three different layers:

1. Lines layer: for drawing the streets.
2. Polygon layer: for drawing the Holy Mosque.
3. Points layer: for drawing the location of each case. This layer was made of three different types. The first one was for cases in group A (grid selection), the second for group B (along major roads) and the third for group C (all cases). The important thing here was to digitise each case in the same sequence of the data file (see step number 7 in field-work procedure).

These three layers were superimposed to represent the final basic map for computer analysis (see map 13).

The locational variables drawn by this programme were building types, building locations, number of floors, number of dwellings per building, number of rooms in the dwelling, number of vacant dwellings, year of construction, annual rent value and Hajj rent value per dwelling and water and parking problems.

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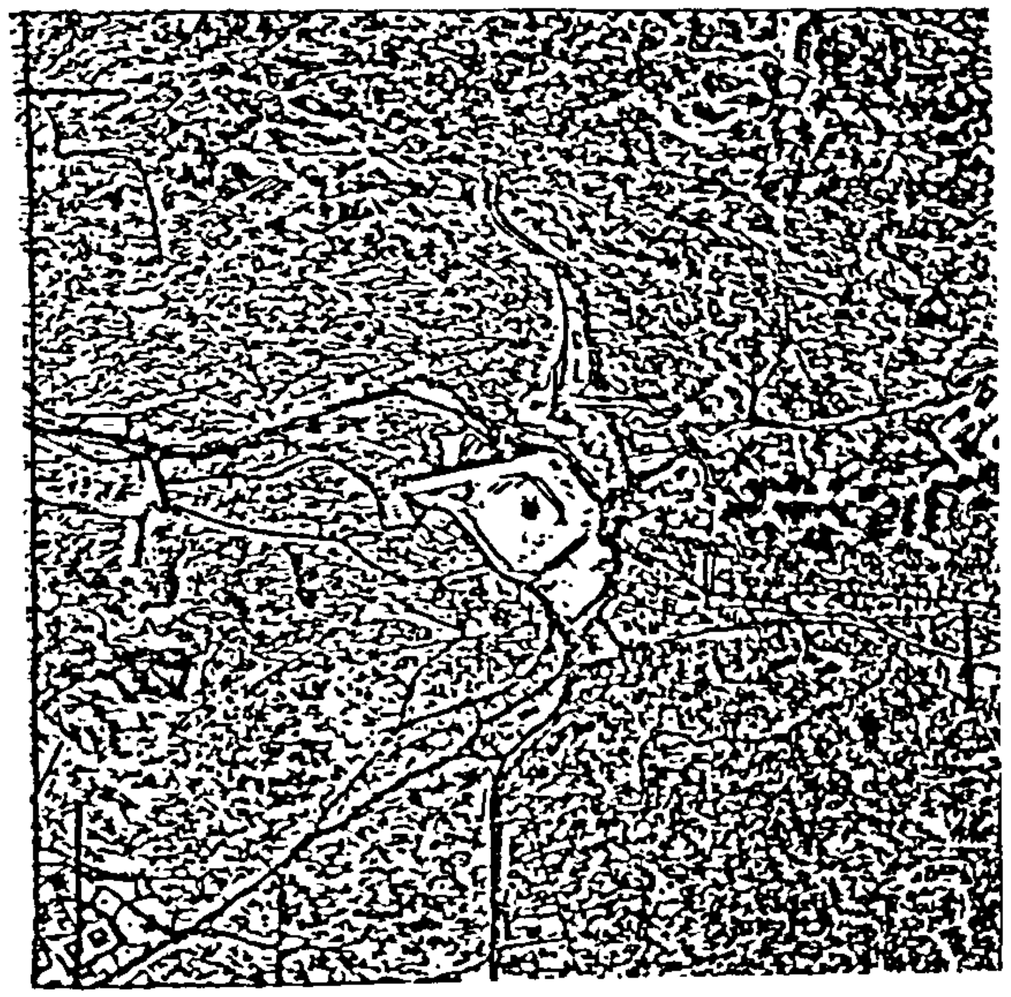
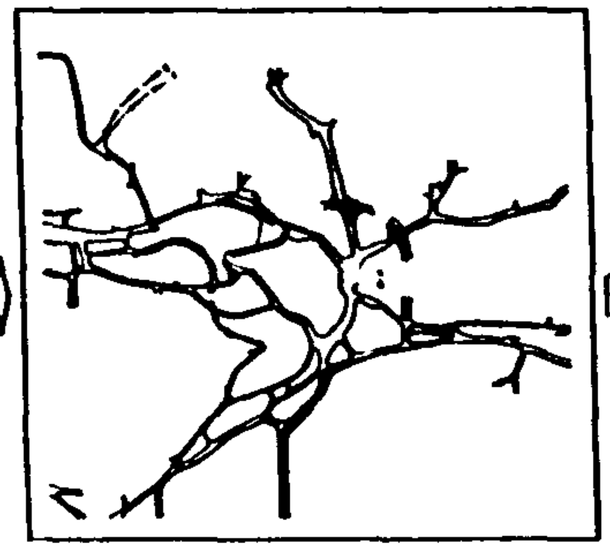
[2](cont'd)It is also used as a graphics package. Copyright: GIMMS Ltd, 1983, 30 Keir Street, Edinburgh, EH3 9EU, Scotland, U.K.

MAP No. 13 : THE PREPARATION OF MAPS FOR COMPUTER ANALYSIS

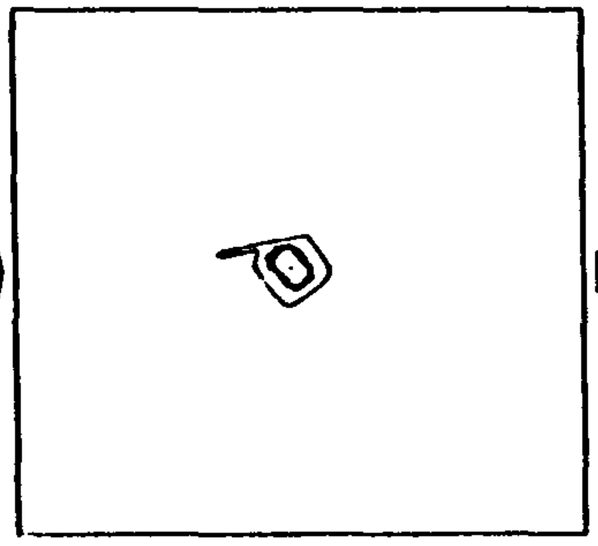


a- The original aerial photograph (23 x 23 cm) was magnified to 120 x 120 cm and became the original for computer digitising.

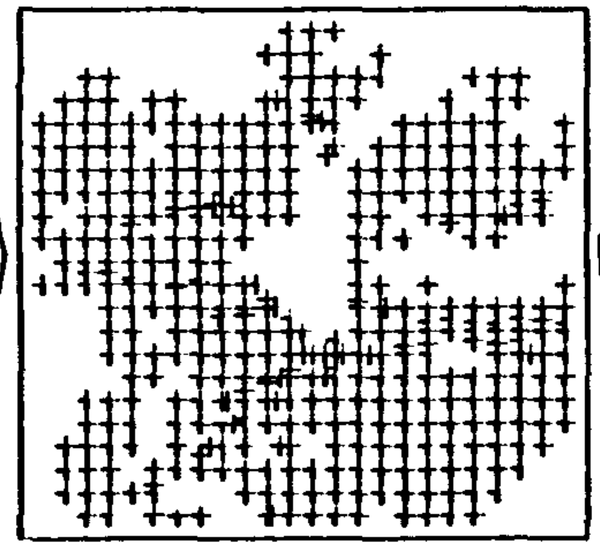
b- Lines layer.



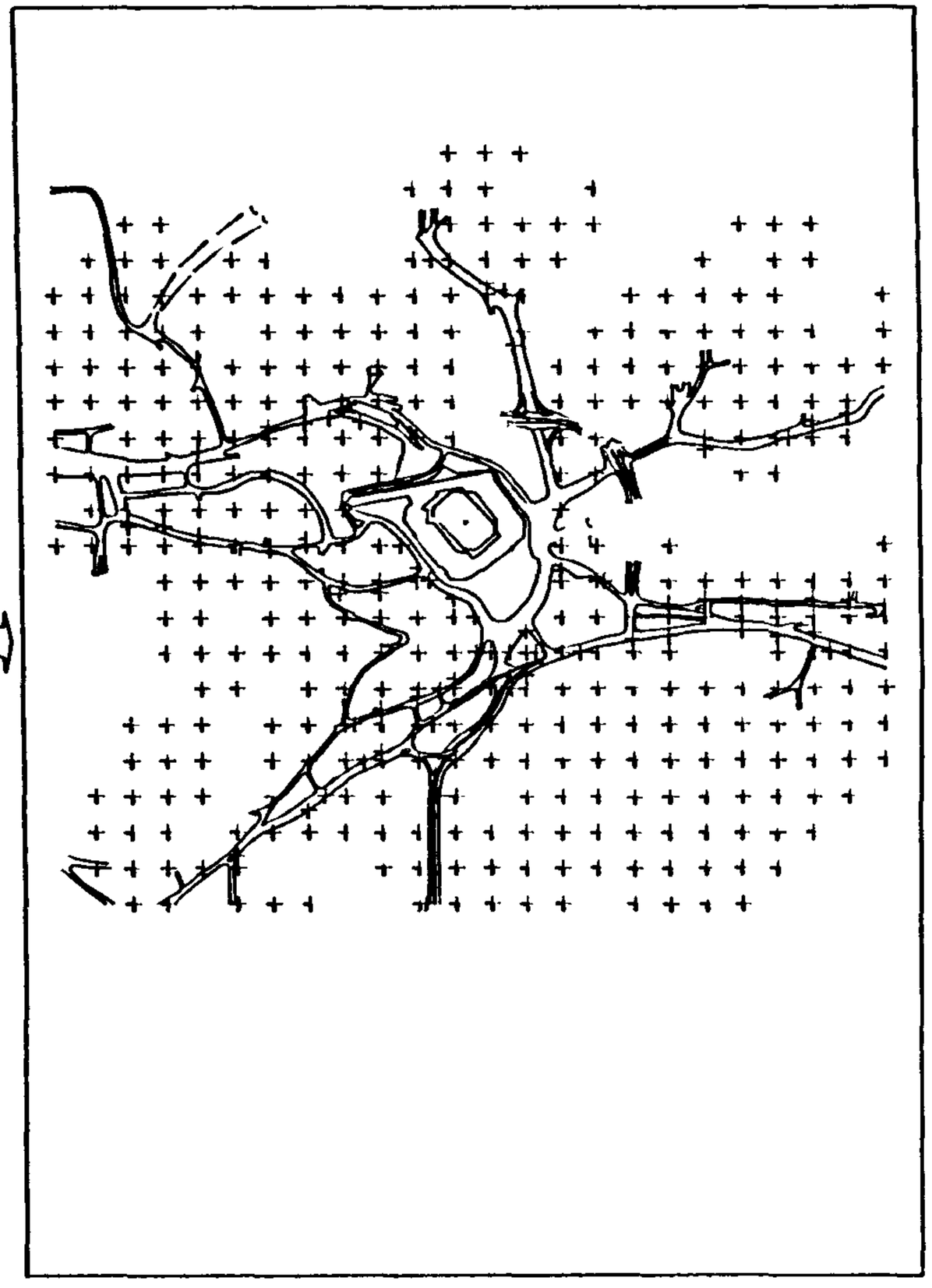
c- Polygon layer.



d- Points layer.



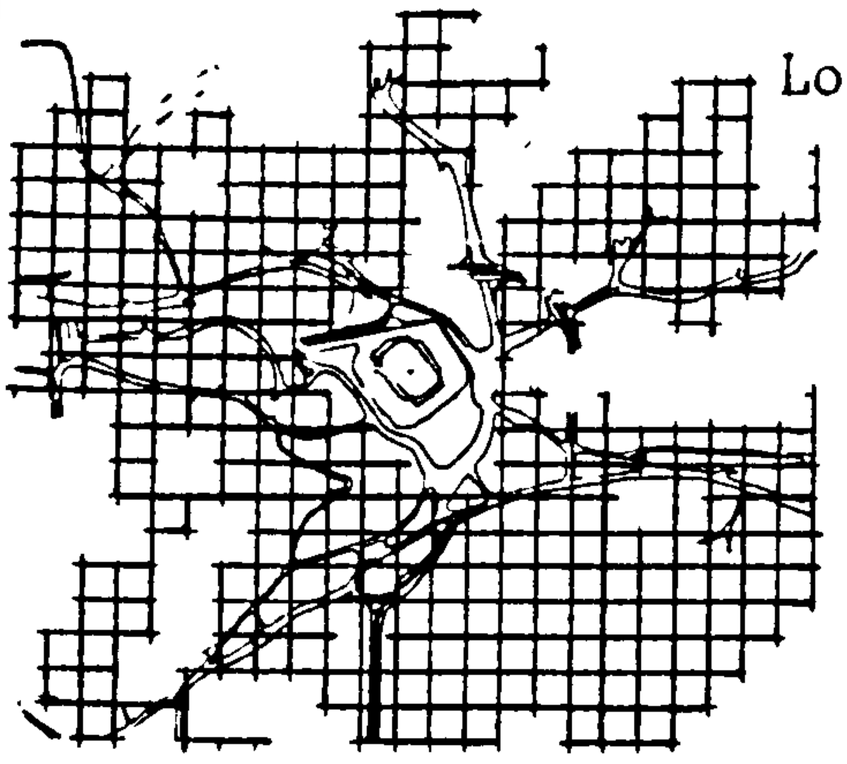
The basic layers were digitised separately.



e- The final combination of layers which represents the basic map for the computer analysis.

4.4 SUMMARY

Survey research and data analysis are integral parts of any social sciences research. The preliminary survey was essential in order to adopt the larger sophisticated one. The properly designed sample size and sample frame produced a representative sample of the sampled population and hence reliable results. The field-work procedure helped in optimising the use of the short time available before Hajj. The data coding and the facilitated data entry was done very quickly. Finally, it ought to be pointed out that surveys are time consuming jobs and that avoiding unnecessary work along with a strong organisational plan could optimise the total time required for the research.



CHAPTER 5

THE PRESENT HOUSIN SITUATION

5.1 The residential building types
5.2 Mixed environment
    5.2.1 Modern outlook of streets
    5.2.2 Traditional outlook of streets
5.3 Case studies:
    5.3.1 Case study one: Traditional building
    5.3.2 Case study two: Improved or extended traditional buildings
    5.3.3 Case study three: A modern apartment building
5.4 Haras
5.5 Analysis of building types
5.6 Year of construction
5.7 Building height
5.8 Owners' attitude towards the building height
5.9 Number of dwellings per building and the percentage of vacancy
5.10 Number of rooms per dwelling
5.11 Occupants' attitude towards all year round occupation
5.12 Occupants' attitude towards annual population density
5.13 Summary

CHAPTER FIVE

THE PRESENT HOUSING SITUATION

Historic cities are of particular importance to researchers and Makkah is one of the most significant to them if one considers that it is said to be the oldest city known in history.

> [Behold, the first Mosque ever set up for mankind was indeed the one at Bakkah[1]: rich in blessing, and a (source of) guidance unto all the worlds, (97) full of clear messages. (It is) the place whereon Abraham once stood; and whoever enters it finds inner peace.][2]

After the establishment of Islam, Makkah became the focal point for Muslims from all over the world. The old city of Makkah was a typical Muslim city as regards its planning, urban design and typology (see Chapter two) but in more recent years the old city has witnessed the rapid changes which are evident in all large cities in the developing countries.

Makkah has represented the culture of its community throughout the ages and should continue to do so for future generations. The urban pattern of a city normally reflects the requirements of the social life, climate, economy, building materials and technology; however the city of Makkah has a unique extra

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[1] All authorities agree that this name is synonymous with Mecca (which, correctly transliterated, is spelt Makkah)

[2] Verses 95-96, Sura Al Imran. "The Message of The Quran" Translated and explained by Muhammad Asad. Dar Al-Andalus Limited, Gibraltar. 1980.

religious factor which is Hajj. That is why the importance of its urban pattern to all Muslims is quite clear. Hajj has affected the urban pattern of Makkah in general and the development of housing in particular. Pilgrims from all over the world with different cultures have added to and imitated the styles found in Makkah and consequently housing in central Makkah has been affected.

The constants and variables concerning architecture and the living environment are worth discussing at this point. These constants must always be maintained and the variables should be adapted to satisfy the constants and not vice versa. Social life is undergoing a process of change, but no one expects for example, that people in Makkah would ignore the segregation of men and women. If we consider the climate as a constant, no one would expect that heat absorbent material should be used in a hot-dry region. The building materials and design should be appropriate to satisfy the requirements of the climate rather than ignoring them.

It is possible to argue that social values are not as constant as the climate, and that these values change frequently. However, since we are speaking about central Makkah which is the heart of the the Muslim world, and since Islamic laws did draw guidelines covering many aspects of social life, these values might be only slightly changed in this area. Islam did create certain laws concerning the position of children, boys, girls, parents and guests in Muslim social life and these are reflected in the design and the

available building materials.

In this section we are concerned mainly with the character of the 'haras' in the central districts of Makkah. Different case studies will be explained with regard to building types and changes they have undergone. The statistical analysis will cover the residential building types, years of construction, number of floors, number of dwellings per building, number of rooms per dwelling, and the number of vacant dwellings in central Makkah.

5.1 THE RESIDENTIAL BUILDING TYPES

The types of residential building found in the vicinity of the Holy Mosque of Makkah are:

1. Traditional buildings.
2. Improved or extended traditional buildings.
3. Modern apartment buildings.
4. Hotels.

These are the only types found in the central districts. They are discussed in Chapter three and hereafter.

In the past most of the houses were built on the flat land around the Holy Mosque. However since Makkah is located in hilly terrain, a great shortage of flat, residential land developed and consequently people started to build on top of the hills, as the close proximity to the Holy Mosque was important. Natural population

growth occurred which increased the need for accommodation, while the strong social relationships encouraged people to be close to each other. Thus, they built on the steep hillsides and on hill tops around the Holy Mosque. The houses are mostly attached to each other.

Since some traditional building standards in terms of services and facilities are no longer applicable, many landlords tend to improve and upgrade their traditional buildings. This being the case, upgrading the old buildings while preserving them and their environment, is very important. Due to lack of guidance, many landlords thought that replacing the large projecting teak wood windows by a brick wall, an aluminium window and an air conditioner was the right answer for today's needs (see photograph 27 which shows the wrong direction taken in recent development trends of traditional buildings).

A general feature of modern apartment buildings is that they are built of reinforced concrete frame structures, but they differ as follows:

1. International style.
2. Traditional style.
3. Alien styles.

The international modern apartment building types are typically designed along Western lines, which do not respect many of the traditional internal architectural features, such as Eastern toilets.

External differences are also in evidence, such as balconies. On the other hand, they conform to relatively high building standards. The traditional style modern apartment buildings are those which provide socially appropriate plans and which have attempted to imitate the traditional features and facade. Those which are neither Western nor traditional building styles and are not similar to either are considered alien styles.

There are no traditional buildings found which are used as hotels and the classification of modern apartment buildings mentioned above can also be applied to hotels. But in general, hotels have the best building standards. Some hotels tried to imitate the traditional wooden facades (see photographs 37 - 40) and were relatively successful.

5.2 MIXED ENVIRONMENT

The three different residential building types are mixed together without any specific planned policy. Both in the past and at present there have not been sufficient building regulations and controls governing the preservation of certain haras. Only a very few traditional buildings are preserved and are to be restored. In order to obtain the feeling of the architectural character of buildings along major streets in the centre of Makkah, the writer photographed continuous pictures of two streets from their centre. The first series of pictures shows a modern environment, while the

second series shows a more traditional one.

5.2.1 Modern outlook of streets

In the first series of pictures (see photographs 7 to 11) we notice a totally different environment and one could easily imagine that these pictures had been taken in any Middle Eastern city. The modern high rise buildings are dominant and full of western and international architectural features. The first four pictures are taken in sequence leading to the Holy Mosque in the Al-Shamiyah hara as illustrated in the sketch. In the middle of the fourth picture the external wall of the Holy Mosque can be seen which shows the close proximity of these buildings to the city centre. The fifth one is taken from the roof of an eleven storey building in the marked location looking in the direction of Al-Ghaza street. It can be seen that these two streets have a relatively modern character.

5.2.2 Traditional outlook of streets

The second series of pictures (see photographs 12 to 18) is taken in sequence starting from the Holy Mosque yard and moving towards the Harat Albab hara as illustrated and numbered on the sketch. It is very clear from the magnificent traditional buildings on the right and left in the first picture, that we are entering a traditional hara In the following three pictures the percentage of

traditional buildings decreases slightly but in the fifth and sixth pictures we see more clearly what Shams Al-Din described earlier in this section. It would be said that this street has a relatively traditional character.



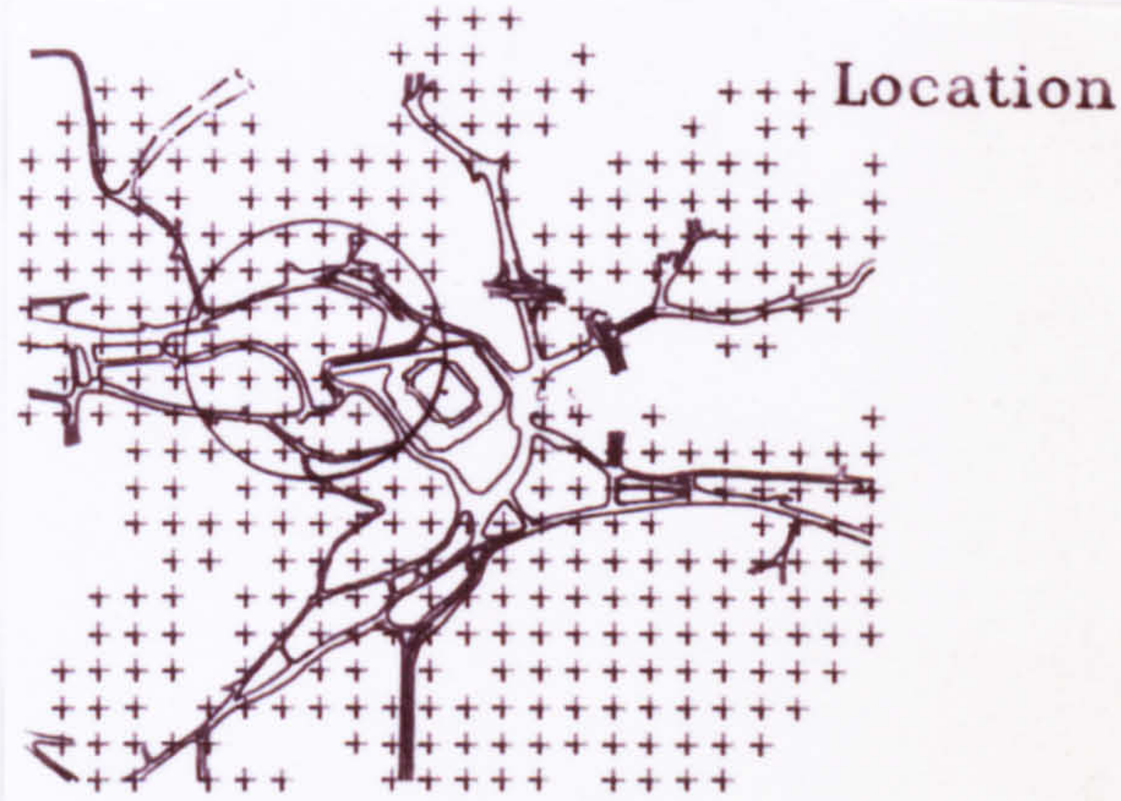
7

Photographs 7 - 11 :

A series of views along a modernised street.



8





9



10



11



12



13



14



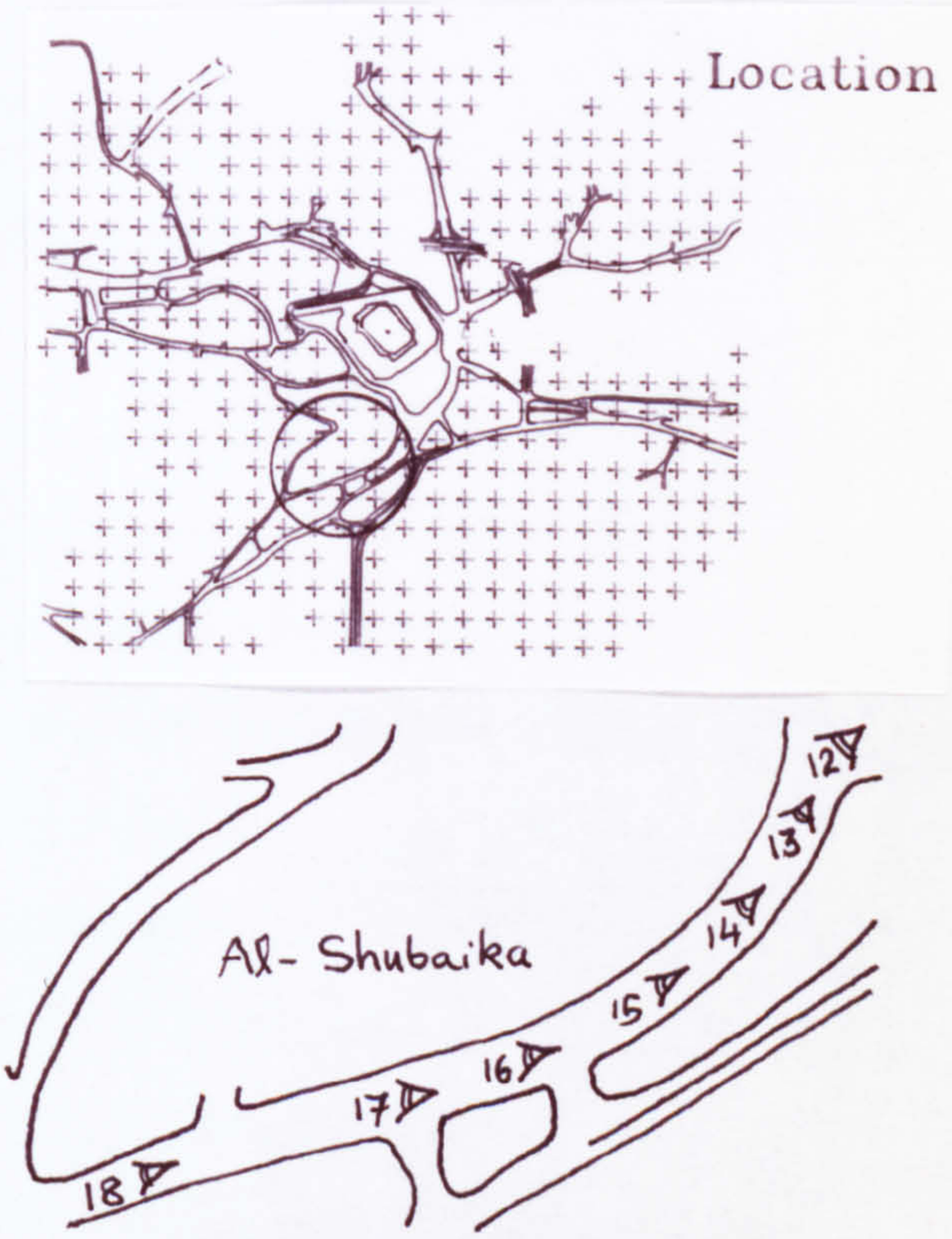
15



16

Photographs 12 - 18 :

A series of views along a relatively traditional street.





17

18

5.3 CASE STUDIES:

Before discussing the existing housing situation, it is useful to show the three building types in detail i.e. traditional, improved or extended traditional and modern buildings. For this reason three buildings representing each type will be selected as case studies. All case studies are selected from the Shi'b Ali hara (see map 14). This hara is selected because it has a traditional pattern. The narrow shaded streets are normally curved which gives an interesting and different perspective. Open spaces along these streets vary in size and shape creating useful semi-private spaces for residents. Buildings are grouped in small clusters. Inside this hara the first two types of buildings were selected and the modern type is at the entrance of the hara along the main major road.

5.3.1 Case study one: Traditional building

Mr. Ahmed Khatib Mandorah's house is number one on map 14. Access to this traditional house is gained by a stairway and the nearest road is 25 metres away from the building front. The house is four storeys high and was built in 1919[1] (see photograph 19). It has been used by an extended family which consisted of four families. Currently only one small family is still living in this house and the

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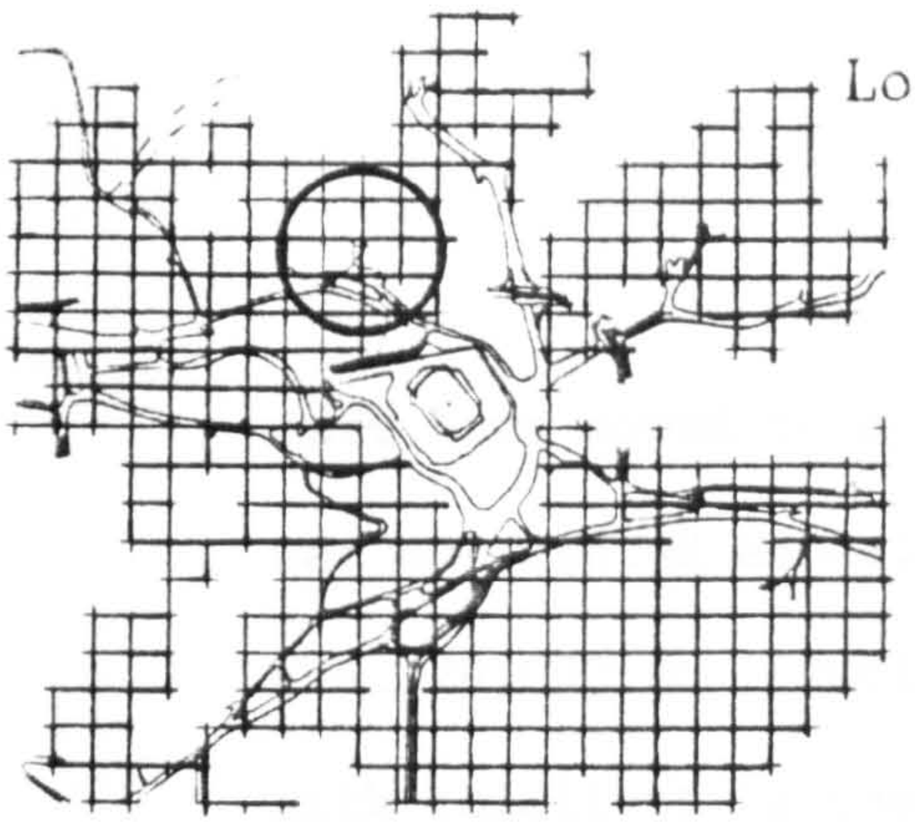
[1] Equivalent to 1340 in the lunar calendar.



Map 14: Shi'b Ali hara

Study cases location map:
1- Traditional house.
2- Improved or extended traditional house.
3- Modern flat building.
Scale 1:2500.

rest have moved to apartments or houses in the suburbs of Makkah. It was not rented annually and the Hajj rent value for the dwelling[1] was S.R. 20,000.00. During Hajj the landlord vacates the house and lives with relatives in the suburb of Makkah.

During Hajj, the lack of water and parking spaces are the major problems. The landlord said that most people do not even think of buying new cars because of the high risk of having an accident in such narrow streets.

The building was designed as an extended family house and the landlord is trying to preserve it. However, because of the high Hajj rent value the landlord tries to use every possible space to accommodate pilgrims and the only change he has undertaken is to use the roof of the third and fourth floors. He has raised the side walls and roofed them using wood and corrugated iron sheets.

The design is very simple and flexible as we can see in figure 14 where nearly each floor is considered as a dwelling. Normally the extended family will share many things such as the main reception room and the main kitchen, while each couple would have one or two rooms which are multi-purpose rooms, with sometimes a separate kitchen. Traditionally there is no single use of rooms. Most living rooms are used as bedrooms during the night and guests may also spend

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[1] Each floor is considered a dwelling.

the night here. The light and simple furniture helps facilitate this. The plan of the second floor consists of two rooms, two toilets, a kitchen and a roofyard.

There are two main sections which can be separated easily by closing two doors. The first section to the left of the plan consists of a room and a toilet. The privacy for both sections is cleverly provided for by giving them separate and private access. At the same time this sort of organisation gives a maximum flexibility to rearrange the use of rooms in the house according to the changing needs of the extended family. The door between the two rooms provides the possibility of extending the space on occasions or it can be used as a dining room when visitors are in the first room. The second section which is more private consists of a large room, kitchen, toilet and a roof yard. The space of the large room is divided and nicely finished to be within a suitable human scale (see photographs 22 and 23).

The roof is an important part of the house. It provides space for children to play and is also appropriate private open space for women to use. It becomes a place for family gatherings after sunset, and is also used for sleeping in summer. The roof is designed to satisfy these requirements by raising the wall and using



19

Case study one;
A traditional house :

Photograph 19 :

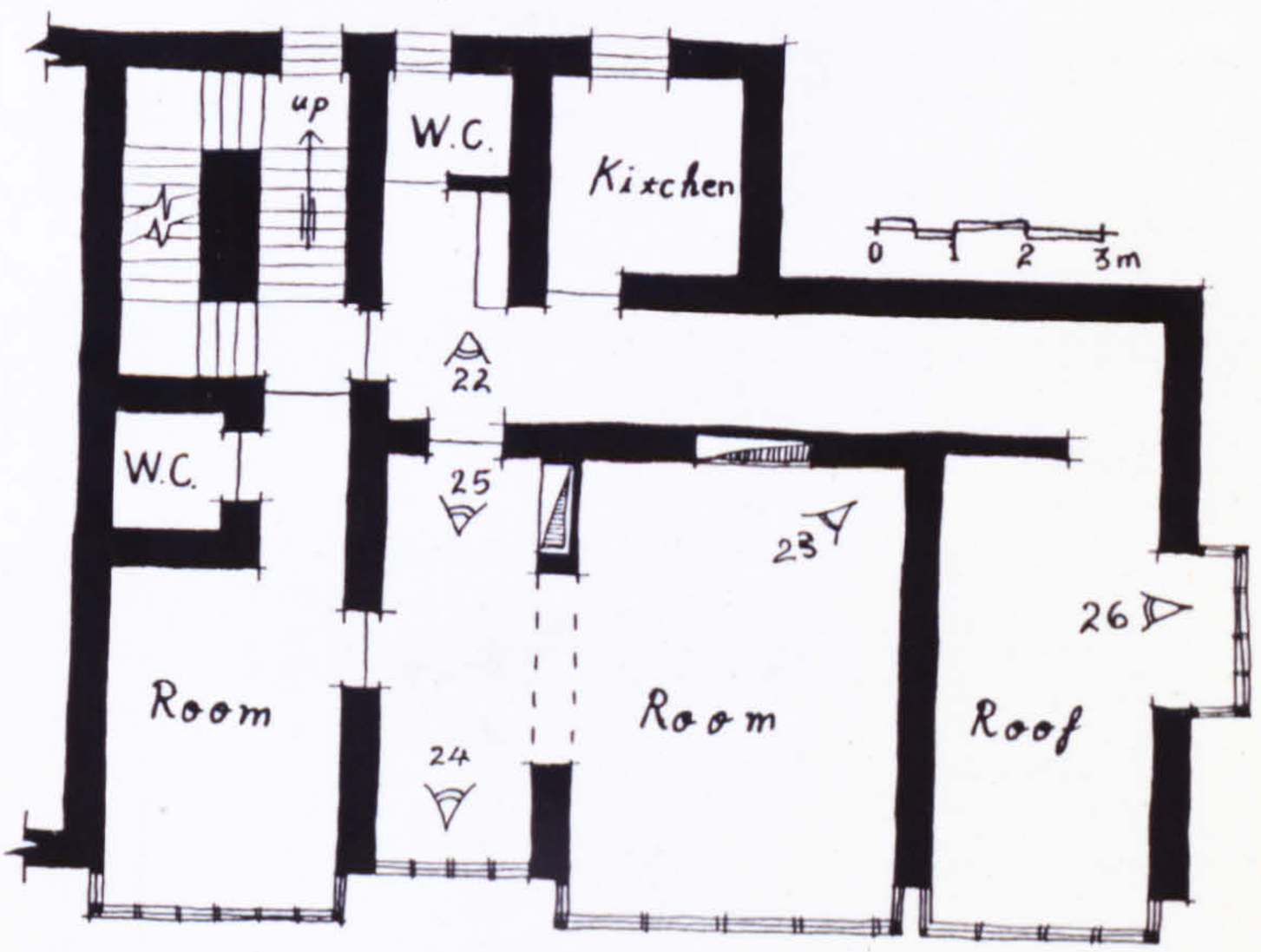
The selected building is to the right of the picture where the scaffolding for restoration can be seen.



20

Figure 14 :

Second floor plan of a traditional house





21

Photograph 20 :

The entrance of the house is the second from the left.

Photograph 21 :

The rowshan.

Photographs 22 - 23 : The arch extended the area of the living room but within a suitable human scale.
Photograph 24 : The decorated wood pattern on top of the door is important for through ventilation.
Photograph 25 : The toilet door has an upper ventilation and lighting opening.
Photograph 26 : The third floor roof has been converted into a room.



22



23



24



25



26

different architectural features such as shabora[1] and decorated wood patterns which provide privacy, ventilation and an interesting environment.

The facade of the house is magnificent. In photograph 19 the selected traditional house is the one to the right with the three storeys high projecting windows. The house was surveyed when it was under restoration and the wooden scaffolding is seen at the bottom right corner of the picture. The second two photographs show in detail the large teak wood windows called 'rawasheen' from outside. Photographs 22,23 and 24 show the living room from different points as marked and numbered in fig 14. The arch extends the area of the room but within a good human scale. The wooden adjustable shutters control the light in the room and the decorated wood pattern on top of the door is important for through ventilation. In photograph 25 the lobby is in front of the W.C. and it can be seen that the toilet door has an upper ventilation and lighting opening. The third floor roof has been converted to a room in photograph 26.

In order to show the traditional architectural features in single and multi-storey houses another two buildings have been selected and drawn.

In figure 15 a single storey traditional building is drawn using different photographs. Such buildings are rarely found in the

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[1] See figure 15.

central district and most traditional buildings are multi storey buildings which are a usual characteristic of Makkah[1]. The windows are still large but not projected as 'rawasheen'. The roof is divided into four spaces and has a single room, toilet and storage facilities. The roof is used for children to play and for women. It is also used for sleeping at night and that is why a storage room in the roof is necesary to store the beds. The 'Shabora' has interesting patterns which are created by coloured bricks used in filling the openings in the roof walls. Gaps are left between bricks so that the breeze can penetrate through, vision is not obscured and privacy for residents is maintained.

The multi-storey traditional buildings (figure 16) are more common in central Makkah. The 'rowshan' is the basic element in the facade. It normally extends from the first floor level to the top of the building. It is not only a large window but it is also a sunbreaker, a ventilation tool and a piece of furniture. In figure 17 the rich and highly decorated teak wood is very clear, with its fine, detailed art work. The design is rectangular in shape and pattern and the position of the movable shutters highlights its beauty. Privacy, ventilation and lighting are easily controlled by the wooden adjustable shutters and the decorated wooden patterns.

Some detailed wood decoration patterns are shown in figure 18 where the curved lines which are a dominant feature can be seen. The iron

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[1] See section "Number of floors" hereafter for the average number of floors.

door knocker was placed on a circular wood sculpture. The selected parts of a door and window reveal in detail the popular flower and plant leaf design which is much favoured in such buildings. Such patterns enabled the designer to create fantastic continuous decoration pieces.

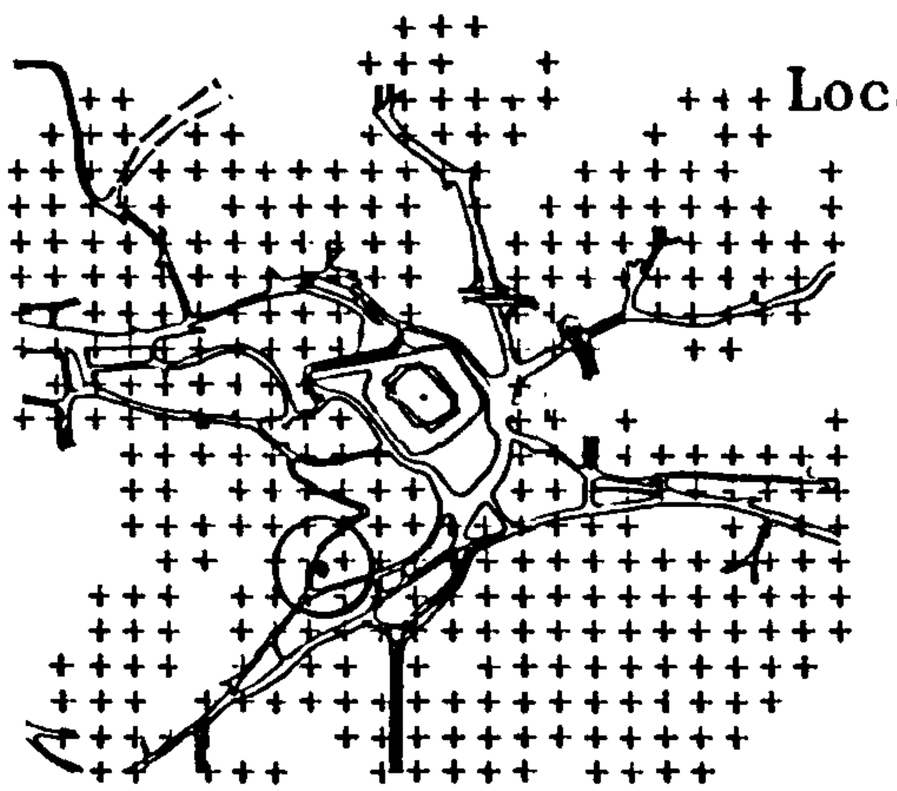
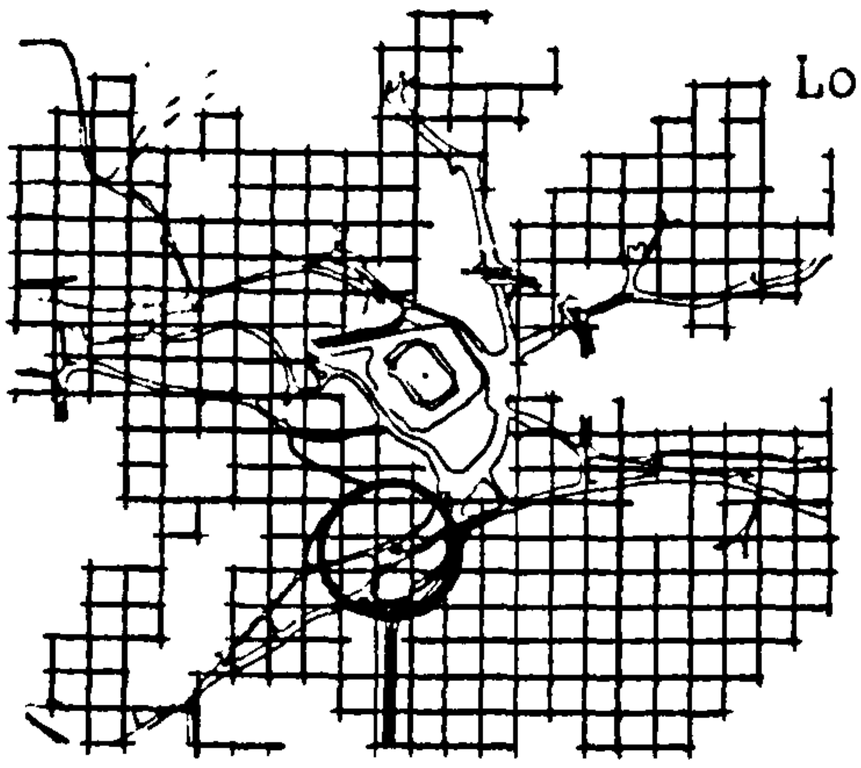
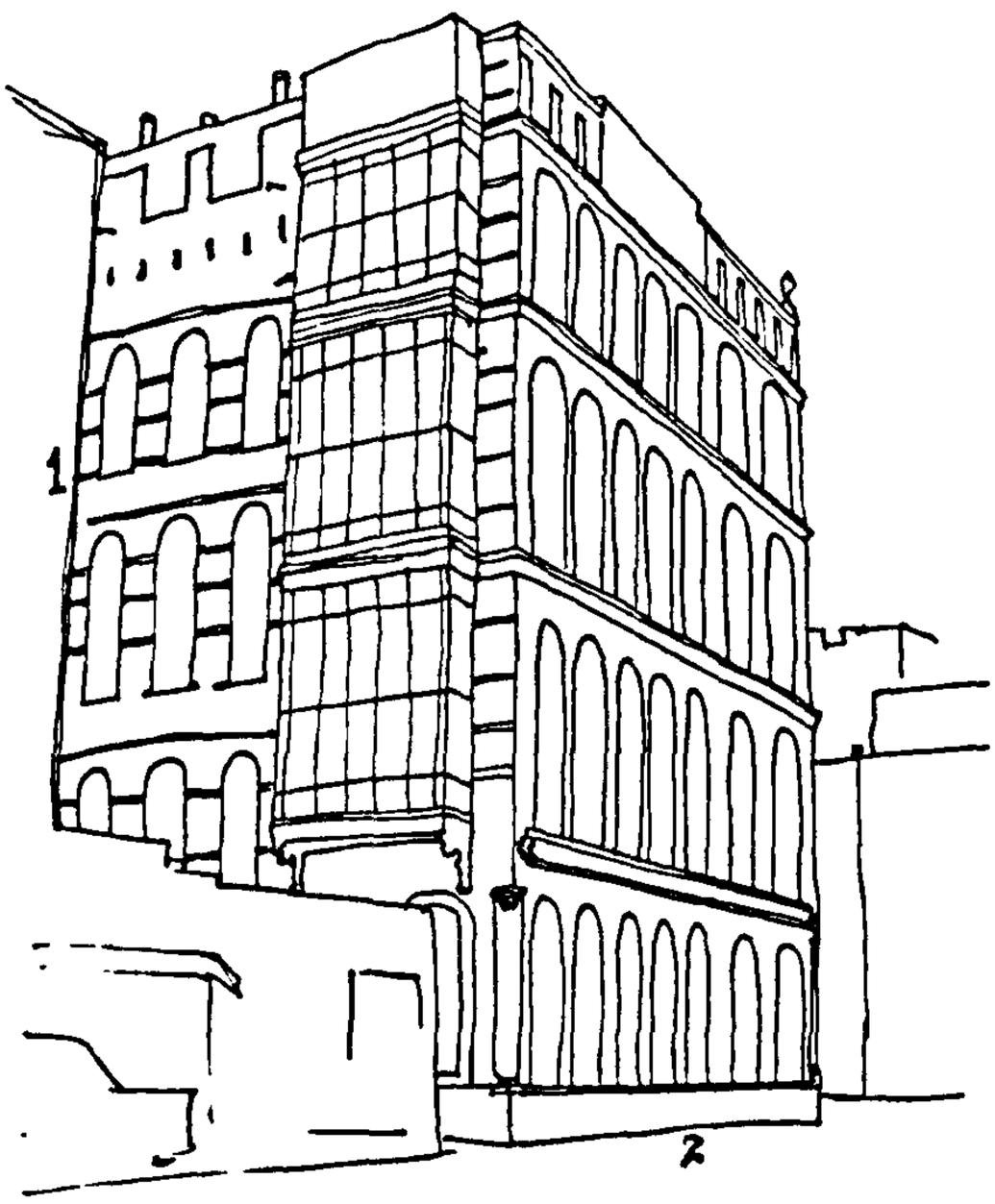


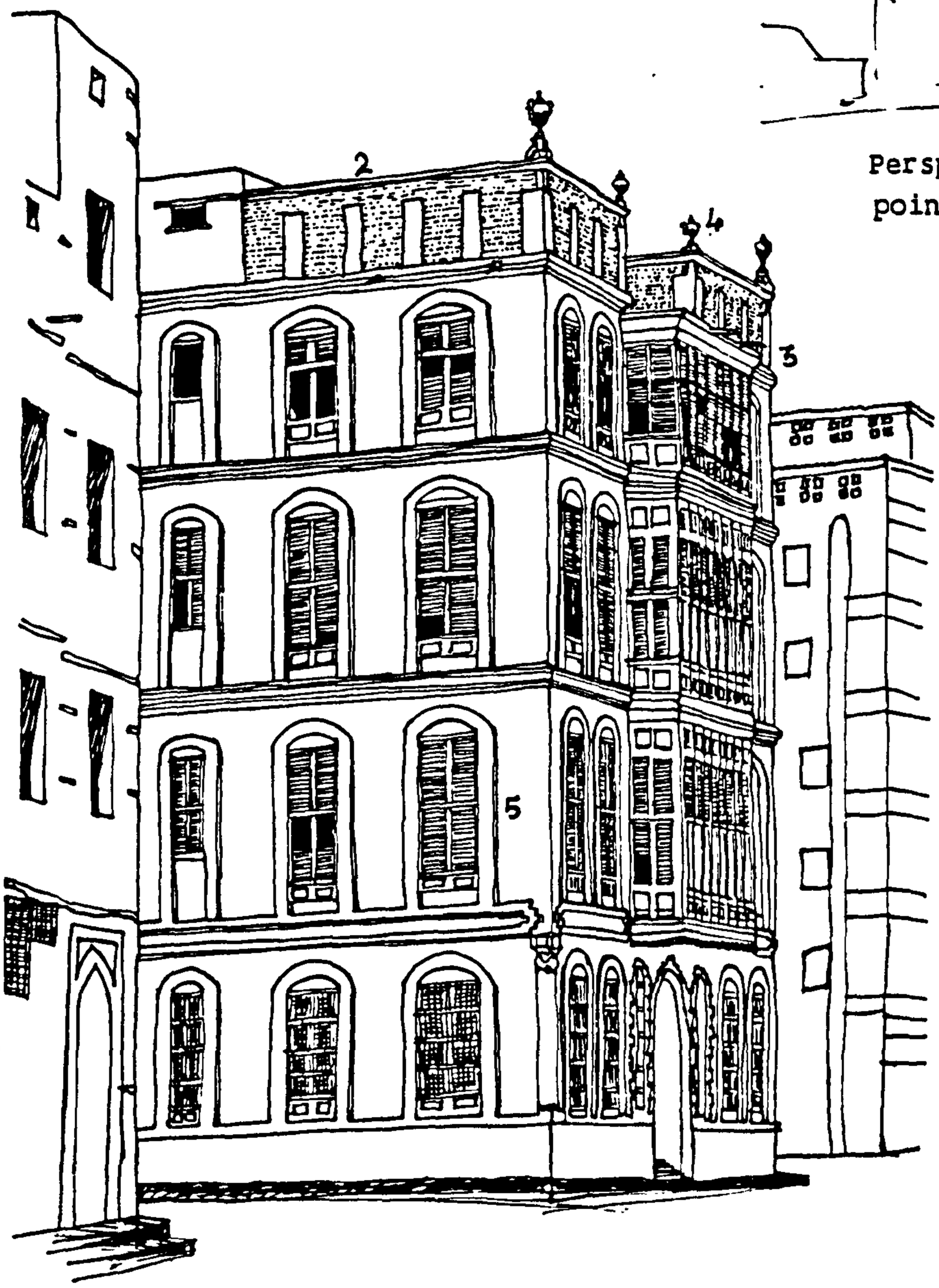
Figure 15: Perspective of a single storey traditional house

Single storey traditional house rarely found in central Makkah.
1. Small kitchen or toilet window.
2. Large teak wood window.
3. Shabora (patterned brick work).
4. Toillet and small storage.
5. Stairs.
6. Roof space is divided for different social activities.
7. Ka'as (finial).
8. Ara'es (crenellation).





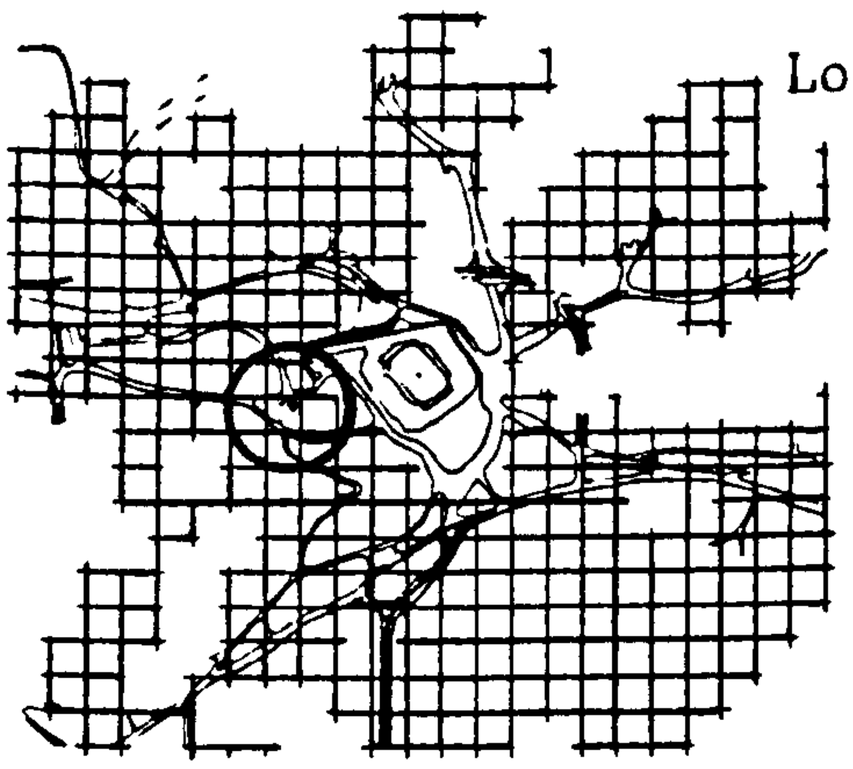
Perspective from a different point of view.

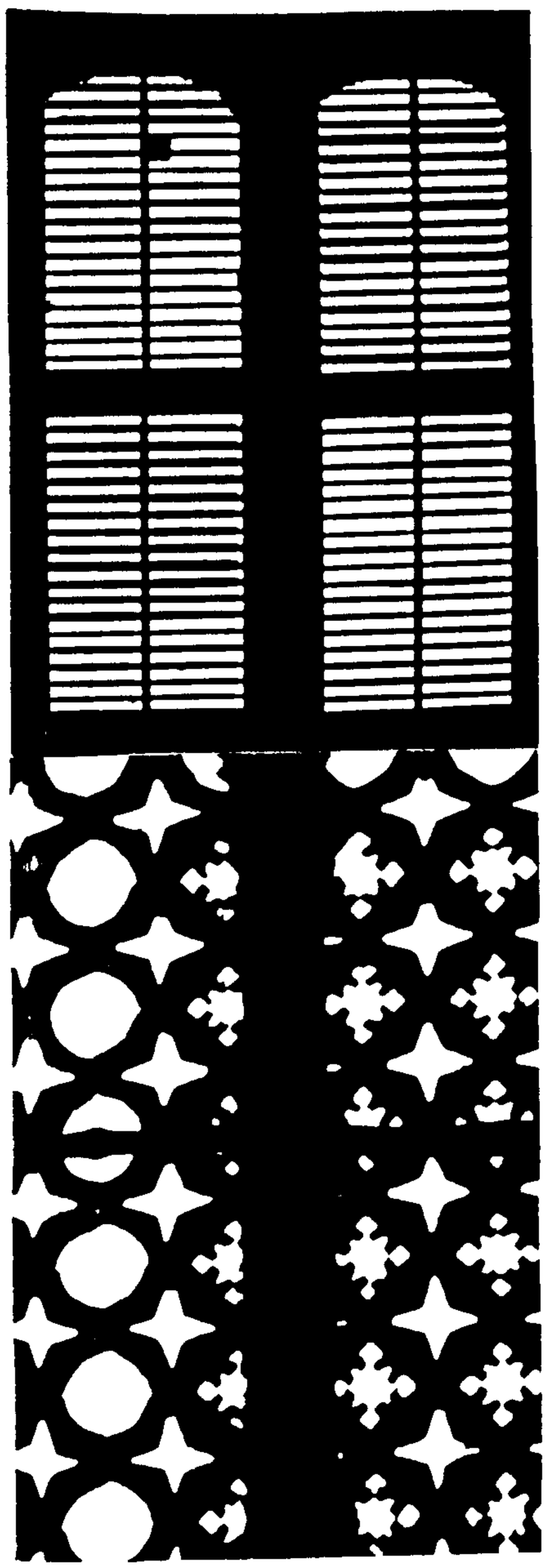


1. Western facade.
2. Southern facade.
3. Eastern facade.
4. Ka'as (finial).
5. Tall wooden window.

Figure 16: Perspectives of a multi storey traditional house

Location





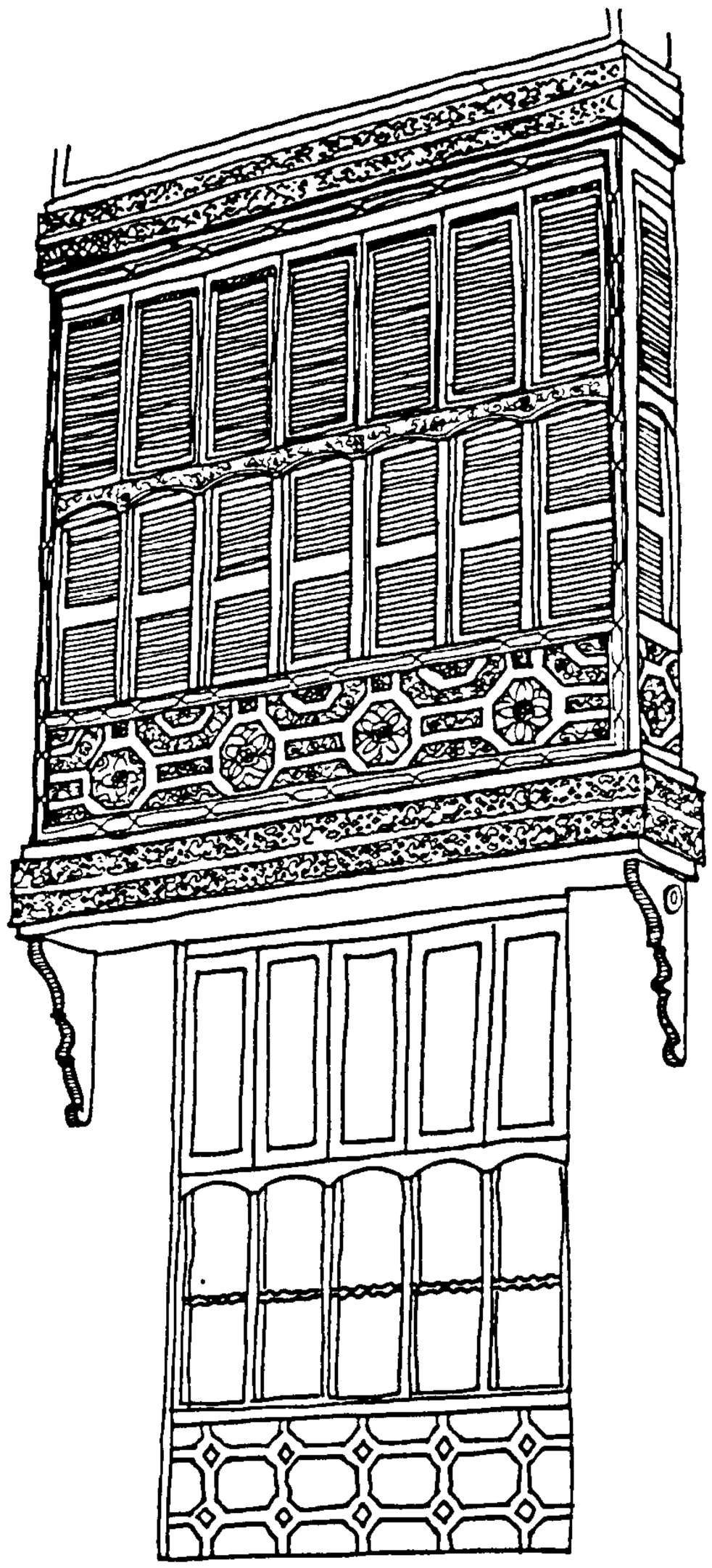


Figure 17: Rowshan

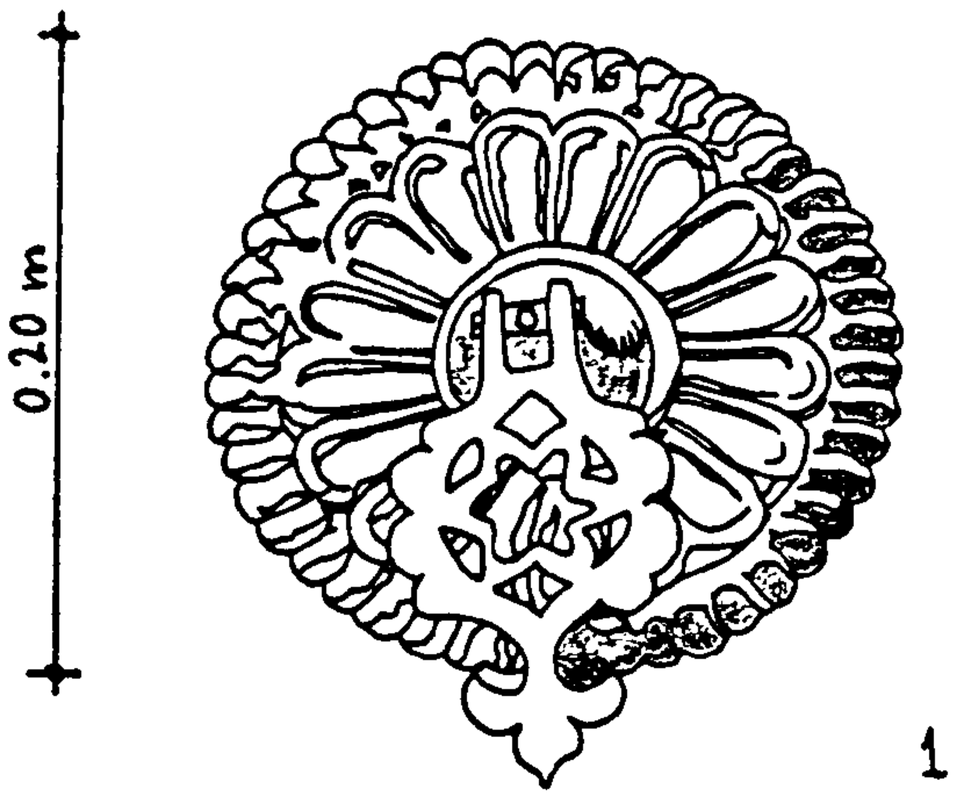
The highly decorated large projecting teak wood windows, they have an extensive fine detailed art work.

Privacy, ventilation and lighting are controlled by adjustable wooden shutters and decorated wooden patterns.
Both pictures are taken from inside.

Figure 18: Detailed wood works

Joinery details in doors and windows:

1. Door knocker made of iron on decorated base of wood.
2., 3., 5. Parts of a door.
4. Window top. 6. Window bottom.



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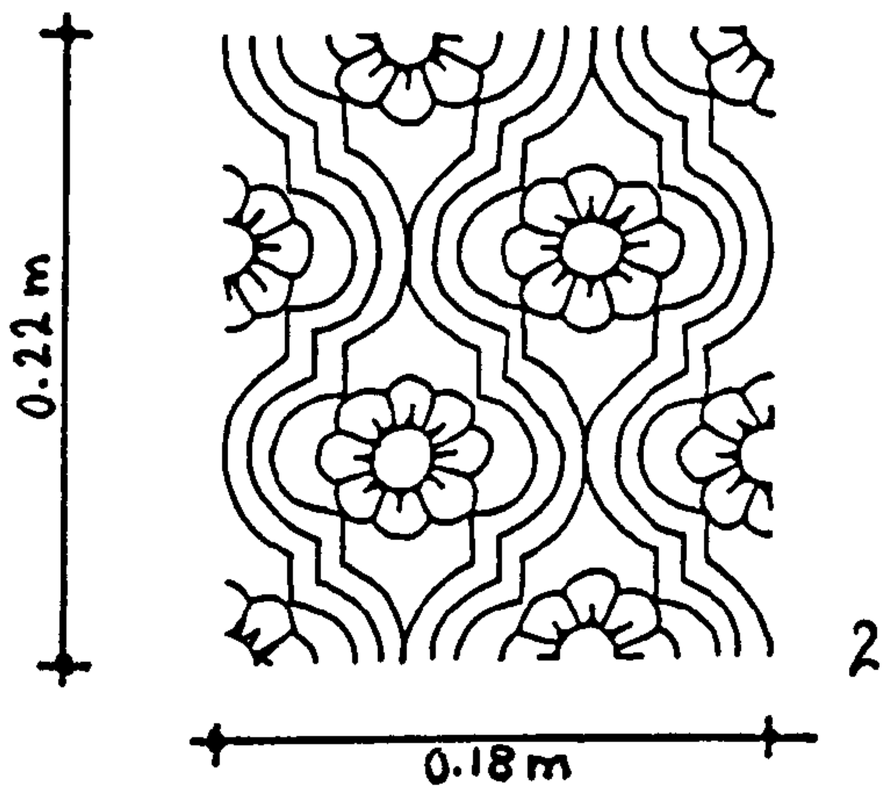

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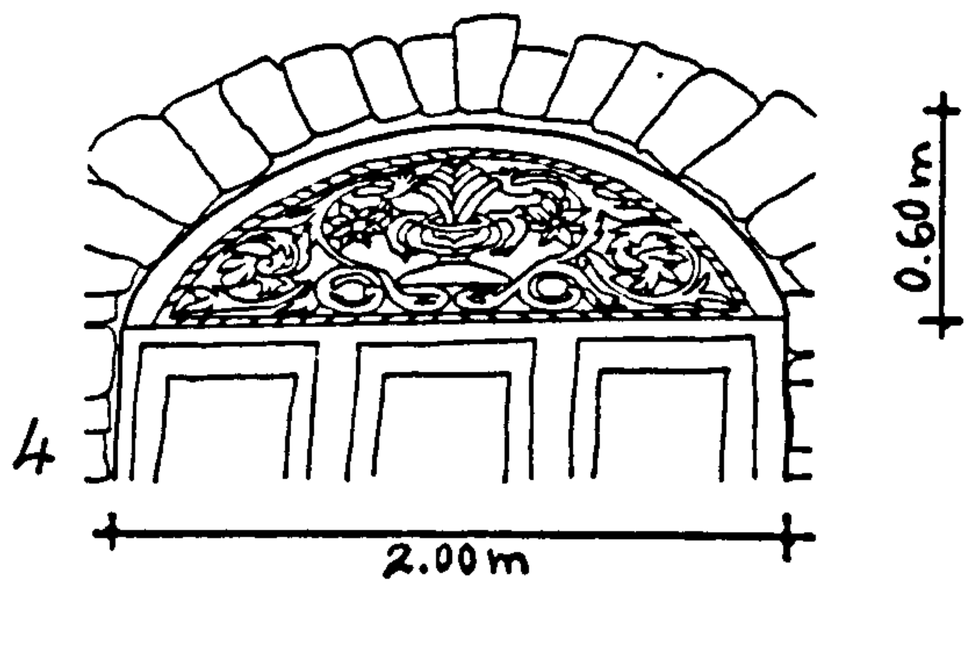

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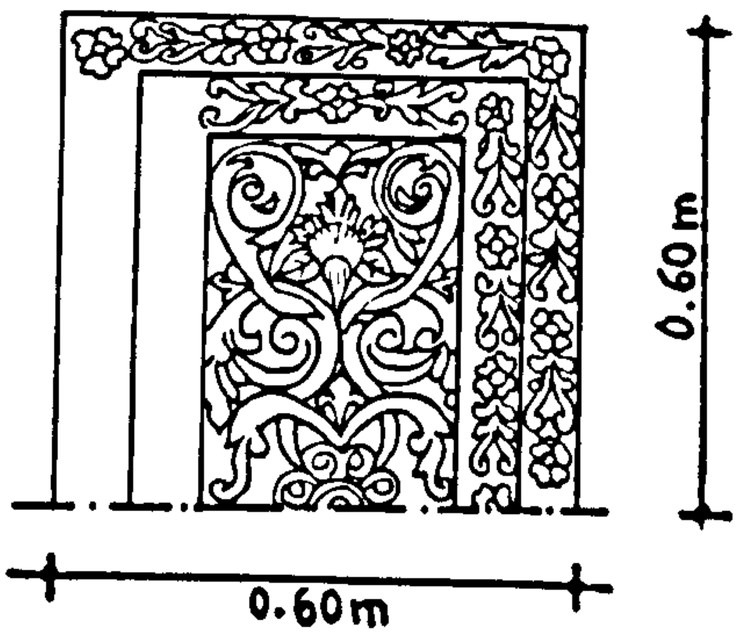

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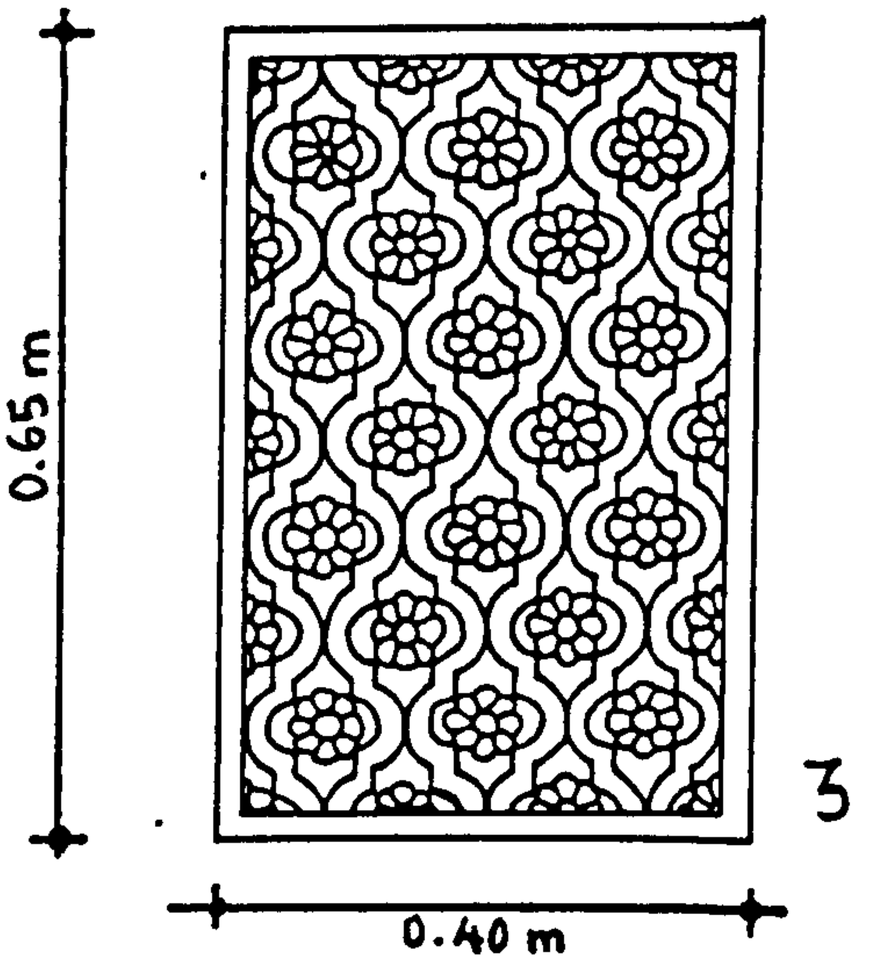

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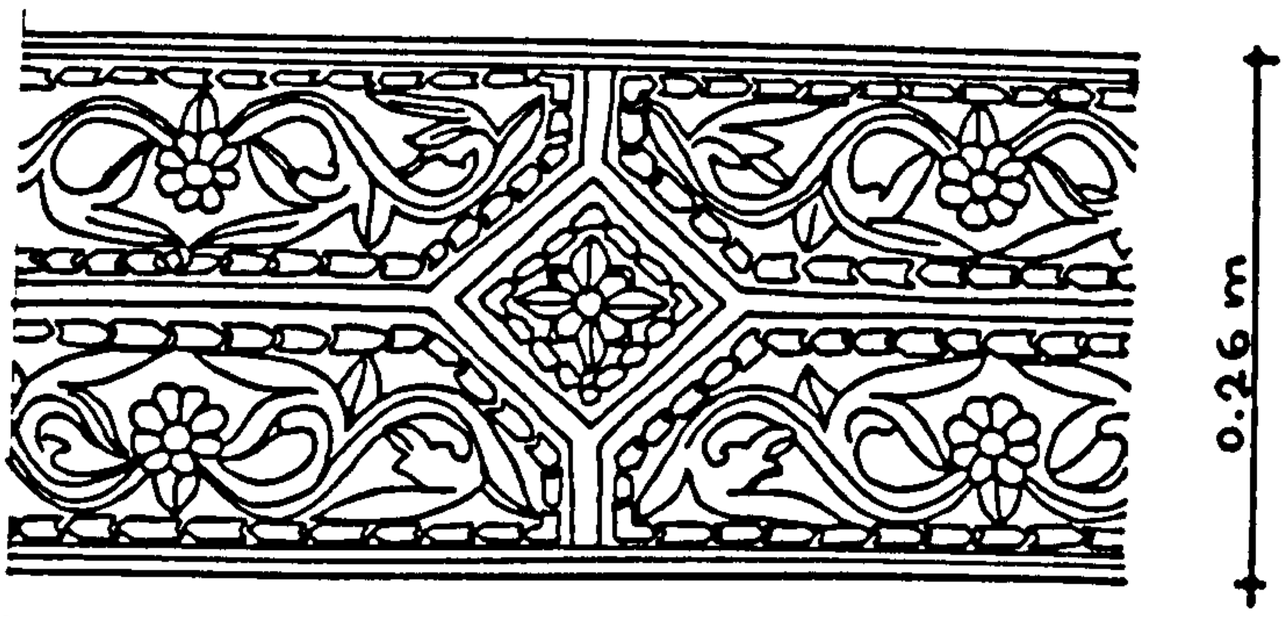

6

5.3.2 Case study two: Improved or extended traditional buildings

The selected house is number two on map 14. The landlord wished to remain anonymous. The house is four storeys high and was built in 1917[1] (see photograph 27). It was used by an extended family who no longer live there. The landlord said that the noise of cars, the problem of car parking spaces and the social change from the extended family to the nuclear family has led them to vacate the house and rent it during Hajj only. So it is not rented annually and the Hajj rent value for each floor was S.R. 15,000.00.

Regarding the problems of Hajj, the same problems as in the first case were found i.e. the shortage of water supply and parking spaces.

In this case the design will not be discussed since it is similar to case study one, but the differences between both types are to be discussed later. Most of the improved or extended traditional buildings have lost their character. The writer will use the expression "improved traditional building". The term 'improved' is often misunderstood and wrongly used. People tend to call any change improvement, even if it bears no relation to basic logical principles. It is true to say that the quality and the standards of

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[1] Equivalent to 1338 in the lunar calendar.



27

Case study two;
An improved traditional house.

A view of the wrong direction in recent developments of traditional buildings. There are many technical ways to improve the standards and the quality but without destroying the character.

Photograph 27 : Improved traditional house.
Photograph 28 : Building materials; old and new.
Photograph 29 : Demolished rowshan.
Photograph 30 : Demolished large wood window.
Photograph 31 : Closer view of the demolished large wood window.



28



29



30



31



32



33

Photograph 32 : Rowshan from inside.
Photograph 33 : Improved rowshan from inside!

It is hard to see why this should continue to happen. The contrast is very clear. In the lower picture one feels that something is missing. The interior of the house has become alien and very strange.



34

Photograph 34 :
Interior of an improved house.

life have changed and traditional buildings are not satisfactory in their present form, but there exist many different technical methods of improving their quality whilst maintaining their character.

In the Municipality's laws there are no conservation restrictions. Consequently when the landlord was instructed by the general security committee to replace the rawasheen because it was considered that they were not safe and that he would not be allowed to rent his property during Hajj if they were not replaced, he destroyed all the traditional rawasheen as photographs 27 - 31 shows. The cheapest way of fulfilling the committee's instructions was to demolish these old wooden windows and to replace them with walls. Red bricks and cement mortar were used. A small and ugly window was placed in the middle. Even the roof of the rowshan was left and served no useful purpose (see photograph 29). In the eastern facade the large wood windows which were not rawasheen were also replaced by a brick wall (see photographs 30 and 31).

It is hard to see why this should continue to happen. If this trend continues then in the near future very few traditional houses will survive in central Makkah. The contrast is very clear in photographs 32 and 33 and it is difficult to understand how such a change can be logically accepted. It does not seem possible that we can accept the replacement of such a magnificent, large, wooden window which satisfied the social and climatic conditions by such a solid and dull wall with a small window in the middle. In photograph

34 one feels immediately that something is missing and that there is a lack of harmony in the interior.

Similar changes occur when these houses are extended vertically or horizontally. If the extension is vertical the architectural features of the roof disappear and if it is horizontal a new strange building develops.

Such types of buildings are found in great numbers in the central districts, a fact which will be revealed in the statistical analysis later, and so these houses should be looked at carefully in any future planning.

A prime example of restoration and improvement of a traditional house was found when an old photograph of an improved existing traditional house was uncovered in the Hajj Research Centre. The writer photographed the same house from almost the same point in Hajj 1984. The two photographs (35 and 36) show the building before and after restoration. This example should be followed by all landlords of traditional houses in the central districts of Makkah. However this recommendation should not be left entirely to the willingness of the people without any form of encouragement or control by the authorities.

Very few buildings have been built in the semi traditional style. If we consider the facade of the new Baha Al Din hotel it can

be said that it has a traditional character, but when the design and the appropriate building materials are considered the building can be then called semi-traditional. In photographs 37 to 40 one can see clearly how complex and integrated the design of the facade is. The fine wooden pattern is fantastic. In the close-up photographs we can see the details of the wooden decoration of the windows.



35



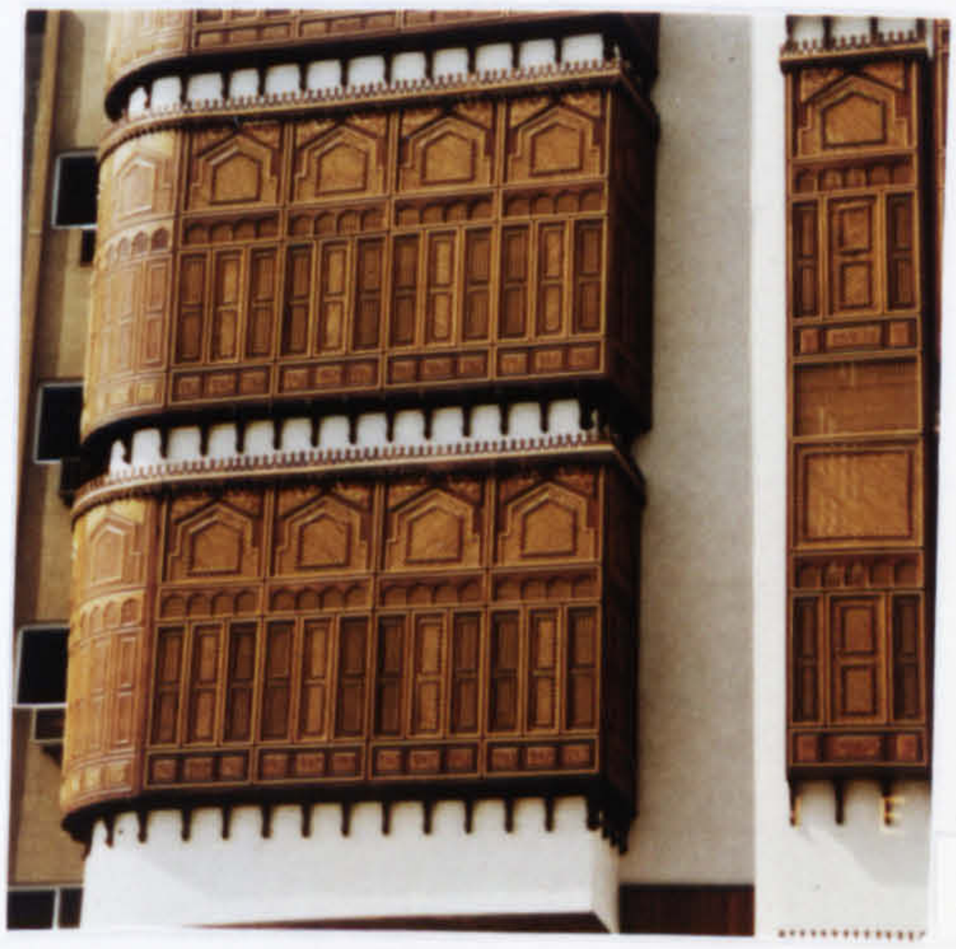
36

Above: The right direction of improvement. The building in the middle before and after restoration. **Photographs 35 - 36.**

Below: The new Baha' Al-Din hotel. A new building with a traditional style of wooden facades which is very clear. **Photographs 37, 38, 39, 40.**



37



38



39



40

5.3.3 Case study three: A modern apartment building

The modern apartment building type which belongs to Mr. Abu-Bakr Bin Mahfooz is number three on map 14. It is located on a main street called 'Souque Al-Lail'. This eleven storeys high building was built in 1976 with a reinforced concrete frame structure (see photograph 41). Concrete blocks were generally used for internal and external walls where the thickness varies from 15-30 cm. The roof was built of reinforced concrete slabs. The building was plastered internally and externally by cement mortar. Marble was installed on the external walls of the first two levels as facing. The ground and first floors are used for commercial purposes where a branch of Al-Ahli Bank has been opened. On each floor there are four apartments, making a total of twenty-eight apartments. The owner reserved the top five apartments for himself and rented the rest. At the time of the survey the annual rent was S.R. 50,000.00 but even so, only four dwellings were occupied annually and the others were occupied during Hajj only. The majority of the annual tenants did not live in the building and they sub-let them during Hajj with a higher rent than the annual rent value. The Hajj rent value was S.R. 70,000.00 per apartment. The guard of the building said that the owner is aware of this. It might be that for the landlord a guaranteed lower rent is better than a higher rent with more risk.

The building was designed to be rented annually and no changes were made either by tenants or landlord to suit Hajj letting. The problems mentioned during Hajj for this building were the lack of water supply and parking spaces. No telephone boxes were provided in the building for pilgrims. There were no problems with sewerage and refuse disposal.

The internal design of the selected apartment is not very suitable for annual nor Hajj residence. In each floor there are two large and two small apartments. One of the larger apartments on the second floor was selected (see figure 19).

We cannot say much about the design concept except that using high rise buildings might be a practical solution in terms of cost, but not in terms of comfort or provision of social life. Nearly all rooms open onto a large lobby where privacy is not taken into consideration. In any traditional design one would find two main sections in each dwelling i.e. common and private. The common section would be used for guests and visitors who would not be allowed to enter the private section at all. The private section would be used by the family itself and women and close relatives only would be allowed to enter. This type of classification rarely exists nowadays.

In the modern apartment the kitchen, where the women normally spend much of their time, is lit and ventilated from a small window



41



42

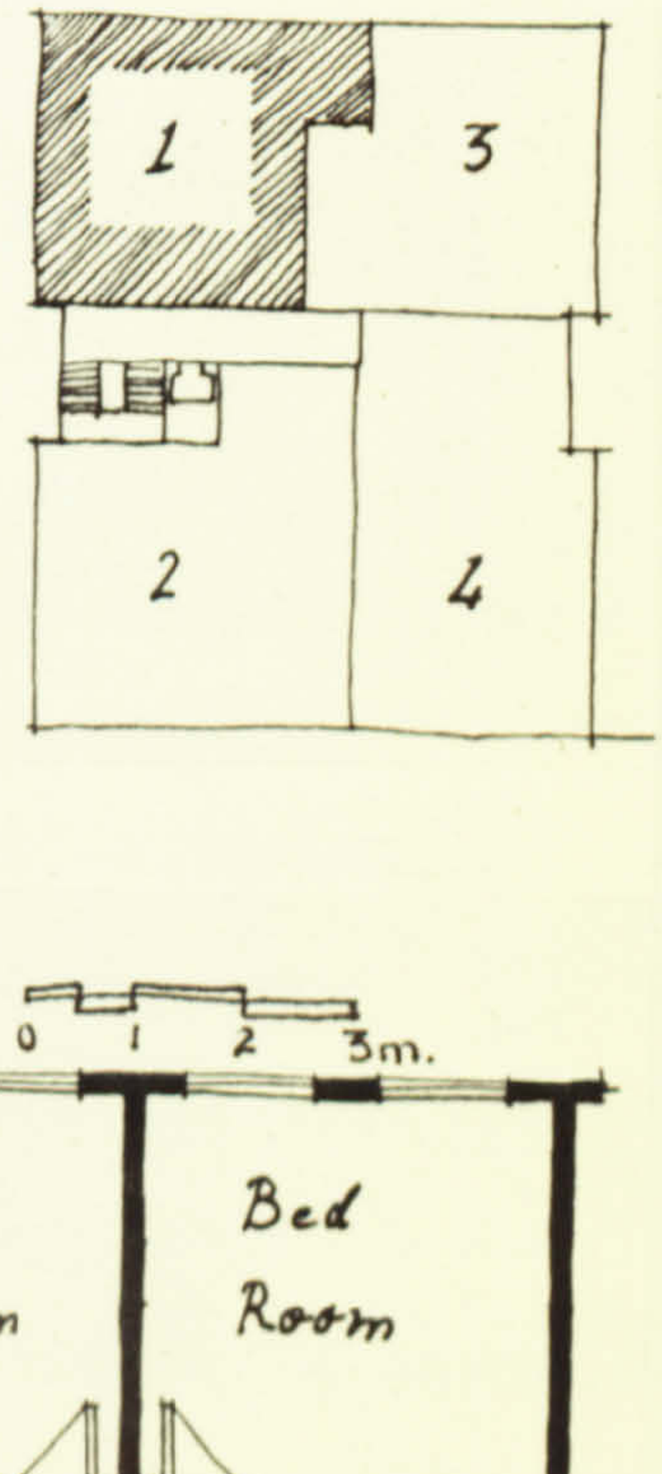


43

Case study three;
A modern apartment building.

Photograph 41 :
International facade style.
Photograph 42 :
Reinforced concrete frame structure, aluminium windows and high quality finishing.
Photograph 43 :
Western toilet and bath.

Figure 19 :
A modern apartment building plan.



which opens to the ventilation shaft. The ventilation shaft is so small that practically no light can reach the lower floors. The toilets and kitchens of two apartments are lit and ventilated from that shaft. In other words we can say with certainty that no windows are to be opened for privacy and social reasons and so the kitchen seems only slightly better than a prison.

The windows are not protected by any sort of sunbreakers. They are also made of aluminium and glass and it is possible to see the neighbour opposite and be seen by him (see photograph 42). For privacy most people use curtains which are considered an internal element of decoration and normally would not be opened at all with the presence of electric lighting. In the same picture we see the quality of finishing in such buildings. The walls are neatly plastered and the floors are tiled with mosaic. In each room there is an air conditioner, a ceiling fan and fluorescent lamps. Because the concrete absorbs heat and does not have sufficient thermal resistance or insulating capacity with a very short time lag, it is not suitable for hot dry climates and hence air conditioning is vital.

There are two toilets. The small one is the eastern and has a water tap. The larger one contains a wash basin, toilet, bidet and a bath (see photograph 43). The bath is used as a shower and the bidet is blocked because it is not used. These are signs of the modern age which people insist on having but rarely use. The window

is made of iron and has an external iron pattern for security reasons. The four walls are tiled up to 2.20 cm. The water tank in the toilet (to the right of the picture) is essential during Hajj because of the water shortage during that period.

In general this type of building is designed along western lines in all aspects i.e. in design and building materials.

5.4 HARAS

The writer was not able to find a map in the municipality which clearly defines the boundaries of each hara in central Makkah. There are broad names written on Farsi's map of Makkah[1] which are written in the middle of the haras defining the boundaries.

In the survey, residents were asked about the name of their hara and by their answers map 15 was drawn. However, since each interviewee's answer represented an area of one hectare, the accuracy level will be within +/- fifty metres of the border lines drawn on the map. Also a number of interviewees may have used some traditional names which are not commonly used by the Municipality. As a result such names only figure on the map if they represent more than five hectares, otherwise they are considered as part of the bigger hara. Some haras are large, for example Al-Misfalah, whilst

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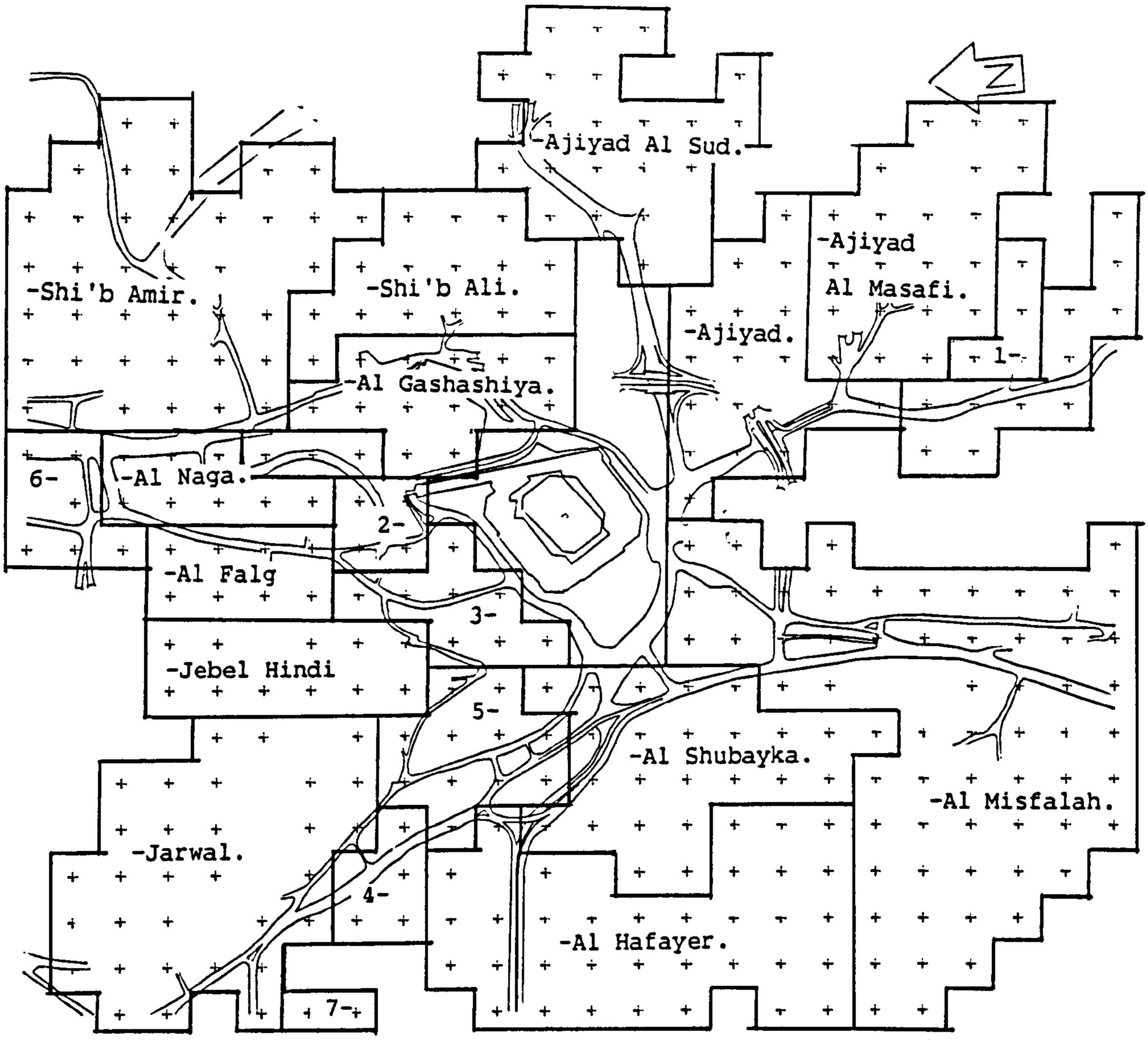
[1] City map and Hajj guide of Makkah Al-Mukarramah, Engineer Zaki M. Farsi, Jeddah, Saudi Arabia.

MAP No 15 . HARAS IN CENTRAL MAKKAH



1 -Ajiyad Ber-Balila.

2 -Al Gararah.

3 -Al-Shamiyah.

4 -Jebel Al Kaba.

5 -Harat Al Bab.

6 -Al Sulaimaniah.

7 -Al Taiseer.

0 200 400 600 m.

GF 0

others are smaller like Al-Gararah. They differ in size because of the mountainous topography.

Throughout the analysis all haras will be referred to as they are drawn on this map.

5.5 ANALYSIS OF BUILDING TYPES

In the analysis of all cases the traditional building types account for thirty seven per cent of the buildings in central Makkah, while the modern apartment buildings represent forty two per cent. The improved or extended traditional buildings account for eighteen per cent.

In map 16 "The building types in central Makkah", the distribution of building types when all cases[1] were plotted shows that in Al-Shamiyah, Al-Gashashiya and the area of Al-Misfalah which is nearest to the Holy Mosque there are some grouped traditional buildings. These areas are close to the Holy Mosque and still survive although they may need an urgent conservation order.

For buildings located on major roads only, the traditional building types are even fewer than expected (16.7 per cent), in contrast to the modern flat buildings which are 55.3 per cent. It is therefore clear that the majority of buildings along major roads are

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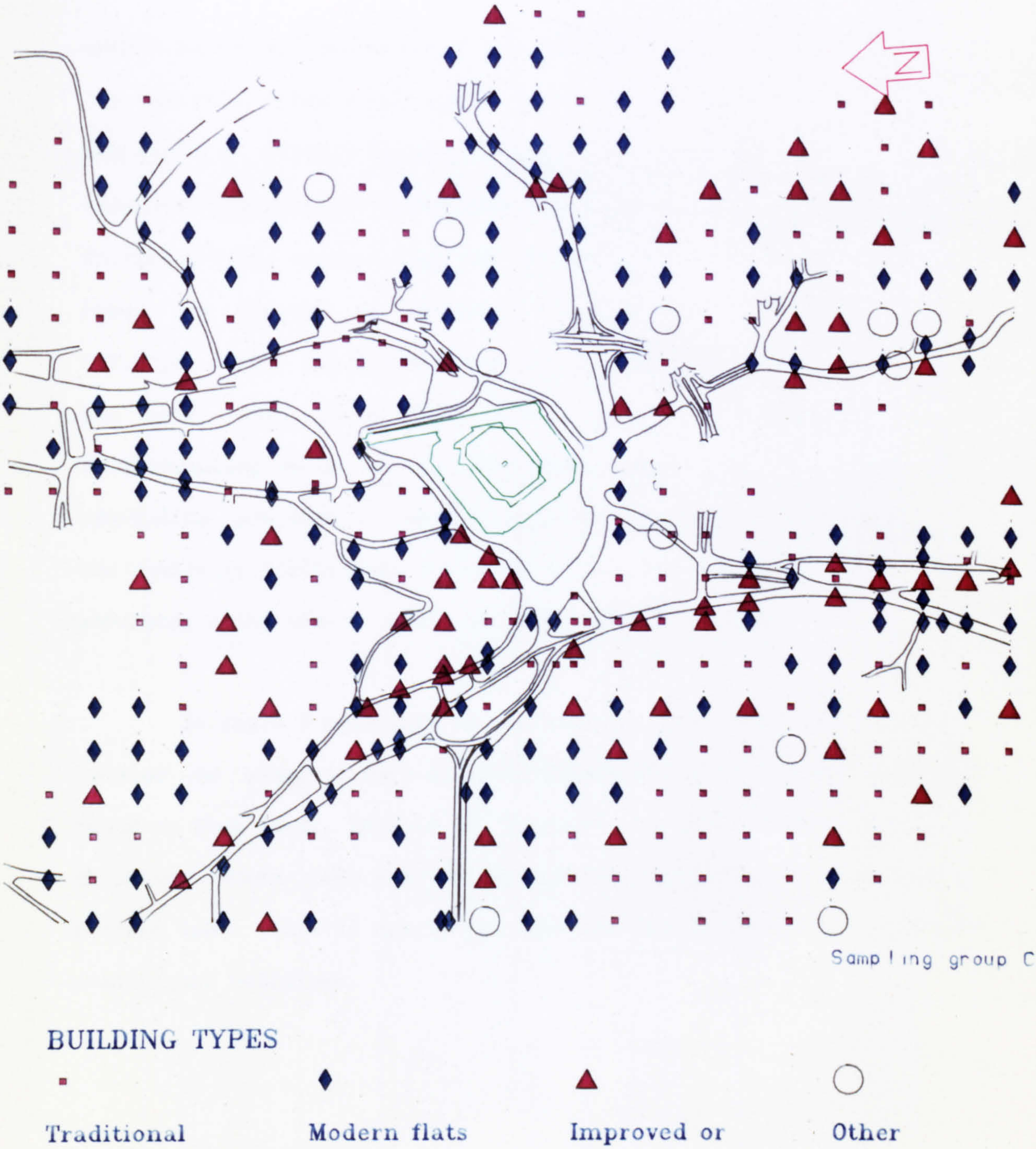
[1] Selection group: C.

MAP No. 16 : BUILDING TYPES



BUILDING TYPES

Traditional

Modern flats

Improved or extended traditional

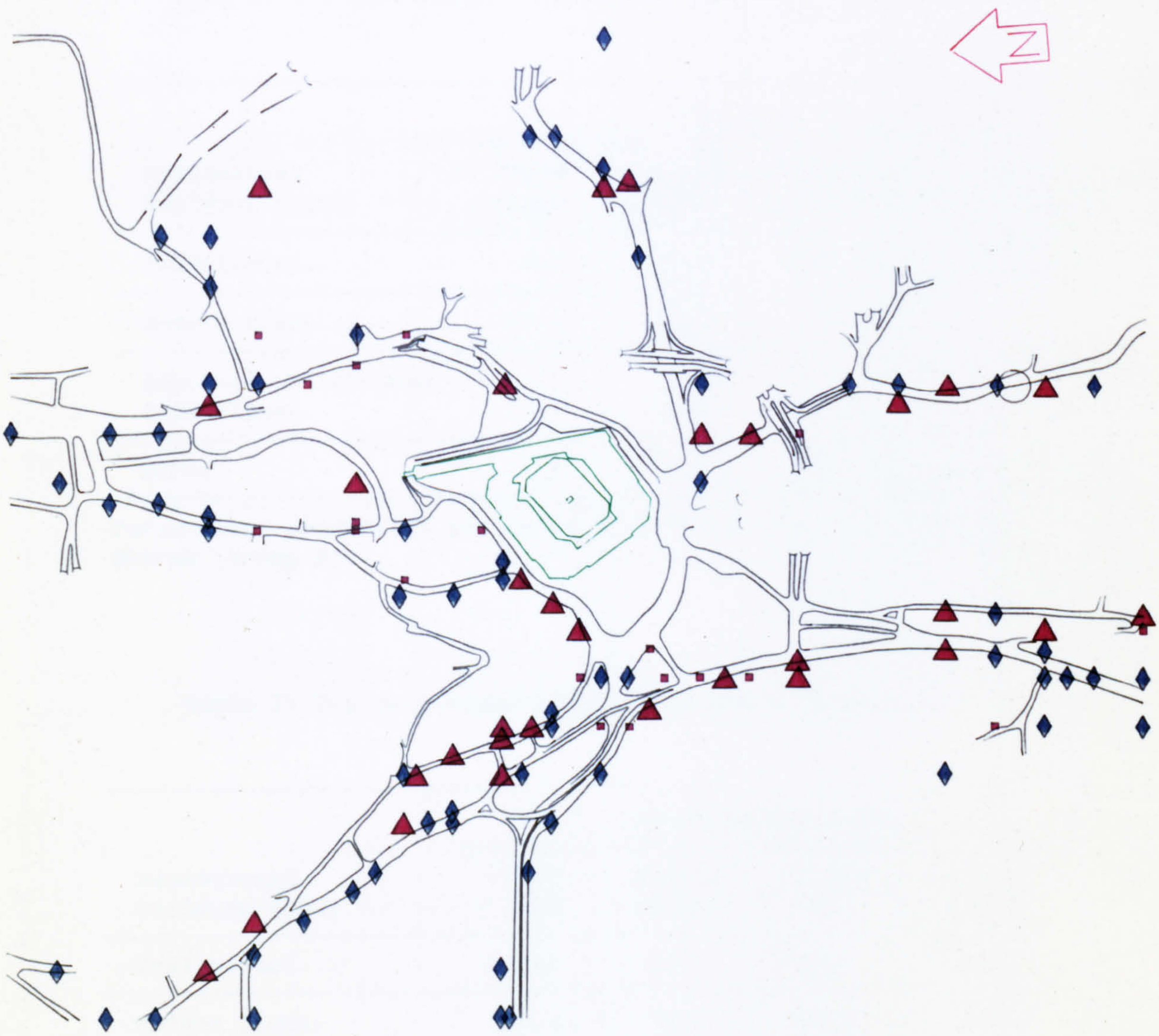
Other

0 200 400 600 m

modern flats, and hence any visitor will not get the impression of the beautiful traditional Makkan houses at all. This is confirmed by two factors. Firstly in map 17 when cases along major roads were selected, the dominant types were apartment buildings. Secondly, the following table reveals that the majority of traditional building types are located on footpaths (50.4 per cent) or on access roads (25.9 per cent), and the minority are situated on major roads (8.6 per cent) (see table 2). Under these circumstances an obvious recommendation would be to encourage rehabilitation rather than rebuilding projects in the old city, and to preserve and protect all the remaining traditional buildings along major roads and, as far as possible, along access roads, footpaths and stairways.

In table 3 more than 55 per cent of traditional buildings are located on steep or very steep hillsides while only 17 per cent are found in flat land. This is in contrast to the modern apartment buildings where more than 66 per cent are located on flat or gentle sloping land. This is nearly the same for the improved or extended traditional buildings.

MAP No. 17 : BUILDING TYPES ALONG MAJOR ROADS



BUILDING TYPES

Traditional	Modern flats	Improved or extended traditional	Other

0 200 400 600 m

Table 2: The percentage of building types along road types

Residential building types	Road types: Major road	Access road	Footpath	Other
Traditional.	8.6	25.9	50.4	15.1
Modern flats.	27.4	32.2	30.1	10.3
Improved or Extended traditional.	25.9	32.8	39.7	1.7
Other.	.0	30.0	50.0	20.0

Percentages calculated for cases selected by the grid sampling system (group A).

Table 3: The percentage of building types by location

Residential building types	Building location: Flat land	Gentle slope	Steep hill	Very steep
Traditional.	17.0	23.7	32.6	23.0
Modern flats.	32.4	34.5	24.1	9.0
Improved or Extended traditional.	35.7	26.8	26.8	10.7
Other.	20.0	20.0	20.0	40.0

Percentages calculated for cases selected by the grid sampling system only (group A).

5.6 YEAR OF CONSTRUCTION

From the barchart showing the year of construction[1] (figure 20) we can see that for cases of group A (grid sampling system) seventy four per cent of the buildings were built within the past thirty years i.e. after 1955. Along major roads this percentage was slightly less (sixty four percent). One would expect that in such an old city the majority of buildings would be ancient and of special historic importance. However, this is not the case for two reasons, firstly because of renewal and secondly because of the large demolition projects undertaken during the enlargement of the Holy Mosque and major streets.

By comparing both barcharts (figure 20) we notice that the slope of the lower barchart is more gradual than the upper one, indicating that along major roads the percentage of buildings of various ages is more gradual. But in general for the central districts there is a clear jump as we can distinguish from the upper barchart that after 1955 the percentage of buildings rose sharply. This can be related to the rapid growth of the city after cement and cement bricks were introduced as the main building materials. The

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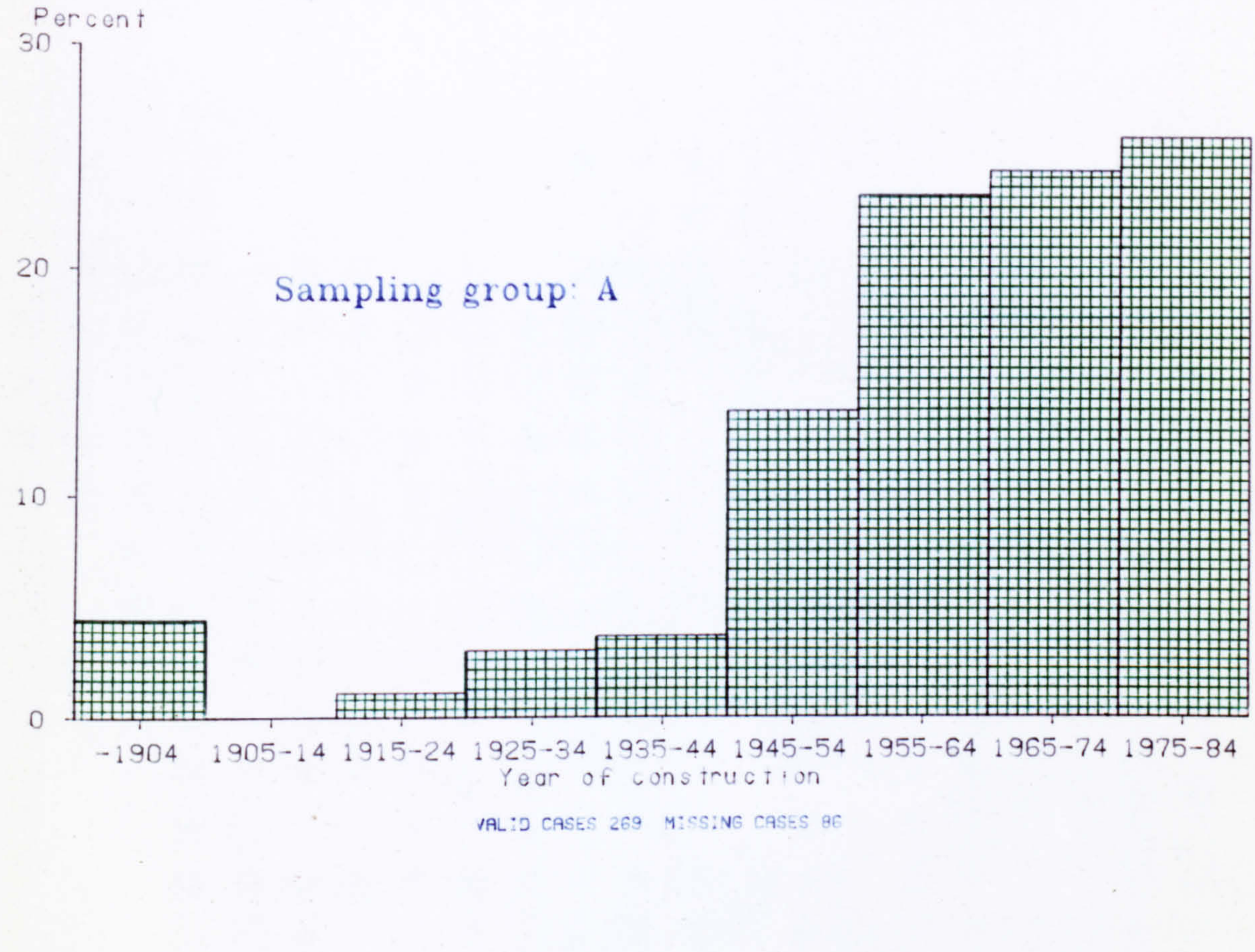
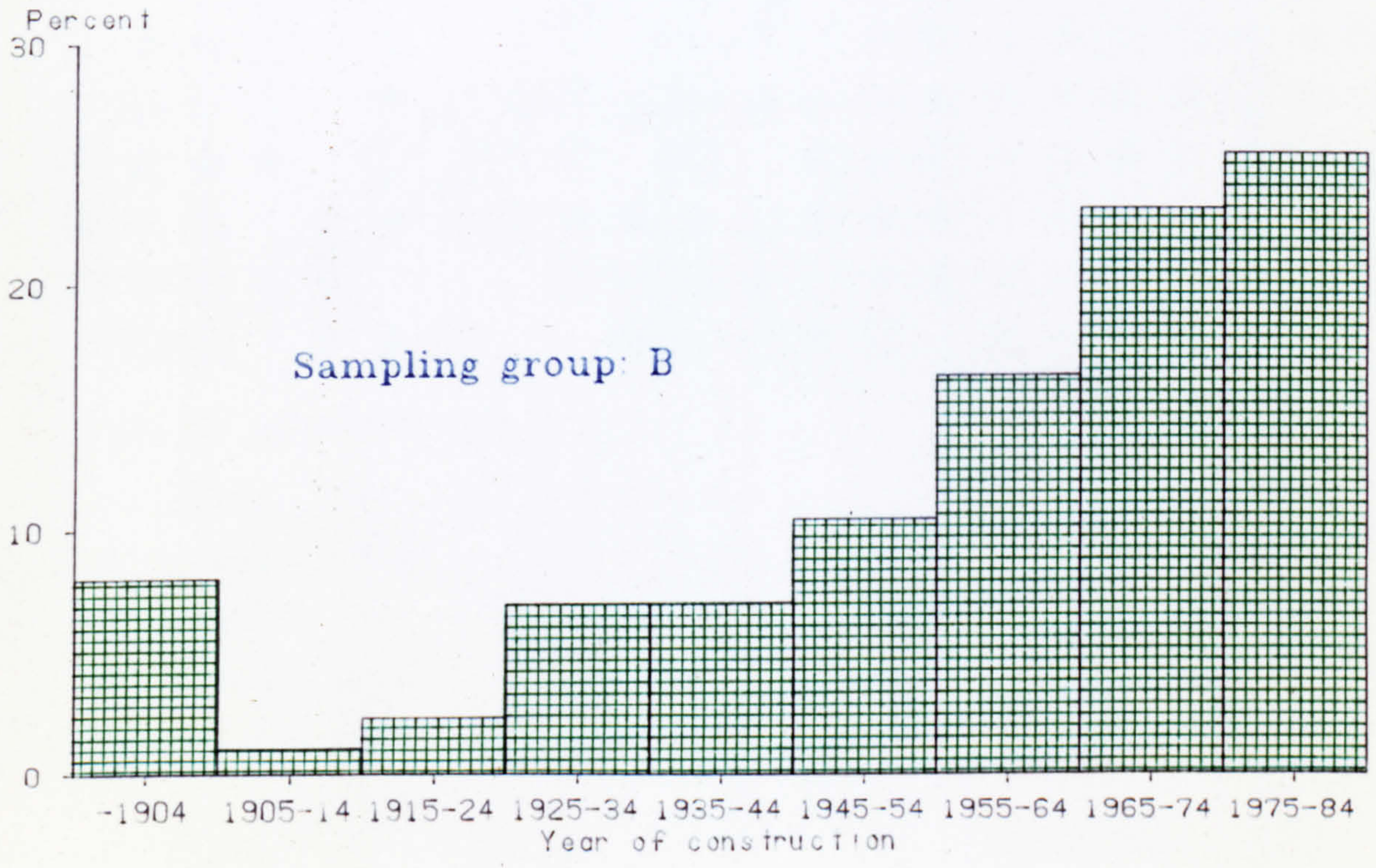
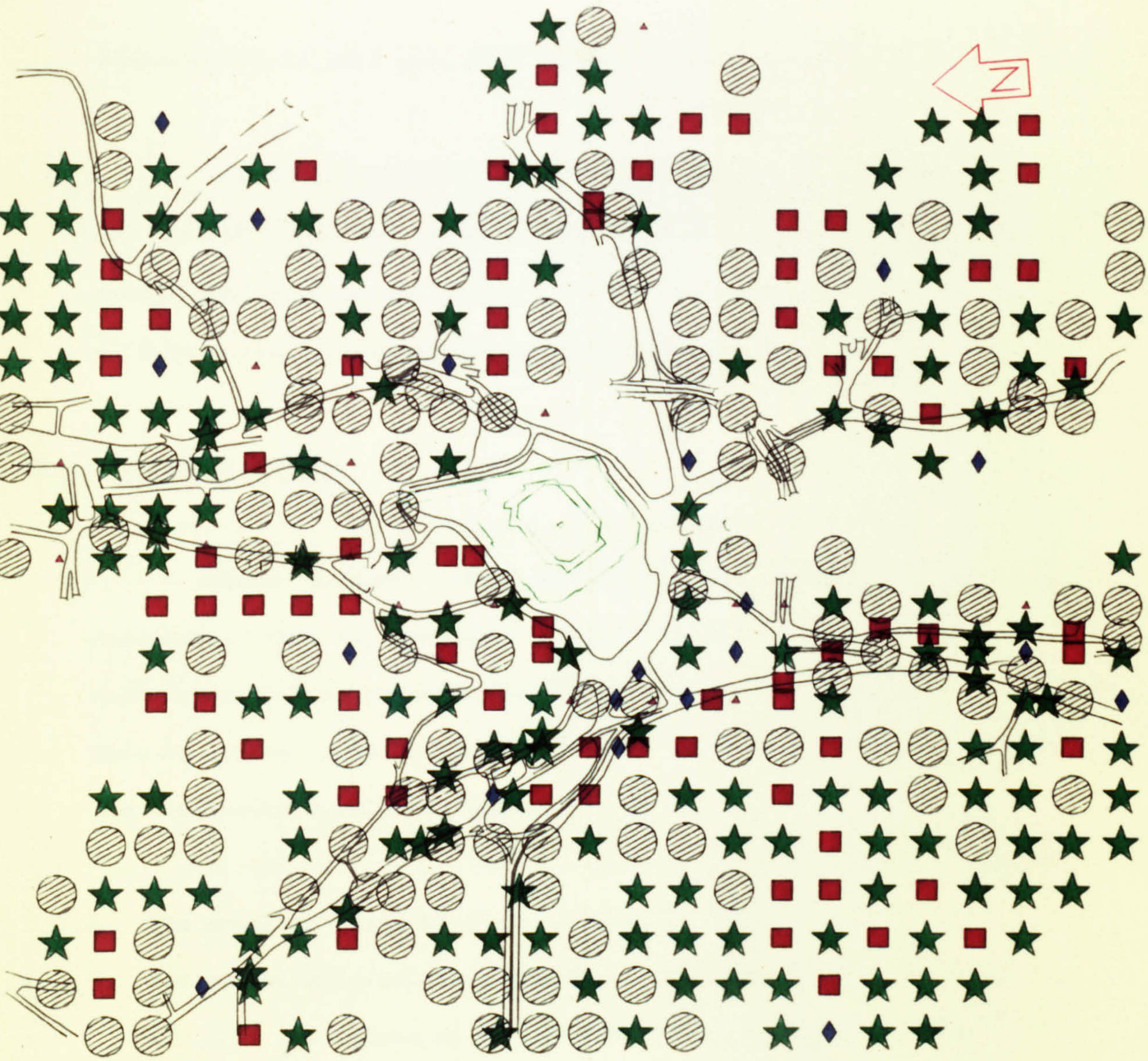
[1] Buildings were grouped in nine groups. We can see that each group consists of buildings constructed during a period of ten years. The year the survey was taken was placed at the top from which ten year intervals were calculated in descending order. The last group consists of any building constructed before that date.

Figure 20 : YEAR OF CONSTRUCTION





MAP No. 18 : YEAR OF CONSTRUCTION



Sampling group C

Year of construction

- ▲ Until 1944
- ♦ 1945 - 1954
- ■ 1955 - 1964
- ★ 1965 - 1974
- ◍ 1975 - 1984

0 200 400 600 m

distribution of such buildings is quite clear in map[1] 18.

The median year of construction consists of the houses built in 1965-74 and the mode consists of the houses built in 1975-84, confirming the previous result. If this trend continues the old city of Makkah will disappear and be superceded by apartment buildings.

5.7 BUILDING HEIGHT

Since ancient times Makkah has been known for its high buildings. When Al- Maqaddasi described houses in Makkah in the tenth century A.D. he said that they were several storeys high[2]. This is common in all city centres but it is distinguishable here for the whole city mainly for the following reasons:

1. The great shortage of flat residential land.
2. For social and religious reasons, the majority of people prefer to live as close as possible to the Holy Mosque in search of a more spiritual environment.
3. The pilgrims' increasing need for accommodation.

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[1] Since the drawing of more than five distinguishable symbols is not possible in such a full map, the latest four groups of buildings age were drawn as they are and the other five groups were grouped again in one.

[2] See quotation at the beginning of Chapter two.

Because of the above mentioned reasons it is difficult to find any of the famous Arab courtyard houses in Makkah. Vertical expansion was the normal solution under these conditions. The median and the mode for the number of floors is three. They are very close to the mean which is 3.17[1] floors. These close figures enable a reasonable assumption for the average to be three floors. In the stratified analysis for buildings along major roads the mean was higher (4.4 floors). The maximum number of floors is twelve and the minimum is one, this is a range of eleven floors.

In map 19 the northern part reveals a greater number of highrise buildings. It is also clear that they are on or very close to the major roads. Finally, twenty per cent of the buildings have five or more floors and the maximum number of floors is twelve. This also confirms previous evidence that Makkah is characterized by its high buildings.

5.8 OWNERS' ATTITUDE TOWARDS THE BUILDING HEIGHT

Because of the high cost of land and the shortage of flat residential land in the central districts of Makkah, residents and officials have different attitudes towards this issue. Some people want to build higher than twenty floors but the Municipality says that the existing infrastructure network cannot cope with such a

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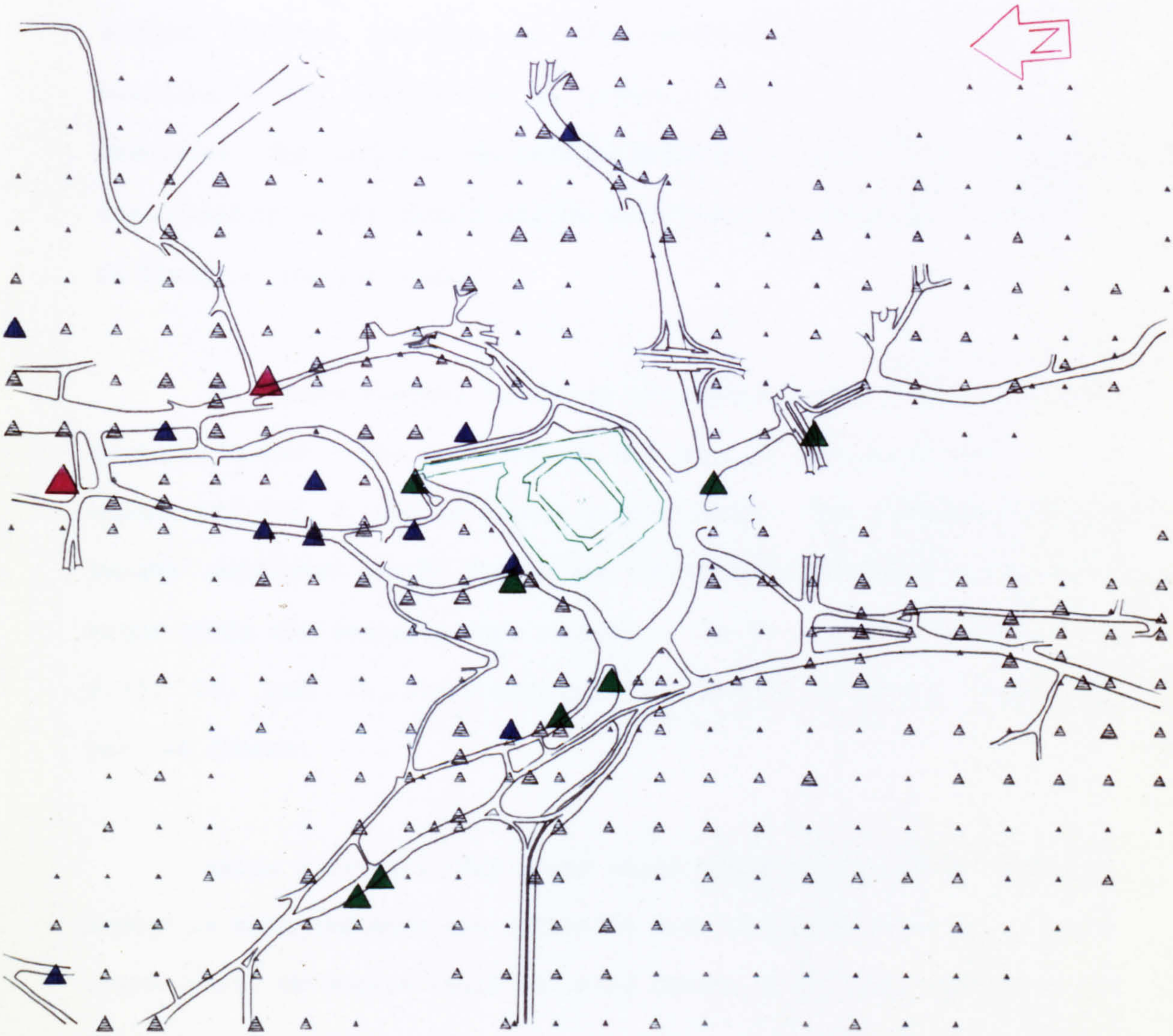
[1] The standard error is 0.097.

MAP No. 19 : NUMBER OF FLOORS PER BUILDING



Sampling group C

Number of floors per building

- 11 +
- 9 - 10
- 7 - 8
- 5 - 6
- 3 - 4
- 1 - 2

0 200 400 600 m

sudden, extreme increase in the number of dwellings. The maximum building height regulation at present is defined by a special condition set out for the central districts. The condition is that the building height should not be more than the width of the street in front of the building.

For these reasons landlords were asked about their preferred building height. The mean, median and mode of the preferred building height are 5.5, 4, and 10 floors respectively. The maximum building height mentioned was 22 floors and the minimum was one floor. Along major roads the averages were higher as the mean, median and mode are 8.77, 10, and 10 floors respectively, and in this case the minimum was two floors.

Table 4 reveals that along major roads the building height is higher in both the existing situation and the preferred one. People there want to double their building height which means doubling the density and consequently the services and facilities. This preference is shown in map 20 as the building height preference along major roads is noticeable, while in other parts it is very low. By comparing this map with map 19 in Chapter five, we can see how high the triangles are in the preferred, rather than the existing building height. Finally, this preference is not unusual as people are expected to prefer increasing their wealth by renting during Hajj or annually, and since this is nearly guaranteed as there is a great demand during Hajj. The Municipality's regulation not to allow the

MAP No. 20 : PREFERRED NUMBER OF FLOORS PER BUILDING



Preferred number of floors

▲ 11 +

▲ 9 - 10

▲ 7 - 8

▲ 5 - 6

▲ 3 - 4

▲ 1 - 2

0 200 400 600 m

Table 4: Building height averages

	Mean	Median	Mode
Existing building height (group A)	3.17	3	3
Preferred building height (group A)	5.50	4	10
Existing building height (group B)	4.42	4	3
Preferred building height (group B)	8.77	10	10

Group A = Grid Sampling selection.
Group B = Along major roads only.

building height to exceed the street width seems reasonable if this does not affect the quality and quantity of services and facilities, and if the traditional environment is maintained.

5.9 NUMBER OF DWELLINGS PER BUILDING AND THE PERCENTAGE OF VACANCY

From the evidence of the main survey carried out in 1984 the maximum number of dwellings in each building was ninety six, with a very high standard deviation (10.4 dwellings) and range (95 dwellings). This shows the great contrast in building size, height and densities. In this case the mean of the number of dwellings in each building is 5.58 while the median and the mode is 3. The standard error is 0.541. In map 21 we can see that around major streets the number of dwellings per building is greater than in other areas. This is confirmed by the mean of the number of dwellings per building along major roads which is 6.587. Along major roads the median and the mode is 4 dwellings, which is higher than the previous

result. In this case the standard error is 0.639.

The percentage of vacant dwellings in the central area is 29.05 per cent (slightly higher along major roads, 34.4 per cent). This percentage is high but it is far less than the figure mentioned in the Dar Al-Handasah consultants' preliminary report in June 1983 where "The Master Plan Report, 1973 (1393 H) indicated that 50 - 70 per cent of accommodation is not occupied during non-Hajj times, although the basis for this estimate, and whether it refers only to the Haram area is not clear[1].

To highlight this result clearly figure 21 and two maps were drawn. The first map (map 22) shows the distribution of the number of vacant dwellings only per building. The second (map 23) shows the percentage of vacancies per building. For this reason a pie chart was drawn for each building showing the total number of dwellings in that building in dark shading and the number of vacant dwellings in light shading. It is very clear that the high percentage of vacancy is concentrated in the centre of the map and along major roads.

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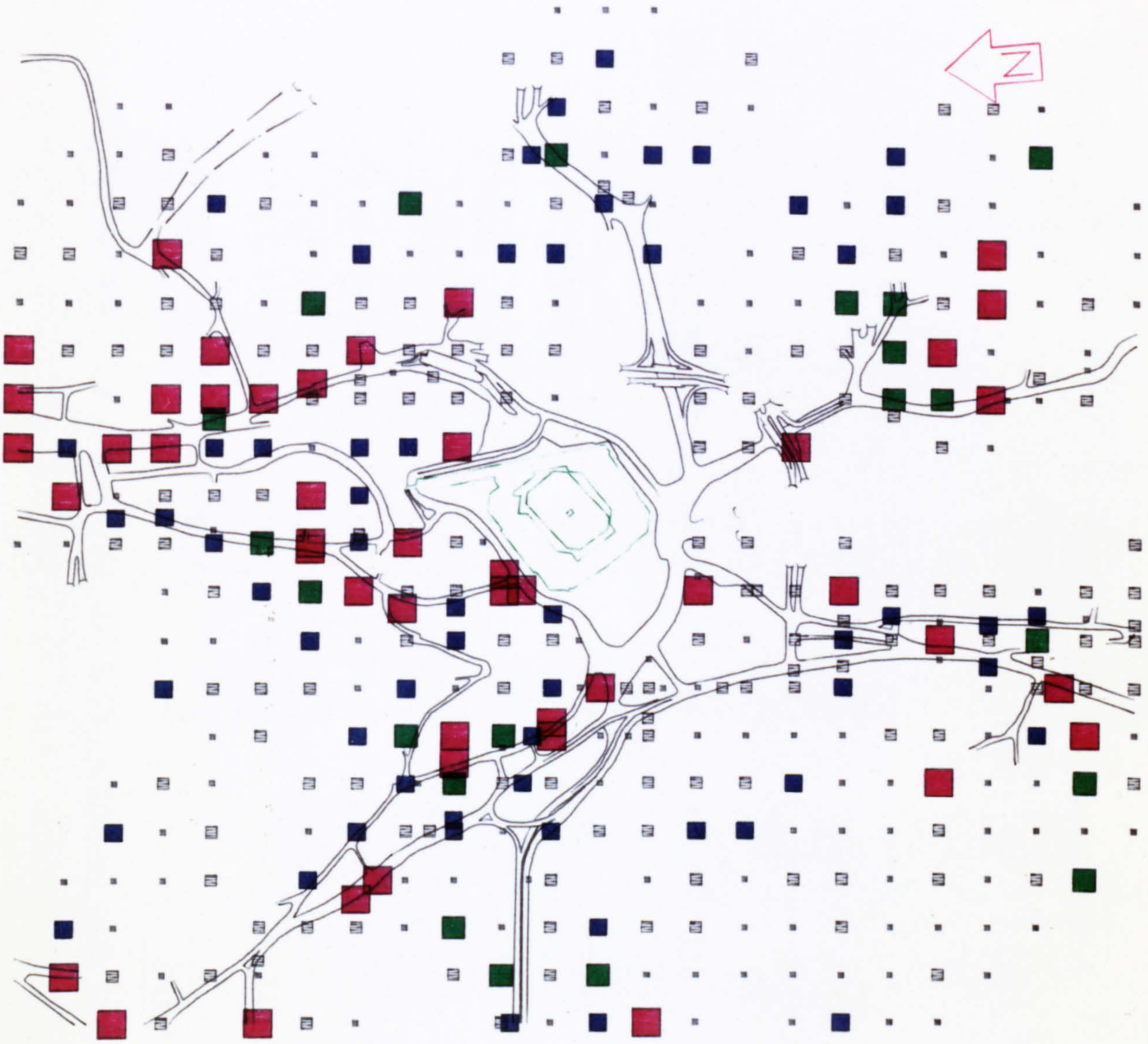
[1] Dar Al-Handasah Consultants Preliminary Report. 1983. Op cit. pp:98-99.

MAP No. 21 : NUMBER OF DWELLINGS PER BUILDING

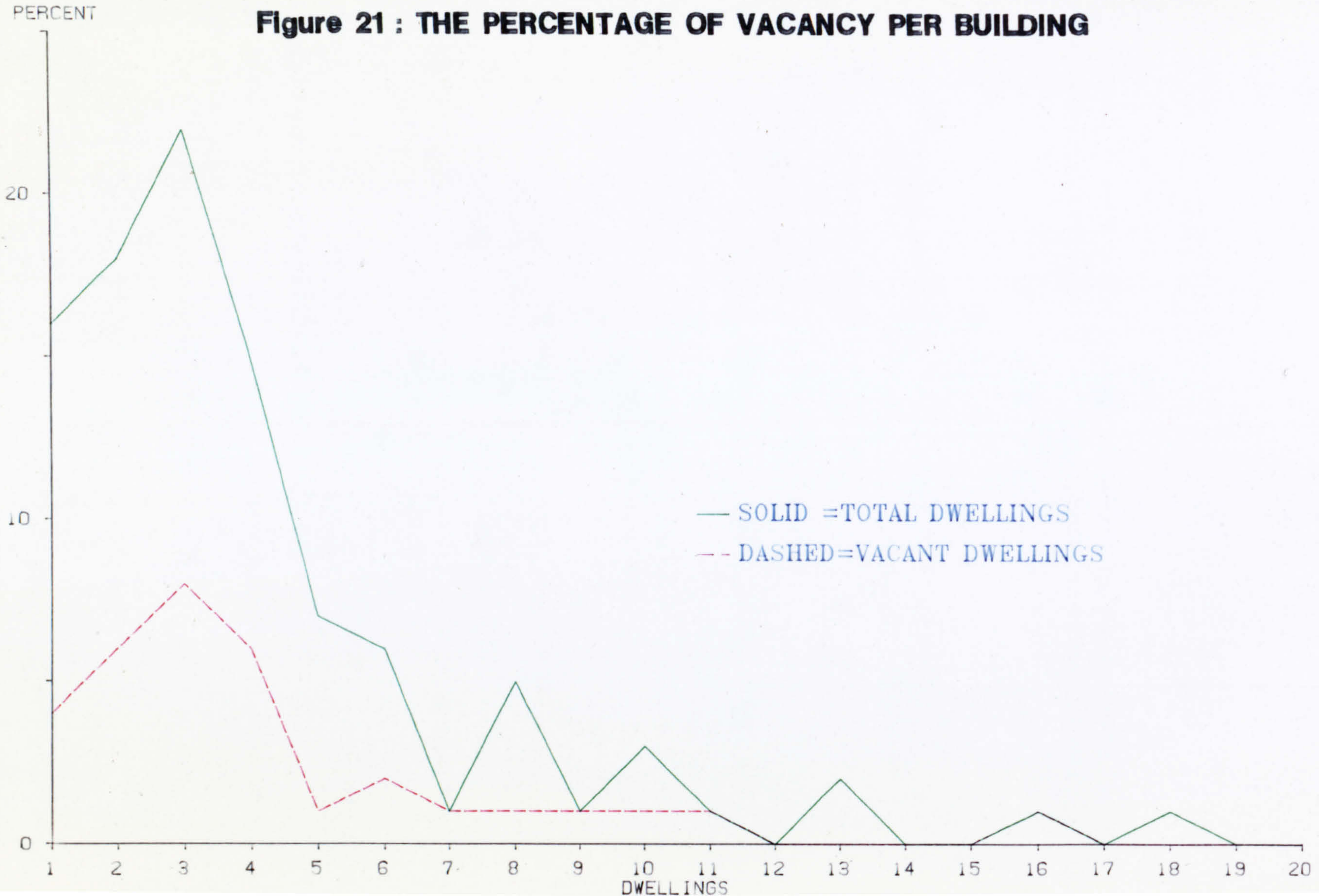


Number of dwellings per building

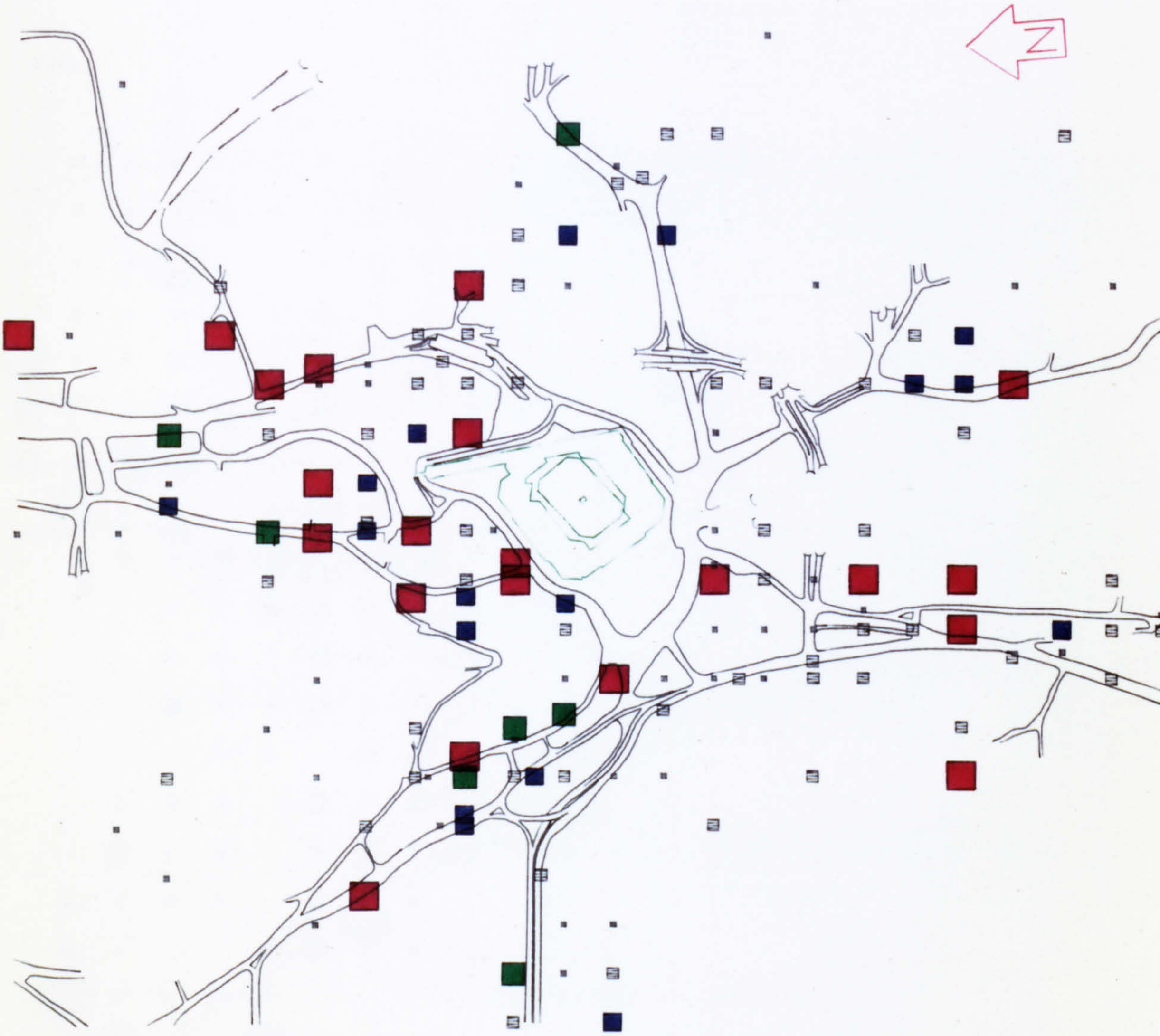
- 9 +
- 7 - 8
- 5 - 6
- 3 - 4
- 1 - 2

0 200 400 600 m

Figure 21 : THE PERCENTAGE OF VACANCY PER BUILDING



MAP No. 22 : NUMBER OF VACANT DWELLINGS PER BUILDING

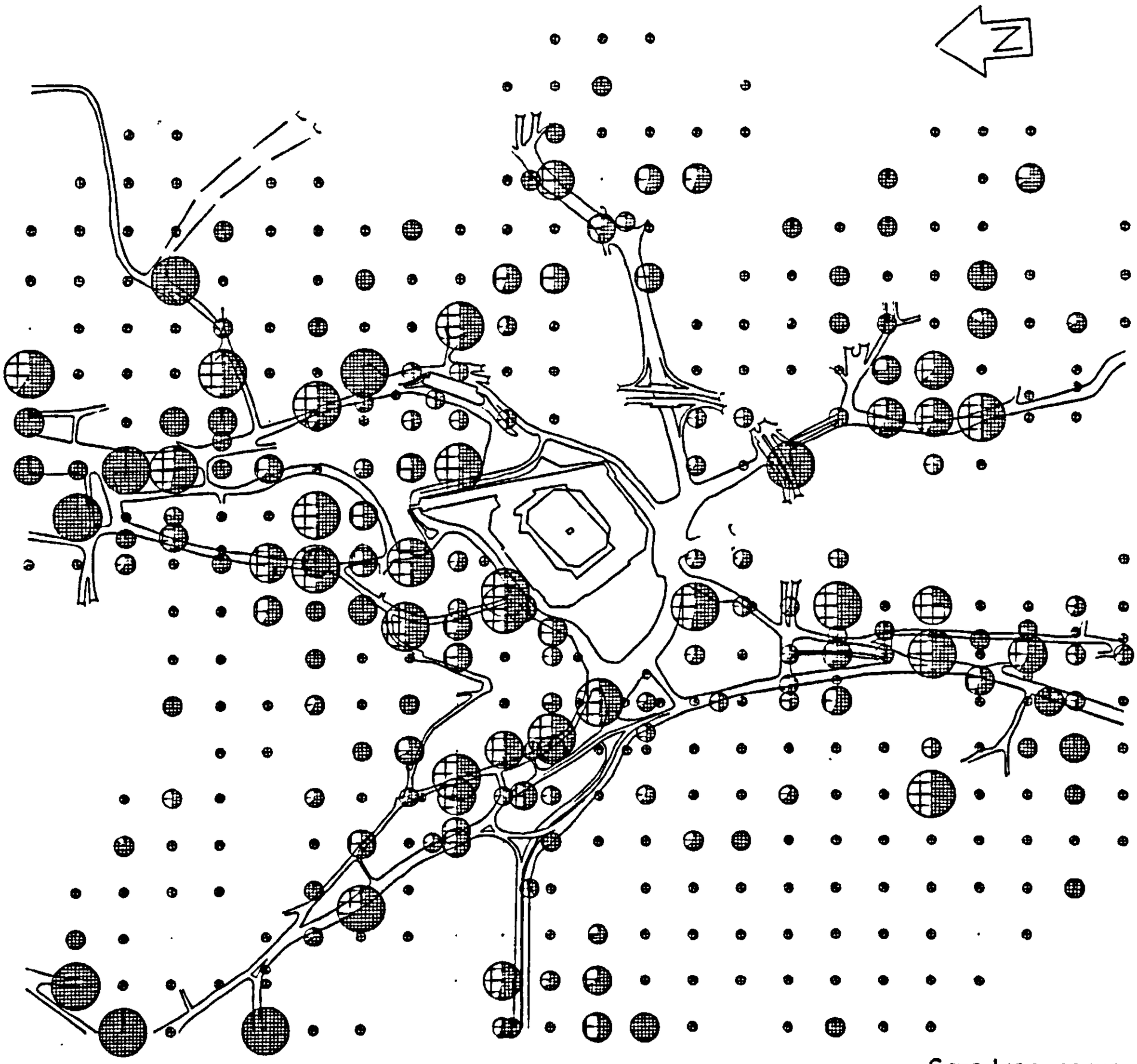


Number of vacant dwellings per building

- 9 +
- 7 - 8
- 5 - 6
- 3 - 4
- 1 - 2

0 200 400 600 m

MAP No. 23 . THE PERCENTAGE OF VACANCY PER BUILDING



Total number of dwellings

- 17 +
- 13 – 16
- 9 – 12
- 5 – 8
- 1 – 4

Shading

- Number of dwellings.
- Number of vacant dwellings.

0 200 400 600 m

5.10 NUMBER OF ROOMS PER DWELLING

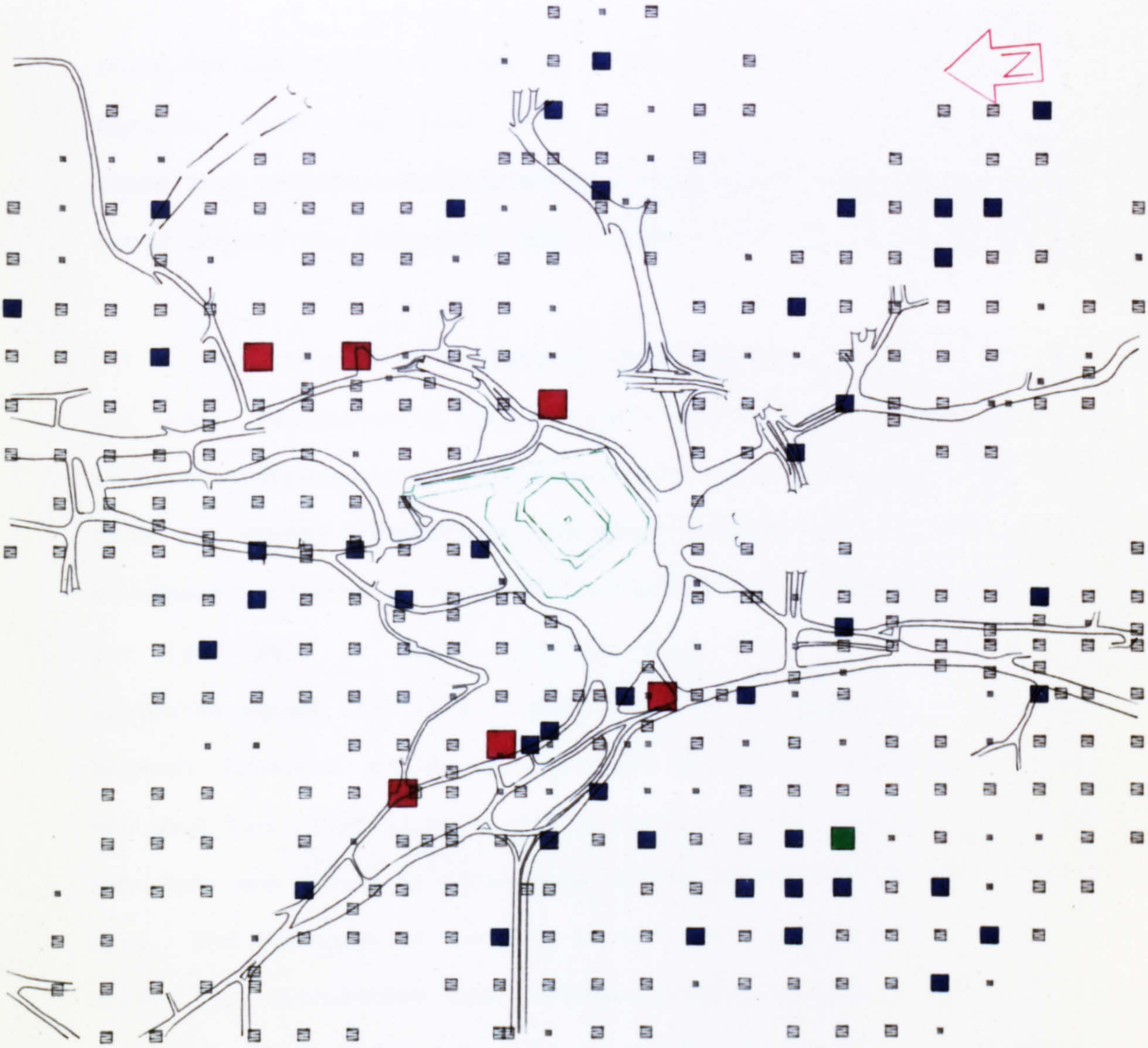
Most dwellings have about three rooms because the mean, median and mode for the number of rooms in each dwelling are 3.6, 3, 3 rooms respectively. The maximum number of rooms per dwelling is eleven and the minimum is one with a range of ten rooms. The standard error is 0.113. In map 24 we can see that only four buildings have nine rooms or more per building and the dominant symbol is that of category two i.e. three to four rooms per dwelling.

5.11 OCCUPANTS' ATTITUDE TOWARDS ALL YEAR ROUND OCCUPATION

The occupants' attitude to all year round occupation of buildings in the central districts of Makkah is considered important for housing planning policies in the future. It will indicate to the decision makers the real feelings of the residents. People were asked about nine elements which can affect, either positively or negatively, the percentage of vacancy in that area.

The percentage of occupants who agreed that all year round occupation of buildings would increase and strengthen social relationships was 89.8 per cent, while 2.2 per cent answered negatively, as we can see in figure 22. Also 87.3 per cent said that this would increase peace and tranquillity (personal satisfaction). On the third point, 88.4 per cent of the occupants said that all year

MAP No. 24 : NUMBER OF ROOMS PER DWELLING



Number of rooms per dwelling

- 9 +
- 7 - 8
- 5 - 6
- 3 - 4
- 1 - 2

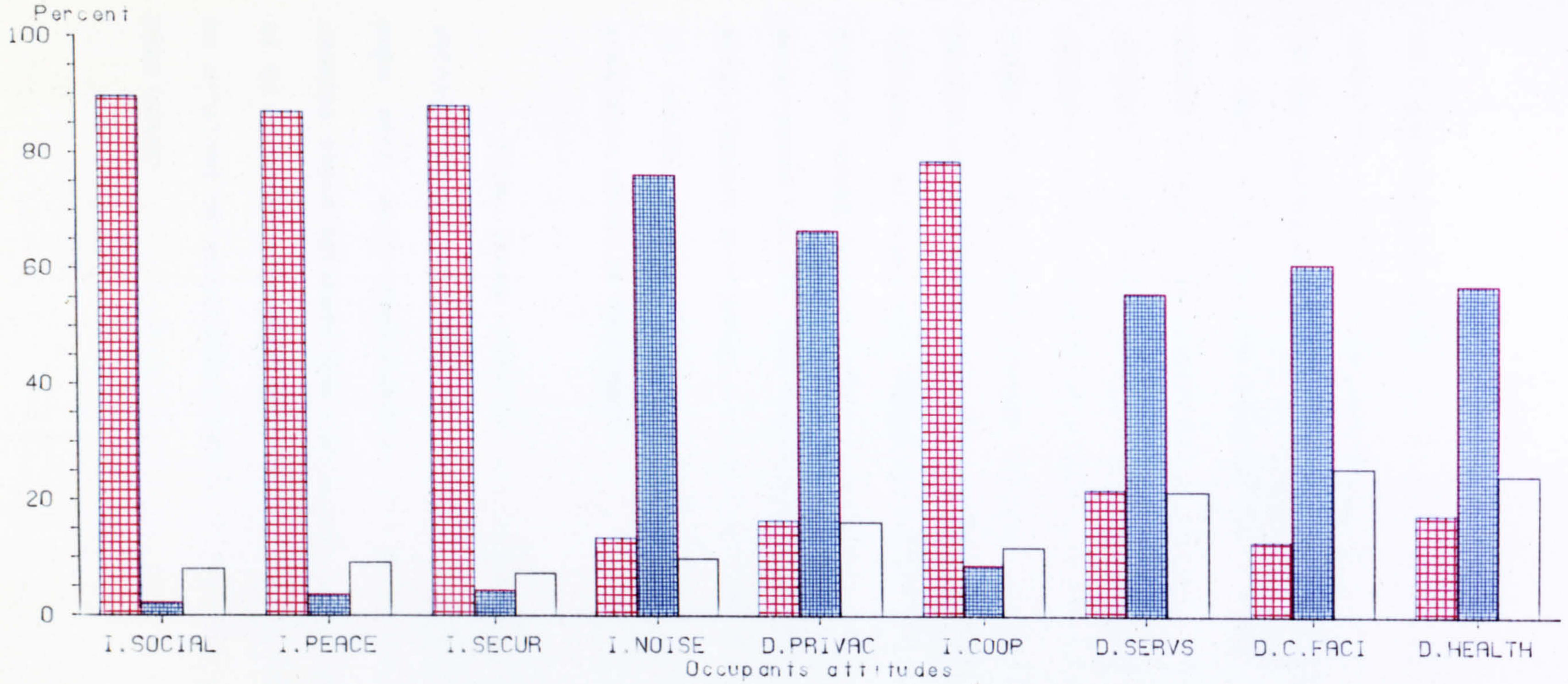
0 200 400 600 m

round occupation of buildings would increase feelings of security, because vacant dwellings could encourage vandalism in these areas. These high percentages of agreements reflect how a low vacancy rate could improve the occupants' social life.

The occupants' attitude to the noise was also in favour of all year occupation as 76.5 per cent said that the low vacancy rate would not increase noise levels as against 13.6 per cent who said that it would. Concerning personal privacy 67 per cent of the occupants said that it would not decrease their privacy, while 16.7 per cent said it would. On the other hand, 79.2 per cent of the occupants agreed that if all dwellings were occupied, cooperation between families would be increased; this was against 8.9 per cent who said that it would not. All of these social aspects are very important and should be considered before making any decision in this area. The expansion of the road network and improvement projects to solve the circulation and movement problem (which is not the only problem in Hajj) did not consider the structure of the neighbourhoods nor the social life of the occupants. The cultural idea of the neighbourhood and its social function play a great role in social stability and the people's way of life.

When the occupants were asked about the services to the buildings, 21.7 per cent said that if all dwellings were occupied all year round, electricity, water, telephone and sewerage services would not meet the requirements of all the residents. This was against

Figure 22 : OCCUPANTS ATTITUDE TOWARDS ALL YEAR ROUND OCCUPATION



Yes.

No.

Do not know

I.SOCIAL= Increase social relationships.

I.PEACE = Increase the feeling of peace.

I.SECURE= Increase the feeling of security.

I.NOISE = Increase the noise level.

D.PRIVAC= Decrease privacy.

I.COOP = Increase cooperation.

D.SERVS = Decrease building services.

D.C.FACI= Decrease community facilities.

D.HEALTH= Decrease public health.

56.2 per cent who said that the building services would not be affected. Here we may ask about the capacity of the infrastructure in the central districts, and whether it is designed to be sufficient in Hajj time for the pilgrims. It is the writer's opinion that it should be more than enough for all of the residents except for the provision of water, which is the main problem for the city, and probably in the country as a whole. However, when respondents were asked if all year round occupation would decrease the community facilities available, such as schools, clinics, police depots, post offices, 61.3 per cent responded negatively, only 13 per cent saying that it would decrease the facilities. Finally, when respondents were asked if all year round occupation would decrease the level of public health available, 57.5 per cent of the occupants denied that it would, whilst 17.8 per cent said that the level of public health available would be decreased.

From these results and from the expected capacity of the infrastructure and community facilities which are known to be able to cope with Hajj requirements, the writer believes that for economic reasons these services and facilities should be used all year round at an acceptable rate of use rather than in Hajj time only. This may be attained by encouraging people to occupy the central districts all year round.

5.12 OCCUPANTS' ATTITUDE TOWARDS ANNUAL POPULATION DENSITY

When occupants were asked to comment on the population density all year round, except during the Hajj period, in the central districts only 22.7 per cent thought it was high or very high, while 49.7 per cent thought it was medium and 27.5 per cent thought it was low or very low. The high percentage of those who said that the population density was medium could mean two things, either that they are content with the existing annual population density in the central districts of Makkah or that they do not care much about it and have chosen the easiest middle value to satisfy the interviewer. In general, the percentage of respondents who said that the population density is low or very low was higher than those who said that it is high or very high.

5.13 SUMMARY

The old city of Makkah is a typical Muslim city and should continue to be so. Constants must always be maintained during rapid growth and change. The housing situation does not reflect this. This is clear from the mixed environment where no specific character of the majority of haras can be clearly defined. In some streets one can see that this city has a valuable heritage and in others one does not feel that he is in Makkah at all.

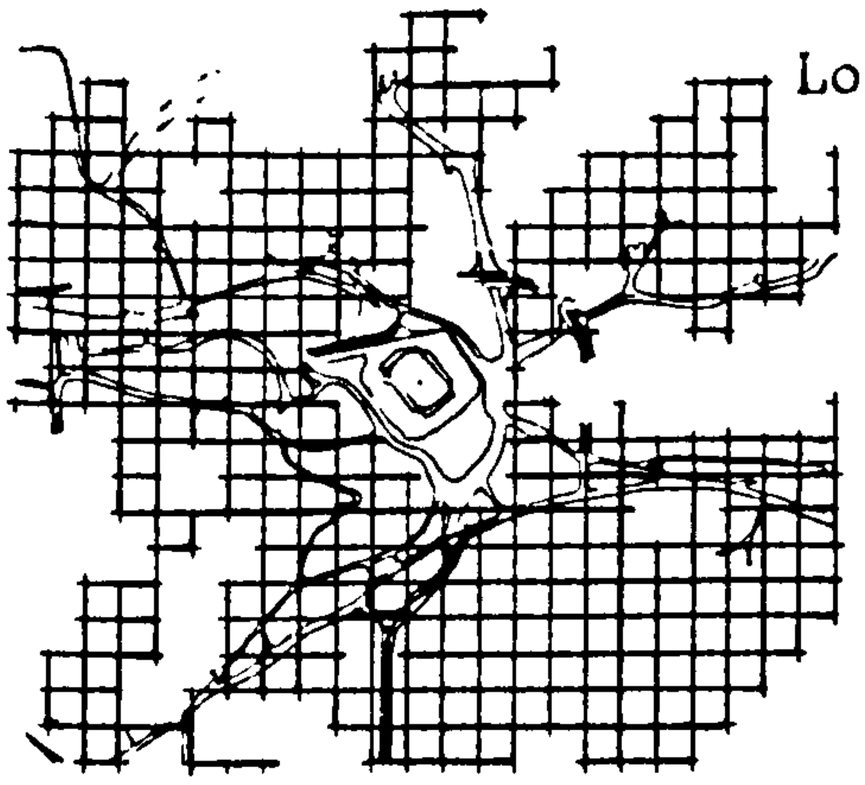
Most traditional buildings are being demolished or renewed and a large number of the improved traditional buildings have lost their character because there are no conservation laws in the Municipality. The magnificent 'rawasheen' are being demolished and replaced by dull walls and small aluminium or wood windows. Very few buildings have been restored successfully and fewer new buildings have been built along traditional lines. The modern apartment buildings are a dominant feature although they do not satisfy the social and climatic conditions.

The boundaries of the haras are not defined and people use some traditional names which are not known by the Municipality. In general traditional buildings account for 37 per cent of buildings while modern apartment buildings represent 42 per cent. Along major roads traditional buildings represent 16.7 per cent and modern apartment buildings represent 55.3 per cent. Most traditional buildings are now located on footpaths and hilly sites. More than seventy per cent of buildings have been built in the last thirty years.

The mean number of floors per building is 3 and along major roads is 4. Occupants' attitude towards the building height is that it should be increased slightly overall and doubled along major roads. The Municipality's regulation not to allow the building height to exceed the street width seems reasonable to avoid the overloading of the existing infrastructure network.

The mean number of dwellings per building is 5 and along major roads is 9. The percentage of vacancy is 29.05 and along major roads is 34.4. The mean number of rooms per dwelling is 3.

Occupants' attitudes and preferences are useful indications for future planning. Residents appear to be very much in favour of all year round occupation in the central districts of Makkah. The majority of respondents said that it would increase and strengthen social relationships, peace and tranquillity, the feeling of security and cooperation between families. The majority also did not think that all year round occupation would increase the noise level or adversely affect the level of privacy, building services, community facilities and the level of public health. These factors give a clear indication of peoples' preference towards decreasing the vacancy rate in the central districts during the whole year except Hajj period. The occupants' attitude towards the annual population density supports the previous statistics as the majority of people thought that the density was medium or low.



CHAPTER 6

THE INFLUENCE OF HAJJ ON RENTS

6.1 Renting during Hajj time for pilgrims
6.2 Hajj letting arrangements
6.3 Annual and Hajj accommodation cost
    6.3.1 The effect of the road hierarchy
    6.3.2 The effect of topography
    6.3.3 The effect of building types
    6.3.4 The effect of the property tenure
    6.3.5 The effect of rental agents
    6.3.6 The effect of demolition:
6.4 Comparison of the annual and Hajj rent value
6.5 Facilitating renting during Hajj
6.6 Summary

CHAPTER SIX

THE INFLUENCE OF HAJJ ON RENTS

Figures reveal that up until 1983 the number of pilgrims (hujjaj[1]) who came to Makkah had been increasing continuously, and that there were 2.5 million pilgrims in that year alone (see figure 11). Since then the number has been decreasing sharply for the first time. This is a result of a deliberate policy by the Saudi authorities, which is aimed at reducing and restricting the number of pilgrims by controlling the numbers of Non-Saudi residents who may perform a repeat Hajj[2].

In 1985 there were 1.2 million pilgrims in a city with a population of some 600,000 inhabitants. For a short period of time Makkah city has to accommodate two to three times its normal population. The above mentioned number of pilgrims in 1985 is nearly twice the normal population of Makkah and they all must be accommodated. It is clear that such a demand in such a small city is critical. As with all other commodities, the cost of accommodation increases as demand increases. This great demand in a short period of time is one of the important elements which affects the cost of

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[1] Hujjaj (plural of hajji):
Those who come to perform Hajj in Makkah.

[2] Bill Morrison. "Makkah: Planning and the pilgrimage city." Recorded lecture given in the centre for Middle Eastern Studies, School of Oriental and African Studies, London, February 1985.

rents.

Another important element in the discussion is proximity, as the pilgrims always require to be near the functional focus, which is the Holy Mosque. This means that there is a greater concentration of pilgrims in the central districts and so the population density, which is another major element affecting rents, is increased. Morrison (1985) said that the densities in the central area close to the Holy Mosque are really very high, a fact which is reflected in the demand for accommodation within walking distance of the Holy Mosque.

Makky (1981) held that:

1. The distance from the Holy Mosque had a significant negative effect on rent per room as well as occupant density.
2. The cost of accommodation was much lower the farther it was from the city centre.
3. Rent per room is also related to type of rental agent chosen by pilgrims.
4. Accommodation quality, occupant density, and frequency of visits by pilgrims to the Holy Mosque are positively related to rent[1].

In the writers' view, theoretically all of these elements such as demand, density, proximity and type of rental agent should

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[1] Ghazy Makky. 1981. Op cit. pp:205,214-215.

increase the accommodation rent value for any commercial use of the properties but these should only marginally affect the rent value for religious or spiritual purposes. Accommodation is one of the basic needs of the pilgrims and they should be looked upon as guests of Allah and hence, for a believer it is an obligation to help the pilgrims perform the Hajj rituals and to provide the basic needs, services, assistance and guidance required. This should be provided free or at a minimal charge and the believer should look forward to being rewarded by Allah in the hereafter.

Abul A'la Maudoodi (1979) said that:

> " Hadrat 'Umar (the second Khalifah for Muslims) had issued an order to the people there (in Makkah) not to fix doors on the compound around their houses so that whoever desires may come and stay in the compound. Some jurists have gone so far as to say that neither has anybody any proprietary right over houses in Mecca nor can these be transferred through inheritance."[1]

For the time being this is not the case and most people do not think of the religious significance as they should; renting accommodation is, for the most part, considered as a purely commercial venture.

In this chapter we are concerned, firstly, with the people who rent accommodation during Hajj, their preferences and also the arrangements made by landlords or tenants for renting their properties during Hajj. The question of how to facilitate the renting of accommodation during the Hajj period is also considered.

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[1] Abul A'la Maudoodi. Fundamentals of Islam. J.K. Offset Printers, Delhi, India. August 1979. p:233.

Finally a comparison between the annual rent value and the value during Hajj in the central districts gives an insight into the important reasons behind the cost of accommodation.

6.1 RENTING DURING HAJJ TIME FOR PILGRIMS

Since the ritual of making a pilgrimage to Makkah was established long ago at the time of the prophet Abraham, peace be upon him, and was re-enacted by the prophet Mohammed, peace be upon him, 1,400 years ago, it is clear that people have been expected to accommodate pilgrims throughout the ages.

The majority of people in the central area of Makkah are willing to let their houses during Hajj for various economic and socio-cultural reasons. Traditionally, accommodation was arranged either privately or via the community. At present there is no government housing for pilgrims and people are still willing to provide accommodation privately, though in recent years this has been under government control. The role of the Ministry of Hajj in this area was to control the quality of the private housing market and to enforce the regulations for safety, health and basic needs. This willingness to rent privately is demonstrated by the percentage of people in the central districts who rent out accommodation. The percentage is 54 per cent of all cases selected in the grid sampling system. For stratified cases, along major roads, the percentage was higher, reaching 75 per cent.

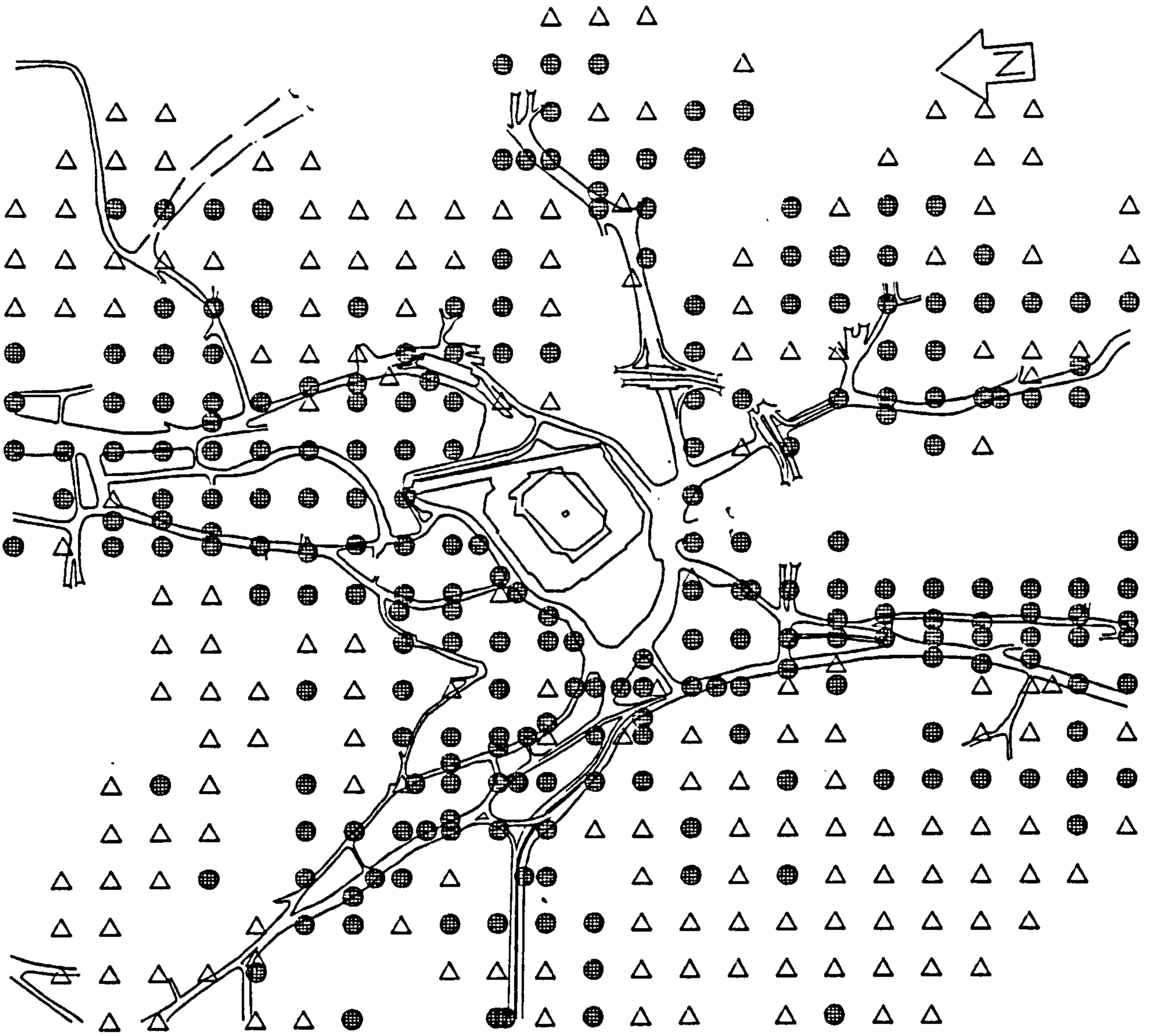
Map 25 reveals that the people living around the Holy Mosque, within a radius of one thousand metres, and those along major roads are those who rent accommodation during Hajj. Also in Ajiyad Al-Sud and Ajiyad Al-Masafi (Zone A and B) there is a greater concentration of rented accommodation during Hajj, mainly because of the dual tunnel (two lanes each) which leads from Zones A and B and gives easy access to the pilgrimage sites via large ring roads. It is also quite normal that on hilly sites the existence of rented accommodation during Hajj is low.

Renting during Hajj time is considered to be the major source of income for low income households and as a secondary source of income for others. The arithmetic mean of Hajj rent value per dwelling (S.R. 18,912.00 see Figure 24) is equivalent to approximately three months government salary for the middle income group.

Morrison(1985) said that something approaching 10 per cent of total household income comes from 'hujjaj'. All of these aspects encourage people to rent their dwellings or buildings during Hajj rather than to participate in the annual rent system.

For their comfort, many landlords prefer to let the whole building for a short period during Hajj. In their view, renting the building as a whole is not only convenient but also will cost less for maintenance, will keep the building tidy and will lengthen its lifespan. This is confirmed by the percentage of landlords who let

MAP No. 25 : RENTED ACCOMMODATION DURING HAJJ



Accommodation

● Rented during Hajj.

△ Not rented during Hajj.

0 200 400 600 m

out accommodation in this way (55 per cent). Sixty four per cent of them prefer to let the property as a whole rather than to let it as separate units (36 per cent) Fifty nine per cent of the tenants re-let their dwelling totally or partially during Hajj, 55 per cent of this group prefer to let their dwelling as a whole rather than as separate rooms.

The people who prefer to let their buildings or dwellings as separate units are those who let their properties to the pilgrims themselves as 85 per cent of the people letting to the pilgrims themselves prefer to let as separate units. But those working as 'mutawifeen'[1] or associated persons would distribute the rooms in each dwelling or building as a separate unit to accommodate 'hujjaj'.

Most of the people who rent property during Hajj tend to let their property in the first place to the 'mutawif' (68 per cent) and in the second place to the pilgrim himself (18 per cent). The 'hamladar[2]' represent only 4 per cent and only one estate agent[3]

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[1] Mutawifeen is plural of mutawif. A 'mutawif' is a person who serves and guides pilgrims. See Chapter three.

[2] Hamladar:
A 'hamladar' is a person who provides all services and guidance to the pilgrims from their own countries until they return. He is generally a national of the country the pilgrim comes from. His services do not include transportation and shelter for Hajj functions because this is the responsibility of the mutawif establishments.

[3] The estate agent's role is to advertise for those willing to rent out accommodation during Hajj. The different tenant types such as 'mutawifeen', 'hamladars', pilgrims and other private types such as the pilgrim's relatives and friends do not rent through an estate agent in order to avoid an extra charge of at least 2.5 per cent which is made by

was found in all cases.

6.2 HAJJ LETTING ARRANGEMENTS

For economic reasons people tend to provide as much space as possible to let to the pilgrims during Hajj. Hence, they tend to vacate their dwellings totally or partially if they are not already vacant all year round. 52 per cent of the people tend to vacate their dwellings partially and live in one part of the dwelling rather than the whole dwelling. The percentage of landlords and tenants who do so are 28.65 and 23.3 per cent respectively (see figure 23). The total percentage of landlords and tenants who vacate their dwellings totally for Hajj is 19 (9.5 per cent each).

An interesting point which arose here was that some tenants do not live in their dwellings; they keep them whilst living elsewhere and re-let them in Hajj time only. Not only tenants but also landlords were found to keep their buildings vacant all year round (see Vacancy Rate in the previous chapter).

Some landlords and tenants live as normal in their accommodation without any special arrangements for letting the property during Hajj. The percentages were 14.3 and 12.7 respectively. These could be landlords who have more space than they need or those people from the high income group or those who have

---

[3](cont'd)the estate agent.

small dwellings which are already too small to accommodate more people.

The same people were asked about their preferred arrangements for Hajj letting and the result was nearly the same:

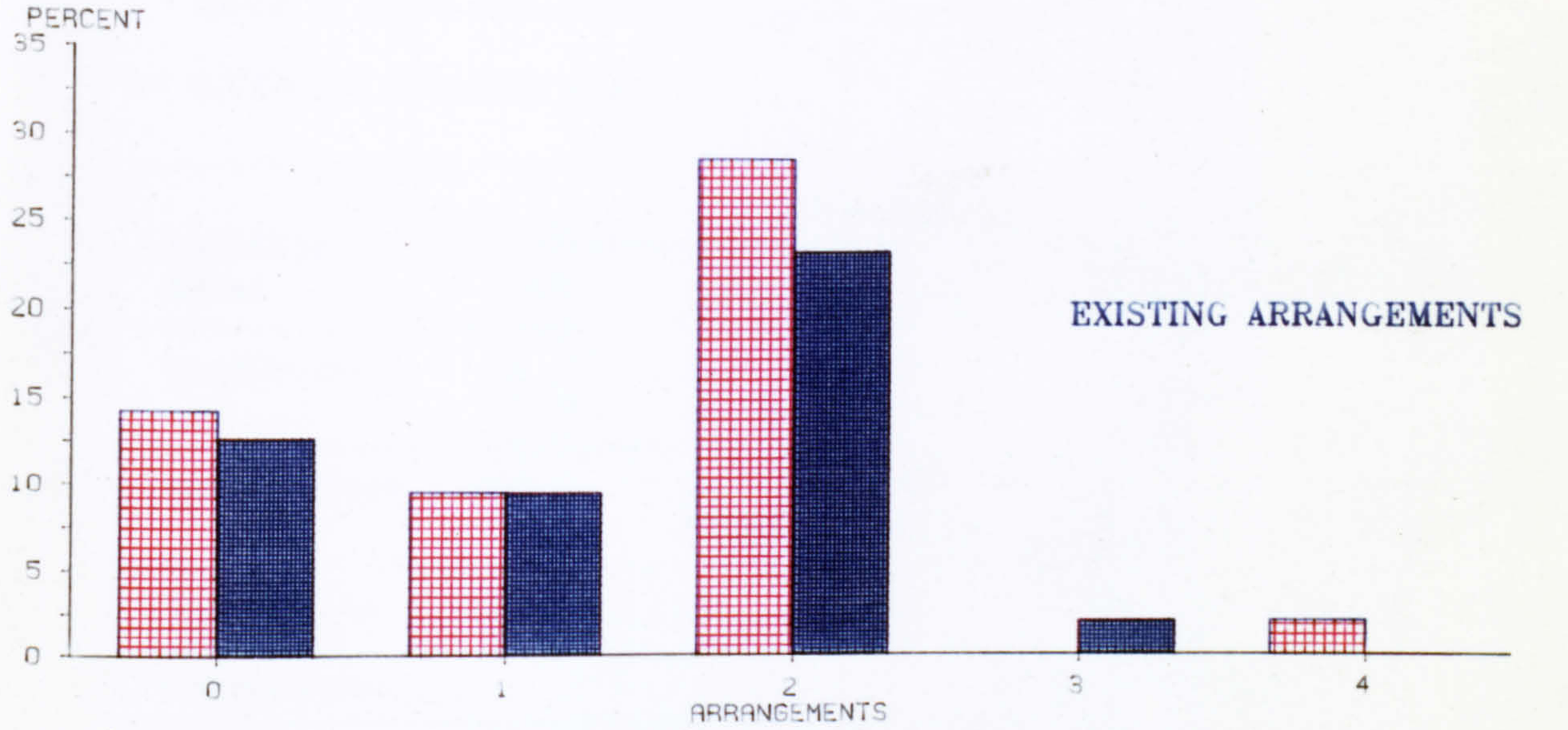
1. Fifty seven per cent preferred to vacate their dwellings partially while living in them.
2. twenty one per cent preferred to live as normal.
3. Nineteen per cent preferred to vacate their dwellings totally and move somewhere else during Hajj time. (see figure 23)

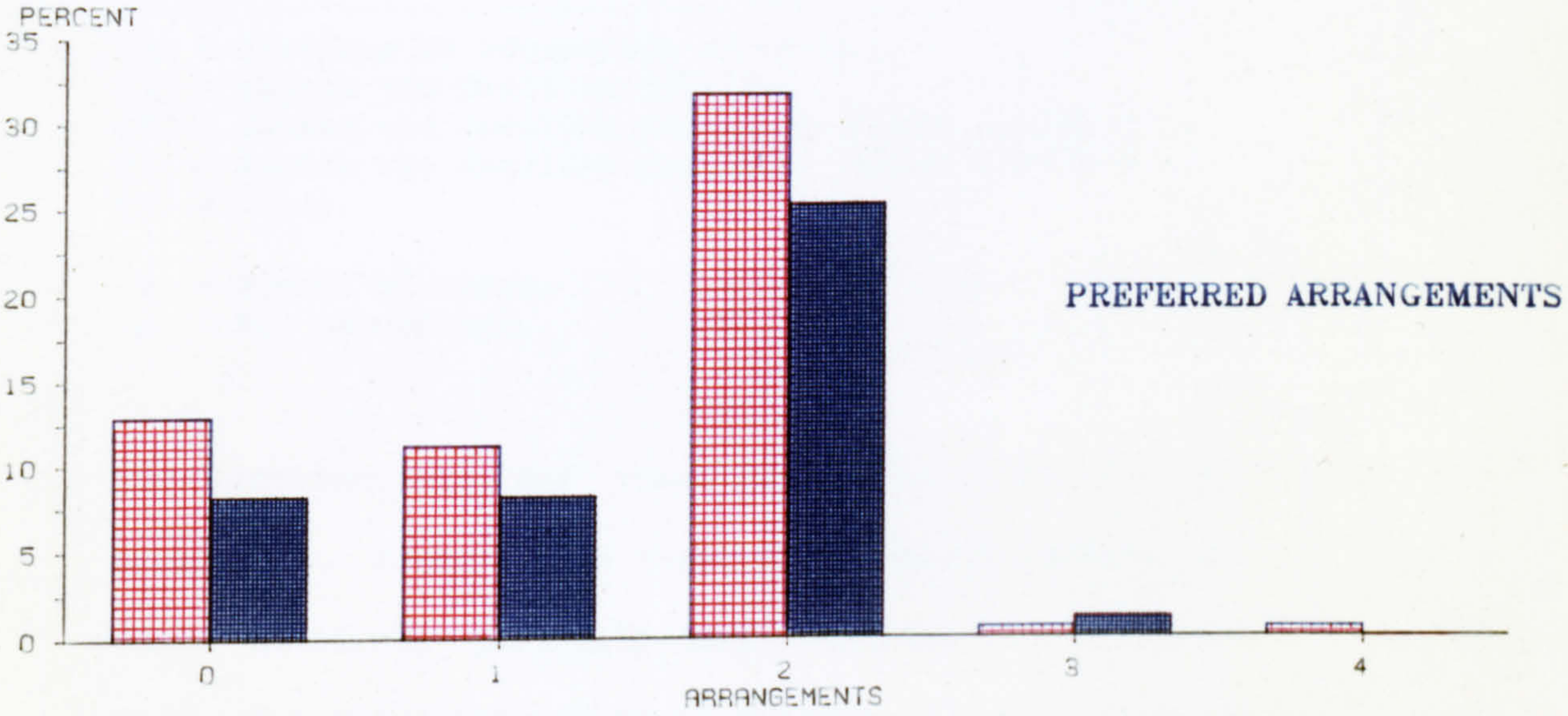
This result means that landlords and annual tenants tend to prefer their present arrangements.

By looking at table 5 we notice that in modern flats and the improved or extended traditional buildings, people are likely to vacate their dwellings partially and continue living in part of them rather than living as normal. In traditional buildings the percentages of these two types of arrangements are similar. Therefore the building design could facilitate letting in Hajj by allowing more flexibility for such arrangements.

When the cases were stratified against road types, it was found that along major roads, people are likely to vacate their dwellings totally (41 per cent) rather than remain in them partially or continue to live in them as normal. The main reason for this is

Figure 23 : ARRANGEMENTS MADE BY LANDLORDS OR TENANTS FOR RENTING THEIR PROPERTIES DURING HAJJ





ARRANGEMENTS:

0 = Continue in occupation normally.
1 = Vacate the dwelling totally.
2 = Vacate the dwelling partially while living in.
3 = Vacate the dwelling partially while living out.
4 = Other.

SHADING :

Landlords.
Tenants.

VALID CASES 189

Table 5: The landlords and tenants arrangements for Hajj letting in different building types.

Building types	Arrangements (1)	(2)	(3)	(4)	(5)	
Traditional	23	12	26	0	0	N
	37.7%	19.7%	42.6%	--	--	R
Modern flats	16	28	60	2	2	
	14.8%	25.9%	55.7%	1.8%	1.8%	
Improved or extended traditional	12	12	22	0	1	
	25.5%	25.5%	46.9%	--	2.1%	
Other	1	0	2	0	0	
	33.3%	--	66.7%	--	--	

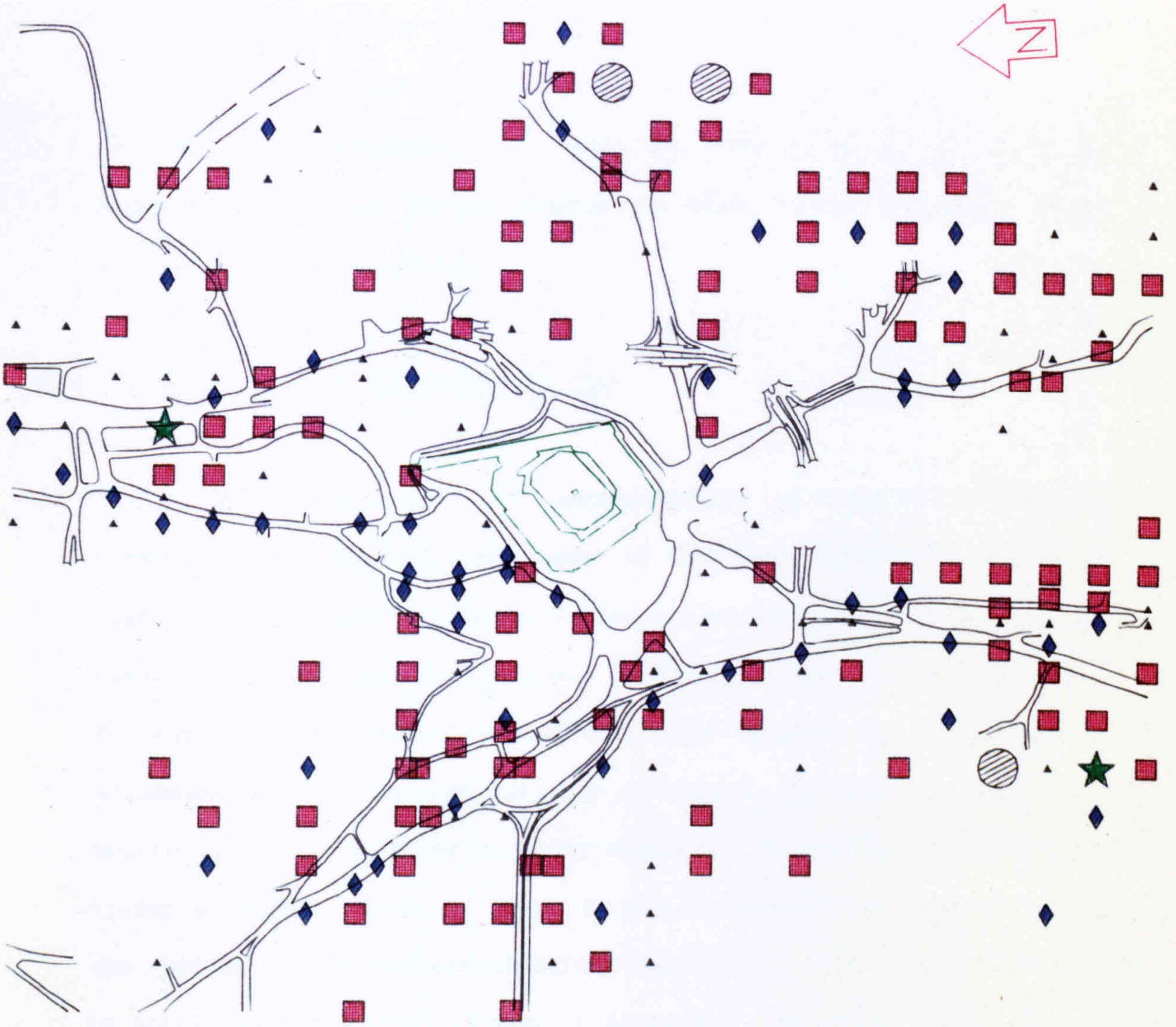
(1) = Continue in occupation as normal.
(2) = Vacate the dwelling totally.
(3) = Vacate the dwelling partially whilst living in.
(4) = Vacate the dwelling partially whilst living out.
(5) = Other.

N = Number of cases.
R = Row percentage.

the profitability for those people who live along major roads (see figure 24). Along access roads and footpaths people tend to vacate their dwellings partially and continue to live in a small part of them. The percentage of those who did so along these two road types were 55 and 54 per cent respectively.

These results are quite clear on map 26, where those who preferred to continue living as normal were mostly slightly farther from the Holy Mosque and major roads. The map shows clearly that the preferred arrangement was to vacate the dwelling partially whilst living in.

MAP No. 26 : ARRANGEMENTS FOR HAJJ RENTING



Sampling group C

Arrangements

- Continue in occupation normally.
- Vacate the dwelling totally.
- Vacate the dwelling partially while living in.
- Vacate the dwelling partially while living out.
- Other

0 200 400 600 m

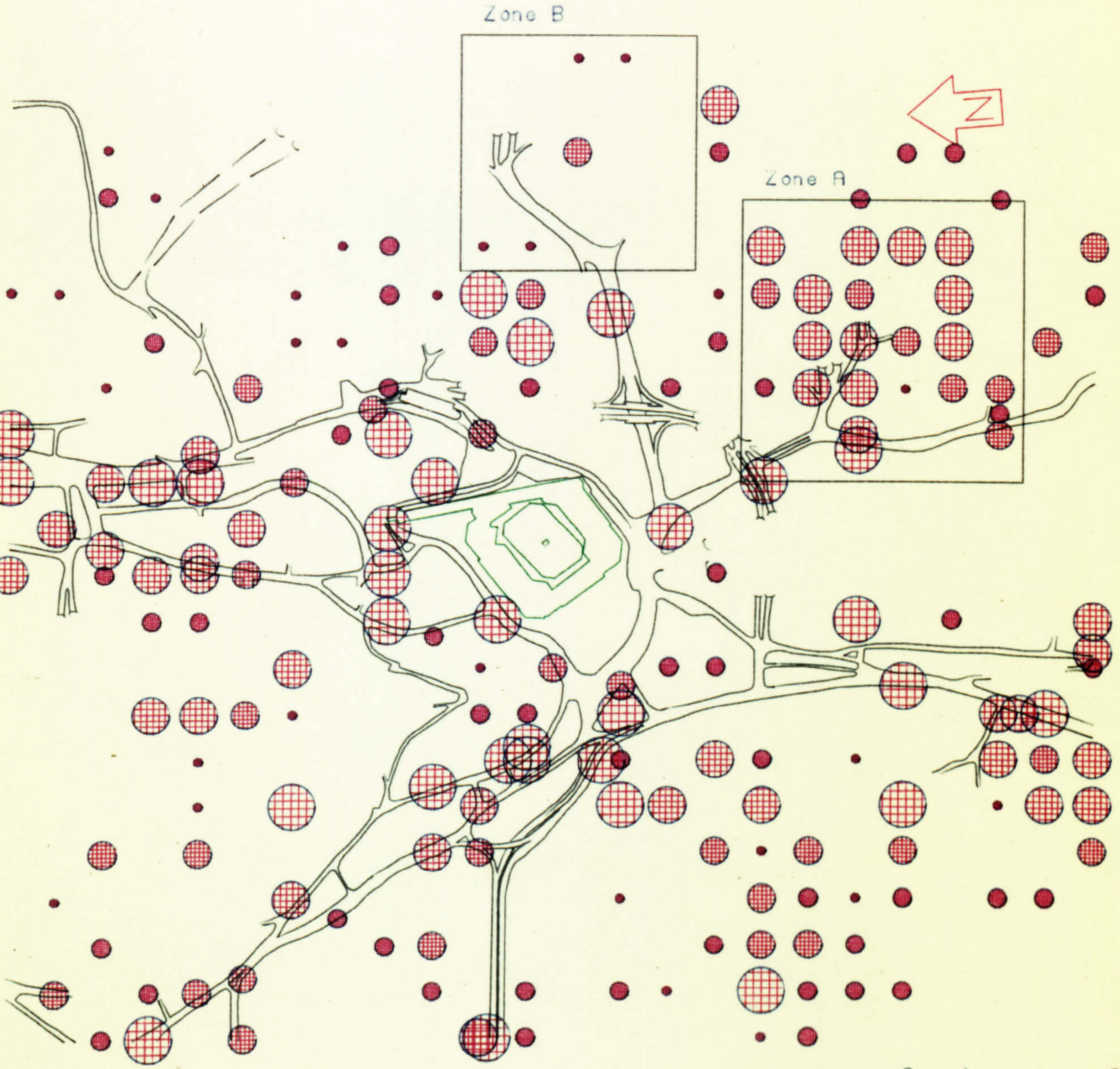
It was also found that whenever there are more rooms available the percentage of those who vacate their dwellings totally or partially increases. In contrast, the percentage of those who continue to live as normal decreases when there are more rooms available in the dwelling.

6.3 ANNUAL AND HAJJ ACCOMMODATION COST

The annual cost of accommodation in central Makkah is normally higher than in other parts of the city; however, it is still lower than the cost of accommodation during Hajj. By looking at the annual rent value per dwelling and per room in central Makkah (maps 27 and 28) we notice immediately the spread of annual rented accommodation and its high variance in terms of cost. High cost dwellings are to be found on major roads and in certain areas such as Ajiyad Al-Masafi (zone A). Maps 29 and 30 reveals that during Hajj the spread of rented accommodation decreases. Rented accommodation is concentrated mainly along major streets. In both cases it is quite clear that the accommodation cost increases the nearer the accommodation is to a major road or to the Holy Mosque.

The above result is confirmed by the difference in the calculated rent mean value in both cases. In case one (annual rent value per dwelling) the mean rent value per dwelling along major roads (S.R. 27,586.71) is considerably greater than the mean rent value per dwelling for all cases selected by the grid sampling system

MAP No. 27 : ANNUAL RENT VALUE PER DWELLING

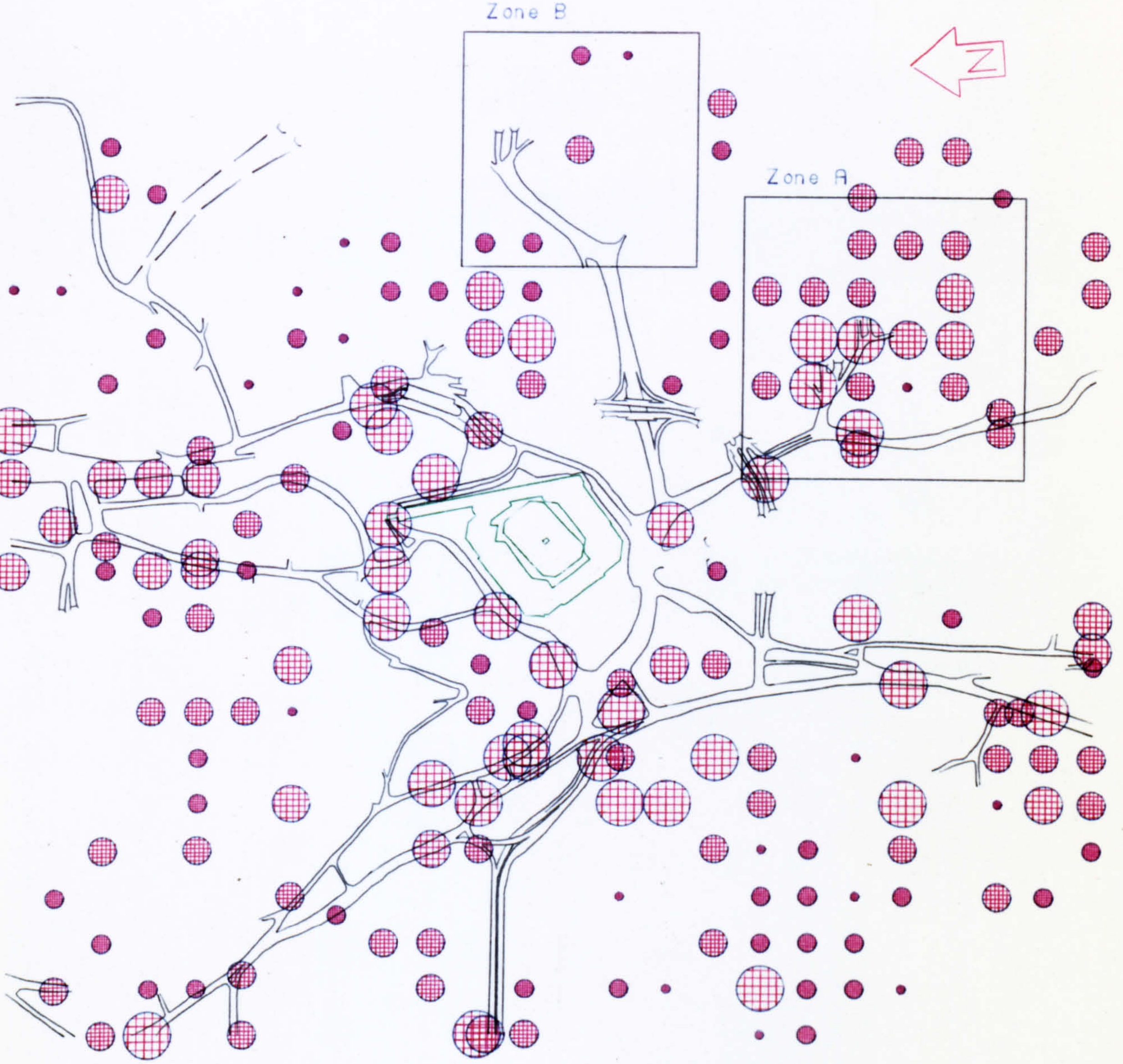


Rent value per dwelling in Saudi Riyals

- 26000 +
- 20000 - 25999
- 14000 - 19999
- 8000 - 13999
- 2000 - 7999

0 200 400 600 m

MAP No. 28 . ANNUAL RENT VALUE PER ROOM

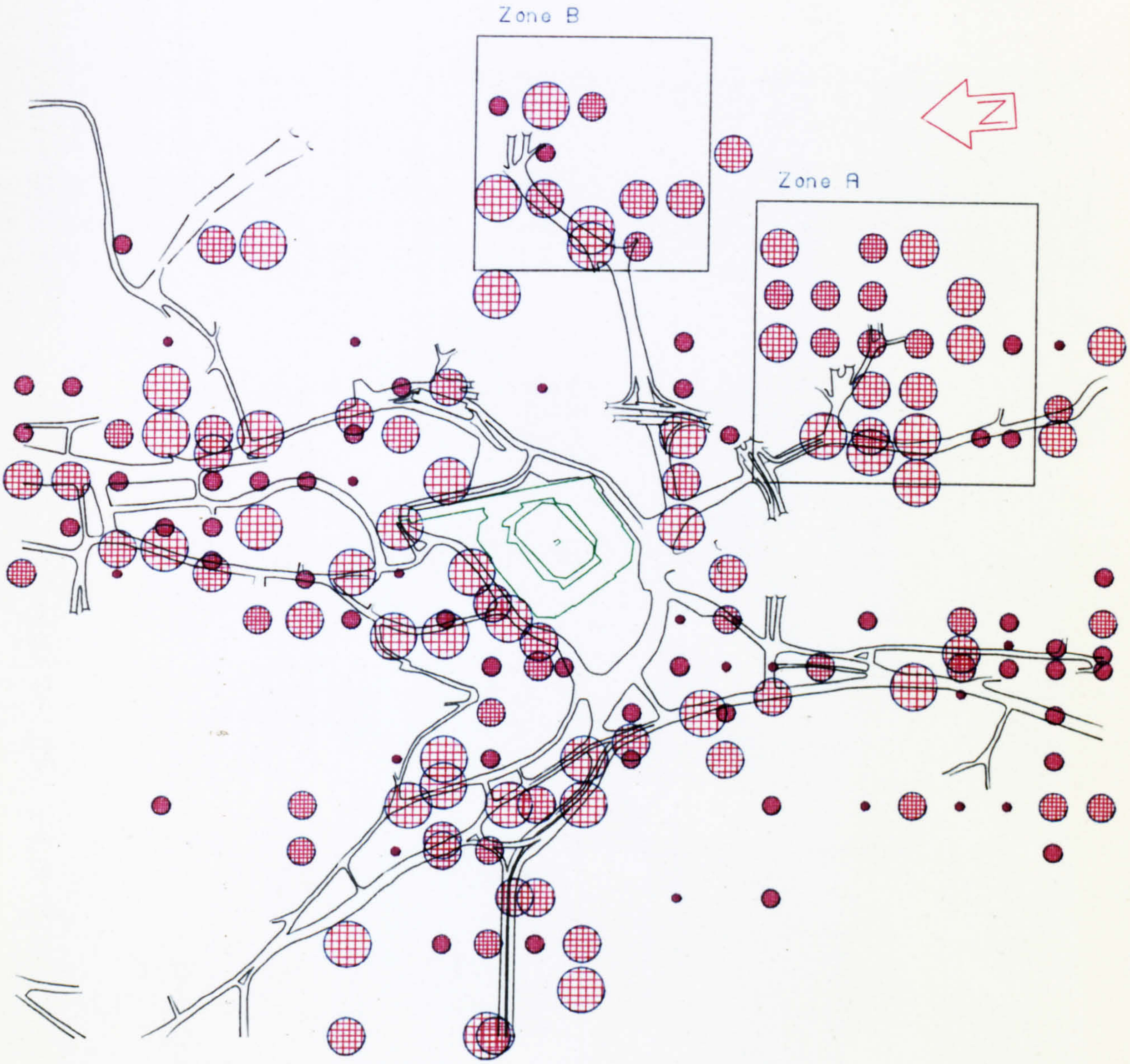


RENT VALUE IN SAUDI RIYALS

- 8000 +
- 6000 - 7999
- 4000 - 5999
- 2000 - 3999
- 0000 - 1999

0 200 400 600 m

MAP No. 29 : HAJJ RENT VALUE PER DWELLING

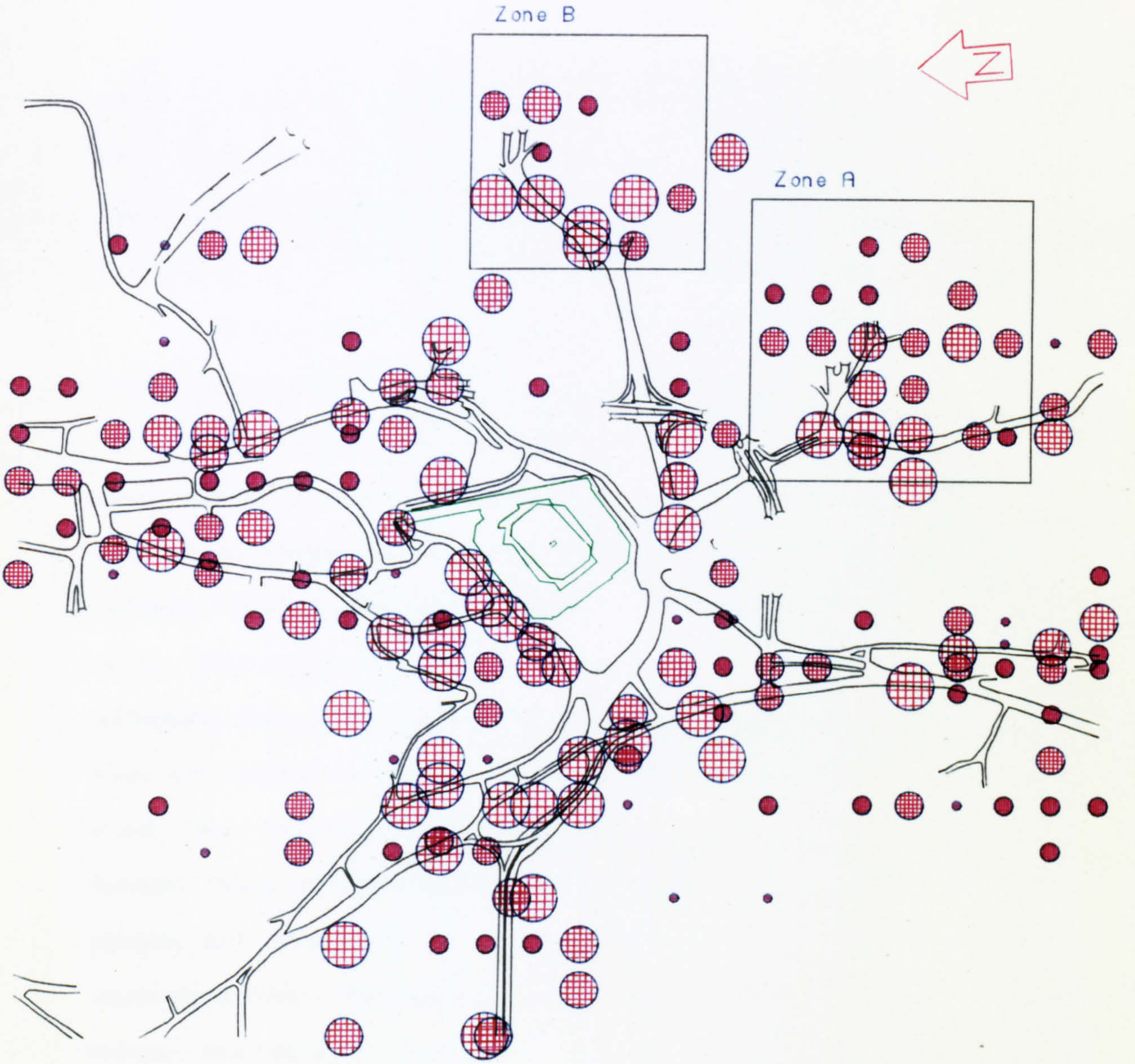


Rent value per dwelling in Saudi Riyals

- 26000 +
- 20000 - 25999
- 14000 - 19999
- 8000 - 13999
- 2000 - 7999

0 200 400 600 m

MAP No. 30 : HAJJ RENT VALUE PER ROOM



RENT VALUE IN SAUDI RIYALS

- 8000 +
- 6000 - 7999
- 4000 - 5999
- 2000 - 3999
- 0000 - 1999

0 200 400 600 m

(S.R. 17,206.89). Whenever the road type improves the accommodation cost increases. The annual and Hajj rent value along different road types table 6 highlights this fact.

In both maps one can see a few cases around the Holy Mosque where the accommodation has a very low rent value. An explanation of this may lie in the low quality of the accommodation along with the size and accessibility. However the main reason may be that all low rent values (lower than S.R. 8,000.00) either for Hajj or annual letting, are on mountainous areas, a fact which can be seen on both maps. This result explains the great difference in rent values along different road types in table 6. This being the case, there are also high rent values in some mountainous areas such as zone A and zone B which are located to the east and east west of the Holy Mosque of Makkah. Ease of accessibility is the reason to this, as these two places are connected to the pilgrimage sites via dual tunnels and large ring road. Further ring roads and tunnels around the Holy Mosque are already planned for the whole city but at the time this survey was carried out only two had been completed in the central districts. It is the writer's view that these ring roads and tunnels around the Holy Mosque are going to encourage renting over a greater area of the city.

Many aspects affect the cost of accommodation in central Makkah during Hajj and throughout the year. Aspects such as the road hierarchy, altitude, building type, property tenure and rental agents

differ in order of importance. These aspects will be discussed below. In Hajj time there are further factors which also affect the cost of accommodation which have been proven in other studies. These are mentioned at the beginning of this chapter.

6.3.1 The effect of the road hierarchy

Table 6 shows the average cost of accommodation along different types of roads. Along major roads the annual and Hajj rent averages are greater than normal[1]. However along access roads the mean cost was lower than normal, and the median and the mode were nearly the same. In the last type of road, i.e. footpaths, all average values were much less than normal. The difference in values along these road types are very clear but it should be taken into account that the standard error for them also varies. The standard error for the normal values of the annual and Hajj accommodation cost are S.R. 939 and 1288 respectively. These values represent 5.5 and 6.8 per cent of the mean value respectively. This standard error is slightly higher than that planned for in the sample size (see sample size) but it is quite sufficient for the purpose of this research. In table 6 the standard error is higher than the standard error of the normal values. For annual rent value per dwelling the standard errors of the mean along major roads, access roads and footpaths are

---

[1] The normal values are those referred to as values calculated for all cases selected in the grid sampling system (350 cases) and do not include the 65 more cases chosen along major roads for stratified analysis (see sample frame)

S.R. 2273 (8.2 per cent of the mean), 1256 (7.8 per cent), 1193 (7.9 per cent) respectively. For Hajj rent value per dwelling the standard errors of the mean along the same mentioned road types are slightly higher. They are S.R. 2306 (8.5 per cent of the mean), 2209 (11.8 per cent), 1769 (10.8 per cent) respectively.

6.3.2 The effect of topography

The difficult topography of Makkah affected rents considerably. The following table gives further explanation of what was previously mentioned about maps 27 and 29.

Table 7 reveals that whenever the building is in a steep mountainous area the cost of accommodation decreases. The range of the annual accommodation cost between buildings located on flat land and on very steep mountain is S.R. 14,094 This great range shows the impact of building location on rent value. This is the same for the Hajj accommodation rent value as the range is S.R. 14,394.

6.3.3 The effect of building types

This can be divided into two sections:

1. Annual accommodation:

The annual rent value per dwelling in traditional buildings was below average while the dwelling rent value in the improved or extended traditional buildings was higher, and the rent value was highest in modern flats. The difference between the highest mean

Table 6: Annual and Hajj rent values along different road types

Road types	Annual rent value per dwelling in S.R.			Hajj rent value per dwelling in S.R.		
	Mean X= 17207	Median X= 15000	Mode X= 10000	Mean X= 18912	Median X= 15000	Mode X= 16000
Major road	27586	23000	20000	27144	23500	20000
Access road	16038	15000	10000	18652	15000	15000
Footpath	14940	12000	10000	16446	15000	15000

X = Values calculated for all cases selected by the grid sampling system.

Table 7: Annual and Hajj rent values by building locations

Building locations	Annual rent (S.R.) Per dwelling X= 17206	STD ERR X= 939	Hajj rent (S.R.) Per dwelling X= 18912	STD ERR X= 1288
Flat land	24016	1830	22812	2112
Gentle slope	22222	2241	19319	1873
Steep hillside	14600	916	20699	2993
Very steep	9921	1629	8418	2544

STD ERR = Standard Error.
X = Values calculated for all cases selected by the grid sampling system.

value and the lowest is S.R. 6164 per dwelling which is not small compared with the mean for all cases. This result is nearly the same when the mean values are calculated per room rather than per dwelling (see table 8).

2. Accommodation for the pilgrims:

Makky (1980, pp:113-117) found in his 1977 survey that the average room rent was S.R. 2597 He also found that for traditional buildings, the accommodation cost per room was below average and for apartments it was above average with the cost being the highest except for that of hotels. In 1984 the writer found that the mean rent value per room was S.R. 5255 In table 8 the writer found that for letting during Hajj the cost of accommodation in traditional buildings per room was not lower than average but it was slightly higher. However as a dwelling (apartment) it was slightly below average. This table confirms that the cost of modern flats in terms of rooms or dwellings is the highest. The cost of accommodation for improved or extended traditional buildings was lower than modern flats but higher than traditional buildings in terms of rooms or dwellings .

All of these differences for the mean values in the existing building types shows clearly the effect of building types on rents.

6.3.4 The effect of the property tenure

Both landlords and annual tenants were found to be dissatisfied with the existing cost of accommodation. Landlords preferred higher prices and annual tenants preferred lower prices. Landlords preferred the annual letting price per dwelling to be 56 per cent more than the existing mean, and tenants preferred it to be 47 per cent less.

Table 8: Annual and Hajj rent values by different building types

Building types	Annual rent (S.R.)		Hajj rent (S.R.)	
	Per dwelling X=17206	Per room X=5255	Per dwelling X=18912	Per room X=5523
Traditional	15079	4622	18608	5662
Modern flats	21243	6379	21397	6149
Improved or extended traditional	19261	5807	21099	5898
Other	14800	4313	17000	5083

X = Values calculated for all cases selected by the grid sampling system.

Since landlords and annual tenants were found to let their accommodation totally or partially to pilgrims during Hajj, the writer found a great difference in letting prices between them. The annual tenants asked for the lowest prices as the mean was S.R. 16,449 per dwelling and S.R. 4,922 per room (the mean for all cases was S.R. 18,912 per dwelling and 5,523 per room). Landlords were found to ask for higher prices than average as the mean was S.R. 20,274 per dwelling and 5,698 per room. The highest of all were the 'mutawifeen' as here the mean price was S.R. 32,130 per dwelling and 9,328 per room. The range between the lowest and the highest mean value per dwelling is S.R. 15,681 11; which is more than the lowest mean value.

6.3.5 The effect of rental agents

The rental agent has a very important effect on rents for pilgrims during the time of Hajj. Makky (1980, p:150) mentioned that both 'hamladars' and 'mutawifeen' had demanded above average rent values, whereas landlords and annual tenants had below average rent values. Their sequence from high rent to low rent is 'hamladar', 'mutawif', landlord and annual tenants respectively. Because all 'mutawifeen' were gathered into six establishments representing the nationalities of the pilgrims and because of certain governmental restrictions on rental agents, the 'hamladar' job is disappearing and for this present research the writer did not find many among them. 'Hamladars' represented only 4 per cent of the rental agents, and their accommodation price was the lowest (S.R. 13,167 per dwelling and 3,394 per room). In this case the 'mutawif' was the highest followed in sequence by landlord, annual tenant and hamladar, who was the lowest on the scale.

6.3.6 The effect of demolition:

In the past five years, huge amounts of housing stock in the central districts of Makkah have been demolished mainly for transportation and renewal projects. The large demolished areas are around the Holy Mosque. They are located to the south-east, south and west of the Holy Mosque. Also in order to establish the major ring roads through existing districts, a great number of buildings

have been demolished.

Fortunately In 1981 the Hajj Research Centre carried out a housing survey before demolition programme was undertaken in 1982 in the central districts, the demolition enabled the centre to carry out another survey designed specially to test the effect of demolition on rents. The average rent per square metre has shown an increase of more than 43 per cent over the two years. The rate of increase in rents between the two years falls as the distance from the Holy Mosque increases. The rents have risen by more than 56 per cent at a distance of less than 750 metres from the Holy Mosque and by nearly 21 per cent at distances between 1500 to 3000 metres. The incremental rate of growth in the rents of properties between the two years is negatively correlated with distance not only from the demolition area but also from the Holy Mosque itself[1].

6.4 COMPARISON OF THE ANNUAL AND HAJJ RENT VALUE

When both annual and Hajj rent values per dwelling were drawn on one map together as pie charts (buildings rented either annually or in Hajj time only are excluded), the difference in rent values is not clear. This is mainly because there are so many cases where buildings are rented in either way only (see map 31). This map could

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[1] Hajj Research Centre.
"Impact of Demolition on Rents of Pilgrim Housing in Makkah." Umm Ul Qura University, Makkah, Saudi Arabia. A report prepared by the Hajj Research Unit, Applied Economics Research Centre, University of Karachi, Karachi-32, Pakistan. 1982. pp:28-31.

be misleading and it should be recognised that each pie chart represents one sample only and not a neighbourhood or an area but the group of pie charts together give that picture.

The analysis of the two lines graph Figure 24 reveals the following: the mean rent value per dwelling is higher in case 2. This means that landlords who rent their property in Hajj time only, obtain more income in the year than in case 1 (annual rent value per dwelling). This is confirmed because the mean value:

in case 2 = 18,912.20 S.R.

in case 1 = 17,206.89 S.R.

The mode in case 2 = 16,000.00 S.R.

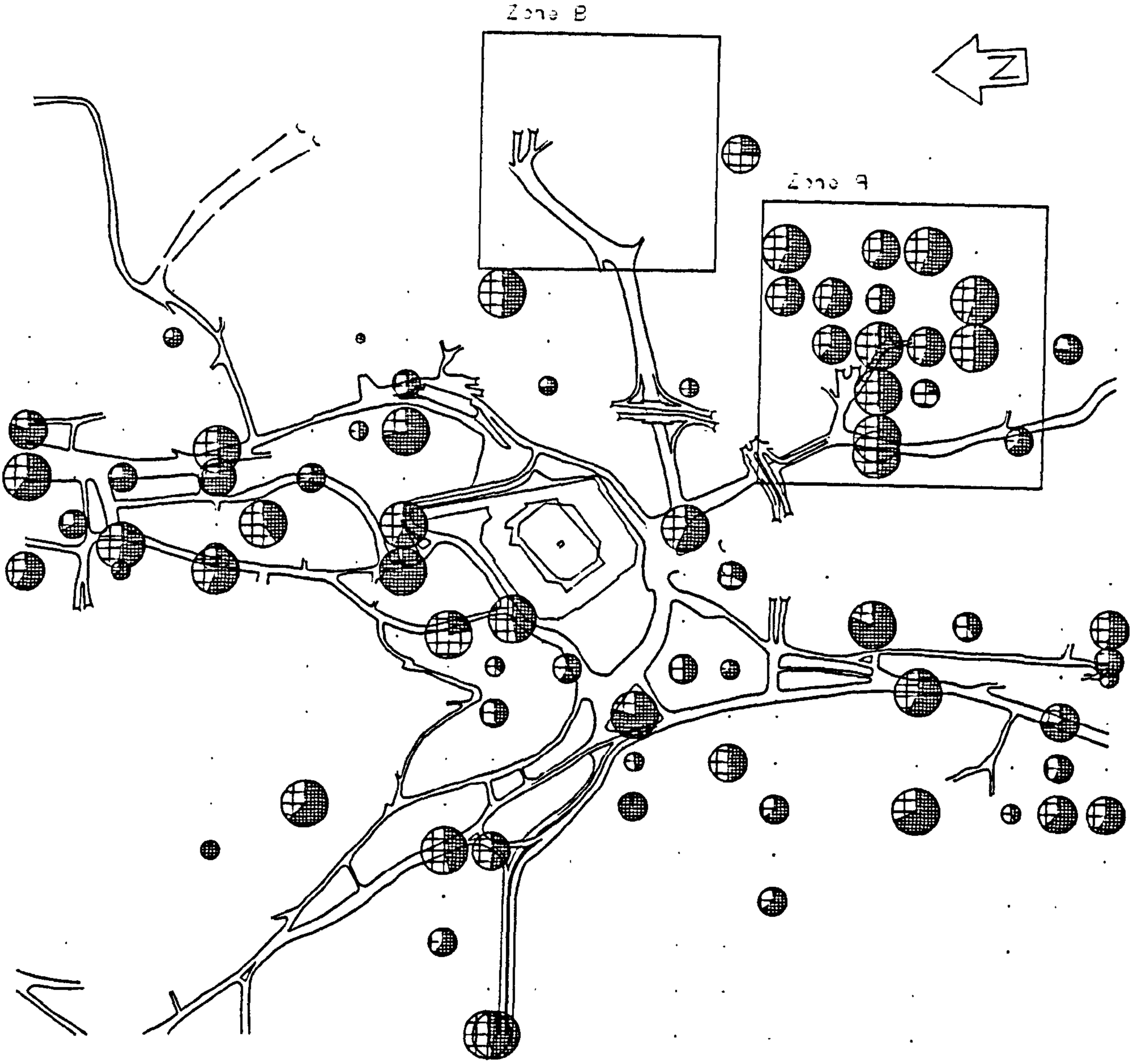
In case 1 = 10,000.00 S.R.

This means that landlords mostly earn S.R. 16,000.00 in case 2 and 10,000.00 in case 1. This confirms the previous findings that in Hajj time landlords are able to earn more than in the annual rent system. This is shown by the most frequent earnings in Hajj being S.R. 16,000.00 which is much more than the mode of the annual rent.

Some statistical analysis for both the mean and the median: In case 1 the mean (S.R. 17,206.89) is greater than the median (S.R. 15,000.00) because the distribution is pulled over to the right, i.e. has a positive skewness. This was the same for case 2 where the mean (S.R. 18,912.20) is greater than the median (S.R. 15,000.00). Since the median is not affected by the size of the extreme values, under our case the median value may be more preferable to the mean.

looking at the Maximum 80,000.00 S.R. in case 1 and

MAP No 31 ANNUAL AND HAJJ RENT VALUE PER DWELLING



RENT VALUE IN SAUDI RIYALS

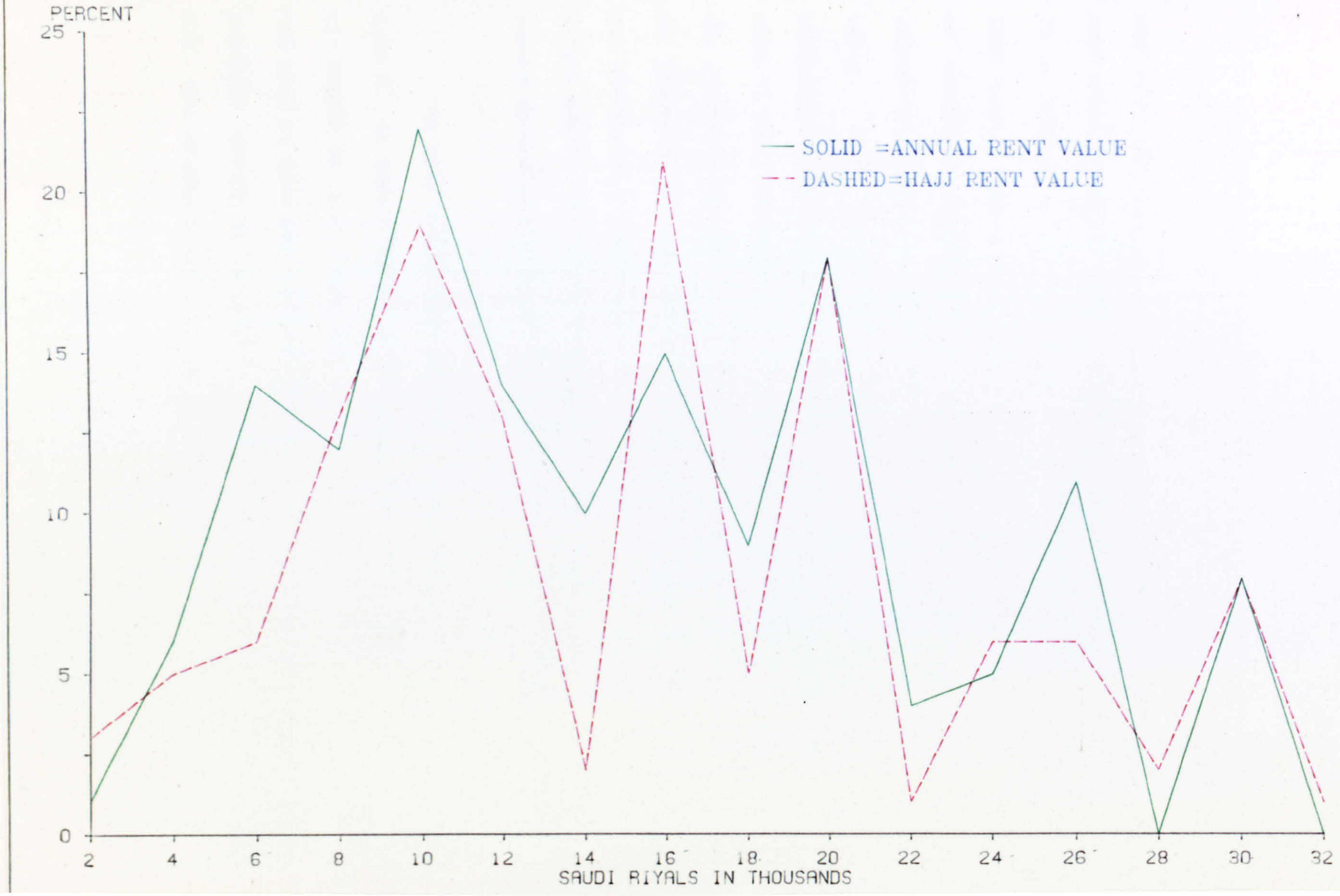
- 42000 +
- 32000 - 41999
- 22000 - 31999
- 12000 - 21999
- 2000 - 11999

SHADING

- Annual rent.
- Hajj rent.

0 200 400 600 m

Figure 24 : THE PERCENTAGE OF ANNUAL AND HAJJ RENT VALUE PER DWELLING



90,000.00 S.R. in case 2

confirms the writers' previous result that landlords will tend to earn more (generally speaking) in case 2 than in case 1.

It is interesting that the minimum value in case 2 (S.R. 1,000.00) is less than in case 1 (S.R. 2,000.00). This shows that some dwellings or buildings may have very low standards of quality and cannot be rented or accepted in the annual rent system and therefore stand empty. These buildings are rented during Hajj time because of the scarcity of higher quality buildings in the central districts. In case 1 the minimum value is higher because of the bargaining power for residence and low effect of scarcity pressure. Normally there is no pressure on the consumer (the annual tenant), and he can search for housing of a better quality either alone or through a proper estate agent. The scarcity factor could affect only the pilgrims who demand accommodation within walking distance from the Holy Mosque.

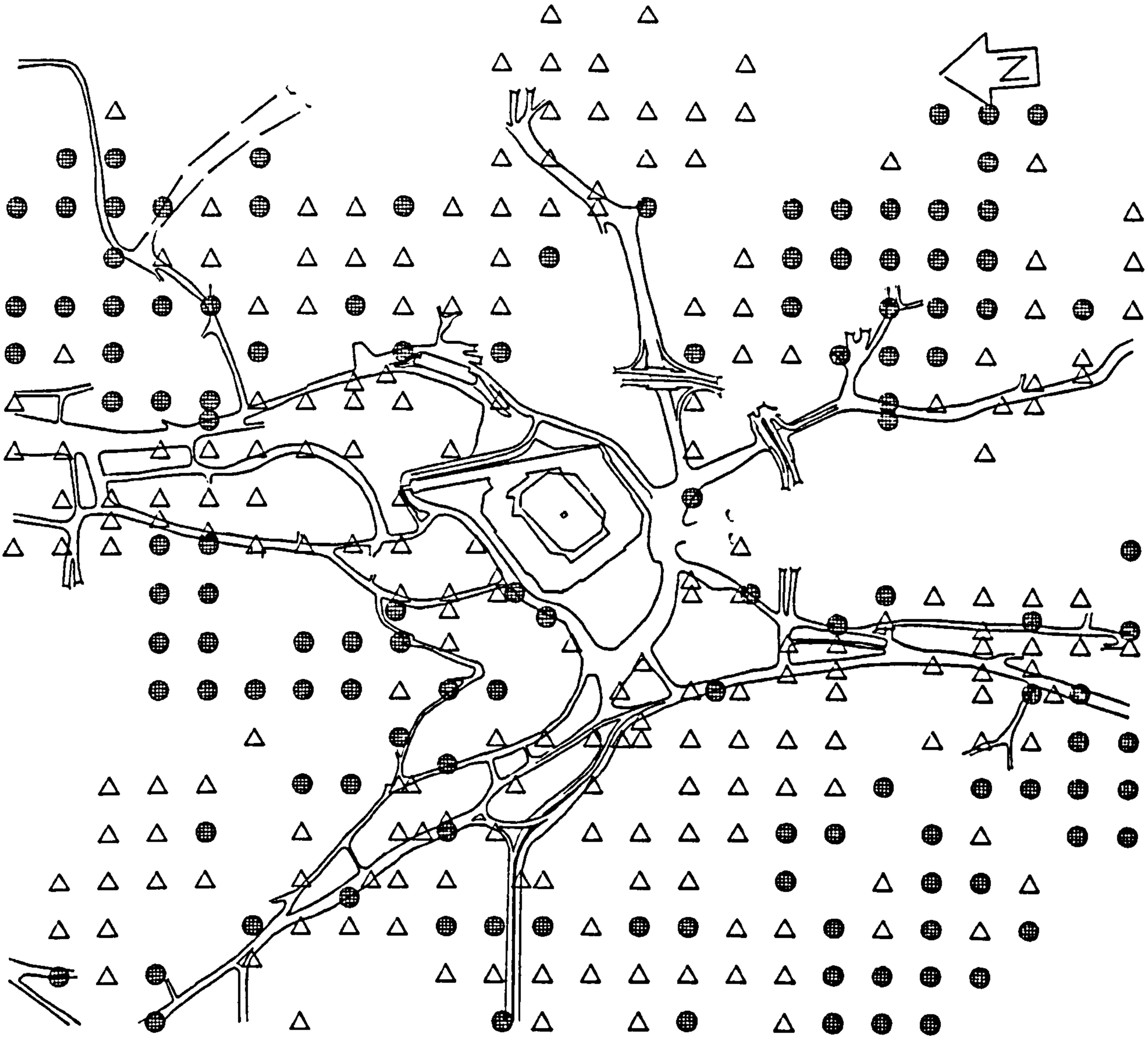
We also notice that the range is different between case 1 and case 2. In case 2 the range is 89,000.00 S.R., in case 1 the range is 78,000.00 S.R. This shows a greater spread of variation in case two than in case one. The above result is confirmed by the very high standard deviation, in case 1 11,951.76 S.R. and in case 2 15,403.50 S.R. The standard deviation in case 2 is greater than in case 1.

6.5 FACILITATING RENTING DURING HAJJ

The writer is of the opinion that it might be useful to solve part of the high vacancy rate problem by facilitating renting during Hajj. The idea is to divide each dwelling into two units so that it can be emptied partially in order for it to be rented in Hajj, while the owner lives in a relatively convenient smaller part of it which could satisfy the social, services and facilities requirements for that short period of time. For that purpose the occupants were asked if they would prefer that the dwelling be designed so that it could be divided into two units when necessary. Thirty-nine percent agreed. Those who accepted this proposal are shown in map 32.

This idea could be introduced successfully and easily in new building designs but it is somewhat difficult in the majority of the existing buildings. However, as an example, in figure 25 we can see that the existing design of the ground floor apartment in a three storeys building in Harat Ajyad in central Makkah and how it could be divided into two units easily. Each unit could have its own private entrance. Unit (a) contains two bed rooms, living room, kitchen, and a toilet. Unit (b) contains three rooms and two toilets. In this way the building is divided vertically into two parts and horizontally into two units. During Hajj period, the first unit could be used by the year round residents and the second could be rented to the pilgrims.

MAP No. 32 : FACILITATING RENT DURING HAJJ



Landlords and tenants were asked if they would prefer that their dwelling was designed so that it could be divided into two units in Hajj.

● Accepted the proposal.
△ Did not accept the proposal.

0 200 400 600 m

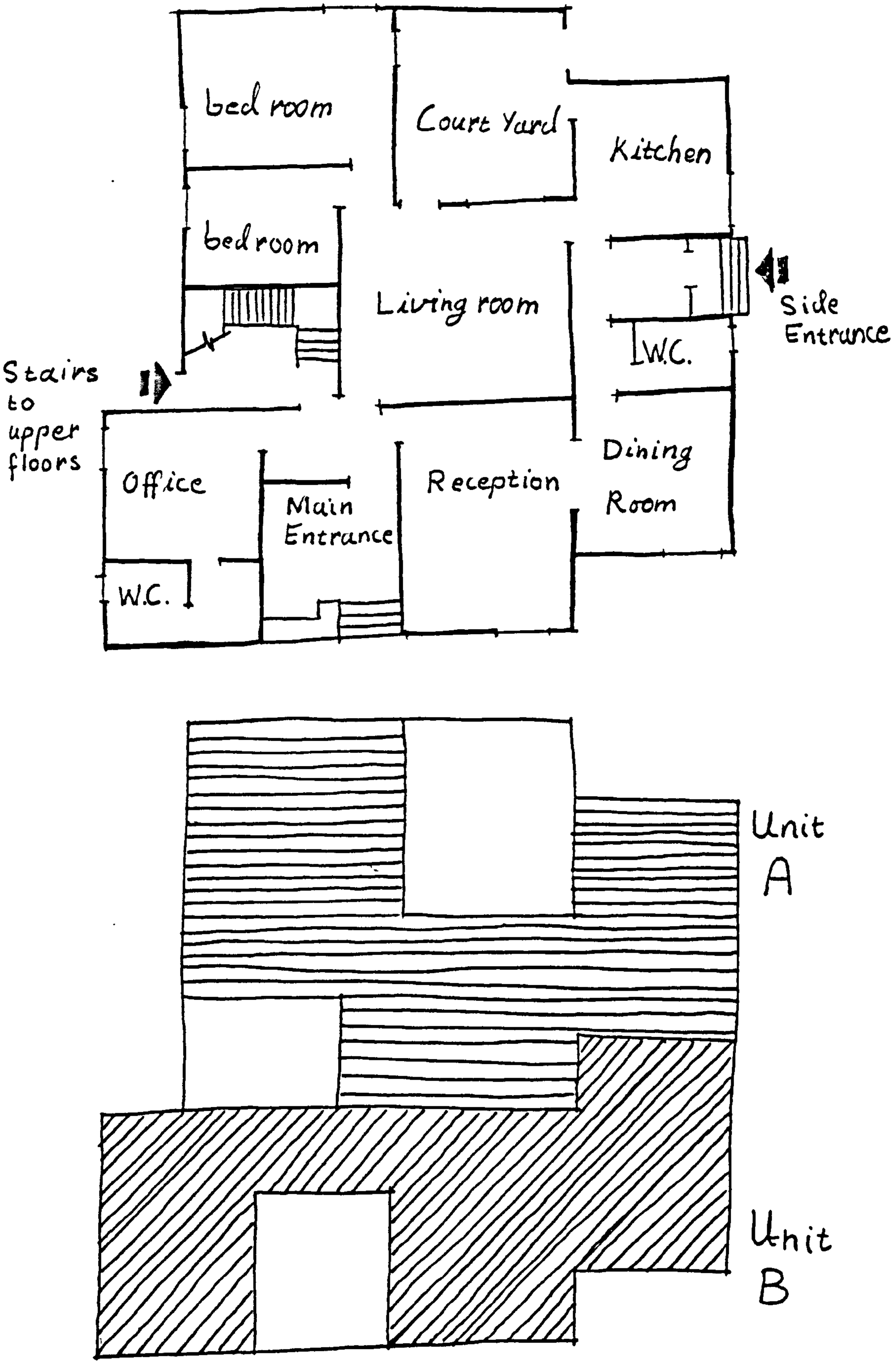


Figure 25: Facilitating renting during Hajj

By doing so, the landlord could make the rent contract for the whole year with the proviso that the tenant should vacate the dwelling partially for two months i.e. the tenant would have to divide the dwelling into two units, one for him and the other to be rented to pilgrims. This could be of benefit to both the landlord and the tenant i.e. under this system, the landlord would receive more rent value from both the tenant and the pilgrims and the tenant would pay less.

6.6 SUMMARY

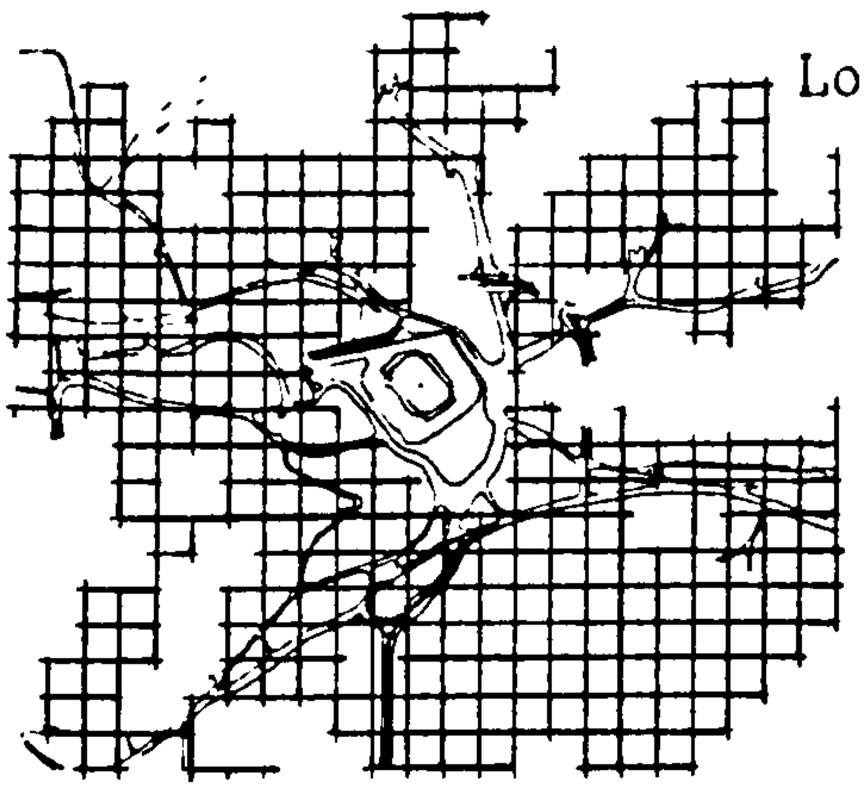
It was found that the great demand for accommodation in a very short period of time affected housing in general and the cost of that accommodation in particular.

People in the central districts were found to be willing to let their properties during Hajj. They live in the main along major roads or face large open spaces or live less than 500 metres away from the Holy Mosque. They tend to let their properties to the 'mutawif' in the first place and to the pilgrim in the second. For economic reasons people tend to provide as much space as they can to be rented for pilgrims during Hajj. That is why some special arrangements for Hajj letting were found. People mostly tend to vacate their properties partially while living in a smaller part of them and renting out the rest. In the second place people were found to vacate their dwellings totally for Hajj letting. They also

preferred the existing arrangements. In modern flats and the improved traditional buildings people tend to vacate their dwellings partially while living in a smaller part of them, but along major roads they preferred to vacate the building totally.

The road hierarchy is an important factor which affects the cost of accommodation positively, but altitude affects cost negatively. The building type also affects rents: for modern flat buildings the rent value is higher than for other types. The property tenure effect showed that annual tenants are asking for lower prices than landlords or 'mutawifeen'.

It was found that for landlords it is much more profitable to rent out accommodation during Hajj only rather than to do so annually, but this cannot be guaranteed. In the writer's opinion, one possible solution might be to facilitate renting during Hajj by modification of the internal design of new dwellings. Thirty-nine per cent of the people accepted and agreed to the proposal.



CHAPTER 7

ISSUES RELATING TO HOUSING

7.1 Infrastructural problems
- 7.1.1 Water supply
- 7.1.2 Storm water drainage
- 7.1.3 Sewerage
- 7.1.4 Solid waste disposal
- 7.1.5 Electricity
- 7.1.6 Telecommunications
- 7.1.7 Road network
- 7.1.8 Noise
- 7.1.9 Infrastructure problems during Hajj compared with the rest of the year
- 7.1.10 Occupants' attitude towards the influence of building services and community facilities on occupation rate

7.2 The availability of finance and the constraints on the house design
- 7.2.1 The Real Estate Development Fund
- 7.2.2 R.E.D.F. constraints on the house design

7.3 Planning permission and the actual use of residential buildings

7.4 Maintenance
- 7.4.1 The responsiblity for maintenance
- 7.4.2 The annual maintenance cost per dwelling
- 7.4.3 Maintenance needed in occupied and vacant dwellings

7.5 Summary

CHAPTER SEVEN

ISSUES RELATING TO HOUSING

After discussing the existing housing situation and the influence of Hajj on rents, it is of some value to analyse the important related issues which have affected the creation and transformation of the built environment in the central districts of Makkah. The first issue is the increased demands made on the infrastructure of the city during the period of Hajj. Another important issue is the impact of the Real Estate Development Fund on housing. Thirdly, planning permission and the actual use of residential buildings is discussed. Finally, the responsibility for maintenance, cost and the sort of repairs which need to be carried out in vacant and occupied dwellings is examined.

As the Ministry of Public Works and Housing does not have any projects in the central districts of Makkah it is not discussed here, since it does not have any direct effect on housing in that area.

7.1 INFRASTRUCTURAL PROBLEMS

The provision of infrastructural services in Makkah is an important issue for both the residents and the pilgrims. Improving the quality of life while preserving the cultural and traditional values is essential. The central districts of Makkah are very well serviced. Infrastructure is defined in relation to human settlements as:

> "The complex network designed to deliver to or remove from the shelter people, goods, energy or information."[1]

The physical infrastructure services are comprised of two components. Firstly, there is the production of the service itself, and secondly, there are the distribution networks delivering the service to the place of demand. The Dar Al-Handasah Consultants' Preliminary Report[2] stated that the absolute capacity of the production units is geared to the maximum demand, which in Makkah occurs during Hajj. There are two sets of distribution networks: one supplying the normal year-round resident population, the other for places serving the requirements of Hajj. In the central districts the network is constricted because the area is very limited. Some development has spread haphazardly up to the hilltops causing

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[1] "United Nations Conference on Human Settlements." Held in Vancouver, 1976. Pescod, M.B. "Review of the provision of infrastructure for Urban Slums and Squatter areas and for Rural Settlements". Draft paper, University of Newcastle upon Tyne, 1983.

[2] Dar Al-Handasah Consultants Preliminary Report. 1983. Op cit. p:69.

differences in levels between the highest and lowest buildings, subjecting the networks to overloading. The geography of the central districts makes the provision of distribution networks extremely difficult and expensive to cater for. Other parts of Makkah are relatively easier to serve in this respect.

At the same time there is evidence to show that, in Makkah, building standards are much lower than elsewhere in Saudi Arabia. Morrison(1985) feels that this is because many of the buildings are only occupied for short periods of time, densities are very high during the annual pilgrimage, and the enforcement of building standards has been almost non-existent. Landlords are in a very strong position and almost any type of building can be let during the Hajj period. These all contribute to the city's infrastructure problems[1].

In this section, the problems concerning the elements of infrastructure such as water supply, drainage, sanitation, solid waste disposal, energy supplies, communications and road network are discussed.

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[1] Morrison 1985. Op cit.

7.1.1 Water supply

Supplying adequate quantities of good quality water is vital in the interests of public health. When the standard of living improves, so the requirements for water supplies and related services are increased. The current supply problem is shown in figure 26. The scarcity of water is common to all hot arid zones and this is true for Makkah and Saudi Arabia in general, especially during the dry years or seasons.

During Hajj the problem of water shortage affects 77.5 per cent of the households of the central districts and it remains problematic all year round for 41.9 per cent of the households. Along major roads the situation is slightly better as the problem affects 65.8 per cent during Hajj and 25 per cent during the rest of the year. The shortage of water could be due to a number of factors, including topography, underdesign of pipe sections, maintenance problems etc. Map 33 reveals that the problem is widespread and not concentrated in a certain area.

The present potable water reservoirs in Makkah have a total storage capacity of 93,475 cubic metres. They are scattered all over the city, mainly on the hillsides. Photograph 46 shows one of the large water reservoirs in the central districts on top of the mountain. Most of the reservoirs are small, however, and act mainly

as 'balancing reservoirs'[1]. Nearly all buildings in the central districts are connected to the piped water main. When people were asked about their primary source of water 91.1 per cent said they used piped water, and 7.2 per cent said they relied on water delivery trucks. Very few replied that they use neither of these methods (1.7 per cent), which means that they depend on water delivery by 'Al Sagga'[2]. Map 34 illustrates these percentages.

The large water delivery trucks cannot easily manage the narrow streets or steep and hilly sites, as photograph 47 shows. Most people rely on a large water storage reservoir, usually built in the basement, called a 'Khazzan'. In steep hilly sites where people do not have large water storage reservoirs they tend to use small metal water tanks as much as possible, so that they can store up enough water for Hajj time. The actual number of these in a single house sometimes equals the whole capacity of a water delivery truck. This is very clear in photographs 44 and 45 where the landlord has a row of small metal water tanks in front of his building to alleviate the water problem.

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[1] Dar Al-Handasah Consultants. Op cit. p:71.

[2] 'Al Sagga' is the person who carries and delivers water to houses.

7.1.2 Storm water drainage

The city and region of Makkah, has low rainfall rates which vary from about 12 mm to 350 mm per year. The steep slopes in the area and the very short rainy periods result in a relatively high runoff. As the runoff from these hillsides reaches the flat alluvial plains, part of it percolates and saturates the alluvium down to the bed-rock. The rest of it continues as surface runoff causing flash flooding hazards in the densely inhabited areas. Flooding problems are more acutely observed along the main roads that lead to the Holy Mosque, as most of these roads lie within the flood plains[1].

In photograph 48 is a scene of the Holy Mosque inundated to a depth of 2.5 metres in 1969, and in photograph 49 the flooding and flood damage on Al-Haram Street can be seen with the Holy Mosque in the background[2]. In photographs 50 and 51 the damage after the flood in 1977 is seen where the road is totally destroyed and closed, and there is evidence of loss of cars, goods and even lives[3].

The trunk storm water drainage lines are located in the course of the major valleys. These trunk lines are constructed mainly of pre-cast reinforced concrete in rectangular or tunnel

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[1] Dar Al-Handasah Consultants. Op cit. p:74.

[2] Both photographs are from Mirza 1979. Op cit.

[3] Both photographs by Merwan M. Hariri.

sections, with proper inlets at the appropriate locations for the storm collection lines. The areas where the trunk lines pass are provided with gutter inlets and collector lines. Storm water is discharged from these trunk lines into the natural valleys on the downstream side of the populated areas[1].

7.1.3 Sewerage

The sewerage networks in the city of Makkah were developed almost alongside the water distribution network. The existing sewerage collection network serving the central districts is already overloaded and occasional flooding problems face the authorities in these areas[2].

The percentage of occupants affected by the sewerage problem was found to be 21.7 per cent during Hajj and 17.2 per cent during the rest of the year. This percentage is much lower along major roads as the percentage of affected occupants during Hajj is 7.9 per cent and during the rest of the year is 3.7 per cent. In map 35 the location of such problems either during Hajj or throughout the year is seen to be mostly in hilly sites.

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[1] Dar Al-Handasah Consultants. Op cit. p:74.

[2] Dar Al-Handasah Consultants. Op cit. p:74.

7.1.4 Solid waste disposal

At present, solid waste collection and disposal in each area is the direct responsibility of the various sub-Municipalities, into which Makkah is divided. Each sub-Municipality has its own team of labourers, technicians, drivers, foremen and inspectors. Garbage is collected daily from collection points, mainly from waste containers of 1.1 cubic metre capacity which are distributed at designated points in Makkah in general and the central districts in particular (see photographs 55 and 56). The estimated rate of garbage generation by permanent residents is about 1.0 kg/capita/day. Food comprises 50 per cent of the total generated waste, cans, paper and plastics comprise about 40 per cent, and the remaining 10 per cent is general rubbish. Collection of waste from bins and containers in compactor vehicles is carried out twice a day in areas accessible to roads. For very steep roads dumpers are used. In certain old areas of the city which are not accessible, waste is collected only once or twice a week[1].

The problem of refuse disposal affects 43.1 per cent of the occupants during Hajj time and 23.2 per cent during the rest of the year. Along major roads the problem is not quite as acute, affecting 27.4 per cent during Hajj and nearly disappearing during the rest of the year as it affects only 6.5 per cent of the occupants.

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[1] Dar Al-Handasah Consultants. Op cit. p:74.

In map 36 the problem of refuse disposal is found to be greater in certain neighbourhoods rather than being dispersed equally throughout the whole area. The problem is found in the hilly parts of the three neighbourhoods 'Al-Misfalah', 'Al-Shubayka' and 'Al-Hafayer'. It is also found in the 'Ajiyad Al-Masafi', 'Al-Falg' and 'Jebel Hindi' neighbourhoods (see map 15).

7.1.5 Electricity

Electricity is an important factor for consideration as its availability enables the people to use electrical and electronic appliances. The increased requirement for air-conditioning has correspondingly led to a growth in demand for electricity. The existing power generation station is located at 'Al-Umrah'. The north and south grid lines of the distribution network use an overhead system, whereas the grid line of the central districts are installed underground[1].

In the central districts of Makkah 4.9 per cent of the population sampled are affected by problems of electrical supply during Hajj and 3.9 per cent are affected during the rest of the year. These percentages of people affected are very low in relation to the percentages for other problems. It is even lower along major roads as it affects 2.6 per cent during Hajj time and 0.9 per cent

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[1] Dar Al-Handasah Consultants. Op cit. p:75.

during the rest of the year. In general, one can say that there is no real problem with the electricity supply as map 37 shows. Even in the difficult topographical locations, the provision of electricity is accomplished by an overhead network system, as shown in photograph 61.

7.1.6 Telecommunications

Telecommunication services are very important to all sectors of the economy. Saudi Telephone has paid special attention to Makkah and the Hajj sites. In Makkah the total working lines in 1983 was 57,801 and is estimated to reach 233,950 in the year 2000. A first-class telephone service is provided for the pilgrims and extensive efforts are made to meet their needs[1].

No-one in the central districts of Makkah mentioned any sort of problems regarding telecommunications. In photographs 59 and 60 a telecommunication service unit building and a public telephone box is seen.

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[1] Saudi Telephone. Performance results. Dhul-Hijjah 1402 (1982).

7.1.7 Road network

The road network is one of the vital elements which has a considerable effect on people's lives. Until now the government has given it precedence over all other services and facilities. This is discussed earlier in Chapter one but here car ownership, accessibility and parking problems are considered.

The second ranking problem in the central districts of Makkah is parking, which affects 74.6 per cent of the occupants in Hajj time and 61 per cent during the rest of the year. The problem is not as great along major roads as here the problem affects 71.4 per cent during Hajj and 42.1 per cent during the rest of the year. Map 38 clearly shows the dispersion of the problem all over the area. The percentage of residents who own a car is 62 per cent and the percentage of residents whose cars have access to the front of their building is only 52 per cent. The percentage of car owners along major roads is 76 per cent.

In photograph 64 the small truck is unloading goods at a shop and as a result completely blocks the road. In the next one, 65, a large demolished area which is being used to complete the inner ring road project is used as a parking space temporarily. When the project is completed, these car owners will have to search for new parking places. Photograph 66 shows the dead end of a road where many buildings are seen from behind with no car accessibility to the

buildings. This is the case in many hilly roads. In photograph 67 the problem of car parking at the top of hilly sites is seen clearly.

The three multi-storey car parks in the central districts provide about 1500 parking spaces. Two of the car parks are shown in photographs 68 and 69. The open car parks are very limited, and this creates a shortage of parking spaces for the residents in the central area.

Because of the high percentage of car owners, topography and land shortage the problem has become very difficult to solve. In map 39 most of the shaded circles with small squares are along major roads or very close to them which means that, virtually, only there can car-owners reach the front of their buildings. However, the large squares representing the problem of accessibility are found on hilly sites.

7.1.8 Noise

Because of the large number of pilgrims during Hajj, the noise of cars and movement around the Holy Mosque is continuous. Photographs 53 and 62 show the great number of cars and how busy the streets are. Noise is another major problem and 25.1 per cent of the occupants are affected in Hajj time and 10.8 per cent during the whole year. The percentage increases sharply along major roads where 49.6 per cent of the occupants are affected during Hajj and 21.3 per

cent during the rest of the year. Map 40 illustrates the problem of noise. It is very clear that this problem is not as great in areas which are away from major roads.



44



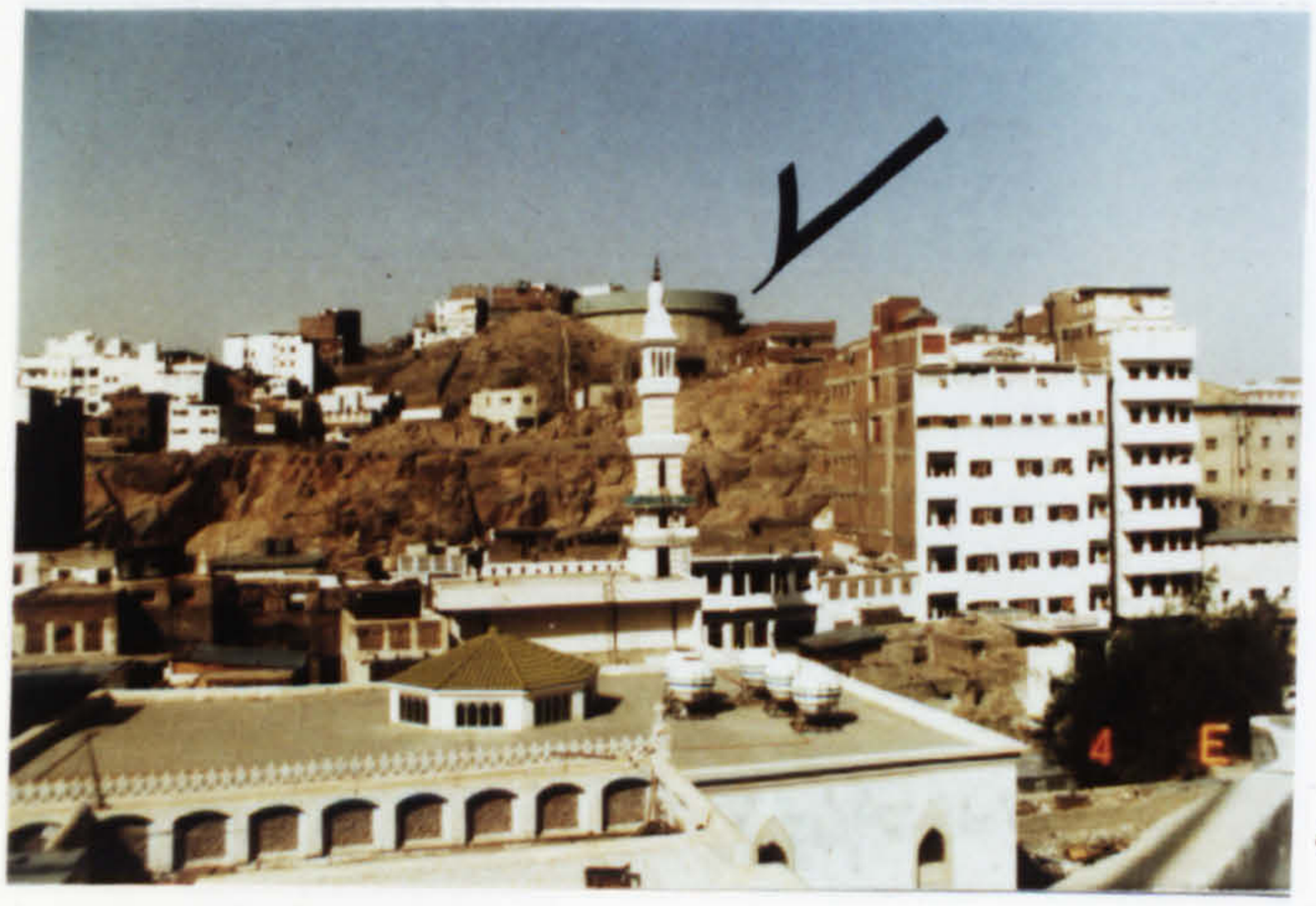
45

Photographs 44 & 45 :

In hilly sites people tend to use small metal water tanks as much as possible, so that they can store enough water for Hajj time.

Photograph 46 :

One of the large water reservoirs on top of the hilltops around the city centre.



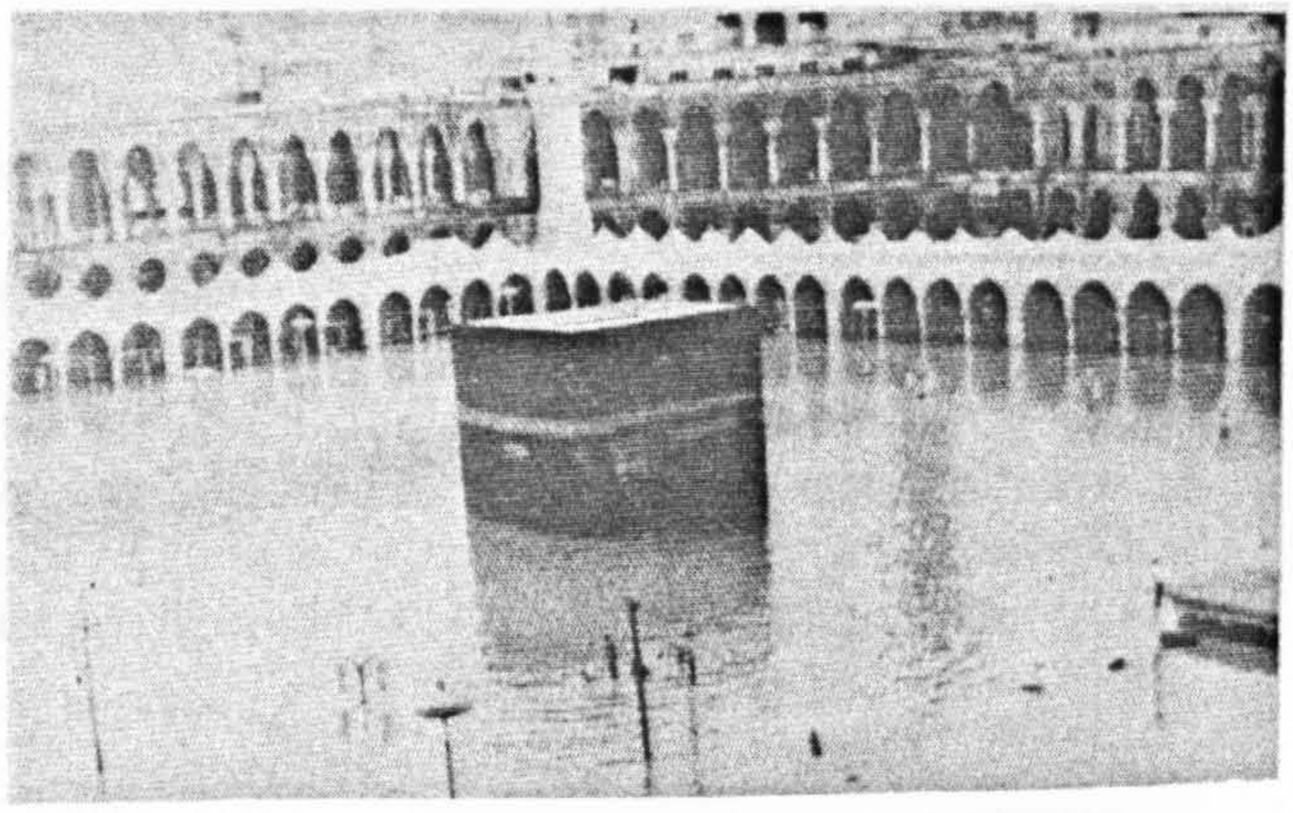
46

Photograph 47 :

The big water delivery truc cannot easily manage the narr streets or steep and hilly site



47



48

Photograph 48 :
A photograph in 1969 of the flooded Holy Mosque when the water reached a depth of 2.50 metres.
Source: Mirza 1979.

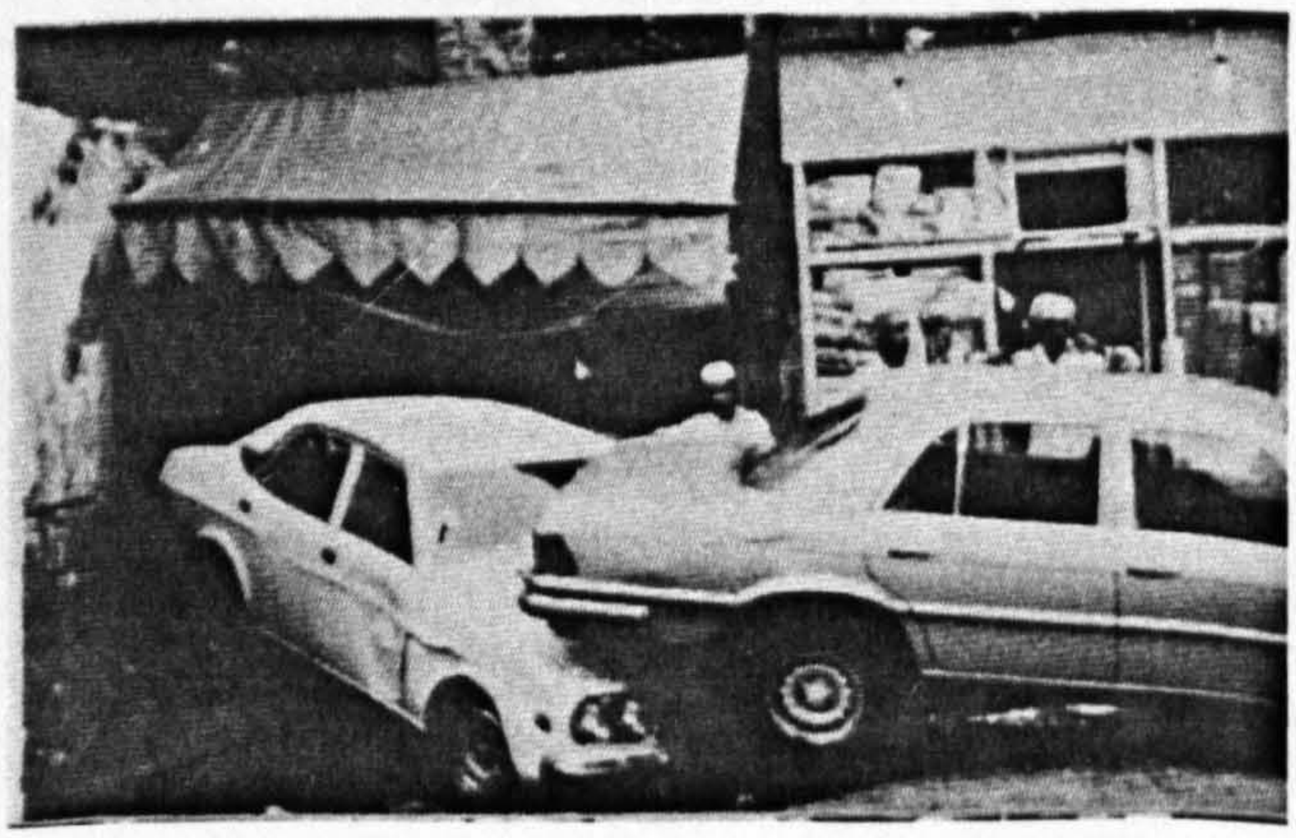


49

Photograph 49 :
The flooding and flood damage in front of the Holy Mosque.
Source: Mirza 1979.



50



51

Photographs 50 & 51 :
Flood damage to streets, cars and goods is in evidence.
Source: Marwan M. Hariri.

Photograph 52 : The public transportation buses are sufficient during the whole year except Hajj period.

Photograph 53 : The busy roads around the Holy Mosque are a continuous source of noise.

Photograph 54 : Direction signs.

Photograph 55 & 56 : Waste containers of 1.1 cubic metres capacity are distributed at designated points.

Photograph 57 & 58 : Collection of garbage from bins and containers into compactor vehicles is carried out twice a day in accessible road areas.



52



54



55



56



57



58



59



60

Photograph 59 :

A telecommunication service unit building.

Photograph 60 :

A public telephone box.

Photograph 61 :

Overhead power cables. In the difficult topographical locations the provision of electricity is achieved by the use of overhead power cables.



61

Photograph 62 :

The great number of cars creates a major source of noise during Hajj.



62

Photograph 63 :

Unmaintained building. Because the responsibility for maintenance is not defined, the buildings look dilapidated.



63

Photograph 64 : The narrow road is closed by a small truck unloading goods
Photograph 65 : A large demolished area is used as a parking place temporarily until the inner ring road project is finished.
Photograph 66 : Many residential buildings on hilltops are not accessible by car.
Photograph 67 : The problem of car parking on hilltops is common in Makkah
Photograph 68 : Al-Ghazah multi-storey car park, 200 metres from the Holy Mosque.
Photograph 69 : Al-Sulaymaniyah multi-storey car park, 900 metres from the Holy Mosque.



64



65



66



67

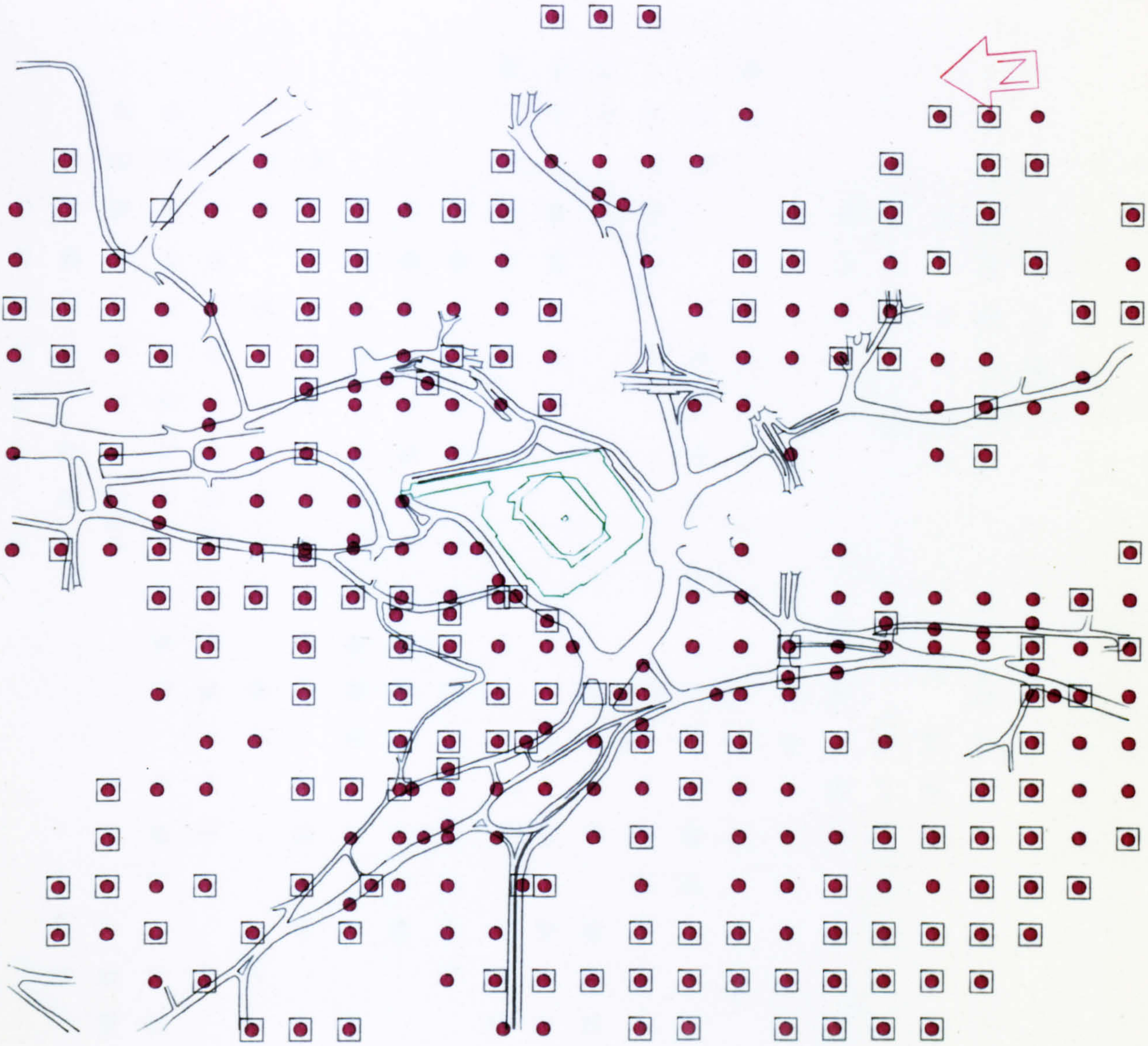


68



69

MAP No. 33 : THE PROBLEM OF WATER

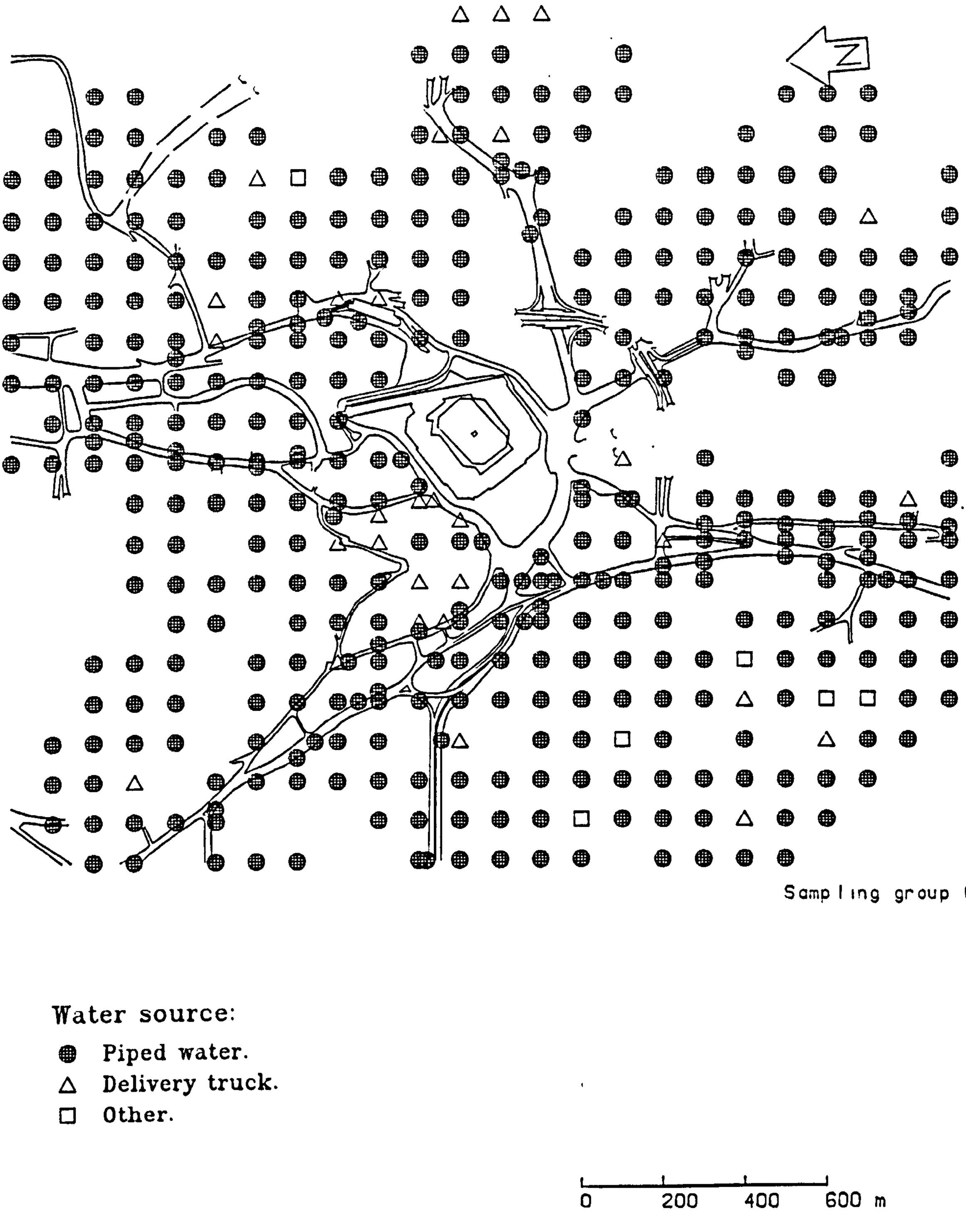


The problem of water exists:

- ● During Hajj only.
- □ During the rest of the year.
- ◉ During the whole year

0 200 400 600 m

MAP No. 34 : THE PRIMARY SOURCE OF WATER FOR RESIDENTIAL BUILDINGS



Water source:

- ● Piped water.
- △ Delivery truck.
- □ Other.

0 200 400 600 m

MAP No. 35 : THE PROBLEM OF SEWERAGE



The problem of sewerage exists:

- During Hajj only.
- During the rest of the year.
- During the whole year.

0 200 400 600 m

MAP No. 36 : THE PROBLEM OF SOLID WASTE DISPOSAL



The problem of garbage exists:

- During Hajj only.
- During the rest of the year.
- During the whole year.

0 200 400 600 m

MAP No. 37 : THE PROBLEM OF ELECTRICITY

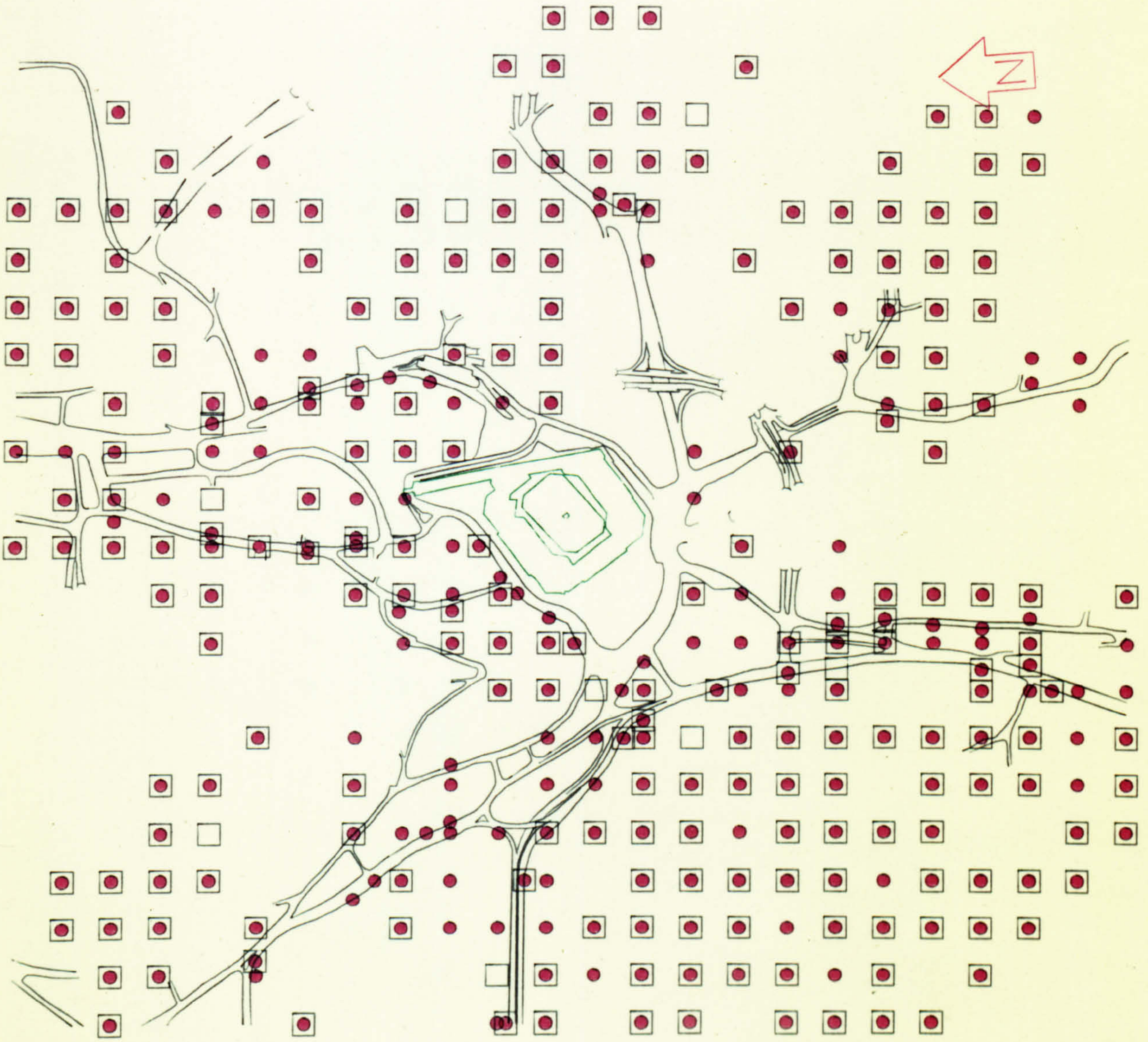


The problem of electricity exists:

- ● During Hajj only.
- □ During the rest of the year.
- ◉ During the whole year.

0 200 400 600 m

MAP No. 38 : THE PROBLEM OF PARKING

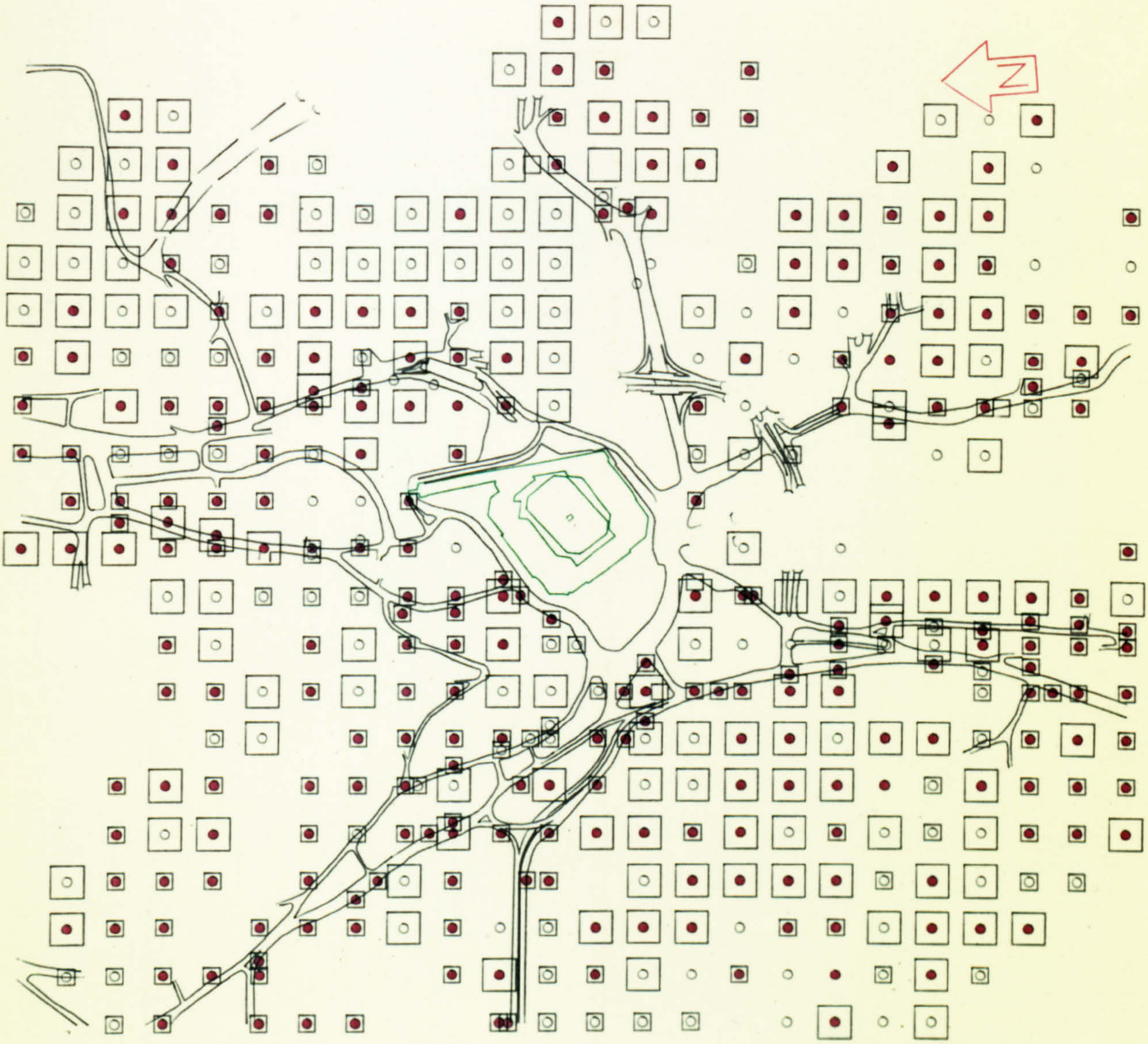


The problem of parking exists:

- During Hajj only.
- During the rest of the year.
- During the whole year.

0 200 400 600 m

MAP No. 39 : CAR OWNERSHIP AND ACCESSIBILITY



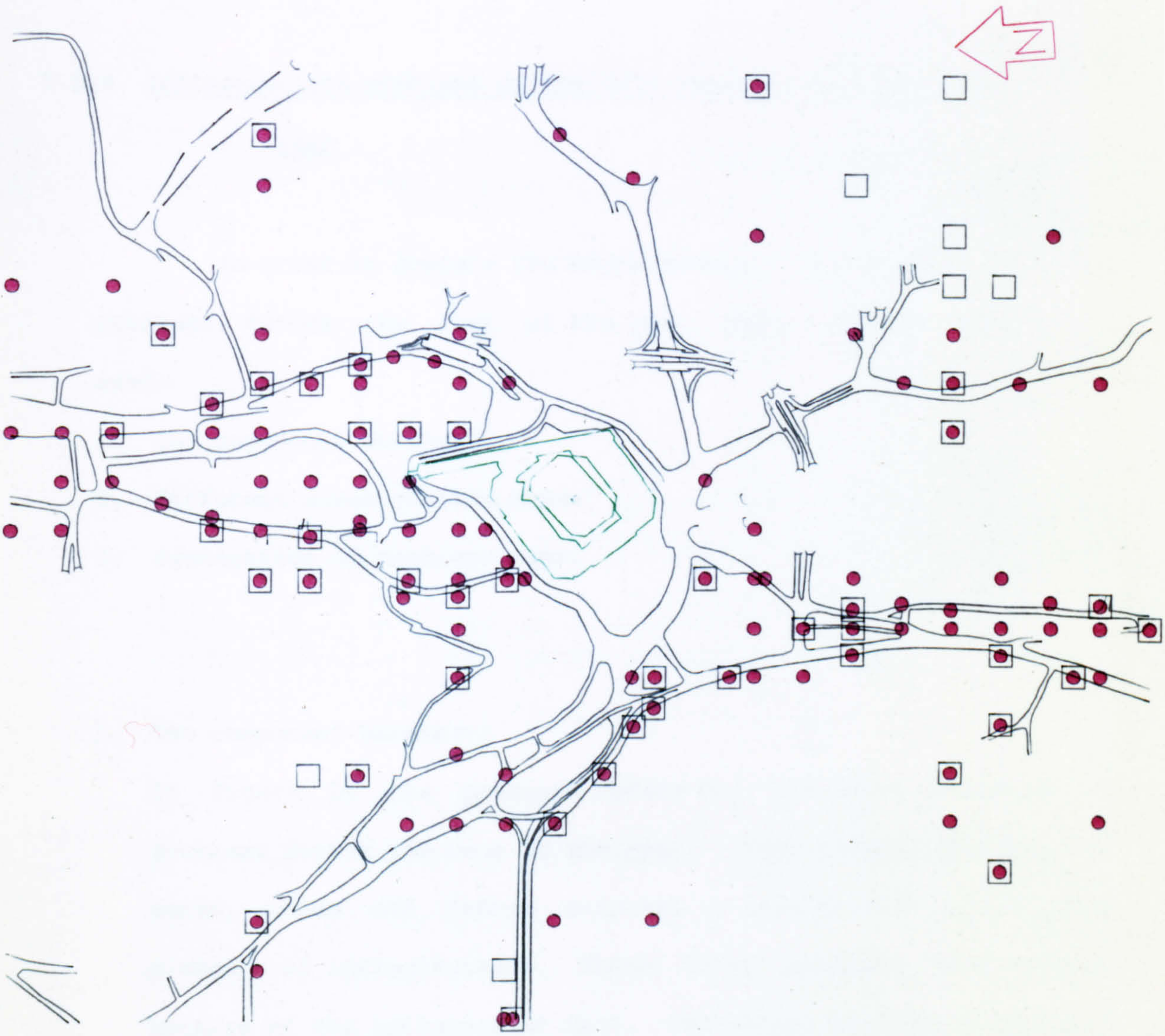
Car ownership and accessibility:

- ● Own a car.
- ○ Do not own a car.
- □ The car can reach the front of the building.
- ☐ The building is not accessible by car.

Note: No square means no answer from the respondent.

0 200 400 600 m

MAP No. 40 : THE PROBLEM OF NOISE



The problem of noise exists:

- During Hajj only.
- During the rest of the year.
- During the whole year.

0 200 400 600 m

7.1.9 Infrastructure problems during Hajj compared with the rest of the year

In order to compare the major problems during Hajj with the problems during the rest of the year, three different methods are used:

1. Two component barchart.
2. Different sized circles maps.
3. Aggregation of problems maps.

1. Two component barchart:

In figure 26 the problems during Hajj are drawn alongside the problems during the rest of the year. The effect of Hajj on water, noise and refuse disposal is greater than on the other elements of infrastructure. These three problems are doubled because of the influence of Hajj. The effect of Hajj on parking, sewerage and electricity is minimal.

In table 9 it is very clear also that all problems are greater during Hajj than during the rest of the year. Another finding is that all of the above mentioned problems are not as great along major roads except for the problem of noise pollution.

Table 9: The percentage of residents affected by infrastructure problems

	Sampling group A		Sampling group B		Sampling group C	
	During Hajj	Annually	During Hajj	Annually	During Hajj	Annually
Water	77.5	41.9	65.8	25.0	75.7	39.0
Parking	74.6	61.0	71.4	42.1	74.3	58.2
Garbage	43.1	23.2	27.4	6.5	40.3	20.3
Sewerage	21.7	17.2	7.9	3.7	19.1	14.9
Electricity	4.9	3.9	2.6	0.9	4.7	3.8
Noise	25.1	10.8	49.6	21.3	28.6	12.5
Other	4.0	2.7	3.8	3.0	3.1	2.6

Sampling group A: Grid sampling selection.
Sampling group B: Along major roads only.
Sampling group C: Total number of cases.

2. Different sized circles maps:

In maps 41 and 42 all of the problems are drawn together in one map. The first one deals solely with problems which occur during Hajj and the second with problems during the rest of the year. It is important to realize that in all maps the appearance of more data along the main roads is due to the increased samples there and not necessarily to their actually being more problematic. Each circle size represents a particular problem and thus the total number of problems at each point can be worked out by counting the number of circles without considering the size of the outer circle. By comparing these two maps one can easily detect that the total number of problems during Hajj is

greater than during the rest of the year. The problems are also centred mainly to the north of the Holy Mosque and along major roads.

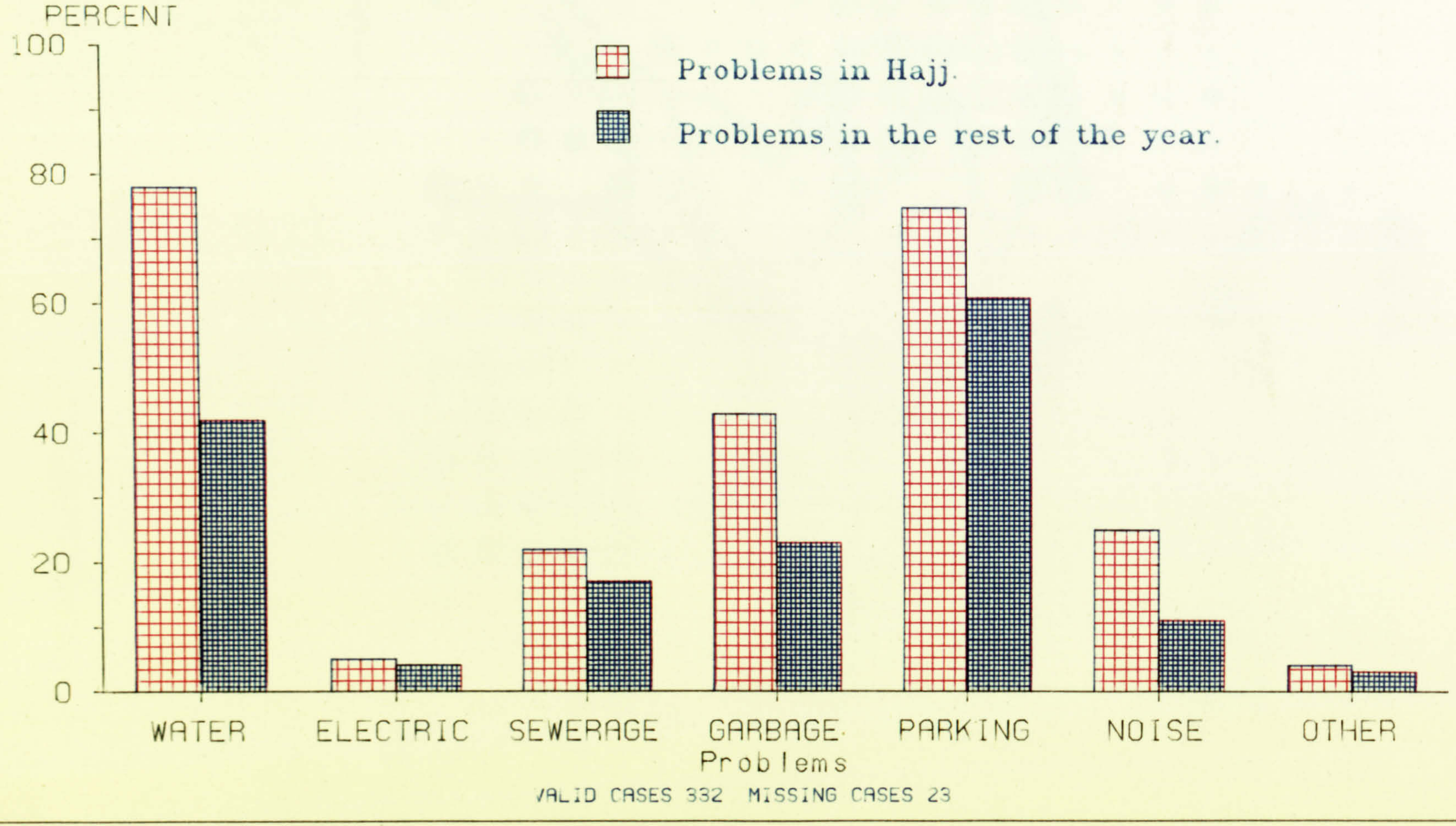
3. Aggregation of problems maps:

For an easier understanding of the total number of problems a further four maps were drawn according to the aggregated number of problems. Maps 43 and 44 are drawn for the problems during Hajj and maps 45 and 46 during the rest of the year. In the first two maps the problems during Hajj are dispersed over the whole area with some concentration in the hilly side of the three haras 'Al-Misfalah', 'Al-Shubayka' and 'Al-Hafayer', but for the total problems during the rest of the year the above mentioned haras are very distinct. This is mainly because of the difficult topography and the haphazard and dense urban growth in that area.

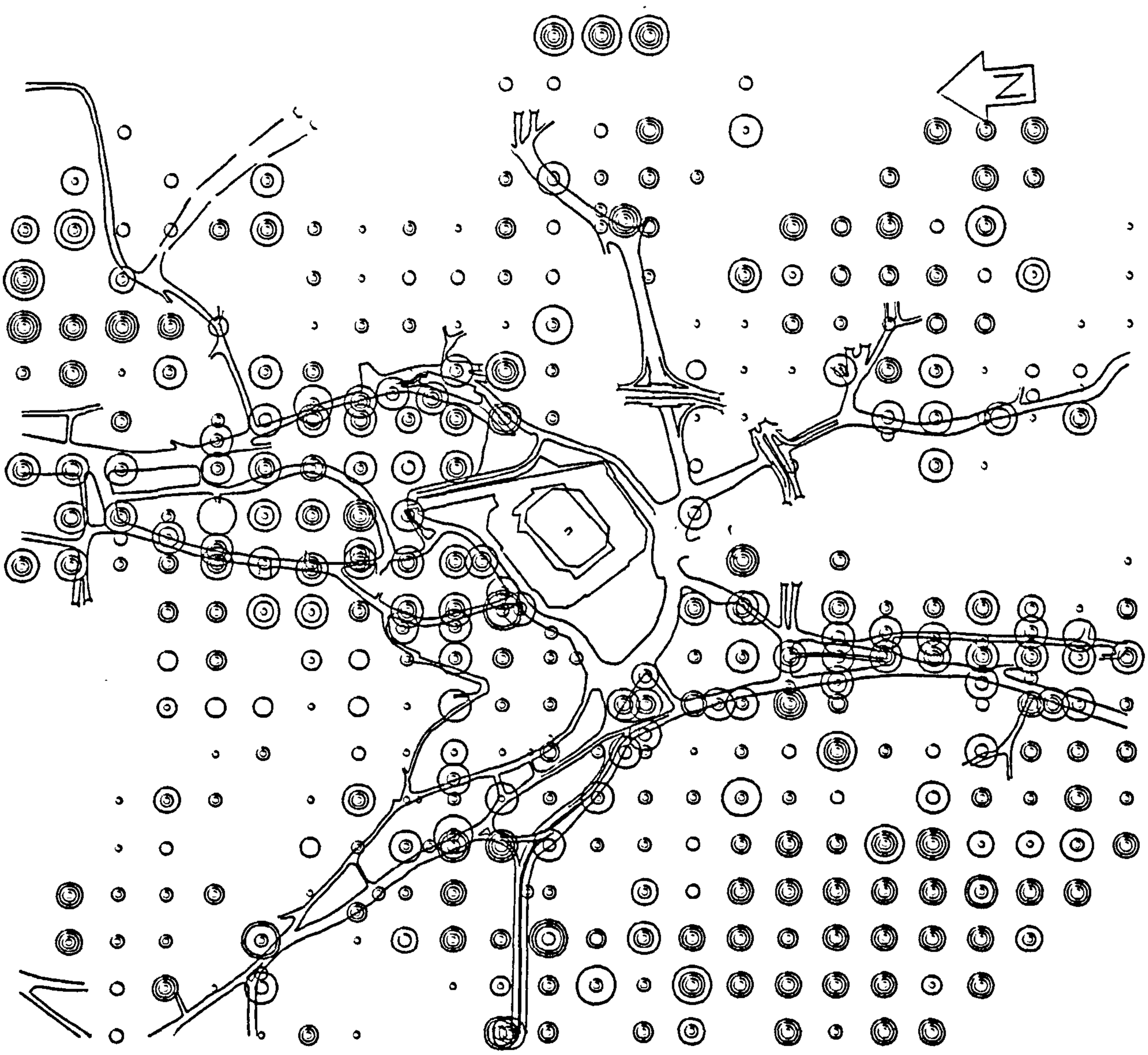
7.1.10 Occupants' attitude towards the influence of building services and community facilities on occupation rate

People were asked whether they agreed that if the building services and community facilities were improved, this would encourage landlords and tenants to live in the central districts. The percentages of those who strongly agreed or only agreed to the proposal were 26.0 and 54.8 per cent respectively. The percentages of those who were uncertain, disagreed and strongly disagreed were

Figure 26 : PROBLEMS IN HAJJ COMPARED WITH THE REST OF THE YEAR



MAP No. 2 PROBLEMS DURING HAJJ

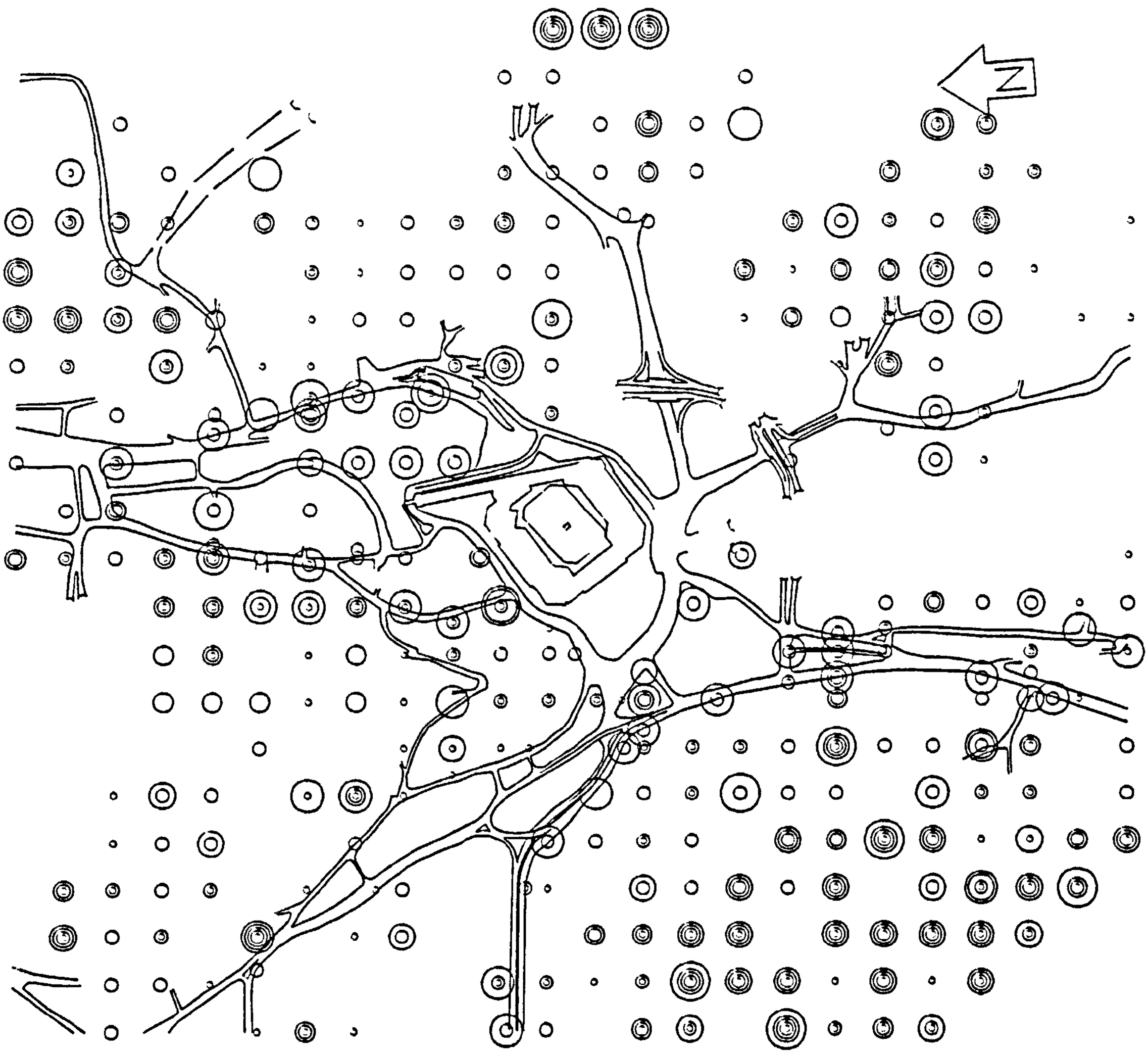


Sampling group C

The major problems are:

- Water.
- Parking.
- Garbage.
- Sewrerage.
- Noise.
- Electricity.

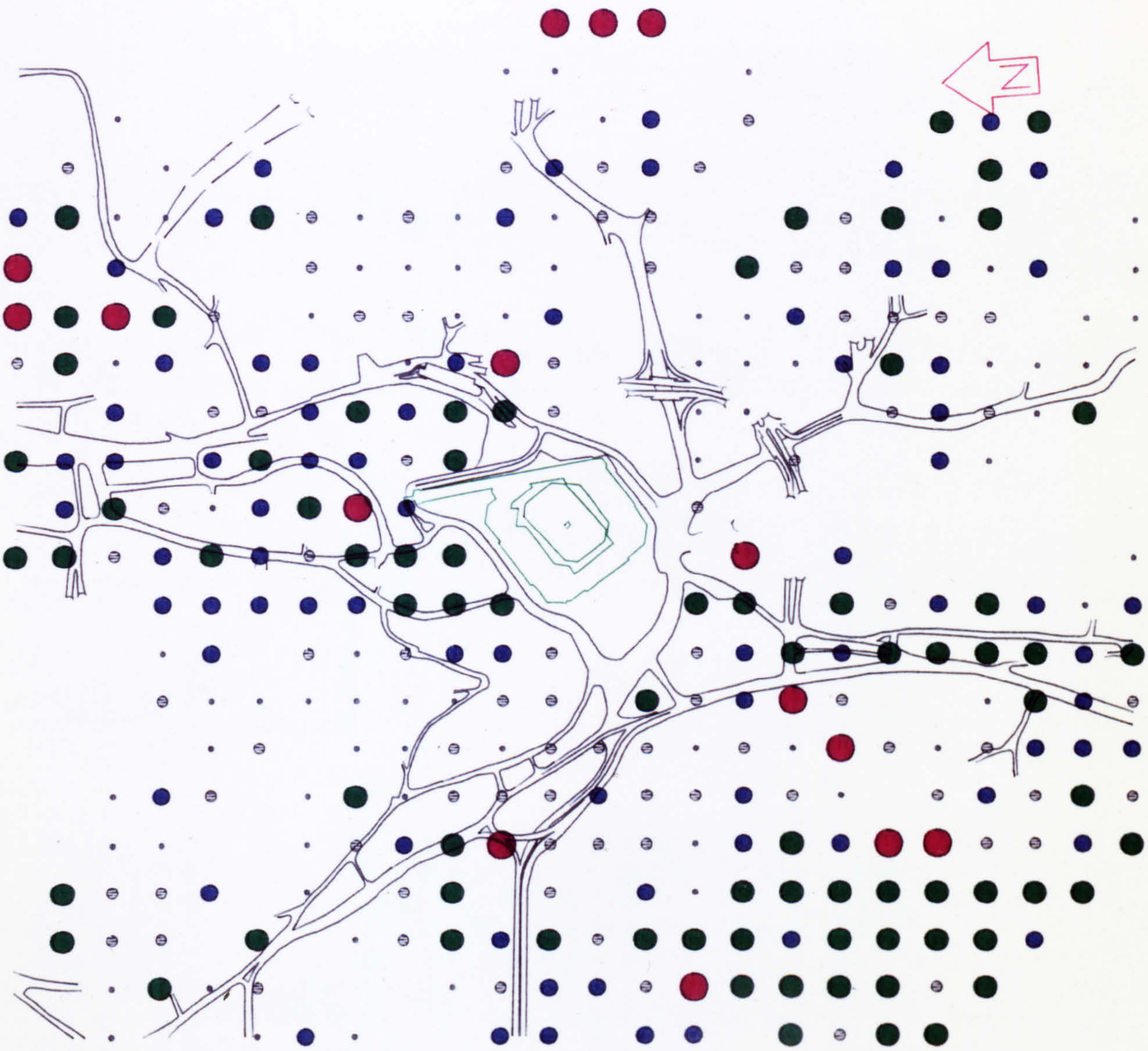
0 200 400 600 m



The major problems are:

- Water.
- Parking.
- Garbage.
- Sewrerage.
- Noise.
- Electricity

MAP No. 43 : AGGREGATION OF PROBLEMS DURING HAJJ



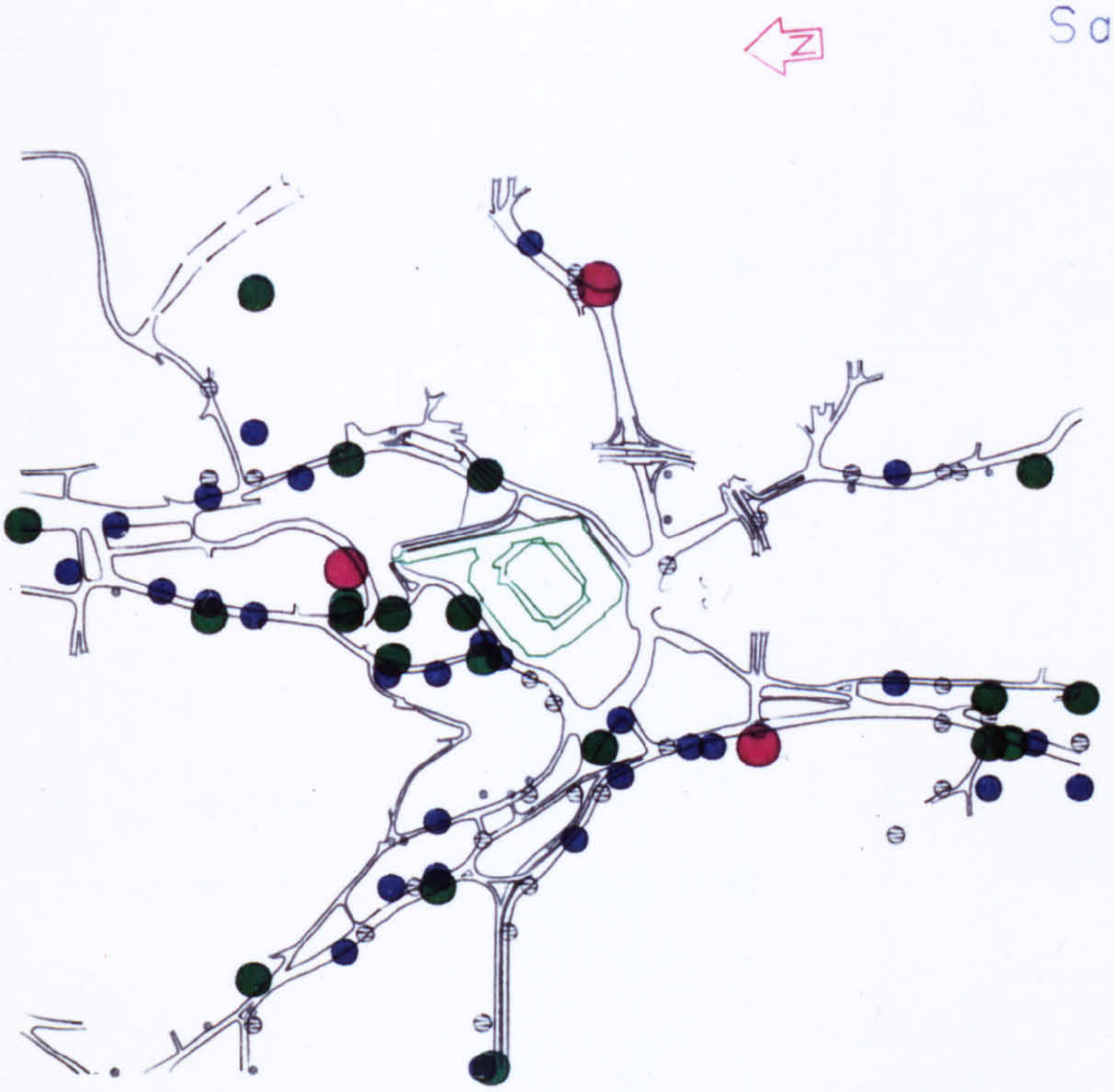
The aggregate number of problems:

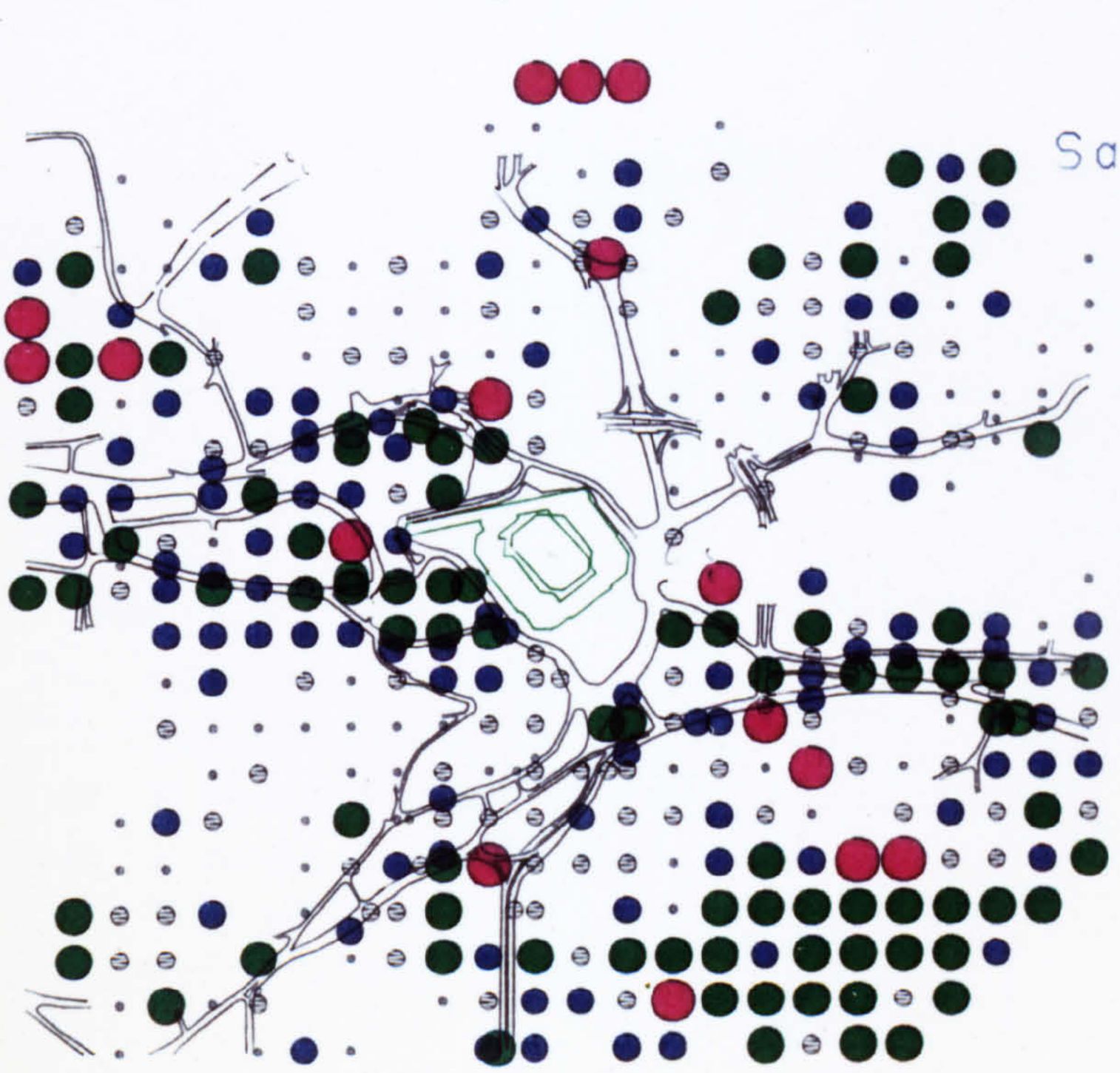
- One problem only.
- Two problems.
- Three problems.
- Four problems.
- Five problems.
- Six problems.

Problems are: water, parking, electricity, garbage, noise and sewerage.

0 200 400 600 m

MAP No. 44 : AGGREGATION OF PROBLEMS DURING HAJJ



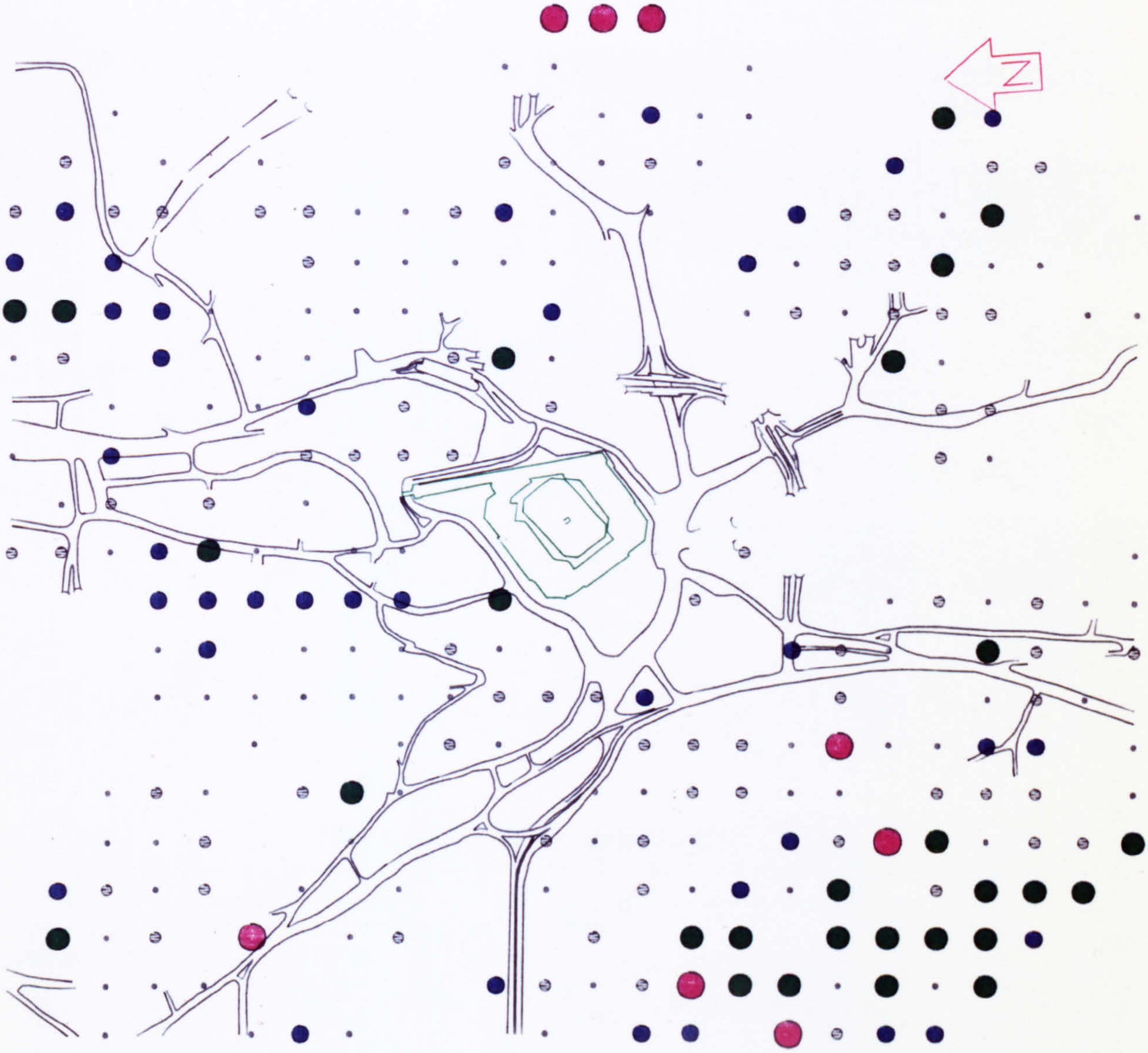


The aggregate number:

- One problem only.
- Two problems.
- Three problems.
- Four problems.
- Five problems.
- Six problems.

Problems are: water, parking, electricity, garbage, noise and sewerage.

MAP No. 45 : AGGREGATION OF PROBLEMS DURING THE WHOLE YEAR EXCEPT HAJJ PERIOD



The aggregate number of problems:

- One problem only.
- Two problems.
- Three problems.
- Four problems.
- Five problems.
- Six problems.

Problems are: water, parking, electricity, garbage, noise and sewerage.

0 200 400 600 m

MAP No. 46 : AGGREGATION OF PROBLEMS DURING THE WHOLE YEAR EXCEPT HAJJ PERIOD



Problems are: water, parking, electricity, garbage, noise and sewerage.

16.8, 1.2 and 1.2 per cent respectively. From this question we can see how infrastructre services and community facilities are of great importance for peoples' occupation rate and housing trends. All infrastructure services are adequate during the whole year because they are designed to cater for the maximum demand level during Hajj, except for water and parking which are of major nuisance. Due to the shortage of flat land and high land cost there are no parks or playgrounds in the central neighbourhoods. A hierarchy of open spaces and parks is highly recommended.

7.2 THE AVAILABILITY OF FINANCE AND THE CONSTRAINTS ON THE HOUSE DESIGN

There is only one major source of finance available but, as an architect, the writer will not discuss the financial and investment problems in detail. However, in general, the Real Estate Development Fund (R.E.D.F.) does not give any chance for any other competitor to play any role in housing in the central districts of Makkah. Buildings are either built by loan from R.E.D.F. or by landlords' private resources.

For these reasons the establishment of REDF and its objectives, role, types of loans, number of loans and influence on the house design is to be discussed in this part of the study.

7.2.1 The Real Estate Development Fund

A proposal for the establishment of the R.E.D.F. was put forward by the Ministry of Finance and National Economy. The Council of Ministers approved the proposal and the REDF was established by Royal Decree in 1974.

The Minister of Finance and National Economy and the head of the Management Committee of the R.E.D.F. Mr. Mohammad Abalkhail, stated that the loans were to be extended without bearing costs or charges and were to be repaid in instalments over a period of 25 years. In addition, there was to be a reduction of 20 per cent of the principal instalment if it was repaid within 60 days of its maturity date. Indeed, the amount paid annually to cover the costs of building a house is less than the rental value of a house similar to that which the borrower builds. Due to the simplicity of the lending terms, the easy terms of repayment and the increasing amounts allocated by the government in the Kingdom's budget (which have reached about fifty one thousand and one hundred million Riyals) the number of the housing units built with the assistance of the Fund's loans amount to 275,119, covering 1,270 of the Kingdom's towns and villages[1].

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[1] Real Estate Development Fund. "Seven Year Review. 1975-1982." Riyadh, Saudi Arabia. p:5.

The institution is administered by a committee composed of a President and seven members. The President is nominated by the Minister of Finance and National Economy. Of the seven committee members, there is a representative of each of the Ministry of Finance and National Economy, the Ministry of Municipal and Rural Affairs, the Ministry of Planning and the Ministry of Public Works and Housing.

There are two principal types of loans, which serve the goals of R.E.D.F. They are as follows:

1. Private loans:

   Long-term, interest-free loans are provided to middle and low income Saudi landowners for the purpose of private housing construction. These loans should not exceed 70 per cent of the building cost, with an upper limit of S.R. 300,000 per loan. Each citizen is allowed to take out one loan only in his lifetime. Loans designated for use in major cities are limited to S.R. 300,000, in medium size towns they are limited to S.R. 250,000, and in small villages to S.R. 200,000.

2. Investment loans:

   Interest-free loans are provided to Saudi nationals wishing to construct multi-unit projects for investment purposes. These loans should not exceed 50 per cent of the building cost, with an upper limit of S.R. 10 millions. The main objectives of investment loans are:

   a. To increase availability of housing units.

b. To give Saudi investors the opportunity to participate in the construction of large housing complexes.

c. To encourage the building of more buildings suitable for commercial centres, companies, offices and business centres.

Loans specifically geared towards the construction of private houses represent 99 per cent of the total number of loans awarded, and 95 per cent of the total value of the loans financed by the REDF during the first seven years from 1975-76 until 1981-82.

In order to ascertain the actual number of loans given to Makkah residents the writer visited the computer department of the REDF in Riyadh and the information in table 10 was obtained. In table 10 the number of loans means the number of houses and the minimum number of dwellings built. As some landowners build more than one dwelling in the same house the actual number of dwellings will be larger but the writer was unable to obtain the exact figure. However, it is possible to assume that since the total number of loans in the Kingdom is 212,299 and the total number of dwellings built is 254,759[1] then for each loan 1.2 dwellings[2] are built; thus the total number of dwellings built by loans from the REDF in Makkah can be estimated at approximately 12,600 dwellings during the eight years from the fiscal year 1975/76 until 1982/83.

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[1] Real Estate Development Fund. 1982. Op cit. Table: Private housing loans for the period 1975/76 - 1981/82. p:22.

[2] The ratio for central Makkah could be more than this figure because of the great demand for accommodation. This figure could be the minimal estimation.

Table 10: Private housing loans

Fiscal Year	No. of loans in Makkah	No. of loans in Western Region	No. of loans in the Kingdom
1975/76	1,811	4,371	34,189
1976/77	2,555	7,547	46,955
1977/78	198	924	3,832
1978/79	1,049	4,674	34,407
1979/80	719	4,317	33,190
1980/81	1,258	4,565	28,593
1981/82	1,638	5,124	31,133
1982/83	1,281	4,914	**
Total	10,509	36,436	212,299

** Data not available.

Source: Compiled by the author.
Data provided from the Computer department, REDF,
Riyadh, Saudi Arabia.

Since 25 per cent of the buildings in central Makkah were built after 1974 (see figure 20), then 75 per cent of buildings were built before the establishment of the REDF and so one would expect a low percentage of houses built by loan from the REDF. The percentage of houses built by loan from the REDF in central Makkah is 12.2 per cent and 64 per cent of them were built from private loans and the rest were from investment loans. The percentage of houses built by loan from the REDF is lower along major roads[1]. The figure obtained was 6.6 per cent, of which 17 per cent were built from private loans and 83 per cent were built from investment loans. In general, the majority of houses built with loans from the R.E.D.F. are built with

[1] Analysis group B.

the assistance of private loans, but along major roads the majority are built from investment loans.

Map 47 reveals that practically none of the houses built by loans from the REDF face the Holy Mosque or are very close to it. They are mostly on hilly sites and along minor streets. It is quite normal to find such low percentages of houses built from loans in the central districts as most of the landowners in that area are wealthy and loans are only given to those who do not own any accommodation. Another reason is that loans are given to build on virgin land. Furthermore, the growth in the city centre is normally marginal.

7.2.2 R.E.D.F. constraints on the house design

The REDF did succeed in realizing their goals in terms of numbers, but one must alsoconsider the design, building materials and standards of these large number of houses built in the Kingdom. When the writer asked about the responsibility of giving planning permission and controlling the design of the houses the REDF officials stated that the above fell under the jurisdiction of the Municipality. The REDF's job is to visit the project four times, once before work commences and then to approve the payment of the next part of the loan on completion of each phase. The final part of the loan is paid when the house is completely finished within a maximum period of two years. It would appear that the REDF has no influence on design, building materials and standards, as it has no

MAP No. 47 . BUILDINGS CONSTRUCTED BY LOAN FROM THE REAL ESTATE DEVELOPMENT FUND



Type of loan:

- ● Private loan.
- △ Investment loan.

0 200 400 600 m

control over planning permission. However, in reality this is not the case.

The landowner completes an application form in which he agrees to follow restricted design criteria and standards of his own choice[1]. This application form is called the design criteria and the built area agreement (see appendix E). There are three or four boxes of different choices each dealing with a different aspect. There are different credits for boxes, which means that when people always choose the first box they will recieve the maximum amount of loan, and on choosing all of the last boxes they will receive the minimum amount. For example, the first point on the application form is concerned with the structure. If the house is built with a reinforced concrete frame structure the landowner will have 300 credits; if it is built with a load bearing walls structure but the roof is built in reinforced concrete the credit will be 150; if the roof is built of wood the credit will be 90. Normally, people would choose the first box because it ensures them the maximum amount of loan without considering the requirements of the design and whether it needs a reinforced concrete frame structure or whether a load bearing wall structure is sufficient. The sum of all credits represents the value of construction per square metre.

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[1] The engineer, who visits the site to ensure that the proposed phase is completed, normally has an evaluation sheet to check that agreement and accordingly the next part of the loan is given exactly or reduced if it is not as it was supposed to be.

If we continue through the application form of the design criteria and the built area agreement we will find many contradictions, either to social life or the environment. The second aspect deals with the location of the house in relation to the land. The landowner is encouraged to build the house in the centre of the plot leaving open spaces on all four sides so that the house will be set back from all four directions; for this he will receive 140 credits. If his house is set back from three,two,one or no direction, he will get 120,70,35,0 credits respectively. This condition contradicts the principal of the courtyard house which normally has open spaces inside the house rather than outside and normally has one or two facades. The third aspect worsens the situation as landowners will receive more credits if they plaster the house on all four facades. This encourages the building of detached houses rather than terraced houses which are more appropriate in such a hot climate because they increase the mutual shading and expose the minimum facades to the intense solar radiation.

In the fourth point the landowner is encouraged to have a complete Western bathroom and toilet, consisting of four pieces, so that he will obtain 130 credits, but if it consists of three, two or one piece he will receive 100,60,25 credits respectively. Most people do not use baths nor Western toilets but if they install Eastern toilets, they will get fewer credits.

In the eighth point the landowner is encouraged to use aluminium windows rather than wooden ones. For increased privacy and to reduce the amount of external glazing in such a hot climate it is preferable to have wooden windows with a minimal amount of glazing but in fact the opposite occurs due to the credit scheme.

Finally, the writer is of the opinion that the role of the REDF could be improved to meet cultural and environmental requirements by considering the above mentioned contradictions. The solution may be the introduction of flexible choices which could suit cultural and environmental requirements. In the central districts of Makkah, the effect of the REDF is not of major importance, due to the fact that the percentage of houses built by loan from the REDF is only 12.2 per cent, but in new housing settlements the percentage is much higher and the effect is very clear.

7.3 PLANNING PERMISSION AND THE ACTUAL USE OF RESIDENTIAL BUILDINGS

As a result of the unique situation of Makkah, the buildings in the central districts have been designed for different purposes. The most common purpose of the buildings in the data set, was for private use (31.2 per cent of the buildings). The percentage of the buildings designed for renting in Hajj only was 7.9 per cent and the

lowest percentage (0.3 per cent) was for 'Wakf' buildings[1] The percentage of the buildings designed for renting all year round was 28.2 per cent and for both private use and renting during Hajj was 26.7 per cent.

Table 11 reveals that the percentage of buildings designed for both private residence and renting during hajj is higher along major roads (36.5 per cent). The percentage of buildings designed for renting during Hajj only is also higher along major roads (13.5 per cent) but despite this it is less than expected. Since 75.4 per cent of the dwellings along major roads are rented during Hajj, one would expect that the first two percentages mentioned here would be equal to or at least approximate the third. The "other" category in table 12 was coded for buildings designed for other purposes; such as renting annually and renting during Hajj, private residence and renting annually, and those commercial and educational buildings which were converted for residential purposes. In general, for buildings in the central districts of Makkah and especially along major roads, it is very important to be able to rent them during Hajj and this is highly recommended. The Municipality has an important role to play here before giving planning permission.

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[1] There are two types of 'Wakf' buildings. The first type is the free accommodation for the poor built by the rich as an act of piety and charity. It is normally supported and maintained by funds of the founder. The second type of 'Wakf' is those buildings which are built by the rich families as a long term investment project for their benefit and their future generations.' In this research we are concerned with the first type.

Table 11: Different building planning permission percentages

Planning permission	Grid sampling (group A)	Along major roads (group C)
Renting annually.	28.2	25
Renting in Hajj.	7.9	13.5
Private residence.	31.2	15.4
Private and renting in Hajj.	26.7	36.5
Wackf.	0.3	2.9
Other.	5.7	6.7
Total percentage:	100.0	100.0

Table 12: Building planning permission by different building types in central Makkah

Building type.	Renting annua-lly	Renting in Hajj	Private reside-nce	Private and Renting in Hajj	Wackf	Other
Traditional	20.8	7.5	42.2	24.0	1.4	4.1
Modern flats	23.5	7.4	22.2	38.3	---	8.6
Improved or exte-nded traditional	30.4	13.0	29.0	23.2	1.4	2.9

In table 12 the percentage of traditional buildings designed for private residence is 42.2 per cent and for renting annually is 20.8 per cent. For improved or extended traditional buildings the percentage designed for private residence is 29 per cent, and for renting annually is 30.4 per cent. From these percentages, it seems

that the improvement or extension of traditional buildings was mostly towards renting annually or renting during Hajj only. The modern flats were mostly designed for both private residence and renting during Hajj.

Map 48 shows that buildings designed for private residence only and for renting annually are farther away from the city centre than others. Buildings designed for both private residence and renting in Hajj are mostly centred along major roads and buildings designed for renting during Hajj only are either located on major roads or very near to the Holy Mosque.

Some of these buildings (11.4 per cent) were altered because of the great demand for accommodation in Hajj time. In fact, any building designed for renting all year round cannot fully satisfy the Hajj renting requirements. The social requirements for residents and pilgrims from all over the world are different. The median, mode and mean of the household size in central Makkah is 6.0, 5.0 and 6.7 persons respectively while the average number of pilgrims per room is 7.55[1] The difference in density between the two cases is very high and this should be reflected in the dwelling services and amenities.

For the time being the Municipality's permission for use is granted for any residential purpose with no consideration given to

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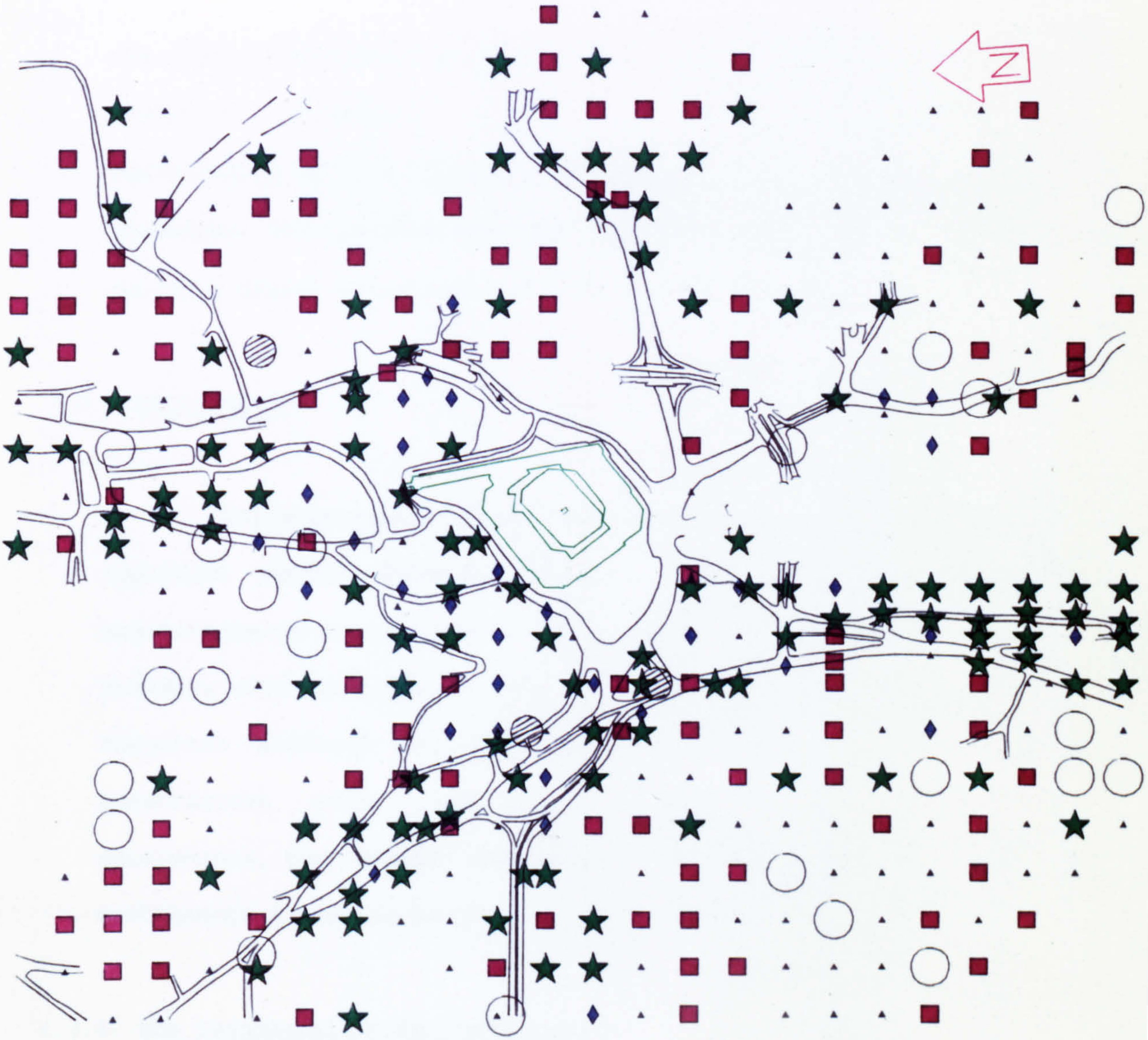
[1] Ghazy Makky. 1981. Op cit., p:109.

MAP No. 48 : THE PURPOSE OF THE RESIDENTIAL BUILDINGS



The building has been designed for:

- ▲ Renting annually.
- ♦ Renting in Hajj.
- ■ Private residence.
- ★ Private and renting in Hajj.
- ▨ Wackf.
- ○ Other. See text.

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the special different types of residential uses in the central districts of Makkah. Consequently, it is very important for the Municipality to help and direct landlords to make the right decisions regarding the purpose of the building and then to restrict the building design to satisfy the requirements of that purpose.

7.4 MAINTENANCE

The maintenance of traditional and modern buildings is a very important factor affecting housing. When the responsibility of maintenance is not defined either by the landlord or the tenant, the building will deteriorate. The running cost of the house is normally forgotten although it could be as important as the initial construction cost. In this section the responsibility for maintenance, the annual maintenance cost per dwelling, and the maintenance needed in vacant and occupied dwellings are discussed.

7.4.1 The responsiblity for maintenance

The responsibility for maintenance could be borne by three different parties:

1. The landlord.
2. The tenant or occupant who is not the landlord.
3. The estate agent or similar body.

In the central districts of Makkah 62 per cent of landlords are responsible for maintenance as against 37 per cent of tenants. Estate agents and similar bodies represent only 1 per cent of the population sampled. Although tenants who maintain their dwellings represent 37 per cent, there is no written agreement or condition between them and the landlord for doing so. In any case, tenants would maintain their internal space but they would not look after external problems which do not affect them. In most cases it is left to the interest of the landlord who will look after the building carefully if he obtains good profits from it and will not do so if the building is not very profitable. It is only due to a lack of knowledge that many landlords ignore the responsibility of maintenance and it is for this reason that some buildings look dilapidated.

7.4.2 The annual maintenance cost per dwelling

In the analysis of the maintenance cost per dwelling there were some extreme values which affected the mean. These did not seem consistent, so they were not included in the calculations. The mean of the annual maintenance cost per dwelling if occupied was S.R. 2,202, and if vacant was S.R. 1,405. The median if occupied was S.R. 1,000 and if vacant S.R. 500. From these figures we realise that the maintenance cost is higher for occupied dwellings but for vacant dwellings the cost is more than expected. Some landlords thought that if the dwelling was vacant throughout the whole year except

during Hajj it would cost nothing for maintenance, but in reality it costs nearly two thirds of the maintenance cost of an occupied dwelling. Comparing these costs with the mean annual rent value per dwelling and Hajj only rent value[1] shows that the percentage of maintenance cost to the rent value is about three to five percent[2]

7.4.3 Maintenance needed in occupied and vacant dwellings

The type of jobs needed for maintaining the dwellings are shown in figure 27. The two most important tasks mentioned were plumbing and painting. The percentage difference between occupied and vacant dwellings regarding maintenance jobs is marginal except for plastering. The percentage of people who said that plastering was needed in vacant dwellings is 19.7 per cent and in occupied dwellings the percentage is 50.3 per cent. The rank order of importance of jobs is painting, plumbing, wiring and joinery work respectively. These results confirm also that leaving the dwellings vacant all year round except during Hajj, rather than renting them annually should not be seen as an effective way of saving on maintenance.

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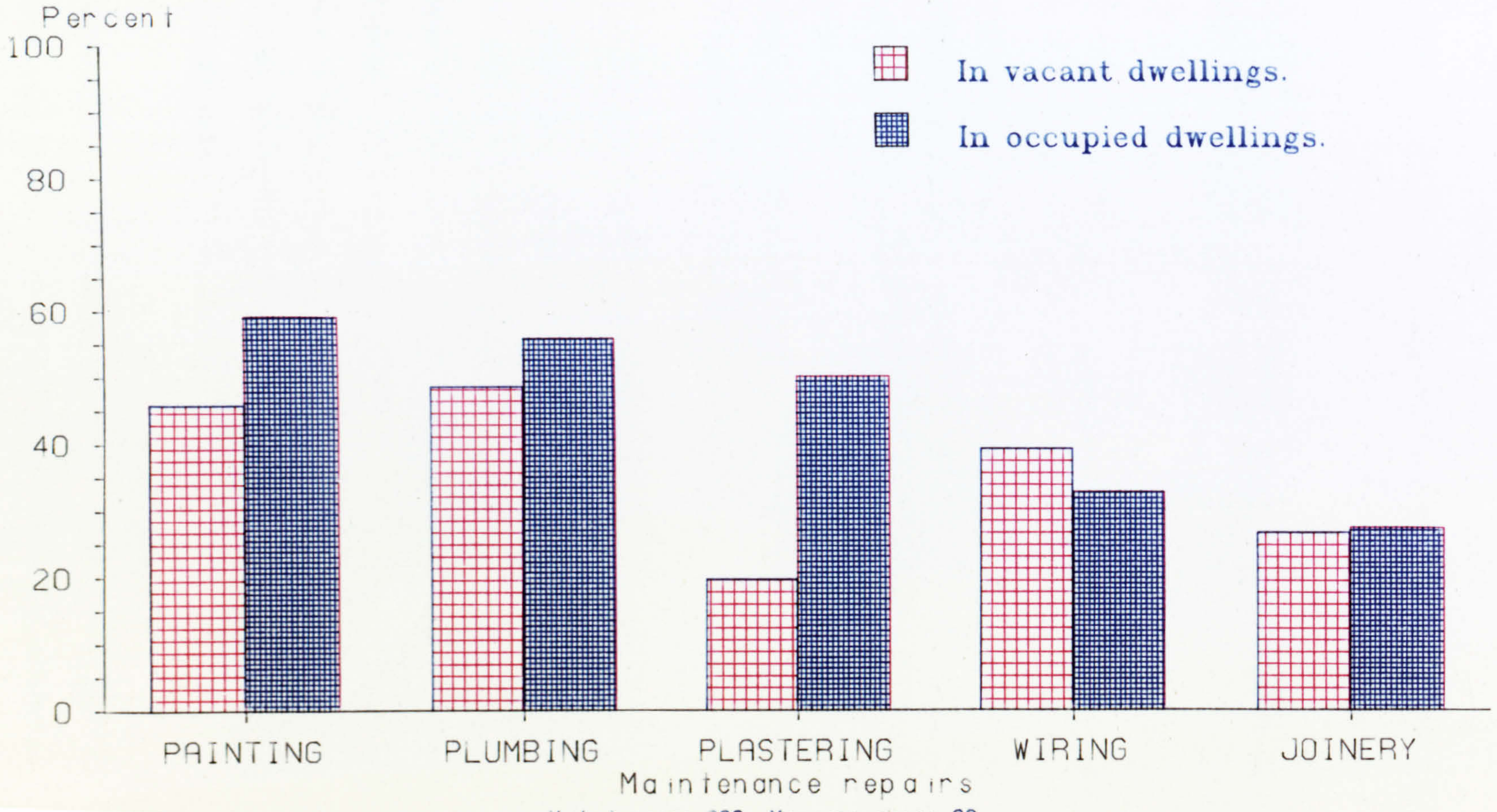
[1] Which is S.R. 17,206 and S.R. 18,912 respectively.

[2] According to the median of the maintenance cost if occupied and if vacant.

Figure 27 : MAINTENANCE REPAIRS NEEDED



7.5 SUMMARY

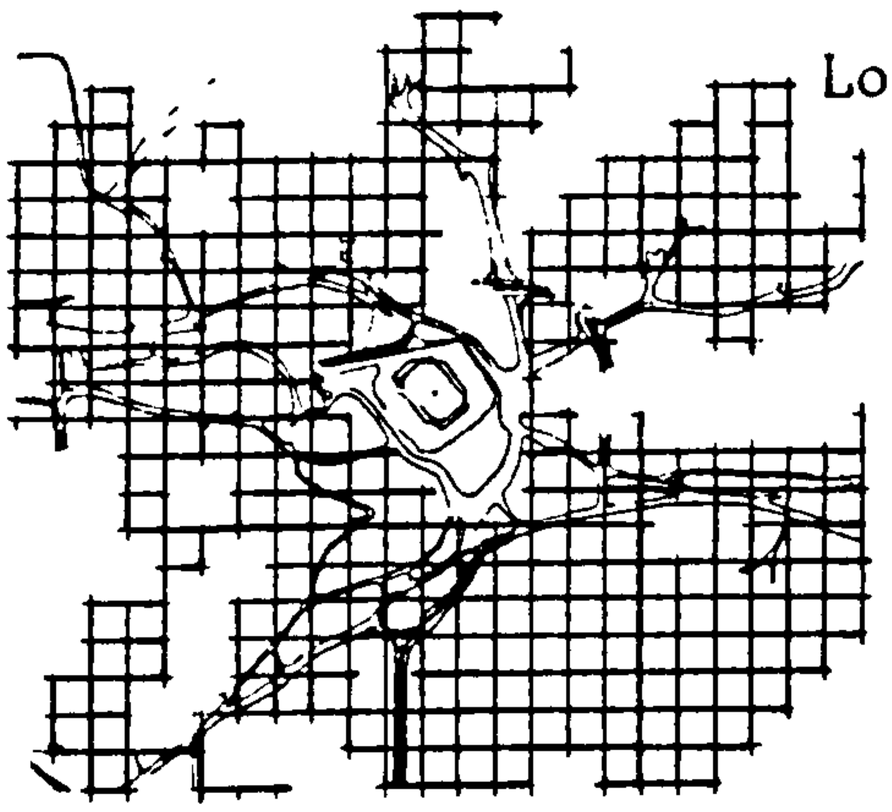
The infrastructure issue in housing is of major importance. The most significant problems which affect people in central Makkah are water supply and parking. Refuse disposal, sewerage and noise are the three next most important issues affecting residents. The effect of Hajj on water supply, noise pollution and rubbish collection is greater than on the other factors. In general, all problems are greater during Hajj than during the rest of the year, and all problems are not as great along major roads except for the problem of noise pollution. The occupants' agreed that one other aspect which could encourage people to live in the central districts would be the improvement of building services and community facilities.

As the REDF is a new establishment the percentage of dwellings which were built by their fund is 12.2 per cent. Because of this their impact on housing in the central districts of Makkah is of minor importance. The role of the REDF could be better improved if it allowed more flexibility for the participation of the people in the design and specification. The central area is more in need of rehabilitation or improvement loans than any other assistance.

The Municipality's permission for the residential use of buildings should be more specific to satisfy both the requirements of Hajj and the rest of the year in each building. It is very important

to direct and then restrict the building design to satisfy the requirements of that purpose.

Most landlords maintain their own buildings and few of them ask tenants to be responsible for maintenance. Even those who do so do not normally have a clear written agreement to define the exact responsibility of each party. The median of the annual maintenance cost per dwelling if occupied is double that of a vacant dwelling. It is worth noting that contrary to expectations it does cost money to maintain an empty dwelling. The most important two maintenance jobs are plumbing and painting.



CHAPTER 8

TESTING HYPOTHESES

8.1 Testing hypothesis number one
8.2 Testing hypothesis number two
8.3 Testing hypothesis number three
8.4 Testing hypothesis number four
8.5 Testing hypothesis number five

CHAPTER EIGHT

TESTING HYPOTHESES

It is important to mention that the central districts of Makkah have their own special characteristics. Makkah as a holy place is the destination towards which millions of pilgrims travel each year. They come at a fixed time for a special purpose to perform their special duties within a limited space. Such prior information will help us in explaining the statistical results found in the analysis, using the Pearson correlation coefficient and multiple linear regression[1].

It is quite difficult to draw straightforward relationships and hence the regression results will be one of our main tools to test the hypotheses mentioned previously in Chapter one. The Ordinary Least Square (OLS) method is used in the analysis because it has the best linear unbiased estimate. It was used to select the appropriate specification of the different equations of the

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[1] Multiple regression analysis is used for testing hypotheses about the relationship between a dependent variable and two or more independent variables and for prediction. Regression analysis implies (but does not prove) causality between the independent variable, X, and dependent variable, Y. However, correlation analysis implies no causality or dependence but refers simply to the type and degree of association between two variables.
Salvatore, Dominick. "Statistics and Econometrics". McGraw Hill, Inc. U.S.A. 1982. pp:133,142.

econometric investigations. The "t statistics"[1] are given in the discussion after each equation. The standard error of the coefficient parameters are given in parenthesis below the parameter estimates. R^2, the coefficient of determination[2], is used to measure the explanatory power of the regression equation. The explanatory power for the coefficient is determined by the degrees of confidence by which the test will be accepted; * denotes the 10.00 per cent level of confidence; ** the 5.00 per cent level of confidence; and *** the 1.00 per cent level of confidence.

In this chapter, our concern is to test the research hypotheses and highlight the principal findings. The Pearson correlation coefficients in table 13 show the type and degree of association between the annual rent, Hajj rent, number of floors, preferred number of floors, number of rooms, number of dwellings, number of vacant dwellings, building location and road type. The significant values are tested by the multiple regression analysis to ascertain the causal relationships between them. To obtain satisfactory and significant results, more than 200 equations were

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[1] The t statistic for each parameter estimate gives the value of the parameter estimate divided by its estimated standard deviation (the standard error). This value can be compared directly to critical values in the t-table to test the hypothesis that that parameter is equal to zero.
Kennedy, Peter. "A Guide to Econometrics". 2nd ed. Basil Blackwell Ltd., Oxford, U.K. 1979. p:52.

[2] R^2 is defined as the proportion of the total variation in Y "explained" by the regression of Y on X.
Salvatore 1982. Op cit. p:145.

Table 13: Pearson's correlation coefficients

VARIABLES	RENTPR	RENTHPR	NO.FLR	PREFHIGH	NO.ROOM
RENTHPR	0.80**				
NO.FLR	0.37*	0.20*			
PREFHIGH	0.24	0.12	0.45***		
NO.ROOM	-0.38*	-0.12	0.09	-0.05	
NO.DWLNG	0.23**	0.28**	0.71***	0.33***	0.08
NO.VAC.D	-0.31	0.32**	0.55***	0.30***	0.04
BUILDLOC	0.35*	0.10	0.46***	0.48***	0.06
ROADTYPE	0.40*	0.33**	0.46***	0.40***	0.11*
YEARCONS	-0.07	-0.01	0.07	-0.23**	-0.29***

VARIABLES	NO.DWLNG	NO.VAC.D	BUILDLOC	ROADTYPE
RENTHPR				
NO.FLR				
PREFHIGH				
NO.ROOM				
NO.DWLNG				
NO.VAC.D	0.89***			
BUILDLOC	0.25***	0.21*		
ROADTYPE	0.31***	0.26***	0.64***	
YEARCONS	0.12	0.04	0.11	0.12

* Significant at .05 level.
** Significant at .01 level.
*** Significant at .001 level.

RENTPR = Annual rent value per room.
RENTHPR = Hajj rent value per room.
NO.FLR = Number of floors per building.
PREFHIGH = Prefered maximum number of floors.
NO.ROOM = Number of rooms per building.
NO.DWLNG = Number of dwellings per building.
NO.VAC.D = Number of vacant dwellings per building.
BUILDLOC = Building location.
ROADTYPE = Road type.
YEARCONS = Year of construction.

tried. Only five of these showed significant results and they are discussed here.

8.1 TESTING HYPOTHESIS NUMBER ONE

High rates of dwelling vacancy in central Makkah, except during Hajj, are desirable for landlords for economic reasons.

In section 6.4 it was found that for landlords it is much more profitable to rent out accommodation during Hajj only rather than to do so during the whole year. The mean annual and Hajj rent values per dwelling are S.R. 17,206.89 and S.R. 18,912.20 respectively. To test the above hypothesis the following equation was introduced:

$$NVD = bo + b1\ NF + b2\ ND + b3\ YC + b4\ HR + b5\ BL + b6\ RT \quad (1)$$

where:

NVD = Number of vacant dwellings per building.

NF = Number of floors per building.

ND = Number of dwellings per building.

YC = The year of construction.

HR = Hajj rent value per room.

BL = Building location.

RT = Road type.

bo = The constant parameter[1].

bl,b2,b3 .. = Coefficient parameters[2].

Unfortunately, the statistical results for some of the above variables were not satisfactory and hence they were dropped from the equation while the most significant variables were kept. Accordingly equation number one will be as follows:

$$NVD = bo + b1\ ND + b2\ HR \qquad (2)$$

This equation gave us the following results:

NVD = -2.90 + 0.93 ND + 0.00008 HR

(0.35) (0.04) (0.00005) B STD ERR

$R^2 = 0.88$ STD ERR = 1.3

F = 283.77 Signif F = 0.0000

where:

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[1] Parameter bo is the constant term, or intercept of the regression and gives the estimated value of Yi when X1i = X2i .. = 0.
Salvatore 1982. Op cit. p:149.

[2] Parameter b1 measures the change in Y for each one-unit change in X1 while holding X2 to X6 constant. Slope parameter b1 is a partial regression coefficient because it corresponds to the partial derivative of Y with respect to X1.
Salvatore 1982. Op cit. p:149.

STD ERR = Standard error.

B STD ERR = Coefficient parameter standard error.

The statistical results for the above equation were in general satisfactory. The goodness of fit for the equation was excellent. Independent variables were successful in explaining 88 per cent of the variation in the number of vacant dwellings per building.

To investigate the relationship between the number of vacant dwellings per building and the other independent variables, that is the number of dwellings per building and the Hajj rent value per room, the above equation shows that the number of dwellings per building is highly significant at the 0.5 per cent level (*** 22.59). However, for the Hajj rent value per room the equation shows less significance at the 10 per cent level (* 1.92). Both values exceeded the tabular value of t which equals (*** 9.93) and (* 1.87) respectively.

To test the overall significance of the regression, an F test [1] was used. The F value was calculated and the result was 283.77 which is highly significant at the level of 0.1 per cent, exceeding the tabular value of F which equals 4.66 at the 1 per cent level. Therefore the hypothesis is accepted that the regression parameters are not all equal to zero and that R is significantly different from zero.

From the above equation the relationship between the number of vacant dwellings per building and the Hajj rent value per room is significant and positively related. For each one unit increase in the Hajj rent value per room there is an increase of 0.00008 units in the number of vacant dwellings per building, if the number of dwellings per building is kept constant, i.e. in a similar number of dwellings per building with each S.R. 10,000.00 increase in the Hajj rent value per room there is an increase of 0.8 vacant dwellings per building. Also the relationship between the number of vacant dwellings per building and the number of dwellings per building is significant and positively related. For each one unit increase in the number of dwellings per building there is an increase of 0.93 units in the number of vacant dwellings per building, if the Hajj rent value per room is kept constant. The standard error for this

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[1] The overall significance of the regression can be tested with the ratio of the explained to the unexplained variance. If the calculated F ratio exceeds the tabular value of F at the specified level of significance and degrees of freedom, the hypothesis is accepted.
Salvatore 1982. Op cit. p:145.

result is 0.04 which is low and acceptable.

The above equation, in the writer's opinion, may explain the most important economic factors, therefore the hypothesis is accepted.

8.2 TESTING HYPOTHESIS NUMBER TWO

Hajj rents and the building location have a significant effect on the annual rent value of housing in central Makkah.

To test the above hypothesis the following equation was introduced:

$$AR = bo + b1\ HR + b2\ BL + b3\ RT + b4\ NF + b5\ YC \qquad (1)$$

where:

AR = Annual rent value per room.

HR = Hajj rent value per room.

BL = Building location.

RT = Road type.

NF = Number of floors per building.

YC = The year of construction.

The statistical results for some of these variables were not satisfactory. The t statistic of the number of floors per building

and the year of construction were very low when compared with critical values in the t-table, and hence they were dropped from the equation and the most significant variables were left.

Accordingly equation number one will be:

$$AR = bo + b1\ HR + b2\ BL + b3\ RT \qquad (2)$$

Unfortunately, the t statistic of the road type variable was very low in this new equation and the standard errors were not satisfactory so this variable was also dropped from the equation. Accordingly equation number two will be as follows:

$$AR = bo + b1\ HR + b2\ BL \qquad (3)$$

This equation gave the following results:

$$AR = \underset{(806.31)}{5826.26} + \underset{(0.08)}{0.51}\ HR + \underset{(330.11)}{1085.69}\ BL$$

B STD ERR

$R^2 = 0.86$ STD ERR = 810

F = 22.11 Signif F = 0.0009

The statistical results for the above equation was satisfactory. The goodness of fit for the above equation was

excellent. The independent variables explain 86 per cent of the variation in the annual rent value per room. The Hajj rent value per room is highly significant at the 1.0 per cent level (** 7.52) and the building location was slightly less significant at the 2.5 per cent level (* 4.86). Both values exceeded the tabular value of t which equals 6.97 at the 1.0 per cent and 4.30 at the 2.5 per cent level.

To test the overall significance of the regression the F value was calculated at 22.11, which is highly significant at the level of 0.09 per cent and which exceeds the tabular value of F which equals 4.66 at one per cent level. Therefore the hypothesis is accepted.

From the above equation, with each one unit increase in the Hajj rent value, there is an increase of 0.51 units in the annual rent value if the building location is kept constant i.e. in similar locations with each S.R. 1.0 increase in the Hajj rent value there is an increase of S.R. 0.51 in annual rent value. In the same way with each one unit increase in the building location, there is an increase of S.R. 1085.69 in the annual rent value, if the Hajj rent value is kept constant. The building location variable consists of four units only. The four units are very steep hillside, steep hillside, gentle slope and flat land. This is why the coefficient parameter of the building location variable is high.

8.3 TESTING HYPOTHESIS NUMBER THREE

It is possible to increase year round residential density in central Makkah with only minor restriction to Hajj renting opportunities.

The findings of our results for the above hypothesis were dealt with in two approaches. The first approach analysed the present situation. We found that there are five different letting arrangements during Hajj. These are:

a- Continue in occupation normally (26.55%).

b- Vacate the dwelling totally (19.00%).

c- Vacate the dwelling partially while living in (51.95%).

d- Vacate the dwelling partially while living out (1.25%).

e- Other (1.25%).

Our findings (section 6.2) show that 26.55 per cent do not offer Hajj letting opportunities (a). However, 51.95 per cent of landlords and tenants vacate their dwellings partially while living in a smaller part of them (c). If we add to this percentage the tenants and landlords who vacate their dwellings partially while living out (d), those who vacate their dwellings totally (b) and those who make other arrangements, this ratio will increase to 73.45 per cent of the occupants who offer all or part of their dwellings for pilgrims. From these ratios, one can conclude that such

behaviour will not preclude Hajj renting opportunities.

Therefore if the mean number of rooms per dwelling is 3.6 and the mean number of rooms per dwelling occupied during Hajj by those who vacate their dwellings partially is 1.14, then the 31.66 per cent out of the area of the dwelling occupied by those who vacate their dwellings partially while living in or out, will not be offered for Hajj letting. Those who vacate their dwellings partially for Hajj letting while living in or out (which equals to 53.20) can be divided by the 31.66 per cent as follows:

53.20 x 31.66 = 16.84 per cent not offered for Hajj letting.

53.20 - 16.84 = 36.36 per cent offered for Hajj letting.

Thus, 55.36 per cent of the occupied housing stock is offered for Hajj letting while 43.39 per cent is not offered. These percentages are reasonable for balancing all year round occupation of dwellings rather than increasing the number of vacant dwelling during the rest of the year. High rates of vacancy are socially dangerous (because of vandalism, theft, etc.) and could affect both the remaining residents and pilgrims.

Hence, one has to conclude that the present system of arrangements (made by landlords or tenants for letting their properties during Hajj) is satisfactory, therefore the above hypothesis is valid and cannot be refuted.

We also used another approach to test the preference of landlords or tenants who are renting their properties during Hajj. The purpose of such an exercise is to investigate the variation between the existing arrangements and the preferred ones. One major conclusion which supports the above hypothesis is the willingness of tenants who continue their occupation normally to let out their properties during Hajj. The percentage of those who continue their occupation normally decreased from 12.5 per cent in the existing arrangements to 8 per cent in the preferred ones.

Also we investigated the effect of road type on testing the above hypothesis. We found that the profitability factor of renting dwellings on major roads had caused the ratio of the people who vacate their dwellings totally to be raised from 19 per cent in general to 41 per cent along major roads. These results advocate the above hypothesis and hence confirm the previous findings.

8.4 TESTING HYPOTHESIS NUMBER FOUR

The existing infrastructure, especially water supply and parking, are major limitations to increasing year round densities. In the analysis of the existing infrastructure in section 7.1, it was found that there are major and minor problems which affect households in the central districts. The problems of car parking and water are the worst. Table 9 shows that the problem of

water affects 77.5 per cent of the households during Hajj and 41.9 per cent during the rest of the year. The problem of parking affects 74.6 per cent of the households during Hajj and 61.0 per cent during the rest of the year. Other problems regarding garbage disposal, noise, sewerage and electricity affect 43.1, 25.1, 21.7, 4.9 per cent of the households respectively during Hajj and 23.2, 10.8, 17.2, 3.9 per cent of the households respectively during the rest of the year. From these ratios one can conclude that such problems would limit peoples' opportunity to live in the central districts.

Another approach was used to test the attitude of occupants towards the influence of building services and community facilities on the occupation rate in that area in particular. As indicated in section 7.1.10, landlords and tenants were asked if they agreed that if the building services and community facilities were improved, this would encourage them to live in the central districts. This investigation showed that the majority agreed and only 2.4 per cent disagreed or strongly disagreed. One major conclusion which supports the above hypothesis is that 80.8 per cent of the occupants strongly agreed or agreed to the proposal. These results emphasize the above findings and hence the hypothesis is valid and accepted.

8.5 TESTING HYPOTHESIS NUMBER FIVE

The large number of pilgrims and the great demand for accommodation during Hajj has a significant effect on housing in general and the building design in particular.

Since Makkah is one of the oldest cities in history and has had great importance during the last fourteen centuries, one would expect to find that the majority of buildings in its centre have a considerable heritage and cultural value. To test the validity of the above hypothesis, the percentage of traditional buildings in central Makkah would be an indication of the urban change in the housing pattern in that area. The finding in section 5.5, that only 37 per cent of the buildings are traditional and 42 per cent are modern apartment buildings, was unexpected. Along major roads the percentage of modern buildings is even larger as 16.7 per cent of the buildings are traditional and 55.3 are modern apartment buildings. The majority of traditional buildings are located on footpaths and hilly sites. Another measure to show that most buildings are newly built and have no cultural value is the year of construction barchart, figure 20, which shows that more than 70 per cent of buildings were built in the past thirty years. Traditional buildings are either demolished for the expansion of roads or for building higher new buildings to accommodate more pilgrims.

Case studies numbers one, two and three in Chapter five show very clearly the difference in the design of the traditional and the contemporary modern flat buildings. The difference in plans, elevations and building materials is remarkable. Most buildings especially the modern ones, have very low standards. Our findings in section 6.4, that the minimum rent value per dwelling during Hajj is less than the minimum during the whole year, means that some dwellings may have very low standards which means that they cannot be rented annually and stay vacant, but they are rented during Hajj because of the scarcity of accommodation. This factor could affect only the pilgrims who demand accommodation within walking distance of the Holy Mosque.

In traditional Islamic cities, each cluster and neighbourhood has its own characteristics and identity but this cannot be found now in central Makkah at all. When looking at the maps in this study' one can see that a considerable amount of financial support, planning and effort has gone into trying to solve the problems of circulation during Hajj, whereas there has been no consideration for the structure and boundaries of the residential neighbourhoods at all. Many of the old traditional neighbourhoods do not exist at present. This trend supports the previous finding that the housing pattern is changing from its basic principles to something different which could be completely alien.

The mean number of floors per building is 3.17 and along major roads is 4.4. The maximum number of floors is 12 and the minimum is 1; this is a range of 11 floors. Peoples' preference is significantly different as the mean of preferred number of floors per building is 5.5, and along major roads is 8.77. In this case the maximum is 20 and the minimum is 1; this is a range of 19 floors. To test the above hypothesis regarding the building height in the area, the following equation was introduced:

$$NF = bo + b1\ HR + b2\ ND + b3\ BL + b4\ RT \qquad (1)$$

where:

NF = Number of floors per building.

HR = Hajj rent value per room.

ND = Number of dwellings per building.

BL = Building location.

RT = Road type.

This equation gave the following results:

$$NF = \underset{(0.42)}{3.18} + \underset{(0.0004)}{0.0008\ HR} + \underset{(0.03)}{0.29\ ND} + \underset{(0.10)}{0.45\ BL} + \underset{(0.08)}{0.16\ RT}$$

$R^2 = 0.69$ STD ERR = 0.56

F = 17.97 Signif F = 0.0000

In this equation the independent variables explain 69 per cent of the variation in number of floors per building. The t statistic for constant parameter is ***6.08 which is highly significant at the 0.1 per cent level. The Hajj rent value per room is less significant at the 10 per cent level (*2.32). The number of dwellings per building is very significant at the 0.1 per cent level (***8.96) and the building location at the 0.7 per cent level (***3.88), but for the road type the equation shows less significance at the 20 per cent level (1.6).

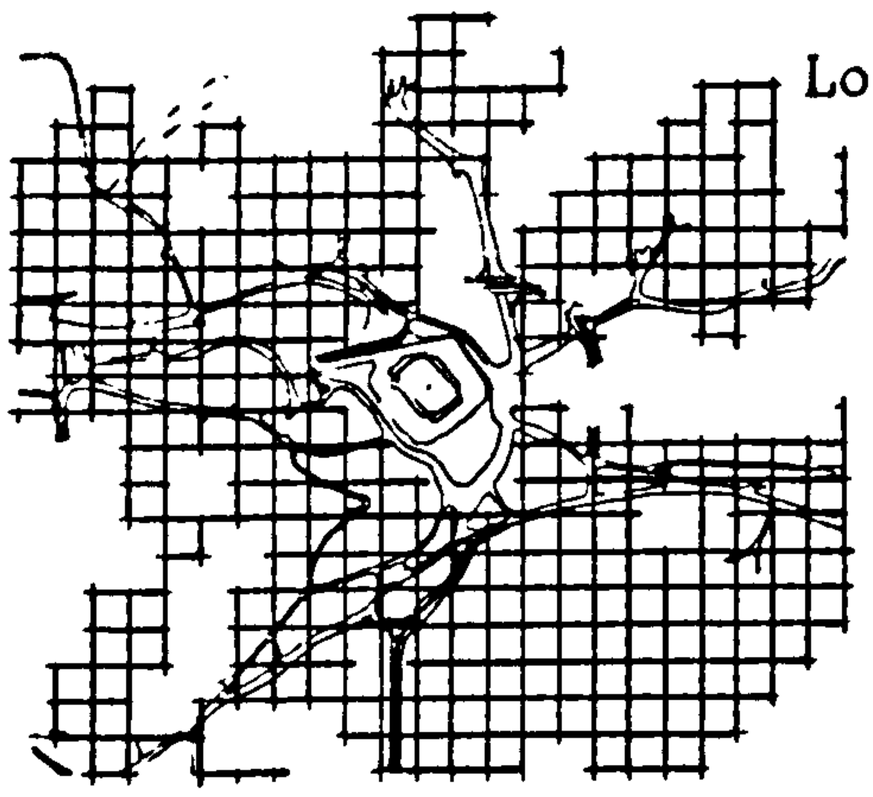
The overall significance of the regression equation is very high as the F value is 17.97. With each one Saudi Riyal increase in the Hajj rent value per room, there is an increase of 0.0008 in the number of floors per building, if the other independent variables are kept constant. As far as the low coefficient value for Hajj rent, this seems rather realistic taking into consideration that the building height is controlled by the Municipality. In the writer's opinion, if such constraints were abandoned, the coefficient for the Hajj rent value per room would be higher and more significant but fortunately, it was not. If constraints were abandoned and the building heights were left to peoples' preference, with a range of 19 floors, then a disaster would have occurred.

The equation proves the control of the Municipality over the building height according to its location and road type. For each one unit increase in the building location, there is an increase of

0.45 in the number of floors per building. For each one unit increase in the road type, there is an increase of 0.16 in the number of floors per building.

Finally, to investigate further the validity of the above hypothesis, the landlords were asked about the purpose and use of the building: 31.2 per cent of buildings were designed for private residence and this type of use accounts for only 15.4 per cent of buildings along major roads. The percentage of dwellings designed for renting annually is 28.2 and along major roads is 25. The important figures are for the special types of purposes such as 26.7 per cent of the buildings being designed for both private use and renting in Hajj, with the percentage higher along major roads reaching 36.5, and 7.9 per cent of the buildings being designed for renting in Hajj, with the percentage higher along major roads, reaching 13.5.

One can conclude here that because of the great number of pilgrims and the demand for accommodation during Hajj, the neighbourhoods, clusters and houses were seriously affected and different purposes of design were found; therefore the hypothesis could not be rejected.



CHAPTER 9

CONCLUSION

9.1 Summary of findings
9.2 Recommendations
    9.2.1 Conservation
    9.2.2 Design criteria
    9.2.3 Building standards and maintenance
    9.2.4 Rent and occupancy rate
    9.2.5 Transportation and parking
    9.2.6 Public education
    9.2.7 General
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CHAPTER NINE

CONCLUSION

9.1 SUMMARY OF FINDINGS

Survey research and data analysis are integral parts of any social sciences research. In this investigation the writer believes that the sampled houses are truly representative of the larger housing stock as designed and calculated previously (see Chapter four). Since all of the results mentioned in this research were not derived from open-ended questions, coding accuracy is also guaranteed. The number of valid and missing cases in the data set are written for each figure to maintain the accuracy level. As an interviewer can affect the interviewee's attitude by the method of presentation of each point, special attention was given during the interview in order not to influence the interviewee.

Occupants' attitudes are an important measure to test how significant the issues surveyed may be. The social factors are mostly ignored by officials although they have a great impact on housing and on the built environment. The occupants' attitudes and preferences are essential for the future planning policies. It should be known that shelter does not merely mean protection from the elements (such as sun, wind etc.) and a roof overhead, it fulfills a series of integrated human and physical needs and it should provide a

complete habitable environment.

Traditional architecture is a very complex and beautiful art which reflects a civilization and a style of architecture in a certain period of time. In this century, in the Western countries, great attention is given to preservation. Saving the past has become a widespread concern. In Saudi Arabia, Jeddah is a case of point in this respect and should be taken as an example.

From the discussion presented in this research it is very clear that the very low percentage of traditional buildings in the central area could mean that the magnificent and beautiful architectural heritage is gradually disappearing. At present, most traditional buildings are located on footpaths and hilly sites. See section 5.5. The beautiful houses of Makkah have been allowed to crumble and a significant section of history is threatened. As central Makkah is supposed to be the historical traditional Makkah village, only detailed and assured solutions can solve this problem; only then will the city continue to reflect the three dimensions of past, present and future.

Restrictions on the demolition of traditional buildings ought to be introduced as a matter of urgency. All traditional buildings in the central districts should be given preservation orders. The Real Estate Development Fund constraints on housing in the central area is of minor importance. See section 7.2.2. The central area is

more in need of rehabilitation or improvement loans than any other assistance. Housing rehabilitation ideas should be encouraged among landlords by giving sufficient loans for rehabilitation rather than only giving loans for the construction of new houses. At the same time technical assistance should be provided in the sort of expertise, plans, books, illustrations and posters required to improve traditional building standards.

In this work it was proved that the large number of pilgrims and the great demand for accommodation during Hajj has a significant effect on housing in general and the building design in particular. See Chapter five and section 8.5. Traditional buildings are either demolished for the expansion of roads or for erecting higher new buildings to accommodate more pilgrims. In the central districts, most constructions have very low building standards and specifications.

There is a significant positive correlation between the number of floors per building and Hajj rent value per room, number of dwellings per building, building location and road type. See section 8.5 For these reasons, the great contradiction in building heights is remarkable. The Municipality's regulation not to allow the building height to exceed the street width seems to be a reasonable temporary solution in order to avoid the overloading of the existing infrastructure network. See section 5.7. It is also important to realise that increasing buildings height will make the problem of

privacy and parking more difficult. See section 7.1. Even aesthetically, very high buildings around or adjacent to the Holy Mosque are undesirable because they will obstruct its magnificient architectural form. High buildings should not be allowed in hilly sites at all otherwise they will creat many problems. Problems in the accessibility, the provision of infrastructure services (especially water supply) and the provision of social services (such as schools, clinics, etc.).

It was found that, in general, buildings on very steep sites are not in good condition and the authorities do not give enough attention to their problems. The streets are very narrow and usually without lighting. In case of fire, many sites are not accessible by fire appliances, therefore, another appropriate system must be established in such areas.

Other factors such as water supply and parking are the most accute problems which affect people in the central districts. The effect of Hajj on water supply, noise pollution and rubbish collection is very great. See section 7.1. The occupants agreed that one other aspect which can encourage people to live in the central districts is the improvement of building services and community facilities. See section 7.1.10. The water supply network should be redesigned and maintained and should be considered as the primary source of water. The delivery trucks are not reliable at all during Hajj. Also improvements in the public transportation system

will help to solve the car parking problem and will also help reduce pressure on housing.

The Municipality's permission for the residential use of buildings should be more specific, so as to satisfy both the requirements of Hajj and the rest of the year in each building. See section 7.3. It is very important to direct and then restrict the building design to satisfy the requirements of that purpose. Reform of building regulations is essential under these unique circumstances.

It was found that high rates of dwelling vacancy, except during the Hajj period, in central Makkah, are desirable for landlords for economic reasons. See sections 6.4 and 8.1. Whenever the number of dwellings per building or the Hajj rent increases, the vacancy rate will increase. The high percentage of vacancy will make planning for infrastructure and social services a very difficult task. See section 5.9. On the other hand, the capacity of infrastructure in the central area is very high (because of the influence of the Hajj), so it is benificial to make full use of that capacity all year round rather than in Hajj time alone. These considerations would encourage us to oppose the acceptance of the high percentage of vacant dwellings in the central area. Residents appeared to be very much in favour of all year round occupation in the central districts of Makkah except during the Hajj period. See section 5.11.

In the central districts people were found to be willing to let their properties during Hajj. They tend to let to the 'mutawif' in the first place and to the pilgrim in the second. See sections 6.1 Some special arrangements for Hajj letting were found. People mostly tend to vacate their properties partially while living in a smaller part of them and renting out the rest. In the second place people were found to vacate their dwellings totally for Hajj letting. See section 6.2.

From the survey it is likely that the landlords will earn more if they let their dwellings during Hajj time only rather than to do so for the whole year, but this cannot be guaranteed. See section 6.4. This is so for high quality buildings, but for low quality buildings it is in the landlord's interest to invest a little more and raise the standard of the buildings to receive more rent value. By renting during Hajj only, the landlord will not be involved in the problems arising from year round tenants. It was found also that the annual rent value of housing in central Makkah is affected positively and significantly by both, Hajj rents and the building location. With each S.R. 1.0 increase in the Hajj rent value there is an increase of S.R. 0.51 in annual rent value. See section 8.2.

Since it was found that it is possible to increase year round residential density in central Makkah with only minor restriction to Hajj renting opportunities (see sections 6.5 and 8.3), the writer is of the opinion that it might be useful to solve part of the high

vacancy rate problem by facilitating rent in Hajj. The idea is to divide each dwelling into two units so that it can be emptied partially in order for it to be rented in Hajj, while the occupant remain living in a convenient smaller part of it which can satisfy the social requirements, services and facilities of that short period of time. This idea could be introduced successfully and easily in new building designs but it would be somewhat difficult in most of the existing ones. In this case the landlord could make the rent contract for the whole year with the proviso that the tenant should vacate the dwelling partially for two months i.e. the tenant would have to divide the dwelling into two units, one for himself and the other to be rented to pilgrims. This could be of benefit for both the landlord and the tenant i.e. the landlord would receive more rent value from both the tenant and the pilgrims and the tenant would pay less. See section 6.5.

There is no special design criteria for dwellings in the central districts. See section 5.3.3. Because of the unique situation in that area, and to satisfy residents' and pilgrims' requirements, certain aspects merit detailed consideration. The building standards and specifications are comparatively low in the central districts than in the whole city. The great demand for accommodation in a very short period of time has left no choice for the pilgrims but to accept poor quality accommodation. The standards and specifications of accommodation must be the highest, both in order to present a good picture of the city and the country to all

the Muslim pilgrims from all over the world, and to increase the landlords' own profit when renting during Hajj. High standards do not necessarily mean new buildings. Even traditional buildings could be upgraded. However, as a precaution, fire resistant materials should be used in construction and alterations.

Normally there are no clear or written agreements between the landlord, tenant and the estate agent to define the exact responsibility of maintenance for each party. Many landlords ignore this aspect and for this reason some buildings are dilapidated. Generally, there is no problem in maintaining the interior of dwellings because the occupier is directly concerned and it is normally arranged between the parties in the tenency. However, this is not the case for the exterior. The landlord must be asked to maintain the structure and the exterior of his building. See section 7.4.

Introducing a public education system depending on moral values will encourage landlords to house the visitors to the Holy Mosque with low rent, in exchange for moral rewards. Some sayings of the prophet could help in this matter if they are produced in posters with appropriate sketches. The following translated sayings are samples for this idea:

> " None of you [truly] believes until he wishes for his brother what he wishes for himself."
> Related by Al Bukhari and Muslim.

" There should be neither harming nor reciprocating harm."
Related by Ibn Majah.

A large part of the students' accommodation in the University of Umm Al Qura in Al Aziziyah could be used during Hajj to accommodate pilgrims. Many students take the opportunity of the vacation during Hajj to travel to other cities and their accommodation remains empty. An analogy could be drawn with the increasing common practice of Universities overseas, in letting student accommodation during vacations. This could help in decreasing the great demand for accommodation in the central districts during Hajj.

Finally, the writer is of the opinion that there should be a special information and research unit for the central districts of Makkah not only for traditional buildings but also for housing, planning, urban design and landscaping of the central area. Preferably, the Hajj Research Centre in Umm Al Qura University is the best body to bear this responsibility as they are already involved in research on the Hajj. This project should proceed jointly with the Department of Islamic Architecture in the University, the Department of Antiquities and Museums, and the Municipality of Makkah. This unit should be supported financially in order to be able to tackle efficiently this task before it is too late.

9.2 RECOMMENDATIONS

9.2.1 Conservation

1. Preservation and rehabilitation of traditional Makkah houses and the few remaining old neighbourhoods is needed urgently.
2. All important traditional buildings in the central districts should be given a preservation order.
3. One or more of the remaining old neighbourhoods should be preserved and upgraded professionally, carefully and sensitively to be as near as possible to the old original shape. By surveying the area, the original buildings and new additions can be identified. Any buildings which do not have any historical or architectural value should be removed. Restrictions on any new building should be harmonious with the surrounding traditional environment.
4. The structure, form and identity of each hara or neighbourhood should be respected.
5. Residents should be prevented from doing anything which could harm the historical urban form.
6. High buildings around or adjacent to the Holy Mosque should not be allowed.
7. The Market places around the Holy Mosque should be supported and upgraded to maintain the Islamic character of the city.
8. Technical assistance should be provided in the sort of expertise, plans, books, illustrations and posters required to improve and restore traditional buildings.

9. Finance should be sufficient to speed the recovery of the buildings.

9.2.2 Design criteria

10. Special design criteria for dwellings in the central districts are needed urgently because of the unique situation in that area. These should include:

    a. Two entrances for each dwelling are preferable. When the dwelling is divided into two units, each unit should have its own private entrance.

    b. Water reservoirs in each building should be large enough to cope with the expected water shortage during Hajj.

    c. Each dwelling should have at least two toilets so that during Hajj one of them could be used by the annual residents and the other by the pilgrims. It is preferable to have even more than two toilets.

    d. Balconies are used as extensions and added to the rooms or used as storage space. In either case, it should not be provided in that area.

    e. Ready made International designs of apartment buildings are not suitable and normally do not fulfil the requirements of the pilgrims and should be avoided.

9.2.3 Building standards and maintenance

11. Controling the building standards and restricting the purpose of buildings is essential.

12. In the central districts, fire resistant materials should be used in construction.

13. A clear or written agreement between the landlord, tenant and the estate agent to define the exact responsibility of the building maintenance for each party is essential.

9.2.4 Rent and occupancy rate

14. The balance of the occupancy rate in the central districts between Hajj time and the rest of the year is important. This will optimise the use of infrastructure provided for pilgrims in that area.

15. Facilitating rent and using a scaled rent structure could eliminate the high vacancy rate all year round.

9.2.5 Transportation and parking

16. Improving the public transportation system could help in solving the problem of car parking.

17. Traffic police should cooperate and help the annual residents and should have better strategies for the provision of car parking spaces.

18. Pedestrian walk ways should be improved to protect people, decrease the need for cars and give the city a better, more humane environment.

9.2.6 Public education

19. A public education system depending on moral values would encourage landlords to house pilgrims with low rent but for moral rewards.
20. Residents should be informed that preserving and looking after the identity of the city is a public concern and all should share in this responsibility.
21. Posters and appropriate sketches are useful means for encouraging and convincing people and they should be used in introducing solutions to them.
22. Local newspapers should co-operate with the Municipality for the benefit of the city and advertise all matters related to the new ideas, such as conservation, rehabilitation, moral values etc.
23. Publishing and translating all books, theses and articles related to the architecture and housing, especially those about Makkah itself, is important.
24. Schools of architecture and especially the department of Islamic Architecture in Umm Al Qura University should have the leadership in this process of planning and organising.

9.2.7 General

25. The Holy Mosque should have an active role in the daily social life of the annual residents and this requires that special attention should be given to it.
26. Organisation and management committees for Hajj are requested to increase their co-ordination and co-operation for the sake of

this Holy city, Makkah.

27. Residents' participation in solving the housing problems is important. Participation could be in the form of interviews, questionnaires, direct contact and involvement in the planning, design and implementation process of residential projects.

28. The reform of building regulations is essential for them to be appropriate to the socio-cultural values, climate, building materials, infrastructure, social services, public health and the influence of Hajj.

29. The constraints of the Real Estate Development Fund on the design criteria and the building standards should be removed.

30. The provision of some recreational and green spaces within the city centre residential zones is essential, although this would be very difficult.

31. On hilly steep sites the building heights should be restricted to the minimum (2 floors).

32. In all sites not accessible by fire appliances, another appropriate system must be established such as the high water pressure pipe network.

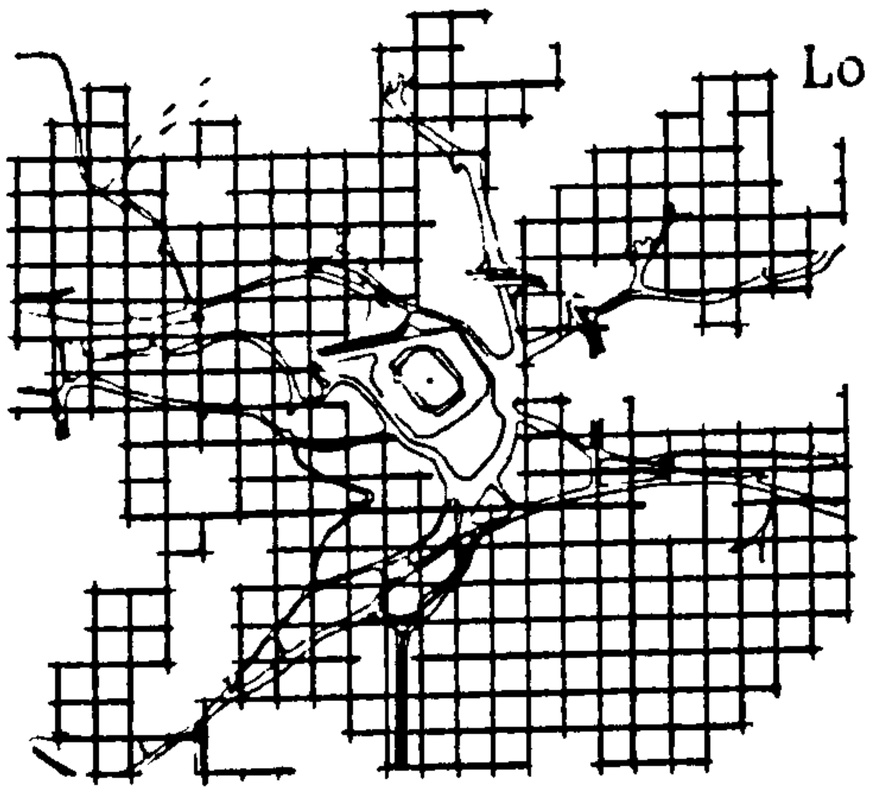
33. Student accommodation in Umm Al Qura University could be used to accommodate pilgrims and decrease the demand for accommodation in the central districts.

34. The Hajj Research Centre in Umm Al Qura University should create a special information and research unit for the central districts of Makkah and should be supported financially. Training specially qualified staff on conservation is also important.

35. A special symposium should be organised, preferably by the University of Umm Al Qura, to study the architecture of this city.

9.3 FURTHER RESEARCH

It became very clear that further research must be made on the appropriate design criteria needed for the central districts in Makkah regarding activities, spaces, building materials, furniture and even decorative elements. This criteria should be relevant to the local resident as well as to the pilgrims' preferences and requirements. The reform of the building regulations ought to be further studied carefully. The appropriate specifications and standards should be based on scientific detailed research. Preserving the traditional buildings and neighbourhoods needs a great deal of surveying, capable researchers and trained staff. Residents' participation in housing projects is a new idea which needs to be practised and then evaluated. A lot of hard work still needs to be done before there will be tangible benefits for both residents and pilgrims.



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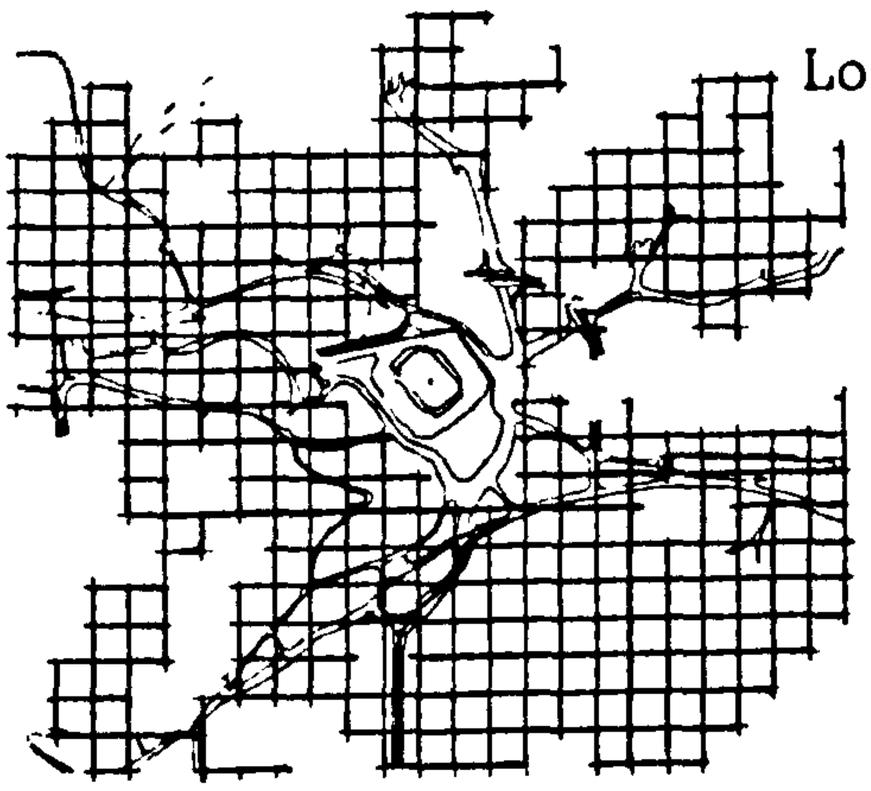


Location

GLOSSARY

Glossary

Arabic :

Bayt al-ma' (Tahara)
: The water closet can be found in the staircase or within the living unit. It is used as a water closet, bathroom or for washing.

Dalil
: Dalil is a person who serves and guides the pilgrims while they are staying in Medina

Dihliz
: This is the entrance hall and can be found next to the main entrance door. It is a transitional area between public and private (having limited privacy). Occasionally a pair of wooden benches can be found on the sides of this hall where the head of the household recieves passing and unexpected visitors.

Diqajsi
: This is a storage space in the upper part of the stair case. It is normally used for the storage of fuel, (coal and firewood).

Fenaa
: The fenaa (Courtyard) is the internal enclosed space open to the sky with habitable rooms and spaces grouped around it. It is the majo source of daylight and natural ventilation of the house. It is used as an open air family living space in the afternoons and during summer.

Hadyee
: Slaughtering of an animal.

Hamladar
: A hamladar is a person who provides all services and guidance to the pilgrims from their own countries until they return. He is generally a national of the country the pilgrim comes from. His services do not include transportation and shelter for Hajj functions because this is the responsibility of the mutawif establishments.

Hajji (plural Hujjaj)
: Those who come to perform Hajj in Makkah.

Kharja (Sutuh)
: The terrace is found on the upper levels, the family sleeps here and is used for family gatherings and drying clothes.

Khuzana
: A small storage room on the side of the reception room, used for storing unused possessions, clothes, beds, etc.

Mahram
: Mahram is someone the women cannot legally marry.

Ma icha
: Ma icha is an imitation of the western living room normally used in contemporary dwellings.

Mabit
: The night room beside the terrace, it is used as a sleeping area on rainy,or stormy and cold nights.

Majlis
: The reception room to be found in the front toward the main facade.*

It is used for receiving family guests (mainly women), and as a general meeting room at the time of feasts or other special occasions.

Maq'ad

The sitting room is next to the entrance hall or on the first level. It is a room or rooms serving as a business office or for receiving male friends. These also serve as a casual meeting place for the males.

Matbakh

The kitchen is usually located near the upper terraces, and is used for cooking.

Mu'akhkhar

A small room, frequently at the side of the reception room, which can be used as a sitting room, or for the storage of personal things, such as clothing.

Mutawif (plural Mutawifeen)

A mutawif is à person who serves and guides pilgrims from their arrival until their departure. His main function is to provide transportation and shelter for the pilgrims in his care during all Hajj rituals. For the time being, this system has been cancelled and all mutawifeen are divided into six groups (mutawif establishments) representing the nationalities of the pilgrims. Changing the system did not alter the name of the mutawif as they are still using them for renting accommodation and similar functions.

Qabw

The basement is under the first level, it stores tents, baggage, goods and as a sleeping/sitting area on very hot and windy days.

Raka'a

Raka'a is the single unit of a Muslim prayer. It involves some sayings and practices.

Rowshan

A traditional highly decorated large projecting teak wood window. It has an extensive fine detailed art work. Privacy, ventilation and lighting are controlled by adjustable wooden shutters and decorated wooden patterns.

Sagga

Al Sagga is the person who carries and delivers water to houses.

Sa'ayee

Sa'ayee is one of the Hajj rituals. It is to walk between Safa and Marwa, two small hills near Ka'ba about 400 metres apart, a total of seven times.

Suffa

The ante-room, is before the entrance to the reception room, it is small, with same breadth as the reception room. It is also a place where the unexpected male guest would be received when a female member happened to be in the reception room.

Sutuh

See Kharjah.

Tahara

See Bayt al-ma.

Umrah

Umrah is an Arabic word that means to visit the Ka'ba (house of

Allah) and it involves fewer rituals than those practiced during Hajj.

Wakf

There are two types of Wakf buildings. The first type is the free accommodation for the poor built by the rich as an act of piety and charity. It is normally supported and maintained by funds of the founder. The second type of Wakf is those buildings which are built by the rich families as a long term investment project for their benefit and their future generations. In this research we are concerned with the first type.

Wakil

Wakil is a person who serves and guides the pilgrims while they are staying in Jeddah.

Zul Qidah and Zul Hijjah

Zul Qidah and Zul Hijjah are the eleventh and the twelfth months of the Muslim lunar calendar. Consequently, Hajj is performed in all different seasons in a thirty three year cycle.

English :

Case

A case is the basic unit of analysis. It is a respondent in a sample survey.

Code

A code is a system of writing in which numbers or letters are used to condense lengthy data. All verbal replies in any questionnaire must be coded before any computer analysis can be performed.

Code book

A code book is a document which describes each variable. It includes the meanings of the variables, the codes associated with each variable and their meanings and a brief reference name.

Coding forms

A coding form is the document onto which the data can be transcribed before it is entered into the computer. Each line of the coding form is marked out with 80 positions corresponding to the 80 columns expected by statistical packages. Values of variables are written onto the coding form in the positions specified in the code book.

GIMMS

GIMMS is a user oriented, general purpose, geocartographic processing system for use primarily in the analysis of geographic data through the generation of maps, graphs and tabular information of a thematic kind. It is also used as a graphics package. Copyright: GIMMS Ltd, 1983, 30 Keir Street, Edinburgh, EH3 9EU, Scotland, U.K.

Missing values

In survey research a value may not be obtained for a particular question. The question may not be applicable or the respondent may refuse to answer. These replies are known as missing values. Additional codes for missing values which are not for valid responses are included in the coding scheme.

Multiple regression

Multiple regression analysis is used for testing hypotheses about the relationship between a dependent variable and two or more independent

variables and for prediction. Regression analysis implies (but does not prove) causality between the independent variable, X, and dependent variable, Y. However, correlation analysis implies no causality or dependence but refers simply to the type and degree of association between two variables.

MIDAS

MIDAS is a computer program for the statistical analysis of data. Daniel J. Fox and Kenneth E. Guire. Statistical Research Laboratory, The University of Michigan, U.S.A. Septemper 1976.

MTS

Abbreviation of the operating system Michigan Terminal System which is implemented at Northumbria Universities Multiple Access Computer (NUMAC).

Overall significance of the regression

The overall significance of the regression can be tested with the ratio of the explained to the unexplained variance. If the calculated F ratio exceeds the tabular value of F at the specified level of significance and degrees of freedom, the hypothesis is accepted.

Parameter bo

Parameter bo is the constant term, or intercept of the regression and gives the estimated value of Yi when X1i = X2i .. = 0.

Parameter b1

Parameter b1 measures the change in Y for each one-unit change in X1 while holding X2 to X6 constant. Slope parameter b1 is a partial regression coefficient because it corresponds to the partial derivative of Y with respect to X1.

R^2

R^2 is defined as the proportion of the total variation in Y "explained" by the regression of Y on X.

Sampling fraction

Sampling fraction is the percentage of the population interviewed.

SPSSX

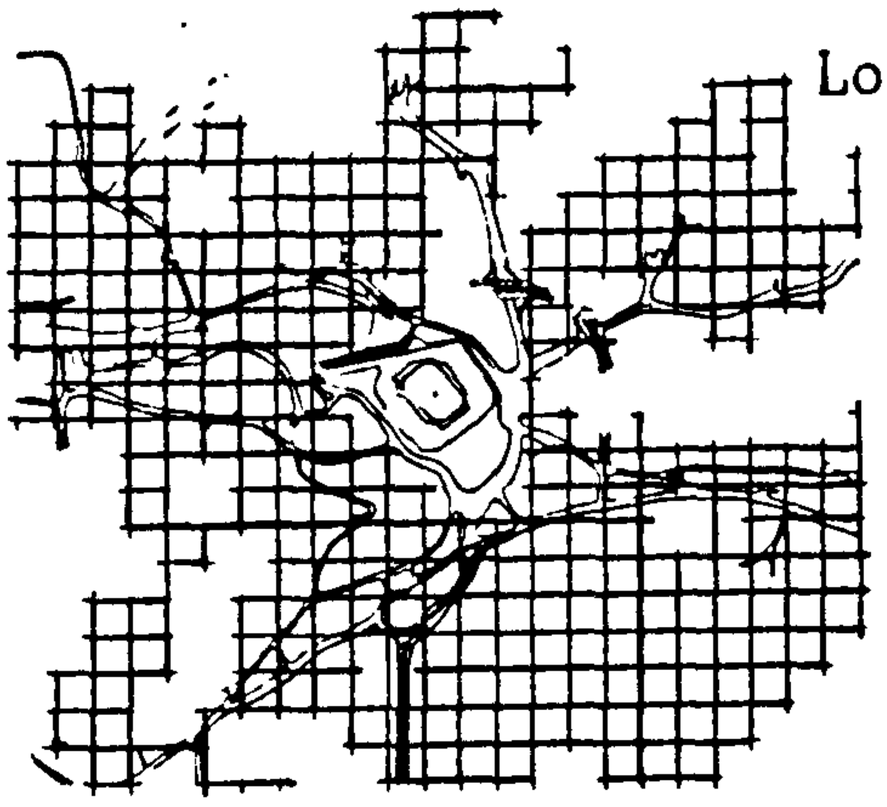
The SPSSX is a large and powerful computer program for the statistical analysis of data. Copyright: SPSS Inc., 1983, Suite 3300, 444 North Michigan Avenue, Chicago, IL 60611, U.S.A.

T statistic

The t statistic for each parameter estimate gives the value of the parameter estimate divided by its estimated standard deviation (the standard error). This value can be compared directly to critical values in the t-table to test the hypothesis that that parameter is equal to zero.

Variable

A variable is an observable entity whose value varies from one case to the next. Each question in the survey is considered a variable. Also some variables are generated from combinations of answers to questions.



APPENDICES

QUESTIONNAIRES

A-1

The Preliminary Vacant Houses Survey Questionnaire (August 1983) printed in Arabic.

بسم الله الرحمن الرحيم

جامعة أم القـــرى
مركز أبحاث الحـج

مسح المباني الشاغرة (دراسة أوليـة)

التاريـــخ : / /١٤٠٣هـ

١ - الرقم على الخريطة ——— اسم الحى ——— اسم الشارع ———

رقم المنزل ———

٢ - نوع المسكن : ☐ بيت تقليدي ☐ عمارة سكنية

☐ نوع آخـر ماهو؟ ———

٣ - عدد الأدوار ——— عدد الوحدات السكنية ———

عدد الوحدات الشاغرة خارج موسم الحج ———

٤ - سنة بناء المسكن ———

هل تم بناءه أو اضافة جزء منه بقرض من الصندوق؟ ☐ نعم ☐ لا

٥ - من الذي يسكن المبنى :

الســـــاكن	عدد الوحدات المستخدمة
☐ المالـــــك	
☐ المســـتأجر	
☐ نوع آخر (حدده)	

٦ - ماهو متوسط ايجار الوحدة السكنية طوال العام؟ ——— ريال سعودي

٧ - هل يؤجر خلال فترة الحج؟ ☐ نعـم ☐ لا

٨ - كم تبلغ قيمة ايجار الوحدة السكنية خلال فترة الحج؟ ——— ريال سعودي

٩ - اذا كان يؤجر خلال فترة الحج :

هل يفضل التاجير: ☐ بالمفتاح ☐ وحدات منفصلة لماذا؟ ———

١٠- هل انت ☐ مالك ☐ مستأجر

١١- اذا أجري الاستفتاء مع المالك :

- اذا كنت تؤجر في فترة الحج، فما هى الترتيبات المتخذة مع السكان الدائمين؟

- ما هي الاشياء التي تحتاج الى اصلاح وصيانة في الشقق الشاغرة ؟

- وكم تكلف للوحدة السكنية اجماليا في السنة ؟ ——— ريال سعودي

١٢- اذا أجري الاستفتاء مع المستأجر :

- اذا كنت تؤجر في فترة الحج، فما هى الترتيبات المتخذة ؟

١٣- من هو المسؤول عن الاصلاحات في الشقق المشغولة طوال العام ؟ ☐ المالك ☐ المستأجر

١٤- هل صممت الوحدات السكنية للتأجير في :

☐ الحج والمواسم ☐ طوال العام ☐ غرض آخر ماهو؟ ———

١٥- هل جرى تغيير تصميم المسكن حسب الحاجة ؟ ☐ نعم ☐ لا

- اذا كانت الاجابة (نعم): فما هو التغيير؟ ———

١٦- ماهي المشاكل الناجمة عن التأجير بالنسبة الى :

	طوال العام	خلال فترة الحج
١ - الماء		
٢ - الكهرباء		
٣ - المجاري		
٤ - القمامة		
٥ - الهاتف		
٦ - مواقف السيارات		
٧ - القيمة الايجارية		
٨ - الازعاج		
٩ - أخرى (ماهي؟)		

١٧- هل تفضل أن تصمم الوحدة السكنية بحيث يمكن تقسيمها الى وحدتين سكنيتين عند الحاجة دون التاثير على المساحة؟ ☐ نعم ☐ لا

- اذا كان الجواب (نعم): هل تعتقد أن هذا التصميم يقلل من نسبة الوحدات السكنية الخالية طوال العام: ☐ نعم ☐ لا

١٨- اذا كانت الوحدات السكنية المجاورة مستأجرة طوال العام فهل هذا:

	نعم	لا	لا أعرف
- يزيد قوة الروابط الاسرية والاجتماعية؟	☐	☐	☐
- يزيد الراحة النفسية؟	☐	☐	☐
- يزيد الشعور بالأمن؟	☐	☐	☐
- يزيد الازعاج ويؤدي الى عدم الهدوء؟	☐	☐	☐
- يحرم من درجة الخصوصية التي تفضلها؟	☐	☐	☐
- يزيد من التكافل والتعاون بين الأسر؟	☐	☐	☐
- يقلل الخدمات (مثل الماء والكهرباء)؟	☐	☐	☐
- يقلل خدمات المرافق العامة في الحي (مثل مستوصف، سوق تجاري، بريد، هاتف ...الخ)؟	☐	☐	☐
- يقلل من مستوى الحفاظ على النظافة والصحة العامة؟	☐	☐	☐

شكرا لتعاونك معنا ،،،،

١٧/١٠٠٢-١٠٠٠/ع

The Preliminary Vacant Houses Survey Questionnaire (August 1983) translated to English.

VACANT HOUSES SURVEY

(Preliminary Study)

Date:

1. No. on the map: Neighbourhood name:

   Street name: Building No.:

   Floor Studied:

2. House type:

   ◯ Traditional house ◯ Apartment building

   ◯ Other? Specify .....

3. No. of floors ..... No. of dwellings .....

   No. of vacant dwellings (except Hajj period) .....

4. Year built ....

   Was it built or extended by loan from the real estate development fund? ◯ Yes ◯ No

5. Who occupies the building:

Occupier	No. of dwellings used
Landlord	
Tenant	
Other? specify	

6. Average annual rent per dwelling ..... S.R. ?

7. Is it rented during Hajj period? ◯ Yes ◯ No

8. Rent value for a dwelling during Hajj period? ..... S.R.

9. If rented during Hajj:

Do you prefer to rent: ◯ As a whole

◯ Separate units/dwellings

Why? .....

10. Are you : ◯ Landlord ◯ Tenant ◯ Other. What.....

11. If the landlord is being interviewed:

What arrangements are taken with permanent tentants if renting during Hajj period? .....

What needs maintainance in vacant dwellings? .....

How much is the annual cost of maintainance per dwelling? .....S. I

12. If the tenant is being interviewed:

What arrangements are made if renting during Hajj period?

.....

13. Who is responsible for maintainance?

◯ Landlord ◯ Tenant

14. Are these dwellings designed for renting during:

◯ Hajj and religious occasions.

◯ Year round

◯ Other purpose. Specify .....

15. Was there a need to change the design ? ◯ Yes ◯ No

If Yes, what changes were made? .....

16. What problems arise from renting during Hajj period and year round according to:

	During Hajj period	Year round
1. Water		
2. Electricity		
3. Sewerage		
4. Garbage disposal		
5. Telephone		
6. Parking		
7. Rent value		
8. Noise		
9. Other?		

17. Do you prefer the dwelling to be designed so that it can be divided into two units when needed? ◯ Yes ◯ No

If Yes, do you think that such a design would decrease the percentage of vacant dwellings? ◯ Yes ◯ No

18. If the neighbouring dwellings are occupied all year round, would that:

	Yes	No	Don't know
Increase and strengthen the social relationships?	◯	◯	◯
Increase peace and tranquility (personal satisfaction)?	◯	◯	◯
Increase the feeling of security?	◯	◯	◯
Increase the noise?	◯	◯	◯
Decreace your privacy?	◯	◯	◯
Strengthen cooperation between families?	◯	◯	◯
Decrease the services?	◯	◯	◯
Decrease the community services?	◯	◯	◯
Decrease the level of public health?	◯	◯	◯

19. Is there anything to add: .....:

Thank you for your cooperation.

مركز ابحاث الـ

The main Housing Survey in Makkah Central Distr
Questionnaire (August 1984), with a selection of fixed-alterna
and open ended questions printed in Arabic.

اذا كان الذي يجري معه الاستفتاء هو المالك فأكمل معه الاجزاء كلها ،
أما اذا كان مستأجرا فأكمل معه الاجزاء (أ،ب ،د) وماعدا ذلك فأكمل
معهم الفقرات (أ ، د) فقط .

الجزء (أ)
لجميع

١ - الرقم على الخريطه : _____
اسم الطالب : _____
التاريخ : / / ١٤٠٤هـ
اسم الشارع : _____
اسم الحي : _____
الدور الذي درس : _____

٢ - نوع المبنى :
○ تقليدي
○ عماره حديثه ذات شقق .
○ مبنى تقليدي ولكن طوّر أو وسّع باستخدام مواد بناء حديثه .
○ اخر ؟ ماهو

٣ - نوع الطريق :
○ شارع رئيسي
○ شارع فرعي
○ ممشى ترابي
○ آخر ؟ ماهو

٤ - موقع المبنى :
○ على ارض منبسطه
○ على انحدار خفيف
○ على منحدر جبلي
○ على منحدر جبلي شديد

٥ - هل أنت :
○ المالك
○ مستأجر
○ مطوف
○ حارس
○ وكيل
○ آخر ؟ ماهو

٦ - الجنسيه :

٧ - عدد الادوار :
عدد الوحدات السكنيه :
عدد الغرف في الوحده السكنيه :
عدد الوحدات السكنيه الخاليه ماعدا موسم الحج :

٨ - كم عدد افراد الاسره :
تركيب الاسره /: (رجاء أذكر العلاقه لكل فرد في الاسره برب البيت بدون ذكر الاسماء مثلا ابن - ابنه - جد ... الخ)

١ - رب الاسره ٦ - _____
٢ - _____ ٧ - _____
٣ - _____ ٨ - _____
٤ - _____ ٩ - _____
٥ - _____ ١٠- _____

٩ - سنة البناء :
هل تم بناؤه بقرض من صندوق التنميه العقاري ؟ ○ نعم ○ لا
اذا كانت الاجابه (نعم) فهل القرض ○ خاص ○ استثمار

١٠ - كم تبلغ قيمة ايجار الوحده السكنيه طوال العام؟ _____ ر.س
- هل أنت راضي بهذه القيمه ؟ ○ نعم ○ لا
- اذا كانت الاجابه (لا) ماهي القيمه الايجاريه التي تفضلها للوحده السكنيه سنويا ؟ _____ ر.س

١١ ـ من الذي يسكن المبنى طوال العام :

نوع الساكن	يسكن	لايسكن	عدد الوحدات السكنيه المستخدمه للعائله الواحده من كل نوع
المالك	○	○	ـــــ
المستأجر (الذي يجريمعه الاستفتاء)	○	○	ـــــ
حارس	○	○	ـــــ
وكيل	○	○	ـــــ
اخر ؟ حدد	○	○	ـــــ

ـ هل هناك مستأجرين اخرين ؟ ○ نعم ○ لا

ـ اذا كانت الاجابه (نعم) . كم عددهم ؟

(العدد لايشمل الذي يجري معه الاستفتاء اذا كان مستأجرا)

١٢ ـ هل تؤجر خلال فترة الحج ؟ ○ نعم ○ لا

اذا كانت الاجابه (نعم) . اكمل بقية الاسئله فى هذه الفقره :

ـ كم تبلغ قيمة الايجار للوحده .السكنيه خلال فترة الحج ؟ ـــــ ر.س

ـ هل أنت راضى بهذه القيمه ؟ ○ نعم ○ لا

ـ اذا كانت الاجابه (لا) . ماهى القيمه الايجاريه التىتفضلها للوحده السكنيه فى فترة الحج ؟ ـــــ ر .س

ـ هل تفضل الايجار : ○ بالمفتاح

○ وحدات منفصله . لماذا ؟ ـــــ

ـــــ

ـ هل تؤجر الى ○ مطوف

○ حملدار

○ الحاج شخصيا

○ مكتب عقاري

○ اخر ؟ حدد

١٣ ـ ماهى الاشياء اللازمه لاصلاح وصيانة الوحدات السكنيه :

	اذا كانت الوحده خاليه	اذاكانت الوحده مشغوله طوال العام
ـ دهان	○	○
ـ سباكه	○	○
ـ لياسه	○	○
ـ تمليك كهربائى	○	○
ـ نجاره	○	○
ـ آخر ؟ حدد	○	○

وكم تكلف هذه الاعمال سنويا ؟ ـ اذا كانت الوحده خاليه ؟ ـــــ

ـ اذا كانتالوحده مشغوله طوال العام؟ ـــــ

من المسئول من الاصلاحات : ○ المالك

○ المستأجر

○ آخر ؟ حدد

١٤ ـ هل صممت هذه الوحدات السكنيه من أجل :

○ الايجار طوال السنه

○ الايجار فى موسم الحج

○ للاستعمال الخاص

○ للاستعمال الخاص والايجار فى الحج معا

○ وقف لله تعالى

○ سبب آخر ؟ ماهو

١٥ ـ هل كانت هناك حاجة لتغيير تصميم المبنى ؟ ○ نعم ○ لا

ـ اذا كانت الاجابه (نعم) فماهو التغيير ؟

ـــــ

ـــــ

١٦ ـ هل هناك مشاكل فى الحج أو طوال السنه فيما يلى :

	خلال الحج		طوال السنه	
	مشكله	لاتوجد مشكله	مشكله	لاتوجد مشكله
الماء	○	○	○	○
الكهرباء	○	○	○	○
المحاري	○	○	○	○
القمامه	○	○	○	○
مواقف السيارات	○	○	○	○
الازعاج	○	○	○	○
اخر ؟ حدد	○	○	○	○

١٧ ـ ماهو مصدر تغذية المبنى بالماء :
○ توصيلة شبكة المياه
○ وايت
○ آخر ؟ حدد
وكم يكلف شهريا ؟ _____ ر.س

١٨ ـ هل تملك سياره خاصه ؟ ○ نعم ○ لا
ـ اذاكانت الاجابه (نعم) ، اين توقف سيارتك ؟ _____
ـ هل تستطيع السياره الوصول أمام المبنى؟ ○ نعم ○ لا
ـ اذا كانت الاجابه (لا) فلماذا ؟ _____

١٩ ـ هل توافق انه اذا حسنت خدمات المبنى والمرافق العامه بالحى ،فان ذلك حتما سيؤدي الى تشجيع المالك والمستأجر للسكن فى المنطقه المركزيه ؟
○ اوافق بشده ○ أوافق ○ غيرمتأكد ○ لاأوافق ○ لاأوافق بشده

٢٠ ـ هل تعتقد أن الكثافه السكانيه فى المنطقه المركزيه طول العام (ماعدا فترة الحج) .
○ ماليه جدا ○ ماليه ○ متوسطه ○ منخفضه ○ منخفضه جدا

(ب)

١ ـ ماهى الترتيبات المتخذه اذا كنت تؤجر فى فترة الحج :

	المالك	المستأجر
١ ـ تبقى كالمعتاد فى وحدتك السكنيه	○	○
٢ ـ تخلى الوحده السكنيه كليا .	○	○
٣ ـ تخلى الوحده السكنيه جزئيا بينما تسكن فيها .	○	○
٤ ـ تخلى الوحده السكنيه جزئيابينها لاتسكن فيها .	○	○
٥ ـ ترتيبات أخري ؟ حدد	○	○

اذا طلب منك اختيار انسب هذه الترتيبات فماذا تختار منها ؟ رقم ____

٢ ـ هل تفضل ان تصمم الوحده السكنيه بحيث يمكن تقسيمها الى وحدتين سكنيتين عند الحاجه دون التأثير على المساحه ؟ ○ نعم ○ لا

٣ ـ ماهو أقصى عدد الادوار الذي تفضله للمبانى فى هذه المنطقه ؟ ____ دور لماذا ؟

٤ ـ اذا كانت الوحدات السكنيه المحاوره مستأجره طوال العام فهل هذا :

	نعم	لا	لا أعرف
ـ يزيد قوة الروابط الاسريه والاجتماعيه	○	○	○
ـ يزيد الراحة النفسيه ؟	○	○	○
ـ يزيد الشعور بالامن ؟	○	○	○
ـ يزيد الازعاج ويؤدي الى عدم الهدوء ؟	○	○	○
ـ يحرم من درجة الخصوصيه التى تفضلها ؟	○	○	○
ـ يزيد من التكافل والتعاون بين الاسر ؟	○	○	○
ـ يقلل خدمات المبنى (مثل الماء والكهرباء ؟	○	○	○
ـ يقلل خدمات المرافق العامه فى الحى (مثل مستوصف ،سوق تجاري ، بريد ..... الخ)	○	○	○
ـ يقلل من مستوي الحفاظ على النظافه والصحه العامه ؟	○	○	○

(ه)

١ ـ معايلى : ماهى الاسباب وراء بقاء وحداتك السكنيه خاليه طوال العام ماعدا فترة الحج (ملاحظه : اذا كان لديه ذلك)

○ لان دخل ايجار الوحده السكنيه فى الحج أكبر من دخل الايجار السنوي .
○ لانك تحتاج هذه الوحدات لاقربائك وضيوفك بعوائلهم طوال السنه .
○ لانك تحتاج هذه الوحدات لسكنى اسرتك الكبيره .
○ لان مستوي الوحده السكنيه لايلبى متطلبات الحياة الحاليه ولذلك لايرغب المستأجرون فيها .
○ بسبب نقص الخدمات (مثل الماء) خصوصا فى فترة الحج .
○ بسبب قلة مواقف السيارات .
○ لتجنب مشاكل المستأجرين .
○ اسباب اخري ؟ حدد _____

٢ ـ اذا كان يؤجر فى الحج :
ـ الا تظن ان المبنى يحتاج الى ترتيبات خاصه ليلائم الايجار فى الحج
○ نعم ○ لا .
ـ اذا كانت الاجابه (نعم) . هل تستطيع ذكر أهم الاعتبارات الواجب اتخاذها عند تصميم أو تعديل أي مبنى ليلائم الايجار فى الحج ؟

_____

_____

٣ ـ اذا بدأ صندوق التنميه العقاريه فى اعطاء قروض لتحسين المواصفات المنخفضه للمبانى . هل ستطلب ذلك ؟ ○ نعم ○ لا .
اذا كانت الاجابه (نعم) ماهى الاشياء التى تحتاج الى تحسين فى المواصفات فى هذا المبنى ؟

_____

(د)

١ ـ ماهو عملك (موظف ـ مدرس ـ عامل ... الخ) ؟ _____
٢ ـ ماهو دخلك الشهري ان أمكن ؟ _____ ر.س
٣ ـ هل هناك اضافة تود ذكرها ؟

_____

_____

_____

_____

_____

مع شكري الجزيل لتعاونك معنا ...

The main Housing Survey in Makkah Central Districts Questionnaire (August 1984), with a selection of fixed alternative and open ended questions.

PART (A)

1. Date / / 1984 Student name .. ..
   Neighbourhood name .. .. Street name .. ..
   Building No. .. .. Floor studied .. ..
   No. on the map .. ..

2. Building type <>Traditional
   <>Modern flats building
   <>Traditional but improved or extended by new building materials
   <>Other?specify .. ..

3. Road type <>Major road
   <>Access road
   <>Foot path
   <>Other?specify .. ..

   Building location :
   <>Flat land
   <>Gentle slope
   <>Steep hill side
   <>Very steep

4. Are you <>Landlord
   <>Tenant
   <>Motawif
   <>Guard
   <>Deputy
   <>Other ? Specify .. ..
   Nationality <>Saudi <>Other ? Specify .. ..

5. No. of floors .. ..
   No. of dwellings .. .. ..
   No. of vacant dwellings (except Hajj period) .. .. ..
   No. of rooms in the dwelling .. .. ..

   Household size .. .. ..
   Household structure:
   Plase state the relationship of each member of the house hold to the head of household (wife, husband, son, daughter, grandfather,.. etc.)?
   1. Head. 2. .. ..
   3. .. .. 4. .. ..
   5. .. .. 6. .. ..
   7. .. .. 8. .. ..

6. Year built .. ..
   Was it built or extended by loan from the Real Estate Development Fund?
   <>Yes <>No
   If yes. Was it funded by <>Private loan
   <>Investment loan

7. Who occupies the building all year round :

The occupier	Occupy	Do not Occupy	No. of dwellings occupied(each)
Landlord	<>	<>	.. ..
The intervie-wed tenant	<>	<>	.. ..
Guard	<>	<>	.. ..
Deputy	<>	<>	.. ..
Other?specify	<>	<>	.. ..

Are there other tenants? <>Yes <>No
If yes. How many ? .. ..
(not including the interviewed if he is a tenant)

8. What is the annual rent per dwelling ? .. .. S.R.
(for the year round not including Hajj rent value)
Are you satisfied with this value? <> Yes <>No
If not. What is the prefered annual rent value per dwelling ? .. .. S.R.

9. Is your dwelling or building rented during Hajj time?
<>Yes <>No
If yes. What is the Hajj rent value per dwelling ? .. .. S.R.
Are you satisfied with this value? <>Yes <>No
If not. What is the prefered Hajj rent value per dwelling ? .. .. S.R.
Do you rent as <>A whole
<>Separate units/dwellings ? Why ? .. ..

Is it rented to: <>Motawif
<>Hamladar
<>Pilgrim
<>Estate agent
<>Other ? Specify .. ..

10.What needs maintenance in dwellings?

	Vacant	Not vacant
-Plastering	<>	<>
-Plumbing	<>	<>
-Painting	<>	<>
-Wiring	<>	<>
-Joinery	<>	<>
-Other?specify...	<>	<>

How much is the annual cost of maintenance per dwelling?
If vacant ? .. .. S.R.
If not vacant ? .. .. S.R.

Who is the responsible for maintenance?
<>Landlord
<>Tenant
<>other ? Specify .. ..

11.Are these dwellings designed for:
<>Renting in hajj
<>Renting year round
<>Private use
<>Private use and renting in Hajj
<>Wackf
<>Other purpose ? Specify .. ..

12.Was there a need to change the design? <>Yes <>No
If yes. What changes where made? .. ..
.. ..

13.Are there problems in Hajj period and year round over:

	During hajj		Year round	
	Pr.	No pr.	Pr.	No pr.
Water	<>	<>	<>	<>
Electricity	<>	<>	<>	<>
Sewerage	<>	<>	<>	<>
Garbage	<>	<>	<>	<>
Parking	<>	<>	<>	<>
Noise	<>	<>	<>	<>
Other?spec.	<>	<>	<>	<>
....				

Pr. = Problem

14.What is your source of water?
<>Piped water
<>Delivery truck
<>Other?specify .. ..
How much is the monthly cost of water ? .. .. S.R.

15.Do you own a private car? <>Yes <>No
If yes. Where do you park your car ? .. ..
Can your car get in front of your house? <>Yes <>No
If no. Why ? .. ..

16.Do you agree that if the building services and the community facilities are improved, this would encourage landlords and tenants to live in the central districts?
<>Strongly agree
<>Agree
<>Uncertain
<>Disagree
<>Strongly disagree

17.Do you think that the population density all year round except Hajj period in the central district is:
<>Very high
<>High
<>Medium
<>Low
<>Very low

If the interviewed was a landlord continue parts B,C and D.
If the he was a tenant continue parts B and D.
For others continue part D only.

PART (B)

1. What arrangements are made if renting in Hajj:

	LANDLORD	TENANT
1.Vacate the dwelling totally	<>	<>
2.Vacate the dwelling partialy while living in	<>	<>
3.Vacate the dwelling partialy while living out	<>	<>
4.Stay as normal	<>	<>
5.Other arrangements specify	<>	<>

If you were asked to choose one of these choices
Which one do you prefer ? No. ( )

2. What is your prefered maximum building hight in this area? .. .. ..
Why ? .. ..

3. Do you prefer the dwelling to be designed so that it can be divided into two units when needed ?
<>Yes <>No

4. If the neighbouring dwellings are occupied all year round, would that:

	Yes	No	Dont know
Increase and strengthen social relationship	<>	<>	<>
Increase peace	<>	<>	<>
Increase the feeling of security	<>	<>	<>
Increase the noise	<>	<>	<>
Decrease your privacy	<>	<>	<>
Increase cooperation between families	<>	<>	<>
Decrease the building services(elec,tele,etc)	<>	<>	<>
Decrease the community facilities(schools, clinics,etc.)	<>	<>	<>
Decrease the level of public health	<>	<>	<>

PART (C)

IF THE LANDLORD IS BEING INTERVIEWED CONTINUE

1. From the following, what are the reasons behind the vacancy of your dwellings all year round except Hajj period (if he has some) :
   <>The standard accommodation is very low compared with the new living requirements so tenants may not be willing to rent.
   <>You will earn more by renting in Hajj time rather than year round.
   <>It is needed for relatives and visitors with their families all year round.
   <>To be occupied by your extended family.
   <>The shortage of services(water) especially in Hajj time.
   <>The shortage of parking areas.
   <>To avoid tenants problems.
   <>Other reasons ? please specify .. ..

2. If renting in Hajj,
   Do not you think that the building needs special arrangements for Hajj renting ?
   <>Yes <>No

   If yes. Could you say the important aspects to be considered when designing or altering buildings for Hajj rent only? .. ..
   .. ..

3. If the real estate development fund started giving improvements loans for low standard buildings. Would you apply for that?
   <>Yes <>No
   What are the things to be improved in this building ? .. ..
   .. ..

PART (D)

What is your occupation ? .. ..

What is your monthly income ? .. .. S.R.

Is there any thing to add : .. ..
.. ..

Thank you for your cooperation

Appendix B

CODING

B-1

The code book of the preliminary Vacant Houses Survey in Makkah central district, September 1983.

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS
1-2	CASEID	Case identification.	01-99
3	DECKD	Deck identification.	1-2
4-6	NO.MAP	No. on the map.	Actual number X88=Not Ans.
7	NEIGHBOR	Neighbourhood name.	1=Ship Ali. 2=Jiyad Al-Sud 3=Jiyad Ber-Balila. 4=Al-Shamiyah. 5=Misfalah. 6=Shubaka. 7=Falque. 8=Aziziah. 9=Not Ans.
8-9	FLR.STUD	Floor studied.	77=Basement. 66=Ground floor 01=1st floor. 02=2nd floor. 20=20th floor. 99=Not Ans.
10	TYPE	House type.	1=Traditional. 2=Apartment bu. 3=Other. 9=Not Ans.
11-12	NO.FLR	No. of floors.	Actual number. 99=Not Ans.
13-14	NO.DWLNG	No. of dwellings.	Actual number. 99=Not Ans.
15-16	NO.VAC.D	No. of vacant dwellings-(excepy HAJJ period).	Actual number. 99=Not Ans.
17-18	Y.BUILT	Year built.	Actual number 09=Not Ans.
19	BYFUND	Was it built or extended by loan from (REAL ESTATE DEVELOPMENT FUND).	1=Yes. 2=No. 9=Not Ans.

WHO OCCUPIES THE BUILDING

20	LANDLORD	The landlord.	1=Ticked. 2=Not ticked. 8=Not App. 9=Not Ans.
21	TENANT	The tenant.	As above.
22	OTHERC.	The other categories.	As above.
23	NO.D.LRD	No. of dwellings used by landlords.	Actual number. 8=Not App. 9=Not Ans.
24-25	NO.D.TEN	No. of dwellings used by tenants.	Actual number. 88=Not App. 99=Not Ans.
26	NO.D.OTH	No. of dwellings used by other categories.	Actual number. 8=Not App. 9=Not Ans.
27-31	RENTPD	Average annual rent per dwelling.	Actual number. 00088=Not App. 00099=Not Ans.
32	ISRENTDH	Is it rented during Hajj period?	1=Yes. 2=No. 8=Not App. 9=Not Ans.
33-37	RENTHPD	Rent value for a dwelling during Hajj period.	Actual number. 00088=Not App. 00099=Not Ans.
38	PREFERR	Do you prefer to rent?	1=As awhole. 2=Separate units/dwellings. 8=Not App. 9=Not Ans.
39	AREYOU	Are you.	1=Landlord. 2=Tenant. 3=Other. 9=Not Ans.

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS
SECOND RECORD.			
IF THE LANDLORD IS BEING INTERVIEWED :			
4	LD.ARGMT	Arrangements taken with-permanent tenants if re-nting during Hajj period	1=Vacate the dwelling totally.-2=Vacate the dwelling partialy. 3=Other. 4=No conditions. 8=Not App. 9=Not Ans.
WHAT NEEDS MAINTENANCE IN VACANT DWELLINGS :			
5	PLASTER	Plastering.	1=Ticked. 2=Not ticked. 9=Not Ans.
6	PLUMBING	Plumbing.	As above.
7	PAINTING	Painting.	As above.
8	WIRING	Wiring.	As above.
9	OTHERM.	Other maintainance work-	As above.
10-13	COSTMAIN	Annual cost of maintenance per dwelling.	Actual number. 0088=Not App. 0099=Not Ans.
IF THE TENANT IS BEING INTERVIEWED :			
14	TE.ARGMT	Arrangements taken by - permenant tenants if re-nting during Hajj period	1=Empty the dwelling totally.-- 2=Empty the dwelling partialy. 3=Other. 8=Not App. 9=Not Ans.
15	RES.MAIN	The responsible for maintainance.	1=Landlord. 2=Tenant.------- 3=Other. 9=Not Ans.
16	DESG.FOR	Are these dwellings designed for:	1=Renting during Hajj and religious occasions. 2=Renting year round. 3=Wackf. 4=Personal use. 5=Personal use and rinting in Hajj time. 6=Other purpos 9=Not Ans.
17	NEEDCHAN	Was there a need to change the design.	1=Yes. 2=No. 9=Not Ans.
ARE THERE PROBLEMS ARISE FROM RENTING DURING HAJJ PERIOD ACCORDING TO :			
18	WATERH	Water at Hajj time.	1=There are problems. 2=There are no problems. 8=Not App. 9=Not Ans.
19	ELECh.	Electricity.	As above.
20	SEWER.H	Sewerage.	As above.
21	GARB.H	Garbage disposal.	As above.
22	PARK.H	Parking.	As above.
23	OTHERH	Other problems.	As above.

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS
ARE THERE PROBLEMS ARISE FROM RENTING YEAR ROUND ACCORDING TO :			
24	WATER	Water.	As above.
25	ELECTRIC	Elictricity.	As above.
26	SEWERAGE	Sewerage.	As above.
27	GARBAGE	Garbage disposal.	As above.
28	PARKING	Parking.	As above.
29	OTHERP.	Other.	As above.
30	PREFDIVI	Do you prefer the dwelling to be designed so that it can be divided into two units if needed	1=Yes. 2=No. 9=Not Ans.
31	DOTHATD	If yes, do you think that such a design would decrease the % of vacant dwellings.	1=Yes. 2=No. 8=Not App. 9=Not Ans.
IF THE NEIGHBOURING DWELLINGS ARE OCCUPIED ALL YEAR ROUND, WOULD THAT :			
32	I.SOCIAL	Increase and stringthen the social relationships	1=Yes. 2=No. 3=Don't know. 8=Not App. 9=Not Ans.
33	I.PEACE	Increase peace and tranquility.	As above.
34	I.SECUR	Increase the feeling of security.	As above.
35	I.NOISE	Increase the noise.	As above.
36	D.PRIVAC	Decrease your privacy.	As above.
37	I.COOP	Stringthen cooperation - between families.	As above.
38	D.SERVS	Decrease the services.	As above.
39	D.C.SERV	Decrease community services.	As above.
40	D.HEALTH	Decrease the level of -- public health.	As above.
41	MAPS	Is there a map for the - dwelling.	1= Yes. 2= No.
42-43	NOSLIDES	Number of slides available .	Actual no. 99= Not available.-

B-2

The code book of the main Housing Survey in Makkah Central Districts, August 1984.

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS	QNo
1-4	- CASEID --	Case identification. ---	101-999 ----------	1
5	- DECKD --	Deck identification. ---	1-5 ----------	1
6-7	- STUDENTS-	Students' names. ------	1-Mohamad Moglan 2-Ramadan Abu- Tahoon 3-Jameel Jarwan 4-Osama Madani 5-Samer Filimban 6-Abdul Malik Mandourah 7-Esam Tunisi 8-Esam Turkistani 9-Khalid Al Radi 10-Hisham Makky 11-Hisham Al Sabri 12-Abdullah Al Yamani 13 Khalid Mandili.	1
8-9	- NEIGHBOR-	Neighbourhood name. ---	1-Al Shubayka. ----------	1
			2-Dahlat Al Rushad. -	
			3-Al Misfalah. 4-Al Hafayer. -	
			5-Ajiyad. 6-Ajiyad Al Sud.	
			7-Ajiyad Ber-Balila. -	
			8-Ajiyad Al Masafi. -	
			9-Shi'b Ali. 10-Shi'b Amir. -	
			11-Al Gararah. 12-Al-Shamiyah.-	
			13-Al Falg 14-Al Hajla -	
			15-Jebel Al Kaba. -	
			16-Harat Al Bab. -	
			17-Jebel Hindi 18-Jarwal. -	
			19-Al Sulaimaniah. -	
			20-Al Gashashiya. -	
			21-Jebel Garn. 22-Al Naga. -	
			23-Jebel Al Helais. -	
			24-Al Taiseer. 99-Not Ans. -	
10	- FLR.STUD-	Floor studied. ---------	0-Ground floor. 1-First floor.-	1
			9-Not Ans. -	
11	- TYPE ---	Building type. ---------	1-Traditional. -	2
			2-Modern flats building. -	
			3-Traditional but improved or -	
			extended by new building -	
			materials. -	
			4-Other. 9-Not Ans. -	
12	- ROADTYPE-	Road type. ---------	1-Major road. 2-Access road.--	3
			3-Foot path. 4-Other. -	
13	- BUILLOCA-	Building location. ----	1-Flat land. 2-Gentle Slope.-	4
			3-Steep hill side. -	
			4-Very steep. 9-Not Ans. -	
14	- AREYOU --	The interviewed person -	1-Landlord. 2-Tenant. -----	5
			3-Motawif. 4-Guard. -	
			5-Deputy. 6-Other. -	
15-16-	NATIONAL-	Nationality --------	1-Saudi Arabia 2-North Yemen.--	6
			3-Pakistan. 4-Egypt. -	
			5-South Yemen 6-Sudan. -	
			7-Syria. 8-Lebanon. -	
			9-Iraq. 10-Turkey. -	

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS	QNo
			11-Libya. 12-Tunisia.	-
			13-Algeria. 14-Morocco.	-
			15-Kuwait. 16-Bahrain.	-
			17-Arab Emarates.	-
			18-Oman. 19-Jordan.	-
			20-Burma. 21-Bangladesh.	-
			22-Nigeria. 23-Indonesia.	-
			24-Other. 25-Ethiopia.	-
			26-India. 27-Somalia.	-
			28-Other. 29-U.S.A.	-
17-18-	NO.FLR --	Number of floors. -----	Actual number. ----------	7
19-20-	NO.DWLNG-	Number of dwellings. --	As above. ----------	
21-22-	NO.ROOM -	Number of rooms in the - dwelling.	As above. ----------	
23-24-	NO.VAC.D-	Number of vacant dwellings (except Hajj period)	As above. ----------	
25-26-	HOUSESIZ-	Household size. ------	As above. ----------	8
27 -	STRUC1 --	Household structure 1. -	0-Not app & not ans. ---------	
			1-Head. 2-Wife.	-
			3-Son. 4-Daughter.	-
			5-Grandfather 6-Grandmother.	-
			7-Seed. 8-Set.	-
			9-Grandson.	-
			10-Grand-daughter.	-
			11-Daughter husband.	-
			12-Sons wife. 13-Brother.	-
			14-Brothers son15-Sister.	-
			16-Aunt.	-
			17-Mother-in-law.	-
			18-Uncle. 19-Husbands son-	
			20-Husbands daughter.	-
			21-Wifes son.	-
			22-Wifes daughter.	-
			23-Mother. 24-Father.	-
			25-Wifes sister26-Brothers wife	
			27-Fathers wife.	-
28 -	STRUC2 --	Household structure 2. -	As above. ----------	
29 -	STRUC3 --	Household structure 3. -	AS above. ----------	
30 -	STRUC4 --	Household structure 4. -	As above. ----------	
31 -	STRUC5 --	Household structure 5. -	As above. ----------	
32 -	STRUC6 --	Household structure 6. -	As above. ----------	
33-34-	STRUC7 --	Household structure 7. -	As above. ----------	
35-36-	STRUC8 --	Household structure 8. -	As above. ----------	
37-38-	STRUC9 --	Household structure 9. -	As above. ----------	

SECOND RECORD.

6-7 -	STRUC10 -	Household structure 10.-	As above.	----------	
8-9 -	YEARCONS-	Year of construction. --	01-Up to 1901	Then actual No.-	9
			88-Not app.	99-Not ans. -	
10 -	BYFUND -	Was it built or extended by loan from the Real - Estate Development Fund.	1-Yes.	2-No. --------	
11 -	BYFUNDTY-	The loan type. -------	1-Private loan.	----------	
			2-Investment loan.		

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS	QNo
12-16-	RENTPD --	Annual rent per dwelling	Actual number. 88888-Not app. - 99999-Not ans. -	10
17 -	RENTPDS -	Are you satisfied with - this Value.	1-Yes. 2-No. --------	
18-22-	PREFRENT-	The prefered annual rent value per dwelling.	Actual number. 88888-Not app.-- 99999-Not ans. -	

WHO OCCUPIES THE BUILDING

23 -	LANDLORD-	The landlord. --------	1=Occupy. 2=Do not occupy-	11
24 -	LANDLODW-	The number of dwellings- occupied by landlord.	Actual number 8-Not app. ---- 9=Not Ans. -	
25 -	TENANT --	The tenant. ----------	As above. ----------	
26 -	TENANTDW-	No. of dwell. occ. ----	As above. ----------	
27 -	GUARD ---	The guard. ----------	As above. ----------	
28 -	GUARDDW -	No. of dwell. occ. ----	As above. ----------	
29 -	DEPUTY --	The deputy. ----------	As above. ----------	
30 -	DEPUTYDW-	No. of dwell. occ. ----	As above. ----------	
31 -	OTHERO -	The other occupants. --	As above. ----------	
32 -	OTHERDW -	No. of dwell. occ. ----	As above. ----------	
33 -	OTHERT --	Are there other tenants-	1-Yes. 2-No. ---------	
34-35-	OTHERTNO-	The number of tenants - not including the inter- viewed if he is a tenant	Actual number. ---------- - -	

THIRD RECORD.

6 -	ISRENTDH-	Is it rented during Hajj period?	1=Yes. 2=No. -------- 8=Not App. 9=Not Ans. -	12
7-11 -	RENTHPD -	Hajj rent value /dwelli- ng.	Actual number. ---------- 88888=Not app. 99999=Not ans. -	
12 -	RENTHPDS-	Are you satisfied with - this value.	1-Yes. 2-No. -------- -	
13-17-	PREFHREN-	The prefered Hajj rent - value per dwelling.	Actual number. ---------- 88888-Not app. 99999-Not ans. -	
18 -	PREFERR -	Do you prefer to rent?--	1=As a whole. ---------- 2=Separate units/dwellings. -	
19 -	RENTTO --	Is it rented to: -----	1-Motawif. 2-Hamladar. --- 3-The pilgrim. 4-Estate agent.- 5-Other. -	

WHAT NEEDS MAINTENANCE IN VACANT DWELLINGS:

20 -	PAINTV -	Painting if vacant. ---	1=Ticked. 2=Not ticked. --	13
21 -	PAINTING-	Painting if occupied. --	As above. ----------	
22 -	PLUMBV --	Pumbing if vacant. ----	As above. ----------	
23 -	PLUMBING-	Plumbing if occupied. --	As above. ----------	
24 -	PLASTV --	Plastering if vacant. --	As above. ----------	
25 -	PLASTER -	Plastering if occupied.-	As above. ----------	
26 -	WIRV ----	Wiring if vacant. -----	As above. ----------	
27 -	WIRING --	Wiring if occupied. ---	As above. ----------	
28 -	JOINV ---	Joinery if Vacant. ----	As above. ----------	
29 -	JOINERY -	Joinery if occupied. --	As above. ----------	

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS	QNo
30 -	OTHV ---	Other maintenance work - if vacant.	As above.	
31 -	OTHERM --	Other maintainance work- if occupied.	As above.	
32-35-	COSTMAV -	Annual cost of maintenance per dwelling if vac.	Actual number. 8888=Not App. 9999=Not Ans.	
36-39-	COSTMAIN-	Annual cost of maintenance per dwelling if occ.	As above.	

FORTH RECORD.

6 -	RES.MAIN-	The responsible for maintenance.	1-Landlord. 2-Tenant. 3-Other.	13
7 -	DESG.FOR-	Are these dwellings designed for:	1-Renting year round. 2-Renting in Hajj. 3-Private use. 4-Private and renting in Hajj. 5-Wackf. 6-Other.	14
8 -	NEEDCHAN-	Was there a need to change the design.	1=Yes. 2=No. 9=Not Ans.	15

ARE THERE PROBLEMS ARISE FROM RENTING DURING HAJJ OR YEAR ROUND ACCORDING TO :

9 -	WATERH --	Water at Hajj time.	1=There are problems. 2=There are no problems. 8=Not App. 9=Not Ans.	16
10 -	WATER ---	Water year round.	As above.	
11 -	ELECH ---	Electricity at Hajj.	As above.	
12 -	ELECTRIC-	Electricity year round.	As above.	
13 -	SEWERH --	Sewerage at Hajj time.	As above.	
14 -	SEWERAGE-	Sewerage year round.	As above.	
15 -	GARBH ---	Garbage disposal at Hajj	As above.	
16 -	GARBAGE -	Garbage disposal year r.	As above.	
17 -	PARKH ---	Parking at Hajj time.	As above.	
18 -	PARKING -	Parking year round.	As above.	
19 -	NOISEH --	Noise at Hajj time.	As above.	
20 -	NOISE ---	Noise year round.	As above.	
21 -	OTHERH --	Other problems at Hajj.	As above.	
22 -	OTHERP --	Other problems year r.	As above.	
23 -	SWATER1 -	First source of water.	1-Piped water. 3-Other. 2-Delivery truck.	17
24 -	SWATER2 -	Second source of water.	As above.	
25-28-	COSTW ---	Monthly cost of water.	Actual number.	
29 -	OWNCAR --	Do you own a private car	1-Yes. 2-No.	18
30 -	CARFRONT-	Can your car get in front of your building.	As above.	
31 -	SERVATT -	Do you agree that if the building services and community facilities are improved, this would encourage landlords and-tenants to live in the central districts.	1-Strongly agree. 2-Agree. 3-Uncertain. 4-Disagree. 5-Strongly disagree.	19

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS	QNo
32	DENSITY	Do you think that the population density all year round except Hajj period in the cenral districts.	1-Very high. 2-High. 3-Medium. 4-Low. 5-Very low.	20
33	ARRANGEM-	What arrangements are made if renting in Hajj.	1-Stay as normal. 2-Vacate the dwelling totally. 3-Vacate the dwelling partialy- while living in. 4-Vacate the dwelling partialy- while living out. 5-Other arrangements.	B1
34	ARRACHOI-	Choosing the preferable-choice from above.	As above.	
35	PREFDIVI-	Do you prefer the dwelling to be designed so that it can be divided into two units when needed.	1=Yes. 2-No.	B2
36-37	PREFHIGH-	The prefered maximum building hight in that area.	Actual number.	B3

FIFTH RECORD.

IF THE NEIGHBOURING DWELLINGS ARE OCCUPIED ALL YEAR ROUND, WOULD THAT :

6	ISOCIAL	Increase and stringthen social relationships.	1-Yes. 2-No. 3-Don't know. 8-Not App. 9-Not Ans.	B4
7	IPEACE	Increase peace and tranquility.	As above.	
8	ISECUR	Increase the feeling of security.	As above.	
9	INOISE	Increase the noise.	As above.	
10	DPRIVAC	Decrease your privacy.	As above.	
11	ICOOP	Stringthen cooperation between families.	As above.	
12	DSERVS	Decrease the building services(elec,tele,etc.)	As above.	
13	D.C.FACI-	Decrease the community facilities(schools, clinics, etc.)	As above.	
14	DHEALTH	Decrease the level of public health.	As above.	
15	REASVAC1-	What are the reasons behind the vacancy of your dwellings all year round except Hajj period.	1-You will earn more by renting in Hajj time rather than year round. 2-It is needed for relatives and visitors with their families all year round. 3-To be occupied by your extended family.	C1

COLUMN (S)	VARIABLE NAME	VARIABLE DISCRIPTION	CODES AND MEANINGS	QNo
			4-The standard accommodation - is very low compared with the new living requirements so - tenants may not bewiling to - rent. 5-The shortage of services - (water) especially in Hajj. - 6-The shortage of parking area- 7-To avoid tenants problems. -	
16 -	REASVAC2-	As above. ----------	As above. ----------	
17 -	REASVAC3-	As above. ----------	As above. ----------	
18 -	SPECARRA-	Do not you think that - the building needs spec- ial arrangements for - Hajj renting.	1-Yes. 2-No. --------	C2
19 -	WANTFUND-	If the Real Estate Deve- lopment Fund started - giving improvements loa- ns for low standard bui- ldings, would you apply- for that.	As above. ----------	C3
20-21-	OCCUPATI-	Occupation. ----------	1-Employed. 2-Student. ----	D1
			3-Labour. 4-Guard. -	
			5-Driver. 6-Technision. -	
			7-Merchant. 8-Contractor. -	
			9-Motawif. 10-Carpenter. -	
			11-Employed. 12-Local Mayor.-	
			13-Electrition.14-Retired. -	
			15-Teacher. 16-Grossary. -	
			17-Grossary. 18-Employed. -	
			19-Farmer. 20-Engineer. -	
			21-Employed. 22-Tailor. -	
22-26-	INCOME --	Monthly income. ------	Actual number. ----------	
SPSSX-	Y.B.G. --	Year of construction --- group.	1=Befor 1901 2=From 1902-9 --	
			3=From 1910-9 4=From 1920-9 -	
			5=From 1930-9 6=From 1940-9 -	
			7=From 1950-9 8=From 1960-9 -	
			9=From 1970-9 10=From 1980-4 -	

Appendix C

SAMPLES OF COMPUTER ANALYSIS FILES

C-1

Sample of input data (1984 survey data).

```
115010818113210104040400071263353030000
11502005428888888288581420202020288
11503288888888888818181818188880100
11504131112222111111211120210112438107
11505111221222300820201500

11511081801222020306030008123333040400
11512009999999999999920122020201044
11513288888888888828282828283826288400000
11514118222222221222221099991122886044
11515111121122888880301500

11521070101331010102040007123344060000
11522004528888888888812201202020288
11523288558888888881818182828288881000
11524132222222112222221399992293881043
11525111221333888820703000

11531070101441010101040008123344040600
11532004028888888888811202020200288
11533288888888888838181818282888680000
11534132222222211222222100000223388102
11535111211333888810702500

11541071212224020612030000000000000000
11542005328888888888882020112020288
11543111666999991112121212222250000000
11544142112222211112222120500213188888
11545888888888888804401500

11551081501312030101030005123330000000
11552008888120001888882011202020288
11553288888888888888282828282828880000
11554218222211221122221099992223882054
11555111221233888880301500

11561081501321010101030009123334040417
11562008028888888888811202020200288
11563199999188888238282828282828880000
11564142122222221122222109999224233204
11565111221333888880502400

11571081513111010303030012123399121210
11572107420888888888881320202020288
11573106000188888238282828282828880000
11574142122222221212222109999112333208
11575111221222888210703000
```

C-2

Sample of SPSSX program runing file used to creat histograms.

```
Listing of SPSSXHIST841 at 03:35:29 on MAY 23, 1986 for CCid=ACE5

     1      $SIGNON ACE5 T=10 P=30
   2.1      $R *SPSSX
     3      TITLE 'Housing Survey in Makkah central districts 84'
     4      SET LENGTH=NONE
     5      FILE HANDLE IN / NAME 'SPSCOMMSAV84'
     6      GET FILE=IN
     7      SELECT IF (ROADTYPE = 1 )
     8      FREQUENCIES VARIABLES=NO.FLR/
     9            FORMAT=NOTABLE/ HISTOGRAM=PERCENT/
    10            STATISTICS=ALL
    11      TEMPORARY
    12      SELECT IF (NO.DWLNG < 40 )
    13      FREQUENCIES VARIABLES=NO.DWLNG/
    14            FORMAT=CONDENSE /
    15            HISTOGRAM=PERCENT,MIN(-0.5),INCREMENT(1)/
    16            STATISTICS=ALL
    17      FREQUENCIES VARIABLES=NO.VAC.D/
    18            FORMAT=CONDENSE/
    19            HISTOGRAM=PERCENT(75),MIN(-0.5),INCREMENT(1)/
    20            STATISTICS=ALL
    21      FREQUENCIES VARIABLES=NO.ROOM/
    22            FORMAT=CONDENSE/
    23            HISTOGRAM=PERCENT(50),MIN(-0.5),INCREMENT(1)/
    24            STATISTICS=ALL
    25      FREQUENCIES VARIABLES=HOUSESIZ,Y.B.G./
    26            FORMAT=CONDENSE/
    27            HISTOGRAM=PERCENT,MIN(-0.5),INCREMENT(1)/
    28            STATISTICS=ALL
    29      FREQUENCIES VARIABLES=RENTPD,RENTHPD/
    30            FORMAT=CONDENSE/
    31            HISTOGRAM=MIN(500),INCREMENT(1000),FREQ(7.5),PERCENT(25)/
    32            STATISTICS=ALL
    33      TEMPORARY
    34      SELECT IF (INCOME < 20000)
    35      FREQUENCIES VARIABLES=INCOME/
    36            FORMAT=CONDENSE/
    37            HISTOGRAM=MIN(250),MAX(20000),INCREMENT(500)/
    38            STATISTICS=ALL
    39      FREQUENCIES VARIABLES=COSTMAV,COSTMAIN,COSTW/
    40            FORMAT=CONDENSE/
    41            HISTOGRAM=MIN(50),MAX(2000),INCREMENT(50)/
    42            STATISTICS=ALL
    43      FINISH
  43.1      COMMENT  FILE NAME IS   SPSSXHIST841
    44      $SIGNOFF
```

C-3

Sample of GIMMS program runing file used to draw figure 23 .

Listing of FIG11 at 03:35:11 on MAY 23, 1986 for CCid=ACE5

```
$SIGNON ACE5 T=10
$R *GIMMS 9=-TESTFIG8
*PLOTPARM PLOTTER
     *PLOTPROG
   *BARGRAPH PAGESIZE=30,42 PGLIMITS=2,25,28,36
   GROUPS=2
   DATA=14.3,12.7,9.5,9.5,28.6,23.3,0.0,2.0,2.0,0.0
   SHADEGRP 2,4
   XTITLE 'ARRANGEMENTS'
   YTITLE 'PERCENT'
   YMIN=0 YMAX=35  YUNITS=5  YTICKS=2
   *TEXT CENTRE CENTVAL=15 Y=40 HT=0.5
    TEXT='Figure 11: ARRANGEMENTS MADE BY LANDLORDS OR TENANTS FOR'
   *TEXT CENTRE CENTVAL=15 Y=39 HT=0.5 'RENTING THEIR PROPERTIES DURI
   *TEXT X=20 Y=31 HT=0.4 'EXISTING ARRANGEMENTS'
   *BARGRAPH SAMEPAGE PGLIMITS=2,10,28,21
   GROUPS=2
   DATA=12.9,8.2,11.2,8.2,31.8,25.3,0.6,1.2,0.6,0.0
   SHADEGRP 2,4
   XTITLE 'ARRANGEMENTS'
   YTITLE 'PERCENT'
   YMIN=0 YMAX=35  YUNITS=5  YTICKS=2
   *TEXT X=20 Y=16 HT=0.4 'PREFERRED ARRANGEMENTS'
   *TEXT X=23 Y=7 HT=0.45 'SHADING :'
   *TEXT X=24 Y=5.75 HT=0.4  'Landlords.'
   *TEXT X=24 Y=4.75 HT=0.4  'Tenants.'
   *TEXT X=2  Y=7 HT=0.45 'ARRANGEMENTS:'
   *TEXT X=2  Y=6 HT=0.4 '0 = Continue in occupation normally.'
   *TEXT X=2  Y=5 HT=0.4 '1 = Vacate the dwelling totally.'
   *TEXT X=2  Y=4 HT=0.4 '2 = Vacate the dwelling partially while liv
   *TEXT X=2  Y=3 HT=0.4 '3 = Vacate the dwelling partially while liv
   *TEXT X=2  Y=2 HT=0.4 '4 = Other.'
   *TEXT CENTRE CENTVAL=15 Y=0.3 HT=0.3 'VALID CASES 189'
   *SYMBOLISM POINT SQUARE SHADE FIX SIZE=0.5
     *POINT 23 6 2 / 23 5 4
     *END
  *STOP
  $R *MTSPLOT SCARDS=-TESTFIG8 PAR=SCALE=0.5
  $SIGNOFF
```

C-4

Sample of GIMMS program runing file used to draw map 47 .

Listing of GFB4 at 03:34:45 on MAY 23, 1986 for CCid=ACE5

```
     1      $SIGNON ACE5 T=19
     2      $RUN *GIMMS 8=GIMMSDATA 10=GIMMSL  11=GIMMSP2 9=-TESTPDF56 12=GIMMSPO
     3      *RESTORE DATA FROM 8
     4     *PLOTPARM PLOTTER
     5     *PLOTPROG
     6        *NEWMAP X=25 Y=35 F
     7        *GIMMSFILE FILE=10
     8        *ORIGIN PLOT=0,9
     9        *DRAWMAP
    10        *GIMMSFILE FILE=12
    11        *ORIGIN PLOT=0,9
    12        *DRAWMAP
    13        *GIMMSFILE FILE=11
    14        *LEVELS=2
    15        *INTERVALS VAR=BYFUNDTY USER=1,2,3
    16        *SYMBOLISM SYMBOL ALPHABET=3 CHARACTER=56/
    17           ALPHABET=3 CHARACTER=58
    18        *SYMBOLISM AREA GRID=0.08
    19        *SYMBOLISM POINT SYMBOL SIZE=0.6 FIX SHADE
    20        *ORIGIN PLOT=0,9
    21        *LEGEND POSITION=2,5,BOXSHIFT=0,2,TEXTSIZE=0.35 NOVALUES DOWN
    22        *TEXT CENTRE CENTVAL=12.5,Y=33,HT=0.45,
    23         TEXT='MAP No. 6: BUILDINGS CONSTRUCTED BY LOAN FROM THE'
  23.2        *TEXT CENTRE CENTVAL=12.5,Y=32.2,HT=0.45,
  23.3         TEXT='REAL ESTATE DEVELOPMENT FUND'
    24        *TEXT X=22 Y=10 HT=0.45 'GF B4'
    25        *TEXT <LEGEND> KEY=TOP,SIZE=0.4,TEXT='Type of loan:'
    26        *TEXT <LEGEND> HT=0.35,KEY=1 ' Private loan.'/
    27          HT=0.35,KEY=2 ' Investment loan.'
    28         *NORTHPT X=22 Y=30 SIZE=2.0 ANGLE=185 N WIDTH=1.5
    29         *DRAW 15 2 21 2
    30         *DRAW 15 2 15 2.2
    31         *DRAW 17 2 17 2.2
    32         *DRAW 19 2 19 2.2
    33         *DRAW 21 2 21 2.2
    34         *TEXT X=15 Y=1.5 HT=0.3 '0'
    35          *TEXT X=17 Y=1.5 HT=0.3 '200'
    36          *TEXT X=19 Y=1.5 HT=0.3 '400'
    37          *TEXT X=21 Y=1.5 HT=0.3 '600 m'
    38          *MAP POINT VARNAME=BYFUNDTY
    39          *END
    40     *stop
    41     $R *MTSPLOT SCARDS=-TESTPDF56 PAR=SCALE=0.6
    42     $SIGNOFF
```

Sample of computer output.

```
$R *SPSSX
For information on statistical software type $HELP STATS
+-------------------------+-------------------------------------------
|     Version 2.1 of      | Whilst academic and educational use of
|          SPSSX          | software is free, any commercial or ex
|  Problems to Bob Williams | usage attracts a royalty payment.  Ple
|       at Durham         | contact the NUMAC Computing Service fo
|                         | further details.
+-------------------------+-------------------------------------------
|  *** IMPORTANT ***  The procedure HILOGLINEAR is faulty. DO NOT U
|     The version in OLD:SPSSX MAY be correct. List SPSS:BUG.HILOG
|     details.
+-------------------------+-------------------------------------------
Execution begins   02:35:07

14 MAY 86    SPSS-X RELEASE 2.1   FOR IBM VM/MTS
02:35:09     University of Newcastle

For                          University of Newcastle              License Nu

   1   0          TITLE 'Housing Survey in Makkah central districts
   2   0          SET LENGTH=NONE
   3   0          FILE HANDLE IN / NAME 'SPSCOMMSAV84'
   4   0          GET FILE=IN

FILE CALLED IN       :
  LABEL:
  CREATED  4 NOV 85 17:24:20      107 VARIABLES

   5   0          SELECT IF (CASEID < 1484)
   6   0          FREQUENCIES VARIABLES=NO.FLR,PREFHIGH/
   7   0               FORMAT=NOTABLE/ HISTOGRAM=PERCENT/
   8   0               STATISTICS=ALL

THERE ARE     59072 BYTES OF SPSS MEMORY AVAILABLE.
THE LARGEST CONTIGUOUS AREA HAS      59072 BYTES.
SPSS IS USING      65536 BYTES OF SYSTEM MEMORY
THERE ARE AT LEAST   2031616 BYTES OF SYSTEM MEMORY AVAILABLE.

***** MEMORY ALLOWS A TOTAL OF    5564 VALUES, ACCUMULATED ACROSS ALL
      THERE ALSO MAY BE UP TO    1416 VALUE LABELS FOR EACH VARIABLE

14 MAY 86    Housing Survey in Makkah central districts 84

02:35:21     University of Newcastle

NO.FLR    Number of floors

    COUNT       VALUE    ONE SYMBOL EQUALS APPROXIMATELY  2.13 OCCUR
       59        1.00   ***************************
       79        2.00   *************************************
       91        3.00   ******************************************
       65        4.00   ******************************
       31        5.00   **************
       14        6.00   *******
        4        7.00   **
        5        8.00   **
        2        9.00   **
        3       10.00   *
        1       11.00
        1       12.00
                I.........I.........I.........I.........I.....
                0         6        12        18        24
                                 PERCENT

MEAN          3.177      STD ERR        .037      MEDIAN        3.00
MODE          3.000      STD DEV       1.819      VARIANCE      3.31
```

Appendix D

FIELD WORK DOCUMENTS

D-1

The covering letter for the mail questionnaire interviewing procedure from the Deputy of the Faculty of Applied Sciences and Engineering which explains the purpose of the survey and encourages people to help in the data collection program. The Islamic Architecture department address was printed on envelopes which were stamped and distributed by hand with a copy of the covering letter and the questionnaire.

KINGDOM OF SAUDI ARABIA
MINISTRY OF HIGHER EDUCATION
UMM AL-QURA UNIVERSITY
MAKKAH ALMUKARRAMAH
FACULTY OF APPLIED SCIENCES AND ENGINEERING

بسم الله الرحمن الرحيم

المملكة العربية السعودية
وزارة التعليم العالى
جامعة أم القرى
مكة المكرمة
كلية العلوم التطبيقية والهندسيه

REF الرقم
DATE التاريخ
المرافق
المشفوعات

الى من يهمه الامر

يسر عماد كلية العلوم التطبيقيه والهندسيه بجامعة أم القرى احاطتكم علما بأن المهندس/ مجدى محمد حريرى أحد مبتعثيها لدرجة الدكتوراه الى بريطانيا فى مجال العماره ويتعلق بحثه بمشاكل الاسكان فى منطقة مكه المكرمه المركزيه ، ويحتاج الباحث الى جمع معلومات وعمل مسح ميدانى لاكثر من ٤٥٠ منزلا مختارا بطريقة منتظمه وتدرجه فى المنطقه المركزيه .

لهذا الغرض نرجو التكرم بمساعدة الباحث فى هذا الجزء من عمله الميدانى وذلك بملىء استمارة مسح الاسكان فى المنطقه المركزيه بمكه المكرمه والاجابه على الاسئله الوارده فيها بوضع علامة (√) داخل الدائره الانسب من ضمن مختلف الاجابات الوارده ومن ثم ارسالها بالبريد داخل الظرف المرفق والمجهز بالعنوان والطابع . وذلك من أجل تحصيل اكبر قدر ممكن من المعلومات الصحيحه . شاكرين لكم حسن اهتمامكم وكريم تعاونكم ..

وكيل كلية العلوم التطبيقيه والهندسيه
للشئون الهندسيه

١٠/٢٥

د . محمد يوسف برماوى

كلية العلوم التطبيقية والهندسية
جامعة أم القرى
مكة المكرمة - ص.ب ٣٧١١

D-2

An announcement letter written on behalf of the Deputy of the Faculty of Applied Sciences and Engineering to all students in the department of the Islamic Architecture explaining the purpose of the Housing Survey and encouraging them to join data collection program.

KINGDOM OF SAUDI ARABIA
MINISTRY OF HIGHER EDUCATION
UMM AL-QURA UNIVERSITY
MAKKAH ALMUKARRAMAH
FACULTY OF APPLIED SCIENCES AND ENGINEERING

بسم الله الرحمن الرحيم

المملكة العربية السعودية
وزارة التعليم العالى
جامعة أم القرى
مكة المكرمة
كلية العلوم التطبيقية والهندسيه

الرقم ١٠٧٣هـ/٢ص
التاريخ ٢٩/٨/١٤٠٤هـ
الموافق ـــــ
المشفوعات

REF
DATE

الى جميع طلبة المجموعه الثانيه فى برنامج العماره الاسلاميه الموقرين

السلام عليكم ورحمة الله وبركاته وبعد

يجرى الباحث / مجدى محمد حريرى والمبتعث من هذا القسم لتحضير درجة الدكتوراه بحثا ميدانيا لدراسة وضع الاسكان فى المنطقه المركزيه بمكه المكرمه وتأثير الحج عليه . وهذه الدراسه تتطلب اختيار عدد كبير من المنازل بطريقة منظّمه ومتتاليه ، وباستخدام أحدث الصور الجويه لمكه المكرمه حيث يتم تحديد هذه المنازل ومن ثم يتم استفتاء اصحاب هذه المنازل بسئوال اصحابها عدة أسئلة مصممه خصيصا لمعرفة وضع ونوعية المبانى والاستخدامات المختلفه لها وتأثير الحج عليها وعلى نمو وتغير الوضع الاساكانى فى المنطقه المركزيه .

ولذلك يرغب الباحث فى الاستعانه بمجموعة من الطلبه من هذا القسم فى اجراء استفتاءات المنازل مقابل مكافأة ماليه تصرف من مركز أبحاث الحج (حوالى ١٢٠ ريال أو أكثر يوميا للفرد الواحد) .. كما أحب أن اشير هنا الى وجود فرصة جيدة للتدريب العملى على استخدام الصور الجويه فى الدراسات العمرانيه والاسكانيه .

وسيبدأ العمل فى الفتره من ١٥ الى ٢٨ ذو القعده عام ١٤٠٤هـ . ولمعرفة تفاصيل أكثر حول العمل يمكن الاتصال بالباحث شخصيا على تلفون رقم ٥٤٢٩٨٦٠ أو مقابلته شخصيا بالقسم.

فعلى الطلبه الراغبين فى الاستفاده من هذه الفرصه الجيده ، تعبئة اسمائهم وعناوينهم لدى سكرتارية القسم ليتم الاتصال بهم والتنسيق معهم فى اجتماع لاحق بهذا الخصوص

والله الموفق ""

وكيل كلية العلوم للشئون الهندسيه
د. محمد يوسف برماوى

D-3

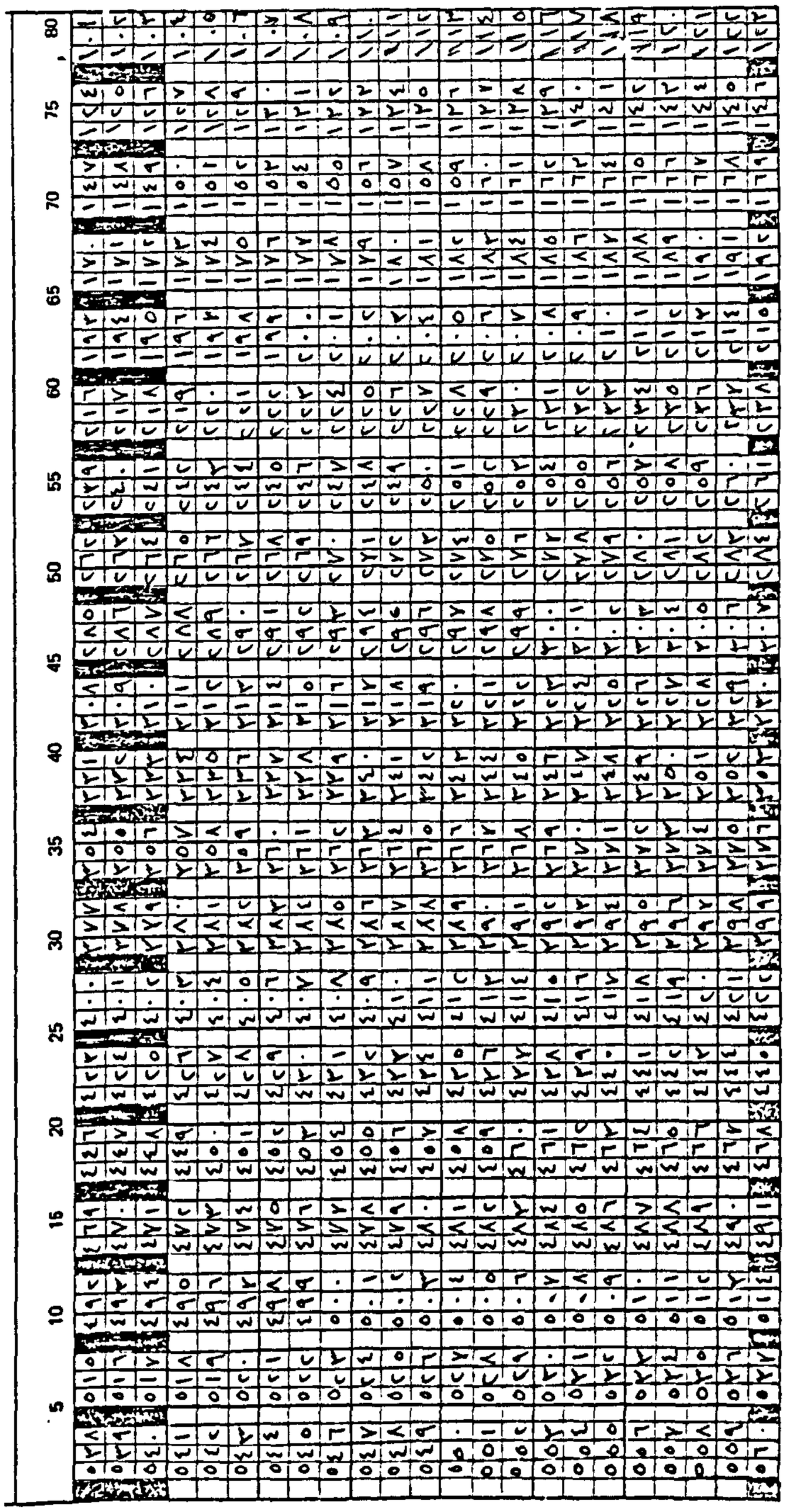
The names of all students worked in data collection in the major housing survey, September 1984.

1. Abdul-Malik Hasan Mandourah, Umm Al-Qura University, Engineering College, Islamic Architecture Department.
2. Sameer Mohammad Nor-Aldin Filimban, Umm Al-Qura University, Engineering College, Islamic Architecture Department.
3. Mohamad Mahmood Moglan, King Abdul-Aziz University, School of Environmental Design, Planning Department.
4. Esam Abdul-Aziz Tunisi, King Abdul-Aziz University, School of Environmental Design, Planning Department.
5. Khalid Nasr-Aldin Mandili, King Abdul-Aziz University, School of Environmental Design, Planning Department.
6. Osama Mohammad Madani, Umm Al-Qura University, Civilization Department.
7. Jameel Mohamad Jarwan, Umm Al-Qura University, Physical Education Department.
8. Esam Jalal-Aldin Turkistani, Umm Al-Qura University, English Language Department.
9. Khalid Sameer Al-Radi, Umm Al-Qura University.
10. Hisham Abdullah Al-Sabri, Umm Al-Qura University, Arabic Language Department.
11. Abdullah Saleh Al-Yamani, Umm Al-Qura University, Physics Department.
12. Ramadan Mahmood Abu-Tahoon, Umm Al-Qura University.

All of these students worked in data collection except Ramadan Abu-Tahoon who was involved with secretarial jobs only, and Abdul-Malik Mandourah was the only one involved in computer coding and data entry after ten days of his work in data collection. Esam Tunisi and Jameel Jarwan distributed the one hundred and fifty questionnaire letters in the new housing settlements (as Al-Aziziah and Al-Nuzha) after the completion of their job in the field work.

D-4

Field work progress chart which contains all sample numbers and was used to follow the progress of each different task on a separate sheet.



Appendix E

THE DESIGN CRITERIA AND THE BUILT AREA AGREEMENT, REDF

بسم الله الرحمن الرحيم

المملكة العربية السعودية

صندوق التنمية العقارية

الادارة الفنية

استمارة المواصفات والمسطحات المتعاقد عليها

(على المقترضين قراءة التعليمات الموجودة في الوجه الخلفي قبل تعبئة هذا النموذج)

الاسم : .....

المدينة : ..... المنطقة .....

المسطحات حسب رخصة البناء : .....

المسطحات المراد تنفيذها : .....

١	الهيكل الانشائي	خرسانة مسلحة	٢٠٠	سقف مسلح بدون قواعد واعمدة مسلحة	١٥٠	سقف خشب	٩٠
٢	ارتدادات	٤ جهات	١٤٠	٣ جهات	١٢٠	جهتين	٧٠
		جهة واحدة	٣٥	بدون	صفر		
٣	تكسيات خارجية	١٠٪ حجر أو رخام أو ٥٠٪ جرانيوليت		٥٪ حجر أو رخام أو ٢٥٪ جرانيوليت		رشة	
		اربع واجهات	١٥٠	اربع واجهات	١٣٠	اربع واجهات	١١٠
		ثلاث واجهات	١٤٠	ثلاث واجهات	١٢٠	ثلاث واجهات	١٠٠
		واجهتين	١٣٠	واجهتين	١١٠	واجهتين	٧٠
		واجهة واحدة	١١٠	واجهة واحدة	٧٠	واجهة واحدة	٣٠
٤	أدوات صحية	حمام كامل (٤ قطع) مغطس ، مغسلة كرسي بيديه	١٣٠	حمام مكون من ثلاث قطع	١٠٠	حمام مكون من قطعتين	٦٠
		حمام مكون من قطعة واحدة	٢٥				
٥	بلاط	١٥٪ رخام او ٣٠٪ سيراميك	١٥٠	٧ – ١٥٪ رخام ١٥ – ٣٠٪ سيراميك	١٢٠	كسر رخام او بلدي	٨٠
		صبة اسمنتية	٢٥				
٦	تكسيات داخلية	١٥٪ قيشاني او ورق جدران وبقية الدهان بالمعجون	١٠٠	دهان مع معجون أكثر من ٥٠٪	٨٥	ديستمبر او دهان بدون معجون	٦٥
٧	أبواب	٣٠٪ زان او مهاجني أو المنيوم	٨٠	خشب ٥٠٪ أو أكثر	٧٠	حديد	٥٥
٨	نوافذ	ألمنيوم أو اباجور		خشب		حديد	
		اربع واجهات	٧٠	اربع واجهات	٥٥	اربع واجهات	٤٥
		ثلاث واجهات	٦٥	ثلاث واجهات	٥٠	ثلاث واجهات	٤٠
		واجهتين	٦٠	واجهتين	٤٥	واجهتين	٣٥
		واجهة واحدة	٥٥	واجهة واحدة	٤٠	واجهة واحدة	٣٠

خاص لاستعمال الادار فقط

مجموع قيم الدفعة الثانية

مجموع قيم الدفعة الثالثة

مجموع قيم الدفعة الرابعة

تكاليف تقدير ثابتة المتر المربع ٤٨٠

أتعهد بتنفيذ المواصفات المذكورة اعلاه وإذ لم ألتزم بذلك فللصندوق الحق في تخفيض مبلغ القرض حسب ما يراه وعلى ذلك أوقع .

التوقيع

للاستعمال من قبل الادارة فقط

المسطحات الموافق على تنفيذها :

مبلغ القرض حسب الكلفة = تقدير كلفة المتر المربع × المسطحات الموافق على تنفيذها × ٧٠٪

= .....

الحد الاعلى لمبلغ القرض حسب الفئة = ...

مبلغ القرض المعتمد = ...

الدفعة الاولى = مبلغ القرض المعتمد × ١٠٪

=

اسم المسئول التوقيع التاريخ