ملخص البحث

الأساليب المختلفة

فى التعامل مع المناطق ذات القيمة التاريخية

يهدف البحث الى ارساء وسائل وأسس الحفاظ على المدن القديمة فى الدول النامية بصفة عامة وفى مصر بصفة خاصة. فمع انتشار التمدن والتنمية، وصلت المدن القديمة الى حالة حرجة لاتقوى معها أن تفقد أكثر مما فقدته من خصائص تراثية.

يتضمن اسلوب العمل الذى اتبع فى الدراسة فصلين أساسيين:

* يتعرض الفصل الأول لمشكلة الحفاظ على المدن القديمة فى الدول النامية نظريا وتطبيقيا ويشتمل على المشاكل المرتبطة بالحفاظ وكذلك الجوانب التطبيقية، التخطيطية والمعمارية والفنية والمالية مع أمثلة لتجارب فى الدول المختلفة، كما يحتوى هذا الفصل أيضا على دور التعليم والتشريع والمشاركة الشعبية فى عملية الحفاظ.

* ويتناول الفصل الثانى المشروع التطبيقى للدراسة فى مدينة القاهرة القديمة متضمنا المشروعات المختلفة التى أعدت لها مع اللوائح والقوانين المنظمة لها كما يتضمن الفصل الثانى أيضا دراسة تطبيقية فى منطقة درب قرمز بالقاهرة القديمة شاملا الجوانب التاريخية ثم الجوانب التحضيرية الخاصة بالاضافة الى الجوانب التطبيقية للحفاظ على المدن القديمة. فبعد تحليل الأوضاع القائمة تعرضت الدراسة الى هيكل النسيج العمرانى وكذلك طرق التعامل مع هذا النسيج. هذا بالاضافة الى ابراز أهمية الادارة والصيانة فى مثل هذه المشروعات.

وتنتهى الدراسة بمجموعة من الأسس التى تصلح للتطبيق على مشروعات الحفاظ على المناطق القديمة.

AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
ARCHITECTURE DEPARTMENT

AN INTEGRATED APPROACH TOWARDS THE CONSERVATION OF HISTORICAL SITES

By
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Thesis submitted to the Faculty of Engineering, Ain Shams University, in Fulfilment Of the Requirements for the Degree of Master in Architecture

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Cairo
(1991)

Acknowledgement

I wish to express my thanks and warm gratitude to Prof. Dr. Sayed Madbouly and Prof. Dr. Adel Yassin for their continuous help and valuable advices throughout the thesis.

I would like to extend my thanks to the librarians for the facilities placed at my disposal.

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AN INTEGRATED APPROACH TOWARDS THE CONSERVATION OF HISTORICAL SITES

Example:

Introduction

INTRODUCTION

Historical sites have an essential role to play in our modern life. They are a symbol of the continuity of civilization which must constantly be renewed, as each generation rises from its remains. Also the conservation of historical sites brings a variety of benefits to a community including cultural, economic and social benefits[1]. That is why integrating traditional areas into the modern urban fabric has become of utmost concern all over the world.

It is no longer sufficient to restore individual monuments, because the lasting preservation of any monument depends also on the state of the surrounding environment, so it is necessary to undertake the preservation of topographically defined areas. Unless we can maintain the activities that took place in a historical structure or find a better but still compatible use of the structure, we have accomplished only a part of our mandate.

The aim of this study is to establish paths and criteria for the enhancement of historical sites in developing countries in general, with special reference to Egypt. With the threat of modernization and development, the old towns have reached a critical situation and cannot afford to suffer any further loss of their traditional character.

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1 Hamid Shiravani, Preservation, The Urban Design Process, Reinhold Company, New York, 1985, p. 44.

Different aspects of conservation projects in some cities in developing countries whose conditions are similar in many ways to those of Cairo, were studied in order to set the main outlines for conservation policy.

After reaching the main procedure for the conservation projects, a project in the district of Gamaliya in old Cairo has been chosen in an attempt to understand, analyse and reach some recommendations to help establish basis for future work. By analysing the architectural, social and economic features of the district, better understanding of the problems and needs of the district has been reached.

The comprehensive plan of the conservation of old Cairo should depend on the least disruption of the present economic pattern and on utilizing the present facilities within the financial and legislative framework.

By revitalizing the now neglected commercial structure and intergating old groups of buildings into the life of the city, the traditional cities can be turned into living museums; crafts practiced for the benefit of visitors, centres for academic studies, hotels, motels and touristic accomplishments.

Therefore, project restoration, planned conservation of the whole historical quarter and upgrading schemes will result a secured historical fabric.

Chapter I

CHAPTER I

CONSERVATION IN DEVELOPING COUNTRIES (THEORY AND PRACTICE)

1.1. Definition of Conservation

The term conservation or preservation of buildings or sites includes many aspects. It includes restoration, which is the repair and removal of the violations carried out during successive years, in addition to a study of the surrounding environment to ensure the best protection against its negative aspects on the buildings or sites. It also includes rehabilitation of the building which is either to resume its function or to adapt it to another function appropriate with its architectural composition or it may be a case of complete renovation and then the building should be conserved with the surrounding media. Therefore, a conservation policy is not simply a matter of dealing with historical buildings, or areas which contain historical buildings, but is also a creative process that can provide inspiration and discipline for change[2].

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2 Roy Worskett, the Character of towns, Towards an Approach in Conservation, Architectural press, London, 1969, P. 16.

Scales of Conservation

There are three scales of conservation

A. Urban Scale

Where the whole city is historical and even if there is a chance for new buildings to be erected they are exactly similar to the historical buildings in all aspects e.g. City of Shibam in Yemen, City of Fez in Morocco or old district of Jeddah in Saudi Arabia.

B. Cluster Scale

It is where historical buildings are grouped in clusters within the historical site e.g. Fatimid Cairo.

C. Single Scale

Where there is just one historical building within the modern urban fabric, separate and unlinked to the historical fabric, e.g. Al-Zaher Baybars Mosque in Cairo.

Limits of the Historical Site

One of the most important concerns in conservation is setting the limits (haram) of the historical monuments individually or within the historical site. And the limits do not only include the historical buildings but all the buildings within the visual perspective as well as its approaches[3].

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3 Dr. Hazem Ibrahim, upgrading of Historical Ares, Upgrading of the Urban Environment of Cities, Jeddah Mumicipality, 1986, p. 21.

*Fig. (1): Old district of Jeddah, an example of the urban scale of conservation.

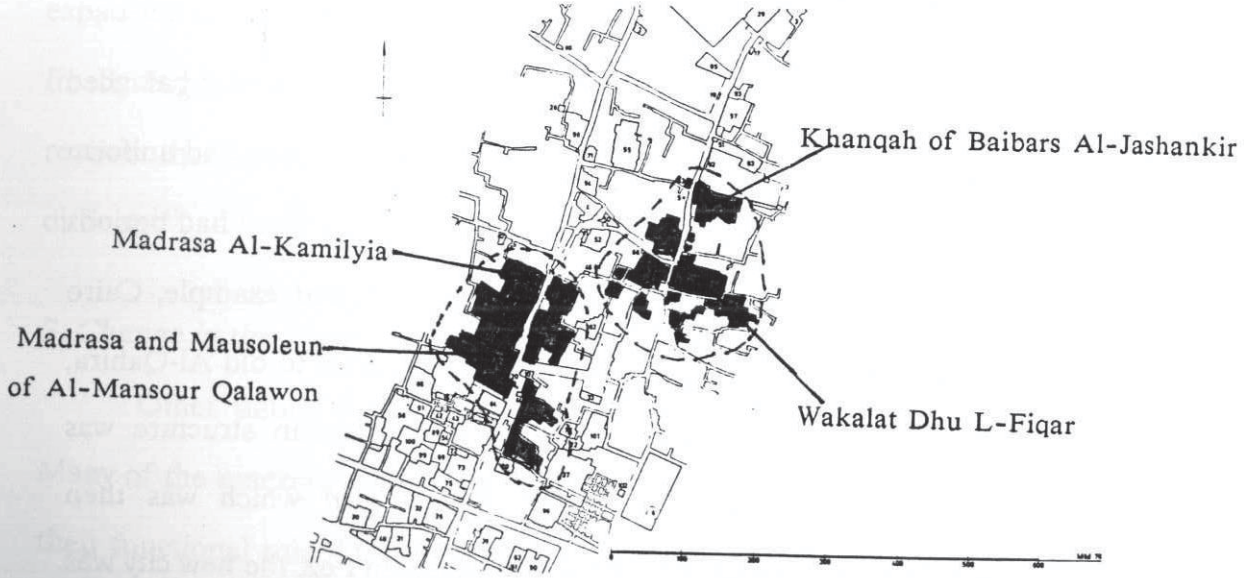
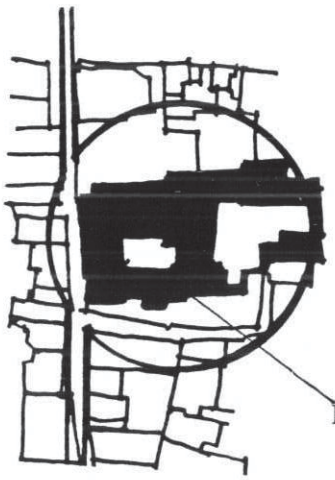


Fig. (2): Fatimid Cairo, an example of the clusters' scale of conservation.

Abdullah, Y. Bokhari, conservation in the Historic District of Jeddah, Adaptive Reuse, the Aga Khan Award for Islamic Architecture 1983, p. 62.



Bait Al Sihaimi in Cairo

Every building approximately three quarters of a mile radius from the central intersection should be carefully examined in its relation to the town scape as well as the landscape and might be rejected on either account.

1.2 Conservation in Developing Countries and its Problems

1. Historical Discontinuity

In the middle east and north Africa, cities have followed a balanced pattern of urban development that preserved their harmonious and uniform character, but not all cities enjoyed historical continuity. They had periods of fortune, decline and sometimes radical disruption. For example, Cairo moved northward along the Nile from Babylon to Fustat to old Al-Qahira, Damascus did not change its location but its Aaramean structure was followed by a Hellenestic and Roman regular grid which was then transformed into the regular pattern we find today. In Fez, the new city was located several kilometers distant from the old one in order to avoid endangering the character of the old city. But the result was two different cities with two commercial centres, two residential areas and two

communities. And the old city was the one to suffer social and economic deprivation.

2. Changing Attitudes Towards Religious Buildings

In spite of the lack of concern for the old cities as a whole, mosques have always been well maintained, but sometimes this very respect for monuments can lead to inappropriate decisions e.g. clearing land to place mosques in large geometrical western style squares. A large project in Mashhad called for surrounding the mosque complex with a large circular ring road. Madina in Saudi Arabia has suffered from its role as a major pilgrimage centre, as its old neighbourhood is gradually being destroyed to provide space for new avenues and parking areas and for an unending expansion of the Central Mosque itself. The attitude towards these old areas finally began to change as planners and decision markers finally began to realize that extracting old monuments from its surroundings is very difficult[4].

3. Change in the Function of Some Historical Buildings

Other public facilities have not retained their original functions. Many of the madrasas were transfered into dwellings and baths are losing their functional role. Moreover when new public facilities are erected they are usually built in a style which is not in accordance with the local

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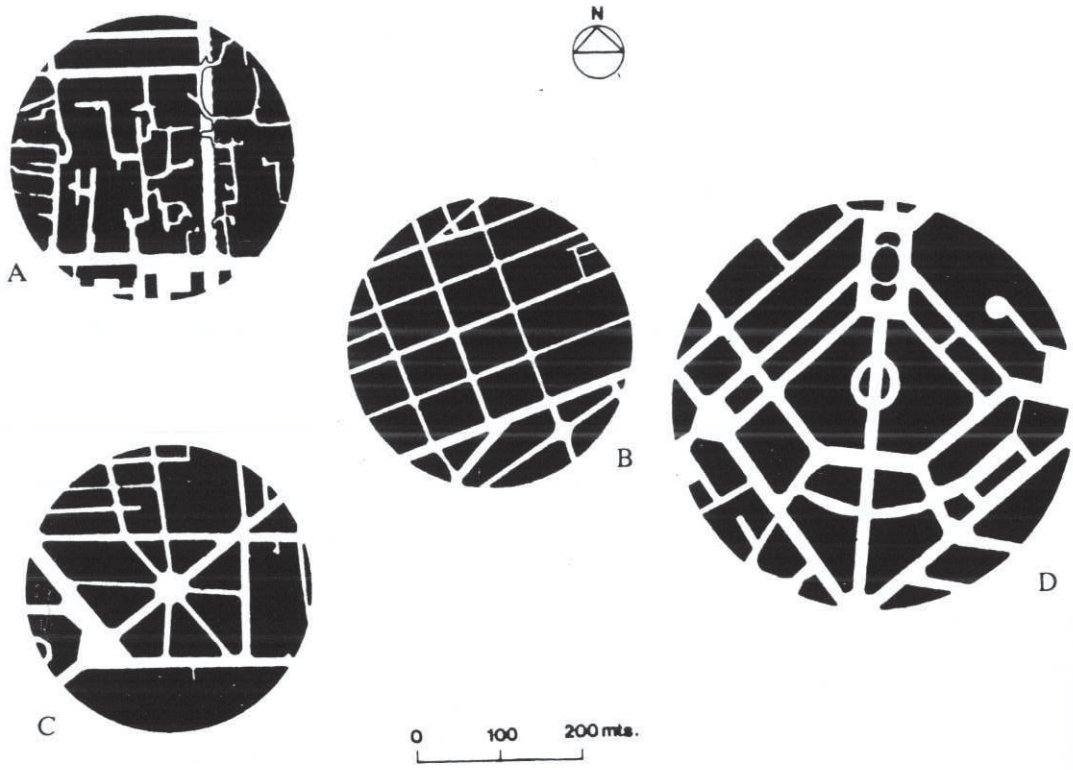
4 Sami Abdulac, Conservation Problems in the Middle East and North Africa, Adaptive Reuse, The Aga Khan program for Islamic Architecture, 1983, pp. 16-17.



A. A neighborhood in the 19th century: about 500 inhabitants per hectare; mostly one-or two storey structures.

B. 1880-1910 neighborhood: about 300 inhabitants per hectare; mostly two-storey structures.

C. 1920-1940 neighborhood: about 200 inhabitants per hectare mostly three storey structures.

D. 1950-1960 neighborhood: about 200 inhabitants per hectare; mostly four or five-storey structures.

Fig. (3): Samples of urban development showing typological changes in the urban fabric of Damascus in Syria over time.

environment. Shopping patterns have also changed. Khans, wakalas and hotels which were once important places in the economic life of old areas have been turned into warehouses or housing units for the poor and some wakalas have offices or structures built in the middle of their courtyard.

4. Movement of Social Strata

In most old areas, the original dwellers have moved away and were replaced by rural immigrants. Different modes of life were introduced which were reflected negatively on buildings.

5. Illmaintenance

The traditional houses are half deserted due to social changes. They are illmaintained, and often crumbling or split into small apartments gathering several independent units around a single courtyard, which is then divided up to provide privacy for each tenant family and the tenants neglect the maintenance as it is too expensive.

6. Superficial Additions

The tenants of some residential structures arranged vertically as duplexes or triplexes are trying to improve their units by applying new materials and adding new openings. These changes are destroying the harmony of the whole. Introducing sanitation facilities can also damage the facade.

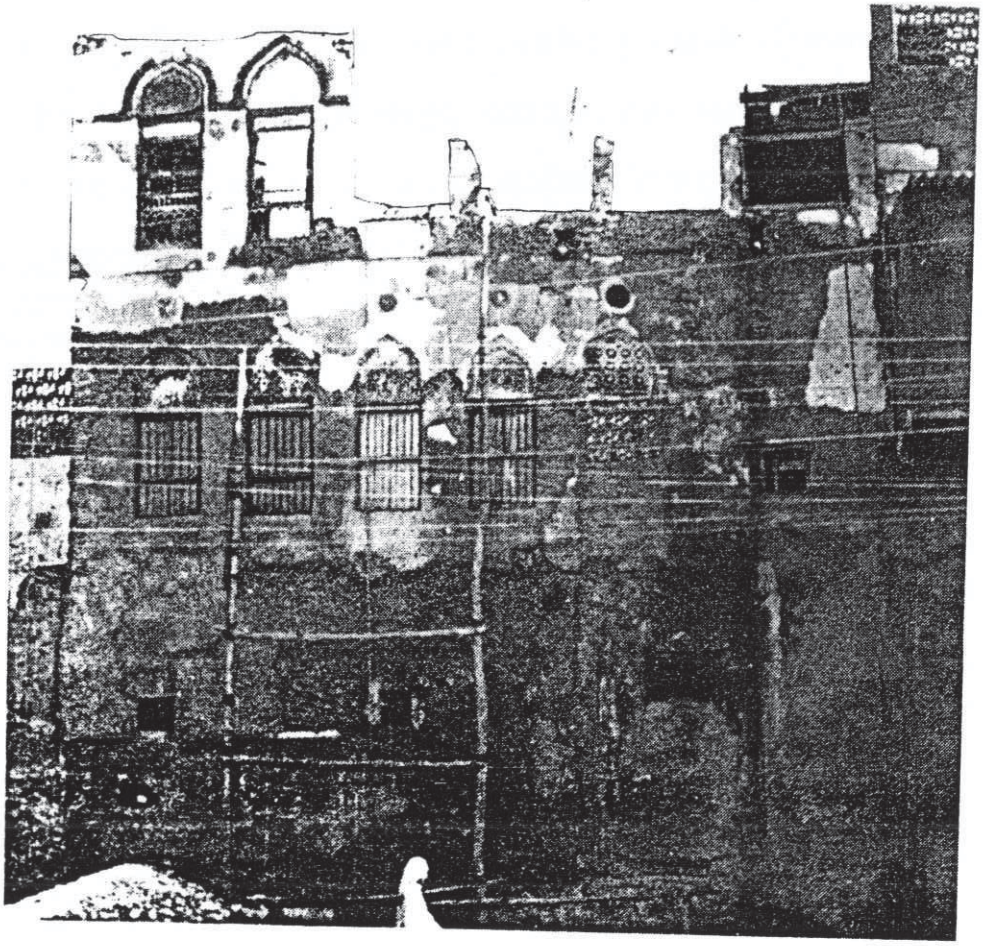


Fig. (4)*: The crumbling upper storey of a traditional house, Mutrah, Yemen.

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* Sami Abdullae, Conservation Problems in the Middle East and North Africa, Adaptive Reuse, the Aga Khan Programme for Islamic Architecture, 1983, p. 17.

7. Mass and Space Additions to the Structures

Additions built on the top floors are changing the architectural character of the structure and of the cityspace. New proportions, and quite different styles are introduced into them. The cityscapes of many Moslem cities used to be marked by domes and minarets, but where no height limitations are applied, they are overwhelmed by high rise structures.

8. Mode of Life

In the old Islamic cities religious, social habits and construction practices were well combined in order to maintain privacy and the homogeneity of the old traditional fabrics. Lack of these values lead to a different picture.

9. Economic Factors

Cultural and economic obsolescence are sometimes the cause of demolition of buildings e.g. in Damascus, people demolish their houses because they no longer suit their needs or because they wish to build new structures that will generate higher profits.

10. Vehicular Traffic Introducing New Planning of Roads Network

Street patterns have been changing dramatically in many cities. The old narrow streets were once perfectly functional and adapted to the local topography. By now traffic jams are endemic. Planners solve the problem by cutting new streets which disrupt the areas.

Fig. (5): The mausoleum of of Qarasunqur in Gamaliyya district, Cairo. This building is used as a primary school.

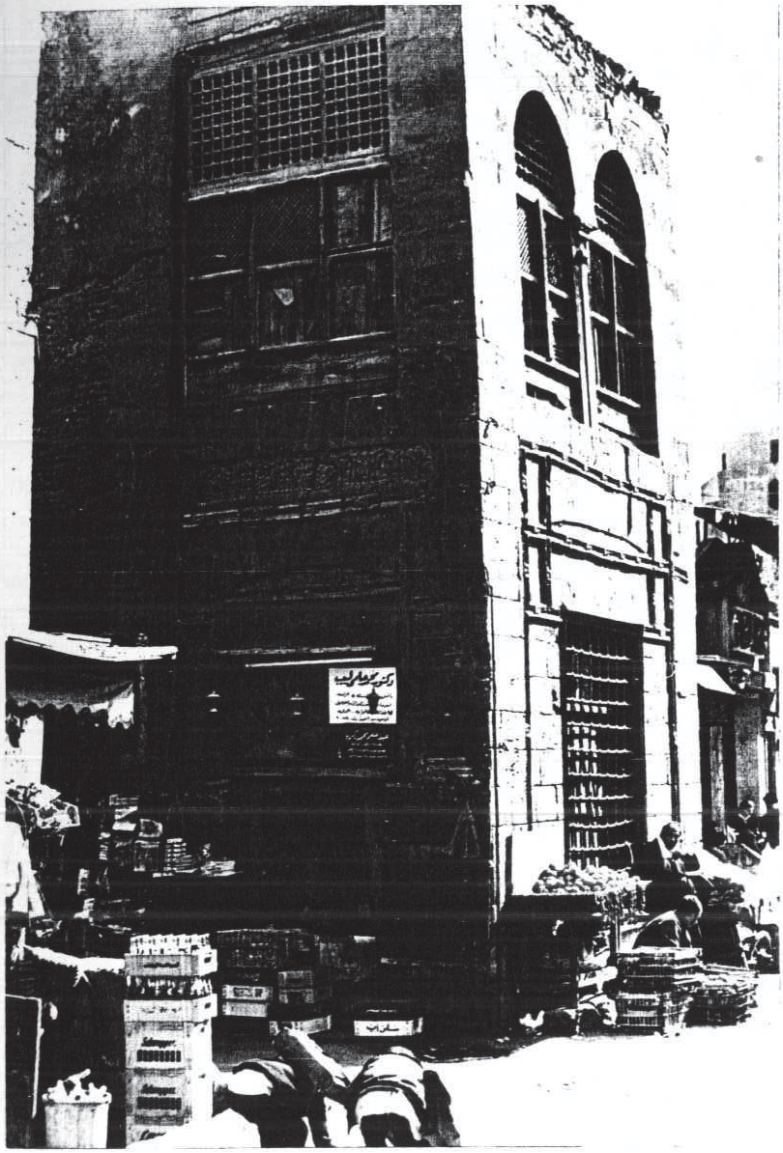

Fig. (6): The sabil-Kuutab of Amir Mohammad, Cairo. This Building is turned into shops.

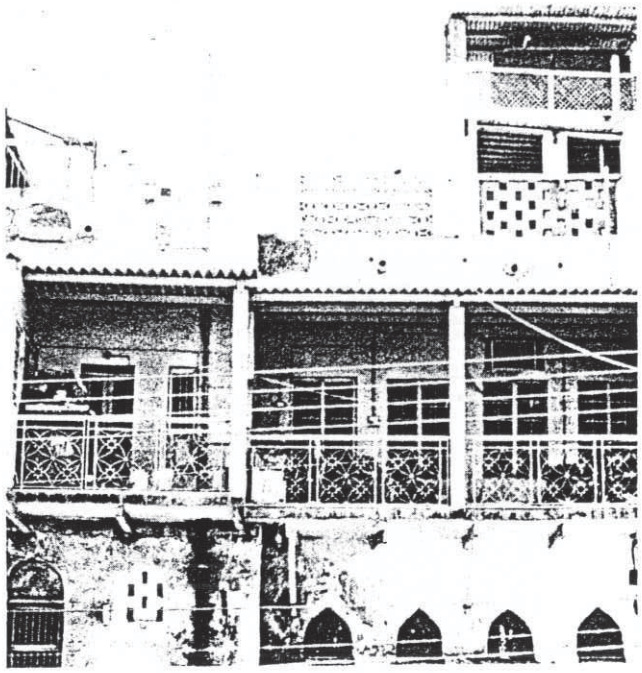

Fig. (7)*: Storeys are added on the top of a traditional house Mutrah, Yemen.

Fig. (8): A new concrete building keeping the character of the traditional architecture, Cairo, Egypt

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* Ibid, p. 18.

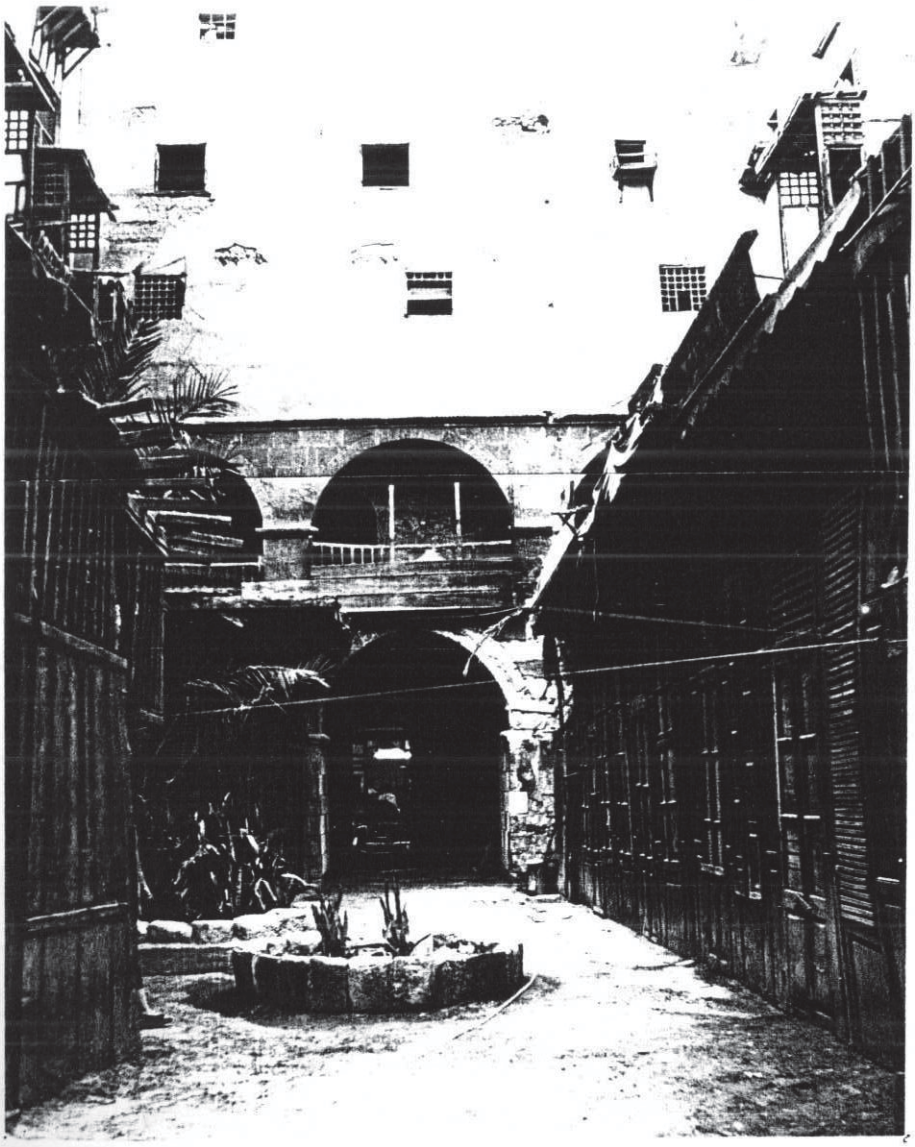


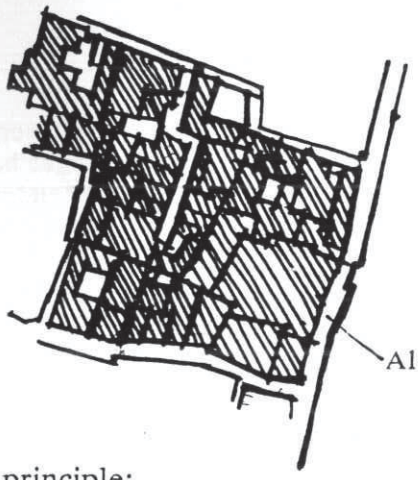
Fig. (9): Wakalat Bazaraa in Old Cairo, Egypt. The courtyard is almost full of wooden shelters built in it.

1. Built fabric

The characteristics of the built fabric are:

a) Organic structure

Town elements as houses, schools and mosques are grouped by a process of accretion forming non-geometrical plan but spaces connecting elements that are visually valuable to percieve.



Al-Gamaliya Street in Old Cairo

b) Introversion principle:

Every building is a self-sufficient introverted unit.

c) The inner courtyard as a basic design element:

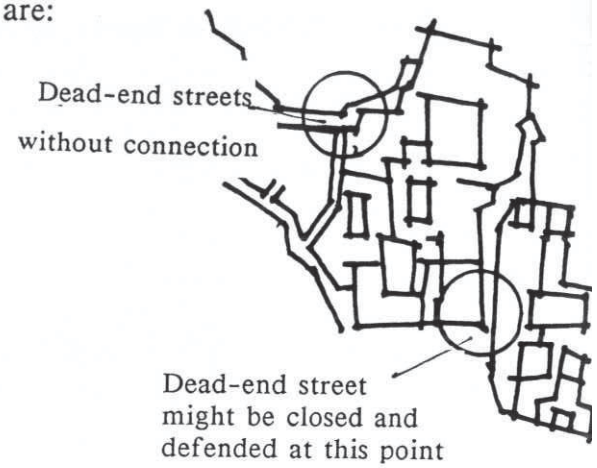
The core of every building either private or public is the inner courtyard. These courtyards are the only regularly shaped spaces in the town organism.

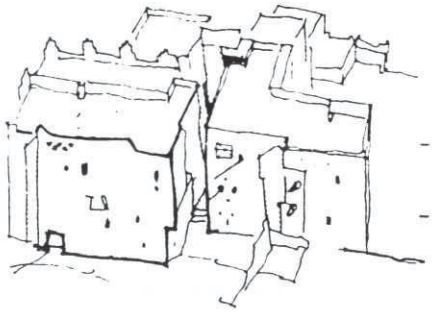
Isfahan in Iran: Plan revealing the geometric courtyards and the irregular boundaries.

2. Street patterns [5]

Characteristics of the street patterns are:

* Narrow paths.
* Winding routes.
* Many dead end streets.
* Cantilever storeys.





- Houses are built against one another
- Closed up defensive outward appearance.

- A perspective of an inclosed view in one of the spaces.

3. Public spaces and buildings

Open spaces: They are just small widenings of the street to suit the activities which are concentrated along the spine. There is not any vast or public open space.

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5. Mohamed Sharabi, The New Town of Jubail and the Civic Centre of Jeddah. Islamic Cairo: Architectural Conservation and Urban Development of the Historic Centre. German Institute of Archaeology, 1980, p. 101.

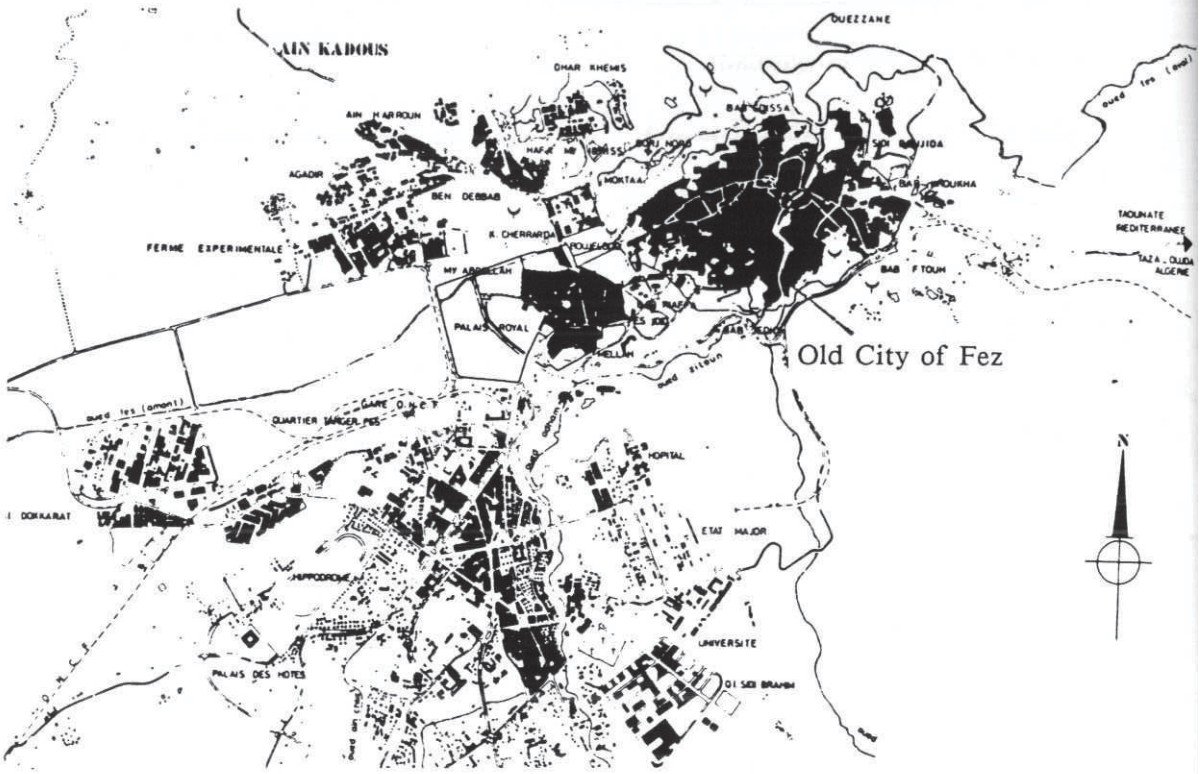
Mosques: characteristics of mosques are: clarity, wide courtyard. Public baths, Kuttabs, Sabils and Schools: they form with the mosque the focal area of the town's organism.

The Market: The market is shaded, full of activities and crowded, it is arranged along the main street.

Thus, the commerical, social and religious functions are mixed in the central spine.

Example:

Study of the urban structure of the old city of Fez in Morocco[6].



Background

The old city of Fez lies in a valley in Morocco, it covers an area of approximately three by two kilometres and the population is over 200,000 inhabitants.

International organizations noticed the importance of preserving the traditional architecture and crafts in Fez in 1972. Their preservation efforts started by sending experts to survey the still surviving cultural heritage and

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6. Stefano Bianca, Conservation and Rehabilitation Projects of the Old City of Fez, Adaptive Reuse, The Aga Khan Program for Islamic Architecture, 1983, p. 47.

in 1976 they began to study the urban structure in order to produce a master plan to serve as a document that would offer guidelines for developing Fez.

Plan of Action

Experts spent a great deal of time on reconnaissance, data collection and problem assessment. They made a plot-by-plot land use map and mapped the building stock according to age, typology, size, density and physical conditions. To clarify the urban structure they made several studies which included:

1. Study of street network.

   Studying the link between various entities, they drew on the evidence of the street network and the extant subdivisions and gates. Mapping the vehicular flows in the total urban system and pedestrian flows in the city helped to determine the fatal points in the existing network.

2. Study of the central area:

   Studying the enclosure of structures, gates and passages and defining the degree of privacy of each element, maps were made marking public buildings, commercial spines, mosques, zawiyyas, madrasas, Khans and buildings of special architectural merit. The maps allowed them to chart the complex economic system of the city and the importance of semi-industrial manufacturing. Mapping demonstrated also the absence of facilities such as schools, dispensaries and youth centres which were to be integrated into the central area.

3. Study of the Residential Structures

They studied the transition from public to private spaces and the size, character and quality of housing and the organization of spaces within each dwelling. They mapped residential units according to age, size, density and physical condition. These studies helped them to establish guidelines for the conservation of residential structures and to think of a way of introducing modern facilities and of reusing some traditional houses for public buildings as primary schools and social centres.

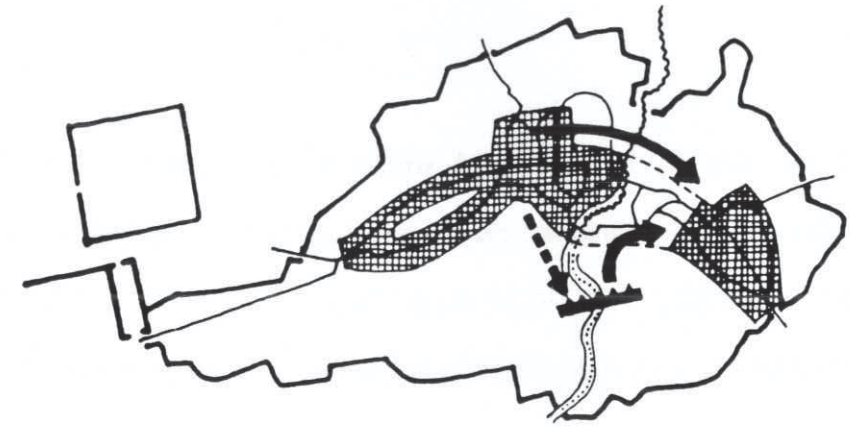
Studying the townscape and the surrounding landscape also helped in establishing points that would need special treatment.

4. Study of the infra-structure and the ways to improve it.
5. Study of the socio-economical situation. Lack of privacy, poor hygiene, over population and the lack of public facilities called for interior adjustments in dwellings and building low-income housing and establishing job opportunities outside the walls of the old city. That would in turn decrease the population pressure.

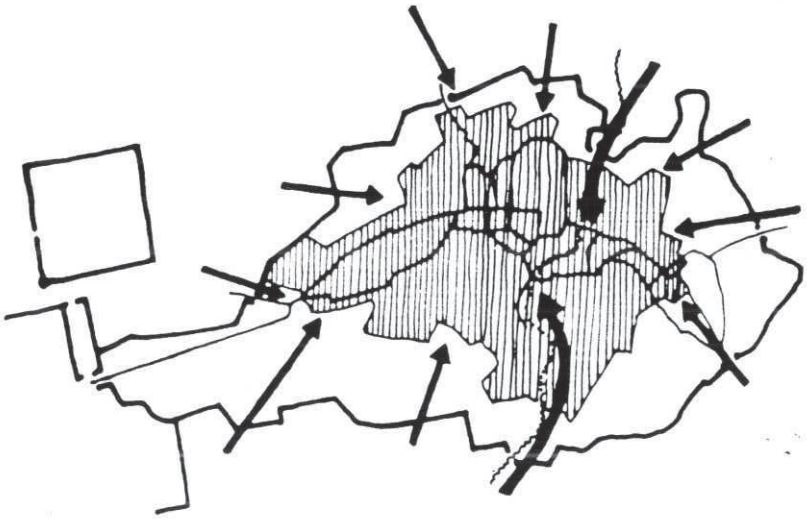
After that, they could discuss the degree of centrality to be assigned to the city.

Their decision was to develop a continuous linear centre to unite the urban entities. The section passing through the city in a west-east direction would follow the main spines of the city suqs and would be restricted to pedestrians, but serviced by two vehicular culs-de-sac attached to the ring road around the old city. They would not be intersecting and would

penetrate the city from north and south. Other peripheral culs-de-sac accesses for public transport and servicing would be added as the topographic condition allows without large scale destruction. Urban cohesion would be enforced by increasing public transport connections and pedestrian pathways between parts of the city. The rehabilitation proposal of Fez depended economically on the revival of cultural, religious and commercial activities and on establishing craft-training centres and on introducing new commercial facilities.



Potential growth pattern
"Barrier" to be erected
Future development to be supported



Public transportation facilities of the central area
Secondary transportation facilities
(public and private transport)

Fig. (10)*: Fez, two major objectives, reinforcement of the linear centres and improvement of the accessibility from the periphery without splitting the old city.

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* Stefano Bianca, Conservation and Rehabilitation projects for the Old City of Fez, Adaptive Reuse, the Aga-Khan Programme for Islamic Architecture, 1983, p. 52.

Conservation and Compatible Architecture

Architectural conservation should include not only the conservation of houses or areas, but also the acceptance of traditional ideas of lay out which ensure cultural continuity and avoid alienation from the surroundings. Detailed studies are required to determine the factors in putting designs which are to suit the particular spatial qualities conveyed by each historical district.

The spatial hierarchy of historical districts has to be studied to ensure traditional patterns of communication. Hierarchy of spaces, on the other hand dictates the scale of the individual buildings according to individual sites. The experience of conserving Kadhemeyeh district in Baghdad was a successful example in combining modern buildings with the historical fabric.

Example

Conservation of the Kadhemeyeh district in Baghdad

Background

Kadhemeyeh is a historical town that grew up north of mediaeval Baghdad. It has now been taken in the northward expansion of the modern city and its redevelopment. The city was demolishing its traditional character, so the authorities wanted to produce a proposal for repairing the urban fabric in a way that would replace the historical buildings lost. It was aimed to achieve an upward social change, therefore, the area had to match in resources and

quality of life to the high-income group, or at least the middle-income group they wanted to attract.

Plan of Action

A feasibility study was carried out which included:

- Study of the built fabric:

  Besides the organization of spaces and relations between rooms, they studied micro-climates in courtyards, measuring temperature and humidity at peak hours.

- Study of the street pattern.
- Technical studies:

  They studied the traditional forms of construction and infrastructure.

- Study of the socio-economical structure:

  They studied the families use of typical dwellings and studied the commercial life in the city.

- Study of the conservation legislation.
- Study of the mode of finance.

  They decided that the structures should be a mixture of commercial and residential buildings with an irregular plan with the winding small streets and using the courtyard in a way more suitable to the spaces of the new houses and also using materials in sympathy with the materials used in the old city.

Through excavation, it was found that the load-bearing characteristics of the ground were poor, and there was six to eight meters of

loose compacted fill with a poor bearing capacity and high level of ground water. It was decided to remove three meters of this fill, thus providing space for a servicing layer. After excavation, the underground zone provided the space with complete vehicular servicing area, which is very important to the new life of the city, and it was decided to build the individual structures off the base as if it were bed rock to carry masonary buildings.

Using the basement space for garage, storerooms and utility rooms also provided an opportunity to re-create the extensive cellars and semi-basements exactly the same as the old historical houses in the area.

While designing the buildings, it was essential that they are efficient in the use of space and energy while retaining the sense of space and vertical linkage derived from the courtyard.

To deal with all these considerations the group of architects developed a prototype which they called the "generic house"[7]. It showed an open courtyard adjacent to a full-height internal hall. The plan variations dictated by the plots produced an irregular relationship between the hall and the courtyard, and since modern houses are more economical of space, the courtyard is often in a corner of the plot. Nevertheless, they managed to provide three or four bedrooms in an arrangement that separates the

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7. John Warren and Roy Worskett, Conservation and Redevelopment of the Kadhenieh Area in Baghdad, Adaptive Reuse, the Aga Khan Program for Islamic Architecture, 1985, p. 35.

reception space from the private areas of the house. The guest rooms were given their sanitary accommodation, and public and private functions were kept separate to a considerable degree.

Since the destroyed houses were entirely free of repeated designs, that feature was reflected in the new work. The "generic house" varied in each individual case. The shape of the streets has been allowed to form the shape of the dwellings and so dictate the internal layouts. The walls were to be built of local bricks, incorporating the "shenashil", that distinctive projecting first floor window, so typical of Baghdad. The plan produced had an organic development not much different from that of the original city structures.

Fig. (11)*: Plan of Kadhimeyeh shrine showing the surviving traditional quarter. The empty area around the shrine is the site which is being built up with housing and commerical buildings.

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* Sharban Cantacuzino, Baghdad Resurgent, Mimar Architecture in Development, 6 (1982), p. 68.

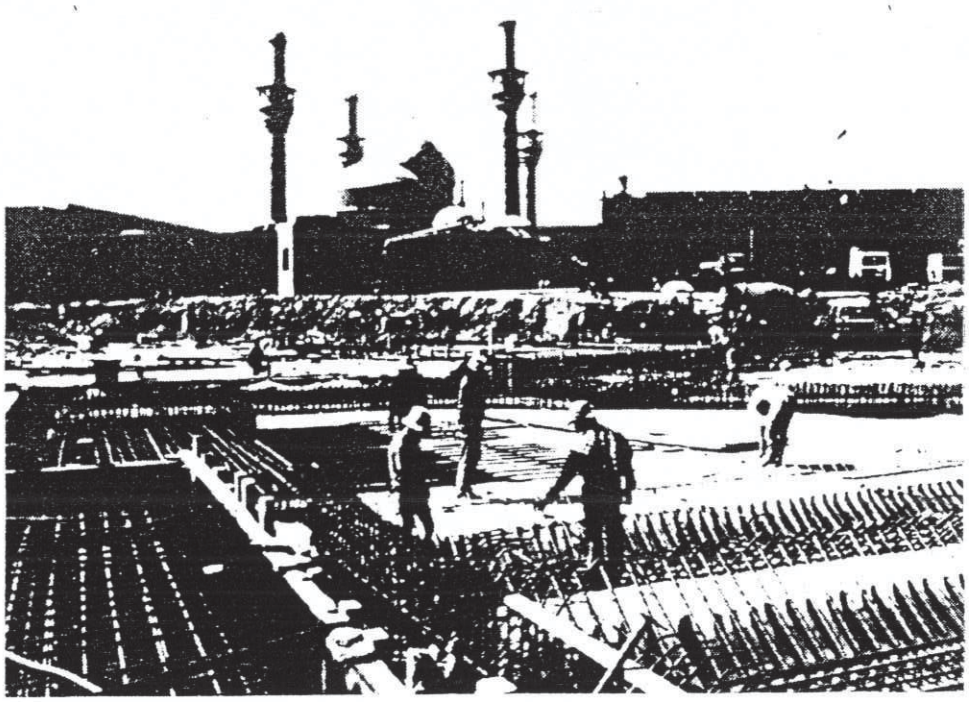

Fig. (12)*: The infilling programme at kadheymeyah, the basment slab being formed.

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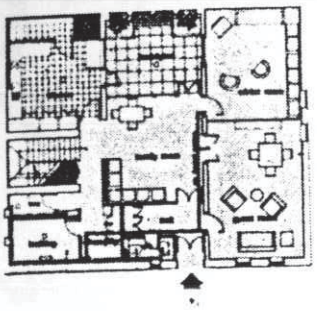
* John Warren and Roy Worskett, Conservation and Redevelopment of the Kadhimieyeh District in Baghdad, Adaptive reuse, The Aga Khan Programme for Islamic Architecture, 1983, p. 33, 35



Ground floor plan

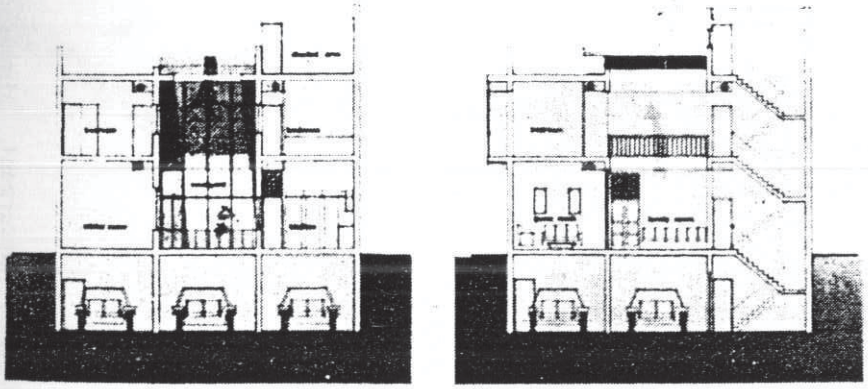


Fig. (14)*: Plan of the Ground floor and Sections of the "Generic house".

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* Ibid, p. 35

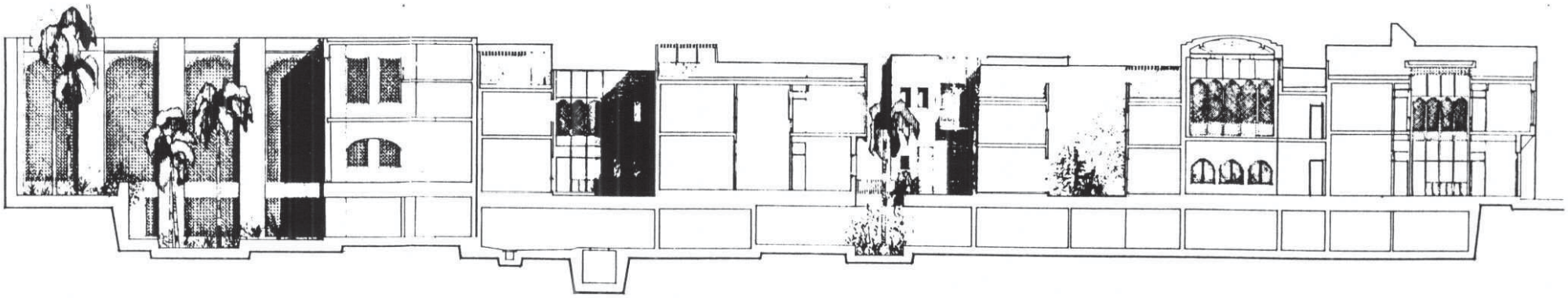

Fig. (15)*: Section through the housing showing the use of basic principle of inward orientation and provision of a new sub-ground level for services and the motor cars.

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* Sherban Cantacuzino, Baghdad Resurgent, Mimar Architecture in Development, (1982), pp. 68-69.

Fig. (16)*: The plan shows the use of smaller-than-traidtional dwelling units which do not completely surround the courtyard.

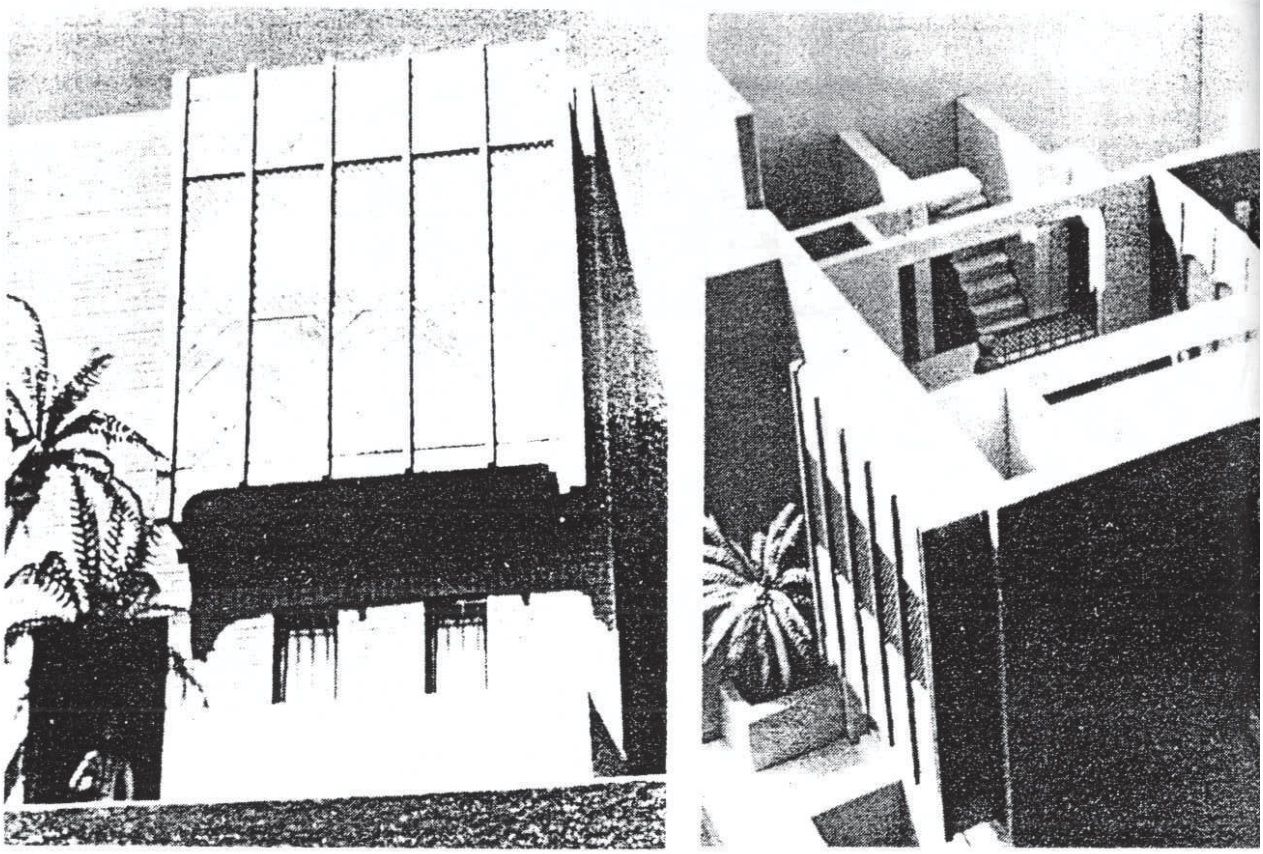

Fig. (17)*: Facade and model of the "Generic house"

Fig. (18)*: A first-floor plan of the new housing illustrating the street pattern.

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* John Warren, Roy Worsket, Conservation and Redevelopment of Kadhimiyeh District in Baghdad, p. 36.

1.3.2. Role of Local Authorities and International Organizations in Promoting Conservation

In all countries, the execution of the plans is in the last resort a matter for local authorities. The most admirable measures taken at national level will be of no avail unless the municipalities take effective step to enforce them in full. The more the population are aware of their heritage, the more the local authority will be enhanced to provide the aid and support required.

In most of the developing countries, the local authorities sometimes become a sort of constraint to conservation due to the continuous interference from various organizations responsible for historical buildings[8] e.g. Ministry of Waqf and Antiquities organization. Some of the historical buildings are being rented by means of governmental organizations to carry out other functions than the original one. The absence of antiquities centers whose responsibility lies in registration, documentation, preservation and conservation of buildings is yet another problem.

The local authorities concerned are often small or poor and incapable of solving the problems they face. They ought to be able to call in specialists whom they cannot afford to pay, to carry out surveys for which

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8. Dr. Saleh Lamei Moustafa, the Architectural Restoration of Historical and Monumental Buildings, upgrading of the Urban Environment of Cities. Jeddah Municipality, 1986, p. 53

they have not the means and to engage in financial operations out of proportion to their ordinary budgets. It is here when the International Organizations are called for aid in promoting the conservation process. The financial aid is not the only mean of support the international organizations are needed for. They are also needed to contribute with experts, services, equipment and materials which are not available locally. Training fellowships is another useful form of support. By carrying out a publicity campaign, the international organizations help to generate awareness of the historical and cultural significance of the cities and monuments, to encourage mutual appreciation between cultures and to seek the assistance of the international community.

Example:

The role of local authorities and international organizations in the conservation of Old Cairo.

The survival of monuments in Cairo was assisted by the prolonged conservation efforts of various bodies[9]:

I. Governmental Bodies

1. Comité de conservation de monuments de l'Art arabe.

   Three decades after the dissolution of the Waqf system, the task of conservation was transfered to a governmental institution, the Comité. It was founded in 1880, it restored every mediaeval monument in Cairo

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9. Michael Minecke, Rehabilitation of the Coamaliya Quarter in Cairo, UNESCO, 1980, p. 16.

up to the 1950's. It also carried out identification, documentation, and classification of existing monuments.

The comite was legally responsible for protecting historical monuments. By the turn of this century, they had succeeded in listing about 622 historical buildings in Cairo alone, in addition to 250 buildings in various districts. The comité was also able to restore most of the historical buildings before 1936, when the responsibility of the comité was transferred from the Ministry of Waqfs to the Ministry of Education.

2. Islamic Department of the Egyptian Antiquities Organization

Since 1952, the task of preservation, registration and legal protection passed to the Islamic department. This governmental body maintains an inspectorate for north Cairo in the El-Gamaliya quarter which watches over the monuments of the northern part of the historical city center, and supervises the architectural restoration work the Department is conducting. Permanent guards are stationed at the monuments of touristic interest and keep other monuments of special importance closed for reasons of protection. The Department also maintains several specialised subdivisions to promote and assist in preservation efforts, all of which are located within the historical city center. There is an archive with rich photographic documentation, a workshop for conservation of Islamic monuments in Cairo and a training centre for traditional building crafts, with classes on stone carving, wood work, wooden grills and plaster work and a technical office for the graphic documentation of Cairene monuments. Although the

Antiquities Organization is the local authority legally responsible for conservation, until very recently the importance of the mediaeval city has taken a poor second place to Egyptology. Many projects were faced by bureaucratic difficulties, apathy or lack of funds. The Antiquities Organization is bound by the government's regulations to pay fixed wages to workers it employs, but the government's rate is less than half the going rate for workers of the right callibre. It was only in 1978 that the Antiquities Organization was motivated to actually restore few monuments in the Gamaliya.

3. Center for Documentation for Islamic and Coptic Monuments

It was founded in 1974-75 as an independent sector of the Egyptian Antiquities Organization. The center possesses a staff of historians and technicians, it keeps records of the state of conservation. It maintains a drawing office and assists various foreign missions in the projects of conservation and in the art history investigations.

II. Private Societies

The first of these is the Association for the Urban Development of Islamic Cairo. It concentrates on traditional living and housing conditions in the historical quarter. There is also the Society for the Preservation of the Architectural Resources in Egypt (SPARE). It was founded in 1979. Based in London and Cairo, it endevours to arouse international concern for the critical situation of the city center. It circulates a newsletter containing up to

date reports on current events and efforts in this respect. Finally, there is the Egyptian Association for Lovers of Antiquities.

III. Foreign Institutes[10]

From 1972 onwards a number of foreign institutes in Egypt began the search for funds to undertake the conservation of one or more individual monuments in collaboration with the Islamic division of the Egyptian Antiquities Organization. The Polish Center, the Goethe Institute of Germany, the Royal Danish Academy of Fine Arts and the Italian Institute of Culture, and the American Research Centre, all undertook responsibility for the conservation of individual buildings during the 70's. The Buhra sector from india carried out the rennovation and construction of Mosque Al-Hakem, but unfortunately that led to the removal to another part of the city of one of the listed monuments next to its entrance, the Mausoleum of Qurqumas (1511), which had added greatly to the richness of the street scene outside the mosque.

All these efforts amounted to only a handful of preserved buildings in the 70's, out of 500 buildings listed as important Islamic monuments.

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10. Ronald Lewcock, Conservation in Islamic Cairo, The Expanding Metropolis, Coping with the urban Growth of Cairo, the Age Khan Award for Architecture, 1984, p.50.

Fig. (19):* Mosque of Al-Hakim before the demolition of the tomb of Qurqumas which was taken away by the Antiquities department in 1980 in order to achieve the supposed improvement of the facade of the mosque.

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* Ronald Lewcock, Conservation in Islamic Cairo, The Expanding Metropolis Coping with the Urban Growth of Cairo. The Aga-Khan Award for Architecture, 1984, p. 51.

Fig. (19):* Mosque of Al-Hakim before the demolition of the tomb of Qurqumas which was taken away by the Antiquities department in 1980 in order to achieve the supposed improvement of the facade of the mosque.

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* Ronald Lewcock, Conservation in Islamic Cairo, The Expanding Metropolis Coping with the Urban Growth of Cairo. The Aga-Khan Award for Architecture, 1984, p. 51.

International Organizations

It was apparent that the only hope for preserving the monuments of the old city lays in extraordinary projects which aimed at widescale conservation[11]. The Antiquities Department therefore approached the UNESCO for assistance in 1978 and again in 1980. Following a study by a team of planners, architects, sociologists and conservationalists, a plan was presented for emergency action which might ensure that the most important part of Cairo's Islamic heritage should be saved for the future. In undertaking this study, three aims were of major concern: 1) To preserve as much of the physical context and the monuments of mediaeval Cairo as possible. 2) To ensure the preservation and rehabilitation of the traditional way of life of the mediaeval city for those who desired it, while allowing others the alternative choice of changing and upgrading their way of life. 3) To achieve a very simple method of implementation for each of these proposals.

The chosen area was that having the greatest concentration of important monuments, the old Fatimid City. A high priority was given to the identification of vulnerable zones in the mediaeval city area. These zones were deliberately chosen for action as they are integral parts of the living urban fabric.

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11. Ibid, pp. 50-51.

Since the presentation of the UNESCO report in Cairo at the International Conference on the preservation of Islamic Cairo held by the Egyptian authorities in December 1980, the Egyptian Ministry of Culture and the Egyptian Antiquities Organization have been reorganized. As a result of this, the great bulk of the money now being spent on Islamic conservation in Cairo is coming from Egyptian resources. Larger sums of money have been made available by allowing the Antiquities Organization access to its own revenues, and emergency action has been taken on a number of monuments including the Citadel.

One should emphasize on the fact that the real benefit from this approach has been the widespread interest in the Islamic monuments among the general public in Egypt.

1.3.3. Technical Aspects of Conservation

Every aspect of conservation can have its important technical ramifications. Therefore the word technical can be claimed to include almost all aspects of urban upgrading.

Technical Problems of Conserving Old Areas

The rapidly growing cities in the third-world have many problems in common.

I. One of the most serious of them is the extent to which dampness is rising to unprecedented levels in the buildings.

In Cairo, for example, on the famous north wall of the Fatimid city, water is rising as much as 4 to 5 meters and that phenomenon cannot be dated back further than 30 years. The reason can be stated simply as the inadequacy of the infra-structure for draining that water out of the central area in size or standard. In case of Cairo, the Ministry stated that an estimated 50% of the water going into the mains does not even reach the users. The pipes used are either asbestos or plastic. Unfortunately, both are materials that crack very easily under pressure and can be damaged by bad connections, traffic or the movement of the soil which cracks them at the junctions. The water table was always to some extent a perched one and lay under buildings. Some 500 years ago, when builders were constructing the buildings, they set the foundation slightly below the water table. But now the water table is nearly coming

out at ground level, as the pools continually lying in the streets show e.g. in the mosque of Al--Saleh Talai, one of the mosques of the central south-north spine in the old city of Cairo, water lies more or less continuously in the courtyard in small pools. Water rising in the walls causes tremendous damage as it is polluted from local sewage pipes, chemicals from vehicular pollution or from industry which produces rapid corrosion in walls.

In Sanaa the sewage drains into the soil at ground level, and there, one finds a high perched water table creating a lot of damage. Pools lie permanently around buildings in Bahrain as well. This is clearly, then a major technical problem that must be solved in upgrading any old area and the cost of rectifying it represents something like a quarter to a third of the total cost of any operating problem.

II. Electricity is another kind of modern convenience that is ruining old cities in a number of ways. The methods of wiring can be incredibly dangerous. Main power lines run through the houses across window openings and at low levels, the wires are then simply festooned across the walls or from spider webs at the tops of leaning poles in the narrow streets.

III. Another hazard is posed by the roads. The Middle East often had cobbled streets. The cobbling was not maintained and the road become extremely uneven. To enable vehicular traffic to go in the area and to make it easier to pass, people simply spread dust over the top of the cobbling. Whenever it rains the dust turns to mud and the streets become dangerous.

The mud also adds the problem of garbage disposal and street cleaning and thence leads to the pollution of the ground water[12].

IV. Another problem is traffic circulation. Vehicular traffic used to be very narrow carts with huge wheels that were designed to pass easily in the small streets. Six or seven years ago bicycles and motorcycles were introduced and even that mixture was tolerable. But by now motorized vehicles have greatly increased in volume and parked everywhere blocking the passages and its vibrations affect the foundations of historical buildings.

V. Another major concern is the deterioration due to the lack of maintenance. In Cairo, probably 30% of the Waqf properties in the old city are shrinking storey by storey, some have already reached the ground floor level. Inadequate material for repairing produces another problem and the technique of repairing requires experts with a high degree of skill to determine the original and intruded elements and to recognize the most appropriate method of treatment.

In spite of all these problems, there is also the deterioration caused by environmental conditions such as[13]:

12. Ronald Lewcock, The Technical Aspects of Upgrading Old Areas, Adaptive Reuse, The Aga Khan program for Islamic Architecture, 1983, p. 105.

13. Dr. Saleh Lamei Moustafa, The Architectural Restoration of Historical and Monumental Buildings, p. 52.

* The accumulation of dust on walls and ceilings thus causing severe damage on the wall paint. The humidity as well activates the formation of fungi on the walls and ceilings.
* The accumulation of rain-water on the roofs and the deteriorating condition of the damp proofing course causes the continuous leakage of water and humidity to the walls.
* The nature of soil sometimes contains a considerable concentration of salt, when the surface water carrying dissolved salts rises on the walls by capillarity, it evaporates leaving salt crystals causing surface stone corrosion.

The main problems facing developing countries with respect to historical sites could be solved as follows:

1. Raising the public archeological and historical awareness through mass media.
2. Seminars are to be held to accentuate the public understanding of architectural heritage. Field visits to archeological sites are to be made within the Arab world. The sites are to be studied with respect to similar sites in developed countries to determine methods of treatment and preservation.
3. Refunding centers for research and registration of Arab Islamic heritage.

Fig. (20)*: Mosque of Al-Saleh Talai, Cairo, Water Lying more or less permanently above the stone paving of the court yard.

Fig. (21): Mosque of Al-Saleh Talai, The entrance, the height to which water is drawn into the stone by capillary action.

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* Ronald Lewcock, the Technical Aspects of Upgrading Old Areas, Adaptive reuse, The Aga Khan Programme for Islamic Architecture, 1983, p. 103.

Fig. (22)*: Mosque of Baybars, Ground water drawn upward by capillary attraction destroying the stone work.

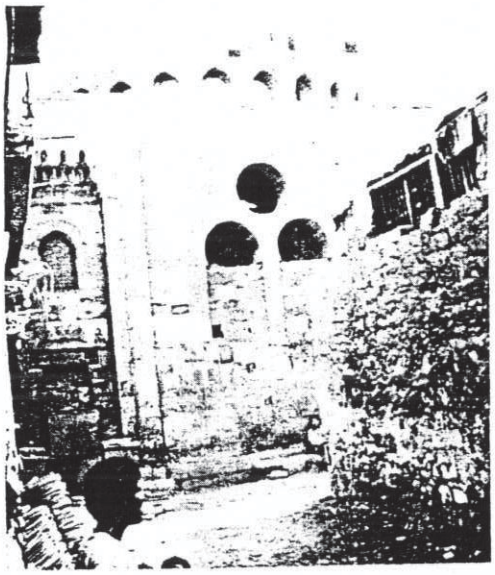

Fig. (23)*: Baths of Al-Muayyid Mosque, cairo, showing damage to stone work from rusing ground water

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* Ronald Lewcock, Conservation in Islamic Cairo. The Expanding Metropolis Coping with the Urban Growth of Cairo, the Aga Khan Award for Architecture, 1984,p. 51

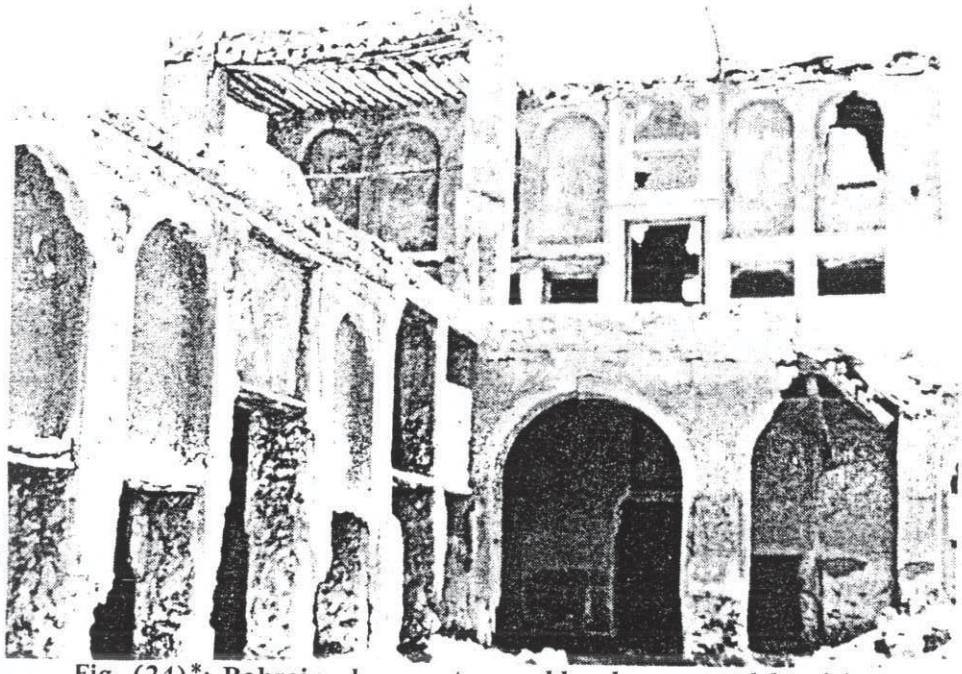

Fig. (24)*: Bahrain, damage to an old palace caused by rising ground water containing corrosive salts and by rain water from leaking roofs

Fig. (25)*: Shibam, Yemen, A tall mudbrick house which has begun to collapse as a result of gorund water affecting the foundations, showing the method of temporary buttressing using wooden props and additional bricks.

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* Ronald Lewcock, The Technical Aspects of Upgrading Old Areas, p. 104,105.

4. The traffic within archeological and historical sites should be carefully studied and regulations are to be formulated.
5. Training craftmen to carry out such a delicate and fine work.
6. Original building materials should be used in repairing and renovation of historical buildings in order to achieve harmony and unity of mass.

The procedure of restoring historical buildings:

The restoration of historical buildings in general could be classified as follows:

* Immediate work to prevent the buildings' collapse.
* Urgent work to stop any deterioration from extending any further.
* Necessary work to reach the desirable state within a long term rennovation plan.
* Desirable work needed to adapt the building to carry out its functions.
* Periodical supervision once every month(14).

The detailed procedure of the restoration of historical buildings includes:

- Study of the architectural and structural style.
- Specifying the damages and their causes.
- Registration and documentation process.
- Proping up process.
- Lab examination process.

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14. **Ibid, p. 53.**

- Deciding the suitable repairing and renovation system with the improvement of building technology to reduce maintenance cost.

There are also several studies which are complementary to the restoration process such as:

- Improvement of sewage and sanitation.
- Underground for electricity and telephones.
- Provision of emergency services.

Therefore, the experts required to carry out these technical, studies should include restoration architects, art historians, archeologists and urban planners.

1.3.4 Financial Aspects

Conservation in many of the under-developed countries has proved to be unaffordable unless it is linked with the rejuvenation of the economic base. Having historical sites invested in social and economical profitable projects is the most appropriate approach. To rejuvenate the economic base of the historical area depends on how its economic linkage with the rest of the city is maintained.

The old city is an integral part of the broader economic fiber and has to be dealt with as such[15].

Restoration and reuse of old buildings has proved to be viable in a number of cases and good projects should pay for themselves.

The mechanics of project finance[16]:

There are three main sources of finance:

* The Government whether from revenues or borrowing.
* Institutions whether international or private.
* The people themselves, the users.

Every country has to undertake the kind of project which suits the kind of finance it can afford. Ultimately any money invested in a project

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15. **Ismail Serag Al-Din, Project Finance, Subsidization and Cost Recovery, Adaptive Reuse, The Aga Khan Programme for Islamic Architecture, 1983, p. 94.**

16. **Ibid., p. 95.**

has to be paid or repaid by the citizens of the country. Loans from banks or money borrowed by the government has to be repaid by the inhabitants of the city that is why schemes have to be realistic in relation to the resources which the countries can generate.

There are also potential sources of finance such as:

- International organizations to be contacted for assistance including the UNSECO, UN Habitat, USAID or the World Bank to finance some elements of the work.
- Small scale financing, this could be obtained on favourable terms for rennovation or home improvements from local banks and co-operatives and by attracting private investors.

The Nature of Costs[17]

We have to think about the project design and project finance to limit costs and generate revenues, preferably by mobilizing private resources. Affordability estimates should be made because they are an integral part of how projects should be designed. The costs involved in any rehabilitation project involves.:

Direct costs

- Inventory and survey
- Planning and design

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17. UNCHS Habitat, The case for the rehabilitation of the existing housing stock, The Rehabilitation of the Existing Housing Stock, 1982, p. 8.

- Construction and partial demolition.
- Administration.

Indirect Costs

In terms of transport, time.....etc.

In terms of housing, the cost of rehabilitating per unit can be lowered if several are improved in a single operation. This is also valid in the cost of rehabilitating any group of shopping units or groups of public buildings. Another idea is to design a housing project in which some houses are meant for middle and high income families and sold at full market rates, some commercial facilities are sold at full market rates also, and some are low-income housing units for the deserving poor, with the other two groups providing the subsidy. This could present some ideas of financial capacities and abilities.

Economic Benefits of Conversation[18]

Economic benefits provide an important stimulus for preservation planning. Four basic benefits can be identified 1) increase in property value, 2) increase in retail sales and commercial rents, 3) avoidance of replacement rents, 4) increased tax revenues.

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18. Hamid Shirvani, Preservation, The Urban Design Process, Reinhold Company, New York, 1985, p. 44.

1.3.5. Education and Training for Conservation

- Education and Conservation

In a survey of an old Cairene neighbourhood, most people in the sample studied, despite the fact that half of them were born and raised there, when they were asked about the value of such antiquities and whether or not they should be rehabilitated, 22% were in favour of restoration, while 78% referred to the buildings as (Kharabah) that should be demolished and the land be used for building houses to relieve the pressing need for shelter[19]. Before giving people the right to decide whether they want to keep their traditional building heritage or demolish it, there must be some form of public education about the social benefits resulting from protecting the traditional heritage, and the acknowledgment of the national value of such a heritage. That can only be achieved by stimulating debate and discussion, and eventually awareness in the people themselves. Educating people about their culture is indeed the most important task in conservation. Since education is a slow process, it should be perceived through short and long term measures.

The short measures include the media, tourist agencies, newspaper, television, films and public gatherings. Educational programs and vocational training at primary levels of education, are some of the ways of spreading knowledge and awareness among the local people. There must

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19. Spare,The Society for the Preservation of the Architectural Resources of Egypt, Newsletter one, 1979, p. 5.

be a programme to organize curricula with the aim of introducing cultural heritage through-out the school system.

In Egypt there was a practical step taken when in two selected schools in the historical zone, groups of children of various ages were given instituted competitions with small prizes offered for essays and art-work having to do with the monuments and their background. The results of these competitions were evidence of enthusiasm.

Long-term measures are based on an academic level in institutions, universities through the Ministry of Education and the Antiquities Organization.

In the technical training of the students of architecture, the institutions should incorporate more programmes of excursions, documentation and research studies of traditional architecture. The universities should play a major role in establishing an information bank of the architectural heritage, as well as utilizing students potentialities in maintaining some of the traditional settings.

Governments should enhance research institutions concerned with the development of appropriate technologies. A collaboration between the Departments of Architecture at the universities and the related Ministries of Work and National Planning should be sought to organize further future

research[20]. The use of existing knowledge, skill enhancement and the use of material resources and appropriate technologies should be encouraged by involving all national resources, municipal bodies, universities, professional associations as well as social and non-profit organizations.

Training Architects for Conservation

The increasing interest in preserving historical monuments inspired a variety of institutions, including the International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCROM). It was founded by UNESCO in 1959 as an autonomous scientific intergovernmental organization and has been active in the training of architects ever since. Since one of the ICCROM's main functions is to train the search workers and technicians and raise the standard of restoration work, ICCROM also runs courses on conservation of mural paintings, scientific principles of conservation, preventive conservation in museums, and similar topics for professional conservators. UNESCO has also helped to develop regional training centers, including one in Mexico city for Latin America , one in Jos for Africa, another in New Delhi for South and South-East Asia, and a fourth in Baghdad for the Arab Countries. The number of courses, training centers, and publications on the training of personnel has multiplied over the past fifteen years[21].

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20. Leen Fakhoury, The Salt. A Study in Conservation, a thesis submitted for M.A. University of York, 1987, p. 192.

21. Cevat Erder, Training Architects for Conservation, Adaptive Reuse, The Aga Khan Programme for Islamic Architecture, 1983, p. 21.

All programmes offered are now going through a period of evaluation and modification.

We have become aware that architectural monuments must accommodate society's changing demands if they are to survive. We might as well ask ourselves whether it is not indicative that the term "historic monuments" is being replaced by the term "cultural properties". The terms "monuments" and "property" express the material and physical aspects of an entity's conservation in its environment. To preserve it requires a variety of techniques and methods that originate in architectural design and structural engineering, archaeology and art history or the analysis and applications of old and new materials, and the place of the monument in its natural and human landscape as well as in planning at both the town and regional levels. The terms "historic" and "cultural;" involve a great range of disciplines, including mathematics, physics, chemistry, history, geography, economics, politics, psychology, administrative law and public relations. A conservator must be familiar with a great many fields and should be able to carry out analysis, make sound decisions and ensure coordination[22].

Two basic weaknesses are apparent in most programmes today. The young architect is generally a university product very far from the actual situation in which he will find himself after graduation. Therefore, the

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22. Ibid., p. 13.

training programme should prepare a graduate who will be able to make surveys to compile detailed and practical observations and analysis, to use the whole range of survey techniques, including those aided by photogrammetry, and to know about the historical development of architecture in its political, social and technological aspects. Students should also undertake work in art criticism, art history, and the history of town planning. Above all, each student should have a considerable office and field experience. Each country has to mould its curriculum in terms of its own problems. Ideally, the conservation training centre provides a place where specialists can share their knowledge to produce new solutions and allow a common philosophy to develop.

The table (1.1) gives the International Geographic distribution of conservation-training programmes available to architects. It is prepared by ICCROM for UNESCO and is based on the (International Index on Training in Conservation of Cultural Property) published in 1982 by the same organization. It shows the obvious predominance of Europe in the number of conservation programmes.

The lack of programmes in Asia and Africa is the most injurious, because the architecture of those countries is so very different from that found else where, and this makes it difficult to import materials, techniques or technicians that can be useful there.

This is why each country should have its own programme to train conservators, architects and administrators in the care and appreciation of its past. That is why a conservation training programme should be established in Egypt within the departments of Architecture at both undergraduate and post graduate levels and to encourage the Antiquities Organization to develop its programme for training craftsmen for skills relative to restoration as was recommended by the First International Conference on the Preservation of Islamic Cairo which was held in 1980 under the sponsorship of the Egyptian Antiquities Organization.

Table (1.1): Geographical distribution of conservation training programmes.

Length of programme	*Africa*	*North America*	*Latin America*	*Asia*	*Europe*	*Oceania*
2-year post-diploma specialization	-	5	2	2	9	1
1-year post-diploma specialization	-	1	1	-	11	-
6-month post-diploma specialization	-	-	2	-	7	-
Preservation included in university diploma curriculum	-	37	-	3	9	-
Total number of programmes	-	43	5	5	36	1

Legislations

The existing regulations concerning preservation and conservation of historical buildings in developing countries are to a great extent uncapable of carrying out their required functions. Most of these regulations are mainly concerned with the historical building without much concern for the surrounding area or the upgrading of the social and commercial composition of the historical district as a whole, which in turn leads to the amelioration of the existing services. Therefore, the laws and regulations in developing countries need much implementation. In Egypt, the new antiquities law No. 117 (1983) has fortunately covered all the deficiencies in the previous laws as it is concerned with the historical buildings and sites as a whole. It lay down strict regulations for the new buildings built in the area. The only comment on this law is that on article (2) it allows circumvention of hundred years limitation, permitting any property to be declared as an antiquity and makes its possessor liable to its preservation. It would be better if the full protection of law be extended to buildings less than 100 years old with special architectural value as the Refai Mosque and the Islamic Museum[23].

One particular problem concerning legislation is the question of ownership. For example, in old Fez, the conditions of ownership were controlled by the community and the owner had to follow these clearly

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23. SPARE, Newsletter Twelve, 1987, pp. 2-4.

established social conventions and rules in the use of this property. Now ownership has been detached from the social context. Unfortunately, the legal instrument now in effect is hardly updated to the specific condition of the old cities. Another example is old Jeddah, in the old town most of the deeds are very old, at least a hundred years old, and if one can prove the possession of any property, he can sell it whenever he wants. Later, the municipality stopped accepting them as valid documents for sale, so, if any one holds a deed in that area, he cannot sell that property as easy as one could sell a property outside the old town. In old Cairo there has been continuous interference between the two organizations owning historical buildings, Ministry of Waqf and the Antiquities Organization which is the actual authority responsible for conservation in Egypt. And the only solution to this seems to be that the land and property owned by the Waqf (other than mosques in use) within the historical site should be acquired by the Antiquities Organization in exchange for another land outside the historical area with equivalent value[24]. This can lead to a unification of land ownership and can thus ensure appropriate and compatible development within the historical site.

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24. UNESCO, The Conservation of the Old City of Cairo. The Expanding Metropolis Coping with the Urban Growth of Cairo, The Aga Khan Award for Architecture, 1984, p. 67.

1.3.7 Conservation and Community Participation

Community participation is the process of making people involved in all aspects concerning conservation projects. In some developing countries, people are more than interested in old quarters, they are proud of it and feel responsible for its upkeep. Self help and participation as a result of the people's awareness can achieve what the authorities could not and at a lower cost.

A successful example of community participation in a conservation project is in Hafsia in Tunis[25], the population of this quarter united to stop a threat of evacuation and were able to stop it. After this, the authorities prepared a plan for the rehabilitation of the quarter with the assistance of the inhabitants. The authorities organized sessions of work with local representatives such as municipal consultants, technicians and sherifs and then informed the inhabitants of what was expected.

After that, public meetings were held to spread the consciousness among people, an educational compaign was launched by a group of technicians and scientists and the technicians taught the public all the technical steps.

Students and youth centres provided voluntary services and the people collected materials and tools to help them do the work by

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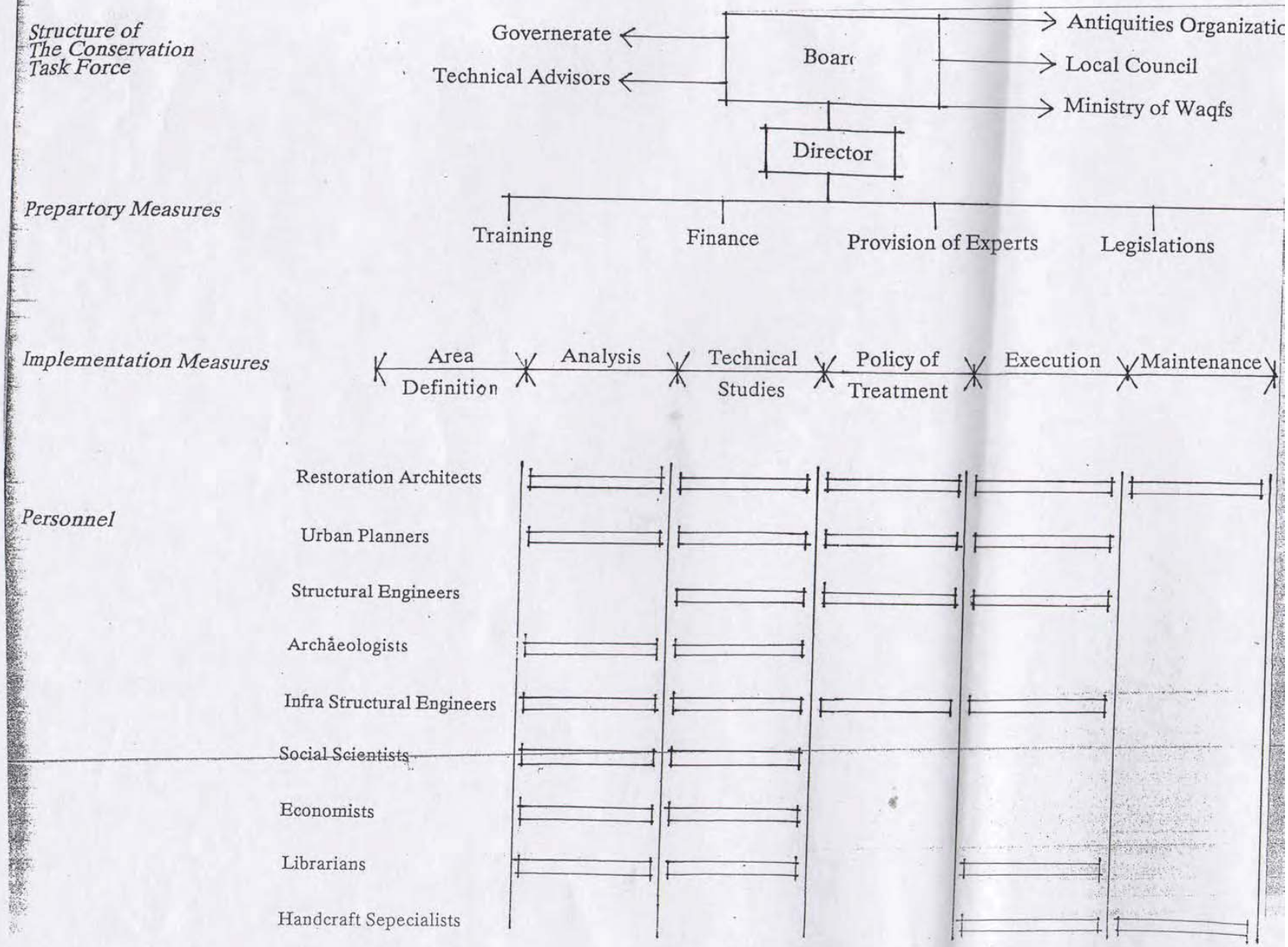
25. Leen Fakhoury, The Salt. A Study in Conservation, p. 171.

themselves. As work proceeded, the inhabitants were encouraged to suggest new ideas and discuss them. That experience was important as it has developed a sort of communication between the authorities and the public. If people have pride in their old heritage, then it is not a problem to inform, involve or educate them through information campaigns, programmes for transmitting skills, training and upgrading of public aminities by the authorities. Confidence and security will be provided and this will enhance more participation.

1.4 PROCEDURE OF THE CONSERVATION PROCESS



Chapter II

Demonstration Project in Cairo

2.1 Recnet changes affecting the historial fabric of Cairo

2.2 Different /projects and solutions undertaken for the coservation and redevelopment of old Cairo.

2.3 Laws concerning conservation of historical buildings.

2.4 Case study: A cluster in Darb Qirmiz in Old Cairo.

2.5 Conclusion

CHAPTER II

DEMONSTRATION PROJECT IN CAIRO

A Cluster in Darb Qirmiz in Old Cairo

This chapter deals with demonstration project in Cairo including recent different projects and solutions, laws and legislations. The chapter also includes a case study on Darb Qirmiz in Old Cairo covering the history of the site, the preparatory as well as implementation measures for conservation. After the analysis of the existing situation, the chapter covers the structure of the urban pattern as well as modes of treatment within the urban context. The operational management and maintenance has been given consideration.

2.1 Recent Changes Affecting the Historical Fabric in Cairo

From the late 19th century onwards, rapid social changes in Egypt reflected in the growth of new built-up areas, affected the historical fabric in Cairo. All the government and business leaders moved out of the traditional core to modern areas south and west of town, their houses were deserted or converted into workshops and apartments. Those houses were either kept ill-maintained or only the ground floors used for commercial purposes had survived. In order to connect, newly built-up parts of Cairo with the traditional centre, several thoroughfares were cut through historical quarters and many historical buildings were sacrificed. Some

changes had taken place within old quarters, private quarters with their culs-de-sacs were opened gradually and so did the old gates of Cairo. The steady deterioration of the Waqfs system for maintenance of monuments and the dissolution of the comité de Monuments de l'Art Arabe led to more negligence of the monuments.

Therefore, since 1953 the pressure of events has increased and a long list of misfortunes started[1]:

1. A whole quarter close to Khan-Al-Khalili was cleared for the provision of Al-Azhar square, accompanied by the destruction of hundreds of buildings.
2. Rent control was introduced fixing the rents at such low levels that render maintenance difficult.
3. The water-supply and sewage system laid down in the last part of the 19th century began to fail.
4. New building regulations began to be enforced changing narrow streets into wide thoroughfares.
5. The Government started on a large scale rehousing programmes replacing traditional houses with tall apartment buildings sited with no relationship with the old traditional pattern and overburdening the infra-structure.

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1. Ronald Lewcock, Conservation in Islamic Cairo, The Expanding Metropolis Coping with the Urban Growth of Cairo, the Aga Khan Award for Architecture, 1984, p. 50.

At the same time, the scale of the problems being experienced within the old city was growing and the monuments once neglected, are ruined so rapidly increasing cost of maintenance. So any further delays will just magnify the problem still further.

2.2 Different Projects and Solutions Undertaken for the Conservation and Redevelopment of Old Cairo.

Projects for conserving and redeveloping historical areas has been made by Governmental, Non-Governmental and International Organizations since the end of the 19th century. These projects have failed to be executed mainly due to their unpracticality, presence of interlocking authorities and treating historical buildings individually and not the historical sites as a whole.

Here is an illustration of some projects which were meant to redevelop Islamic Cairo which was considered as a main constituent in the redevelopment of Greater Cairo.

1. The general planning project of the city of Cairo, 1955[2]:

This project offered some recommendations for the redevelopment of historical areas in Cairo, as follows:

- Surrounding the area with a road network to connect it with the main road network of Greater Cairo.
- Hollowing the areas around historic sites and buildings.
- Removing slums and planting public gardens around the historical sites.

This project had no detailed studies for implementation and the areas meant were not specified. The concept of hollowing, either adopted

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2. **Urban Planning Commission, Ministry of Housing, Cairo.**

Fig. (26)*: Proposed master plan for the historical district from the general planning project of the city of Cairo, 1955.

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* Mohammad Al Zafarani, A thesis submitted for M.A., Cairo University, 1968 (In Arabic).

for a building or a whole area should have been considered with respect to the relationship of each element to the whole city.

2. The Planning Project of Fatimid Cairo, 1960[3]

This project was considered the first detailed attempt to study a specific sector of Fatimid Cairo, which is the area lying in the north of Al-Azhar Street and south of the city gates.

The project involved detailed studies of the historical buildings, their conditions, heights, uses and functions. The aims of the project were as follows:

- Restoring historical buildings and removing unsympathetic structures.
- Introducing a certain architectural character for the new buildings to be erected adjacent to the historical quarters to makes them complementary to the historical site.
- Expanding economical and commercial activities for the benefit of tourism.
- Providing the basic needs of the inhabitants to increase social, cultural and health standards.
- Making use of every part of the area through rehabilitation and rebuilding, specially that a large part of this area is owned by the government.

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3. **Ibid.**

In order to implement this project, the following actions were suggested:

- To solve the traffic problems in the area by removing the tramway system in Al-Azhar street and transferring the large stores used for trades or by transport companies.
- To hollow around Al Hussain Mosque and to connect it with Al-Azhar square to increase parking spaces and then to rebuild the facades which were to be affected.
- To start the implementation of housing programmes on vacant areas or on Government owned lands to provide healthy and economical residents for the inhabitants, provided that the designs used would be complementary to the character of the area.
- To provide streets for vehicular traffic inside the area.
- To expose the historical walls as possible.
- To rebuild the part between Qalaun group to the north, Al Moez street to the east, Al Mosky street to the south and Khan Al Khalili to the west.
- To limit the maximum height of any structure to four storeys.
- To prohibit the use of modern shutters for the windows or florescent lights for shops or any other unsympathetic form of decoration.
- To provide a committee which would be responsible for implementation and supervision.

This project was the first to set principles for the conservation and redevelopment of the area, and it was based on detailed studies.

But it was unsuccessful in some ways such as ignoring the problems of over-population and maintenance being limited to a certain part and not the whole of the historical area and failing to define the simple Islamic character aimed. Also it did not give any attention to green areas and public gardens.

The 1960 Project

IN 1960, Mr. Rafeal Wahba, one of the Egypt's leading planners, made a study and a report for the ministry of Housing and Services and recommended the following:

- The provision of a special committee to carry out studies of conservation. This committee would include experts in planning, architecture, history,arts...etc.
- The provision of a higher committee to carry out the general planning policy and a specialized bureau in the different cities of Egypt to carry out local studies and implement the recommendations set by the higher committee.

But the work in this special committee stopped and its recommendations were not carried out.

The 1969-1970 renewal Project [4]

In 1969, Greater Cairo Planning Commission made housing and socio-economic surveys including visual and historical studies, planning studies (urban, housing, labour...etc.). They came out with the following recommendations:

- The removal of all kinds of violations on religious and historical buildings.
- Any alternations within the historical site should be made carefully and should be in accordance with the character of the historical site.
- In carrying out any planning project, care must be given in order to keep the historical area intact
- Respecting human-scale in replanning.
- Vehicular traffic should not penetrate though the historical areas.
- Identifying the basic needs and services of the inhabitants.
- Treating Islamic Cairo as a part of Greater Cairo.

In 1971, the High Commission for the planning of Cairo approved of the project and the procedure for its implementation by the Governor of Cairo.

This project, although valuable, was not implemented due to administrative and financial constraints.

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4. Greater Cairo Planning Commission.

The Rehabilitation and Upgrading Project of Historical Cairo (1980)[5]

The Egyptian Arab bureau prepared a plan for the rehabilitation of the northern central part of the old city between the northern Fatimid gates and Bab Zuwayla. It involved extensive rebuilding of residential accommodations and the resisting of some industries which are alien to the traditional area.

The possible approach had been to upgrade the infrastructure over the whole of Gamaliyya over a five-year period. Following this would be the improvement of tourist facilities and the introduction of integrated traffic facilities over a second five-year span and the completion would be in a final five-year period. The basic strategy adopted was to maintain the present population and improve the living conditions of lower income groups. The proposed strategy consisted of the following procedure:

1. Weeding out two kinds of activities: those which involve the access of large vehicles, e.g. Aluminium works, and those which produce noxious gases and smells, e.g. paper cylcing. It was intended to displace these activities to the fringes of the Gamaliyya or to the cleared areas to the north and east, or to the new known projects nearby with providing incentives to the owners of such businesses. It is also

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5. The Egyptian Arab Bureau, The Rehabilitation and Upgrading Project of Old Cairo, Unpublished Thesis, 1980.

intended to propose the introduction of physical instrumentation to prevent the access of large trucks to the historical area.

2. Improving the infra-structure, rehabilitating and upgrading of properties, demolishing of some buildings and redevelopment of sites.

The improvement of the infra-structure involves water delivery system, introducing metered water connections, leaks in sewerage, electric wiring, telephone connections, street lighting and public transport.

As for the rehabilitation and upgrading of properties it would be carried out following a set of improved guide lines which would be adopted to the different requirements of each specific case.

It was planned to rebuild trades, crafts and commercial shops with two to four storeys of residential accommodation above them. Five percent of the original built area would be cleared and retained as open space.

Also introducing new public facilities would be one of the targets.

This project was not implemented mainly because the area chosen for this project is under the control of three authorities, the Government of Cairo, Ministry of Waqf and the Antiquities Organization.

National and International Collaboration

Since the early seventies, several foreign institutes, in co-operation with the Antiquities Organization, undertook restoration and rehabilitation work in some individual monuments in Islamic Cairo.

- The German archeological centre contributed a survey of the Gamaliyya district and also restorted a number of the buildings in Darb Qirmiz in the same district.
- The Royal Danish Academy of Fine arts restored Al Gawhariya School next to Al-Azhar Mosque and Bait Al Sehaymi.
- The Italian Institute of Culture restored another Madrasa and Mausoleum.
- The Bahara sector from India restored Al Hakim mosque.

All these foreign institutes, due to the limited funds they could offer, have treated only individual buildings and not the urban context as a whole which made even the upkeep of these restored buildings doubtful. Therefore a more comprehensive approach treating the area as one unit and involving many other aspects rather than restoration of specific buildings is needed.

Fig. (27): A proposal of the rehabilitation of the historical core from the rehabilitation and upgrading project of old Cairo by the Egyptian Arab bureau in 1980.

UNESCO Project for the Conservation of Old Cairo, 1980[6]

In 1980, several months after Cairo was included in the World Heritage List, UNESCO provided a mission to prepare, with the assistance of the Antiquities Organization, a report on a conservation strategy for the old city of Cairo.

The purpose of this report was to put a practical conservation strategy for specific areas as part of an emergency action to be taken over a period of five years.

The chosen study area is bounded by Bab Al Futuh and Bab Al Nasr to the North, the Ibn Tulum Mosque to the south, Port Said street to the west and Salah Salem road to the east. The choice of this area was according to the vulnerability of the urban context in which historical buildings were situated.

It had become apparent that most of the important monuments formed natural groups or clusters, therefore six clusters were selected to form conservation zones. Each zone was focusing on a single street about 250 m. long. Relevant information on the study area has been gathered mainly from other studies and census material.

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6. Jim Antoniou, Stefano Bianca, Sherif El-Hakim, Ronald Lewcock and Michael Wellank, A Technical Report, The Conservations of the Old City of Cairo, Arab Republic of Egypt. programme of participation of the Cultural and National Heritage, UNESCO, 1980.

A strip approximately 500m. wide along the main spine of the study area was examined to assess the age and conditions of historical buildings. A short study was undertaken to record the commercial activities along the spine and social structure.

They came out with the following recommendations:

- The historical buildings' index should be rene wed and revised.
- The key monuments and landmarks within the old city should be protected, restored and enhanced.
- To strengthen the protection accorded to indexed buildings.
- The six conservation zones proposed should receive priority treatment over an emergency period of five years. The following actions were also proposed:
  * To initiate a programme of housing up-grading and improvement.
  * To control the expansion of undesirable commercial and industrial activities in the area.
  * To develop programmes to encourage small-scale crafts and trading and bring in appropriate new uses and to exploit the tourism potentiality. This would maximise the use of available resources and increase the flow of funds.
  * To continue the programmes proposed by responsible organizations for the improvement and amplification of water, electricity, drainage and sewerage networks at the fastest possible speed.

Fig. (28): The six clusters forming conservation zones from the UNESCO conservation project of the old city of Cairo, 1980.

* To improve the road system in accessibility and movement.
* To establish education programmes to introduce the general public to the plans being undertaken and soliciting their participation.

They put the following general categories for the treatment of buildings within the study area:

- Historical buildings, both listed and unlisted, should be restored.
- New buildings which are to be built on vacant sites require the total control of design.
- Substantial buildings which are likely to remain for some time should be externally treated and internally upgraded.
- Buildings adjacent to monuments should be controlled on design and methods of construction and their height should be controlled.

The implementation of all these recommendations were to be undertaken by a powerful authority which would be established for this purpose and would be called Cairo Conservation Agency.

The UNESCO's role was to advise on the formation of the suggested Cairo Conservation agency, to sponsor an international compaign for advisory and technical committees, to provide expert missions to undertake specialis ed studies and to provide scholarships and grants for the training and education of the required staff.

The UNESCO'S approach had the following advantages:

- Treating the whole historical area.
- The concentration of work on specific zones increases the control over each zone.
- Immediate action proposed is a much more practical approach to the problem of historical areas.
- This project increased the world's interest in the Islamic monuments.

After this proposal, emergency action has been taken on a number of monuments including the citadel,but the idea of conserving clusters was not adopted and the fundemental problems like rising ground water, which hasten decay of buildings were not dealt with.

2.3. Laws Concerning Conservation of Historical Buildings

A summary of the laws that had governed the conservation of historical monuments and were a main responsible authority for the state historical buildings had reached[7].

In 1912: The first law concerning historical monuments was introduced. It stated that all Ancient Egyptian and Coptic monuments were to be considered a governmental property and the Government had to organize and be responsible for any archeological work needed.

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7. Abdullah, A. Al-Erian, Ph.D. Thesis, The University of Manchester, 1983.

In 1918: Another law for the protection of Islamic historical buildings was introduced. All buildings were to be listed and the Government was given the authority to take possession and responsibility of all structures and to prevent their demolition or any alternations without the Government's approval.

In 1936 the responsibility of the Comité de monuments de l'Art Arabe for historical buildings was transferred from the Ministry of Waqfs to the Ministry of Education. The endowed properties and their revenues remained with the Ministry of Waqfs. This resulted effectively in depriving the historical monuments of the revenues needed for their preservation and maintenance.

In 1951: A new law covered the general preservations of monuments and historical buildings of the Pharaonic, Coptic, Islamic periods. All monuments, historical buildings and objects dating from the early Pharaonic period to the end of khadive Ismail's reign were to be considered as part of the national heritage and should be protected and preserved.

In 1953 all the Waqf's properties were dissolved. Lands and buildings originally endowed for charitable purposes were placed under the control of the Ministry of Waqfs. The traditional services provided by the waqfs to listed buildings and mosques were limited to the minimum, therefore the endowed historical buildings continued to deteriorate.

In 1971 and 1973: Two laws stated that all properties were to return to the Waqfs. The areas controlled by the Waqfs varied from total to partial ownership of historical buildings, vacant and built up areas amounting to more than half the historical city. And it provided neither power nor financial support for their maintenance and preservation.

In 1983: The law for the protection of antiquities was introduced giving an authority to the Antiquities Organization to be responsible for historical sites. The most important provisions of this law are:

- The absolute prohibition of trade in antiquities more than one hundred years old, but any property could be declared an antiquity by decree of the prime minister which allows circumvention of hundred years limitation. That makes the actual possessor of such a property liable for its preservation.
- Forbiding demolishing or moving any portion of the property, rennovating it or changing its character without the license and the direct supervision of the Antiquities Organization.
- Giving consideration to historical sites and buildings in city planning and forbiding any implementation of plans without the written approval of the Antiquities Organization.
- Stating that licenses may be granted for buildings adjacent to archeological sites in inhabited areas, but that each license should include provisions insuring the aesthetic, architectural, and historical

character of the environment and should have been approved by the Antiquities Organization.

- Assigning the Antiquities Organization alone the responsibility for carrying out restoration and conservation on historical buildings.
- Making demolition of historical buildings, damage or changes in the distinguishing features of a historical building punishable by sentences of five to seven years in prison and fines of between three thousand and fifty thousand pounds.
- The last and most important item in this law is making the Antiquities Organization responsible for the coordination of work among the authorities and the official agencies concerned with planning, housing, tourism, public utilities and security, as well as between these agencies the Council of Governorates so as to guarantee the protection of antiquities, museums and historical buildings against natural and man-made shocks, infra-structural damages, industri al pollution and environmental changes, with the object of realizing a balance between urban needs and the necessity of preserving the cultural heritage.

2.4. Case Study: A Cluster in Darb Qirmiz in Gamaliyya in Old Cairo.

2.4.1 Choice of Site

The Darb Qirmiz St. is a narrow lane located between Al Gamaliyya St. and Al-Moez Li Din Illah Str. It has several branchings connecting Al Moez Str. With Bait Al-Qadi Square. In the meantime it is accessible through two entrances: The first through Al Moez Str. and the second through a vaulted passage beneath the Madrasa of Mithqal, this passage links Darb Qirmiz with Bait Al-Qadi square.

The area has been chosen for two reasons: 1. Since the late 19th century, this area is still intact socially and architecturally more than other streets in the same quarter[8]. 2. This area contains a high concentration of historic monuments forming 40% of the physical setting. That makes the area a proper location for a conservation project to take place.

History of Site

- Darb Qirmiz is a part of the ground which belonged to the Eastern palace of the Fatimids founded in 358/696.
- In the middle ages this area was occupied by the residential premises of high-ranking officials of the Mamluk Empire. Still remaining from

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8. Micheal Meinecke, the Darb Qirmiz Project, Islamic Cairo: Architectural Conservation and urban Development of the Historic Centre, German Institute of Archaeology, 1980, p.44.

this stage, the palace of Amir Basthtak built in 1335-39/740 and the Madrasa of Amir Mithqal 1368-69/770.

- At the beginning of the 15th century Amir Jamal-Al-Din Al Ustadar bought up the whole quarter (named after him Al Gamaliyya) to turn it into a private living quarter in 1408/811.
- Throughout the next centuries only minor structural changes took place. The mausoleum of Sheikh Sinan was built in 1585-86/994. Gradually, the dwelling houses were replaced by new constructions.
- In the 17th and 18th century, a number of commercial structures were built like Wakalat Bazaraa and the Sabil Kuttab of Abd-Rahman Katkhuda in 1744-45/1157. The buildings followed the traditional pattern of the area which was kept unchanged for about 500 years.
- In the time of the Khedive Ismail, nearly 1875/1290, the quarter of Darb Qirmiz was again opened up and the building activity was intensified. Buildings with richly decorated facades in European or Oriental style were built for merchants of the traditional market area.
- The new wave of modern construction, motivated by the increased population since the 1960s caused only few of these houses to be pulled down and new ones built instead.

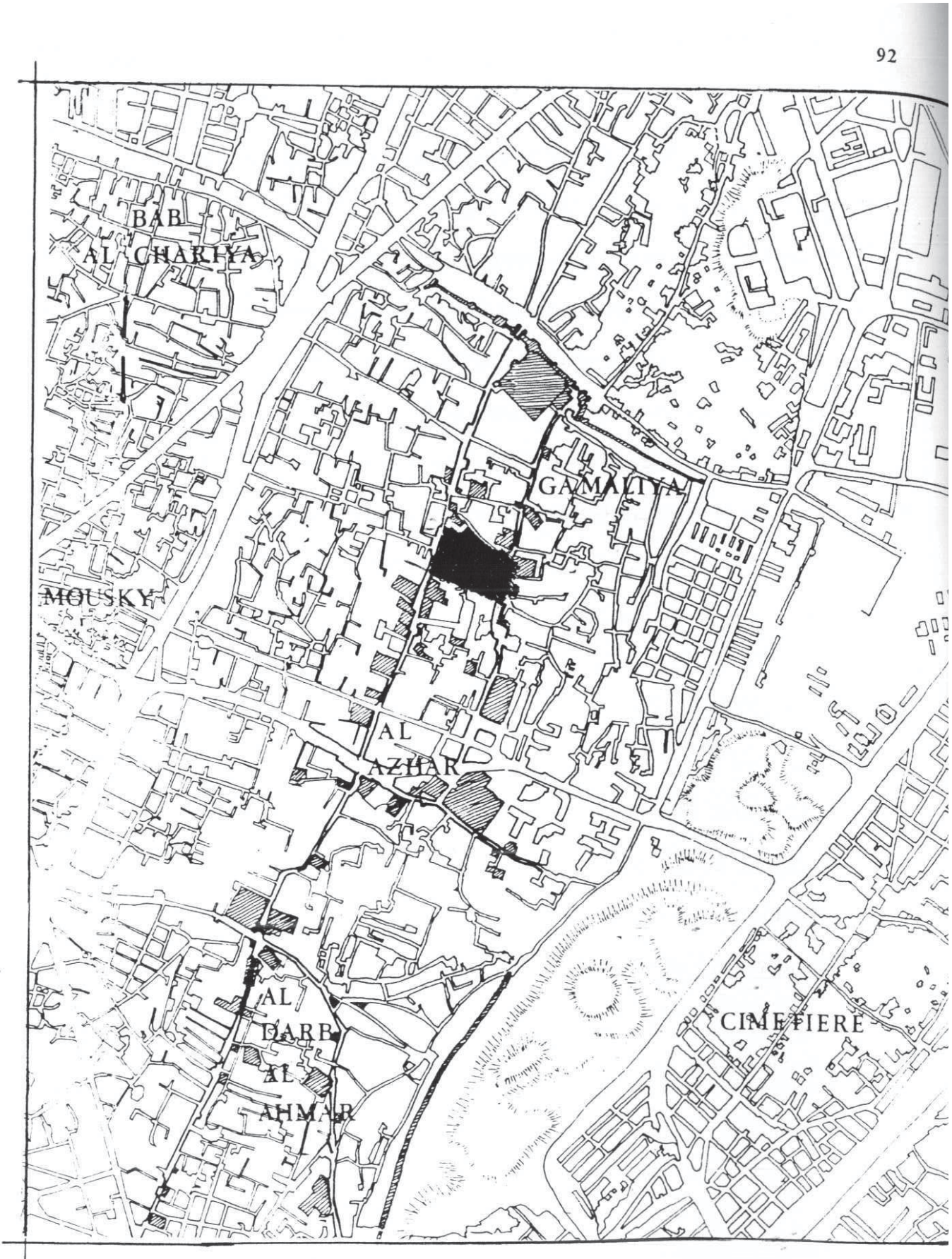

Fig. (29): Location map of the study area within the core of the old city

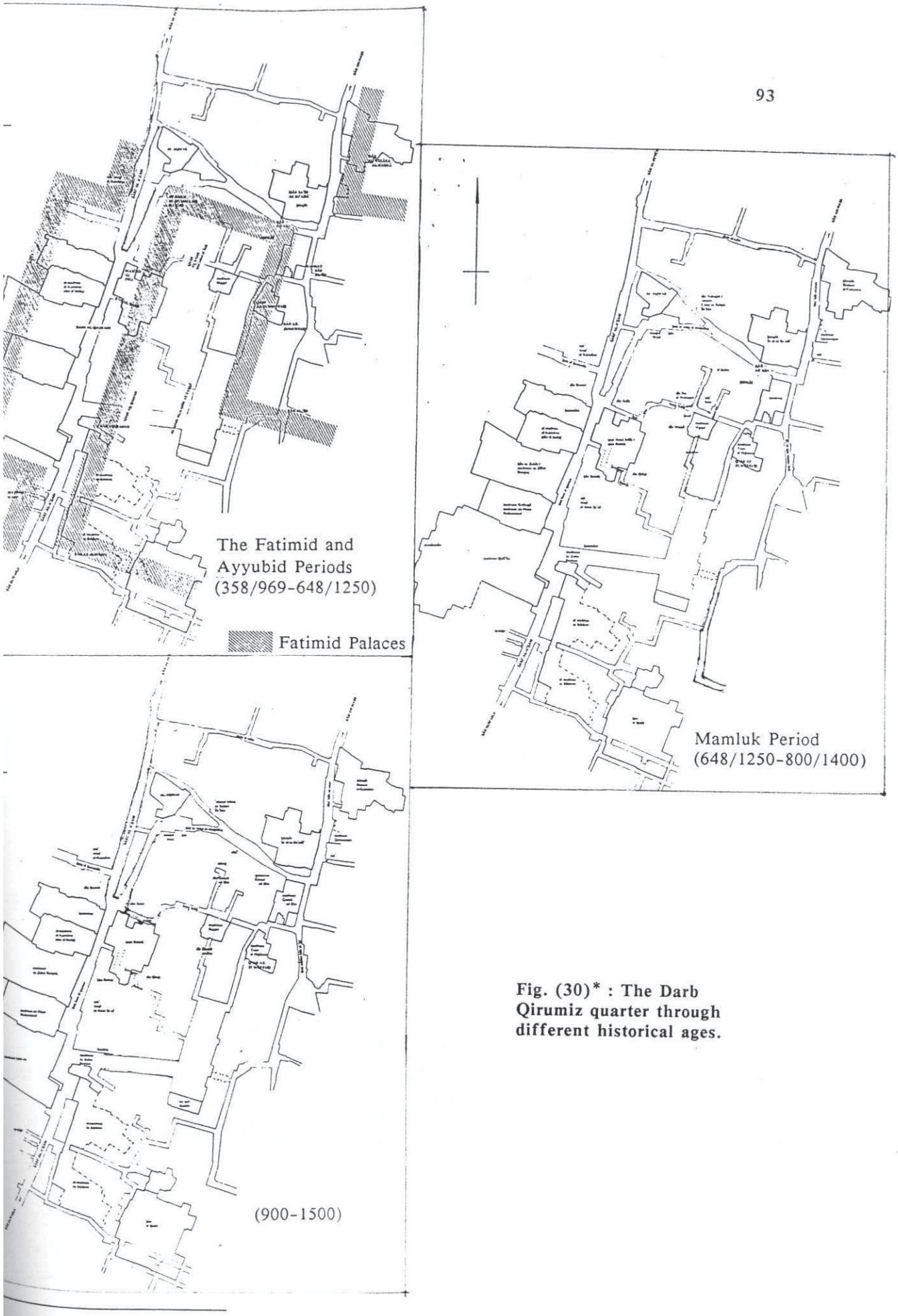

Fig. (30)* : The Darb Qirumiz quarter through different historical ages.

German Institute of Archaeology, Cairo.

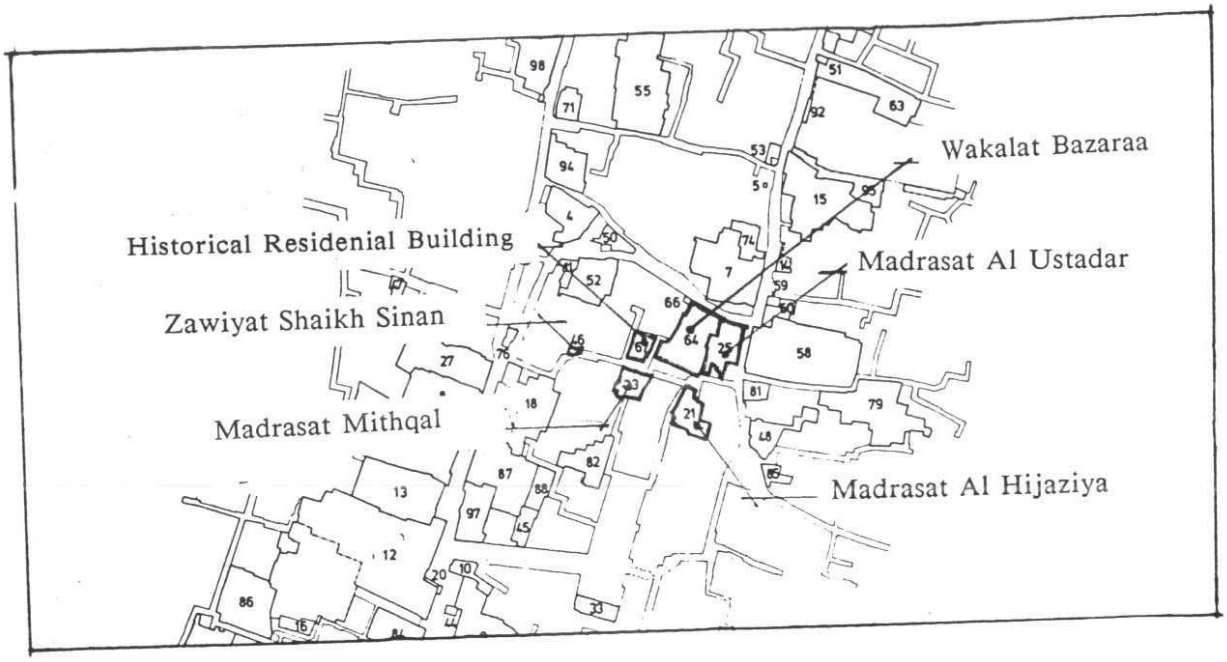

Fig. (31): Historic elements of the study area

Fig. (32): Analysis of urban space of the study area

2.4.2 Preparatory Measures

1. Task Force

The system of interlocking authorities has proved unable to be practically efficient, therefore, a unified co-ordinating authority ought to be formed for the management of the whole conservation project. This authority should consist of experts from:

The Antiquities Organization to be responsible for undertaking restoration work on historical buildings and for licensing and monitoring all restoration works done by other bilateral missions working in cairo on projects of architectural conservation. It would be also responsible for providing supervisory personnel, labour and local materials. The government of Cairo would be responsible for resettling people outside the historical area in new-settlements in the outskirts of Cairo, and for giving permission for new buildings and demolition and the provision of social services in the area.

Within the study area, the task force is required to do actions such as:

- Keeping archives, records of the old buildings in co-operation with the documentation centre.
- Maintaining records of all changes in the conservation zones by means of documents and updated maps.
- Attracting the best technicians available locally and internationally to make use of their knowledge in the conservation project to deal with

restoration of monuments, controlling the design and construction of new buildings, to rehabilitate existing sites and buildings and to introduce compatible functions for monuments.

- To establish information and education programmes locally to introduce the public to the plan being undertaken for the historical site.

The International Organizations form of support would be by providing experts, services, equipments and materials which are not available locally and by training fellowships and to sponsor an international compaign for advisory and technical committees and to provide scholarships for training.

2. Legislations

To prevent the situation from deteriorating still further, two main tasks concerning legislation should be fulfilled. Land and property owned by the Waqfs (except for mosques in use) should be acquired by the authority in exchange for other lands outside the historical area of equivalent value[9]. This can lead to a unification of land ownership in the conservation area and that ensures appropriate work. The existing legislations should be strengthened and enforced to prevent further destruction of historical monuments and to stop uncontrolled building activities. Moreover, all new constructions should be prohibited until the guidelines of the new

9. UNESCO Consultant Team, The Conservation of the Old City of Cairo, The Expanding Metropolis Coping with the Urban Growth of Cairo, the Aga Khan Award for Architecture, 1984, p. 67.

architecture has been defined. This would also prevent land speculation and profiteering which results in building decay.

3. Mode of Finance

It was estimated that the conservation-to international standards-of the approximately 1000 monuments throughout the old city would cost, conservatively, LE 300 million. This figure is obviously unobtainable in the near future. The total budget of the Egyptian Antiquities Organization is about LE 3.5 million to cover all running costs and all capital expenditures on all monuments in Egypt (Pharaonic, Coptic, Graeco-Roman and Islamic)[10].

Not more than a quarter of this sum -L.E. 3.5 million- would be directed to Islamic monuments. And assuming that there is another LE 1million spent on Islamic monuments by the Waqfs authorities and other national institutes involved in restoration programmes, the total figure will be LE 2 million annually. That reveals the gap between the initial estimates and the figure available. Therefore, there should be a sort of mobilization of financial resources.

Because most of the land and buildings are under Government ownership, the private sector has had little influence in the development process.

The private sector could play an active role by having the right to use the historical buildings as investment projects after being rehabilitated and

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10. Ibid., p. 80.

in return be responsible for paying for the rehabilitation and maintenance afterwards.

The Governments role would be by using some of its limited funds to create incentives for private sector investments. By upgrading the general amenities, paving the streets and improving the public transport services in order to originate the right climate for private sector.

It should be put in mind that in a developing country as Egypt we have to get the very best out of the existing resources, man power and traditional building techniques instead of applying modern advanced technologies which demand considerable foreign investment.

4 . Training

a. Architects

Architects should be enabled to develop knowledge of the traditional character based on historical values and at the same time fulfiling the modern standards, which is lacking in higher education at present. Scholarships for qualified architects should be made available to enable architects to be trained according to the latest techniques of conservation in one of the post graduate foreign institutes.

b. Engineers

If there are complicated structural problems in the building to be restored, there would be a need for a limited number of trained structural

engineers specialized in conservation. They should be trained to develop technical solutions in accordance with the historical qualities.

c. Technicans and Material Scientists

Because restoration work depends on the application of chemical materials, the number of scholarships for training graduates in chemical sciences, which is already undertaken by the Antiquities organization, ought to be increased.

d. Craftsmen and Builders

Training craftsmen in finishing and ornamenting traditional buildings and training builders in traditional building technologies is already carried out by the Antiquities Organization but the scale of this training should be more extending to cover the needs in the future in addition to training in site which should be taken into consideration.

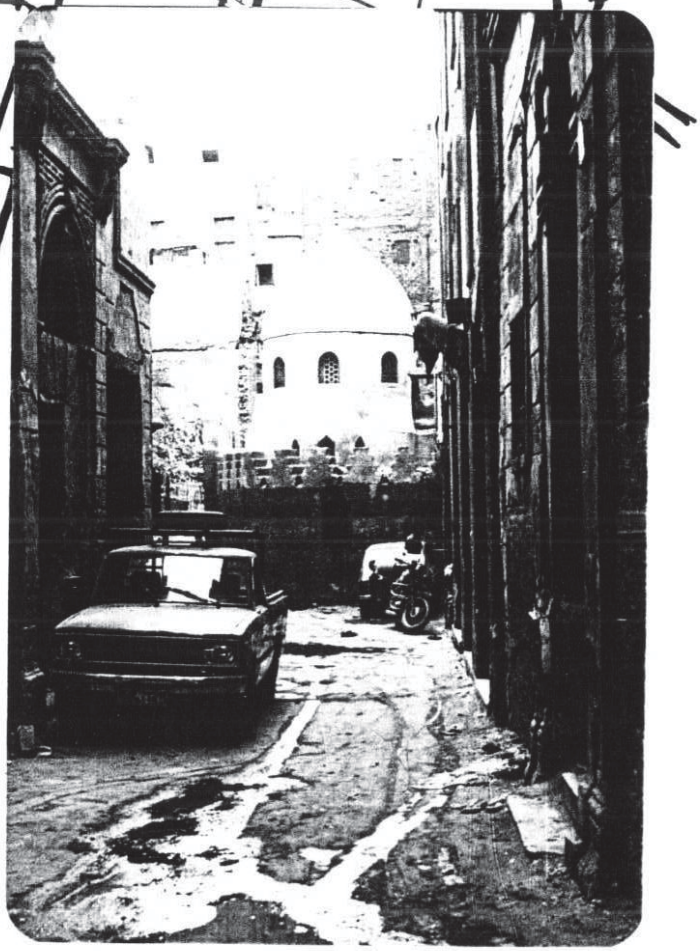
2.4.3. Implementation Measures

2.4.3.1 Analysis of the Existing Situation:

Circulation Pattern

The study area is located in the heart of Al-Gamaliyya district providing a link between Al-Moez and Al-Gamaliyya streets. It is in the meantime accessible through two entrances: The Moez Str. and through harat Qirmiz which branches from Maidan Bait Al-Qadi where the area is reached through a valuted passage beneath the Madrasa of Mithqal.

1. The Tunnel under Madrasa of Mithqal



2. Street of Darb Qirmiz

Fig. (33): The study area is meanwhile accessible via two entrances.

The street width varies from three to six meters; to suit the traditional means of transportation which is the use of animals. The nature of the street being narrow and winding has deprived it of adequate public transportation which is available only in main streets, private autos, taxis and small pick-up trucks compete for limited street space with carts and pedestrians, creating a perpetual congestion in the area. And that could be solved by paving the ground as a pedestrain and concentrating parking areas in lots close to every historical cluster.

Major Land Use

The land use pattern reflects the size of the community, its social and economic development. The major land use in the study area is mainly residential with street shops located in the ground floor of buildings and scarce commercial and institutional buildings.

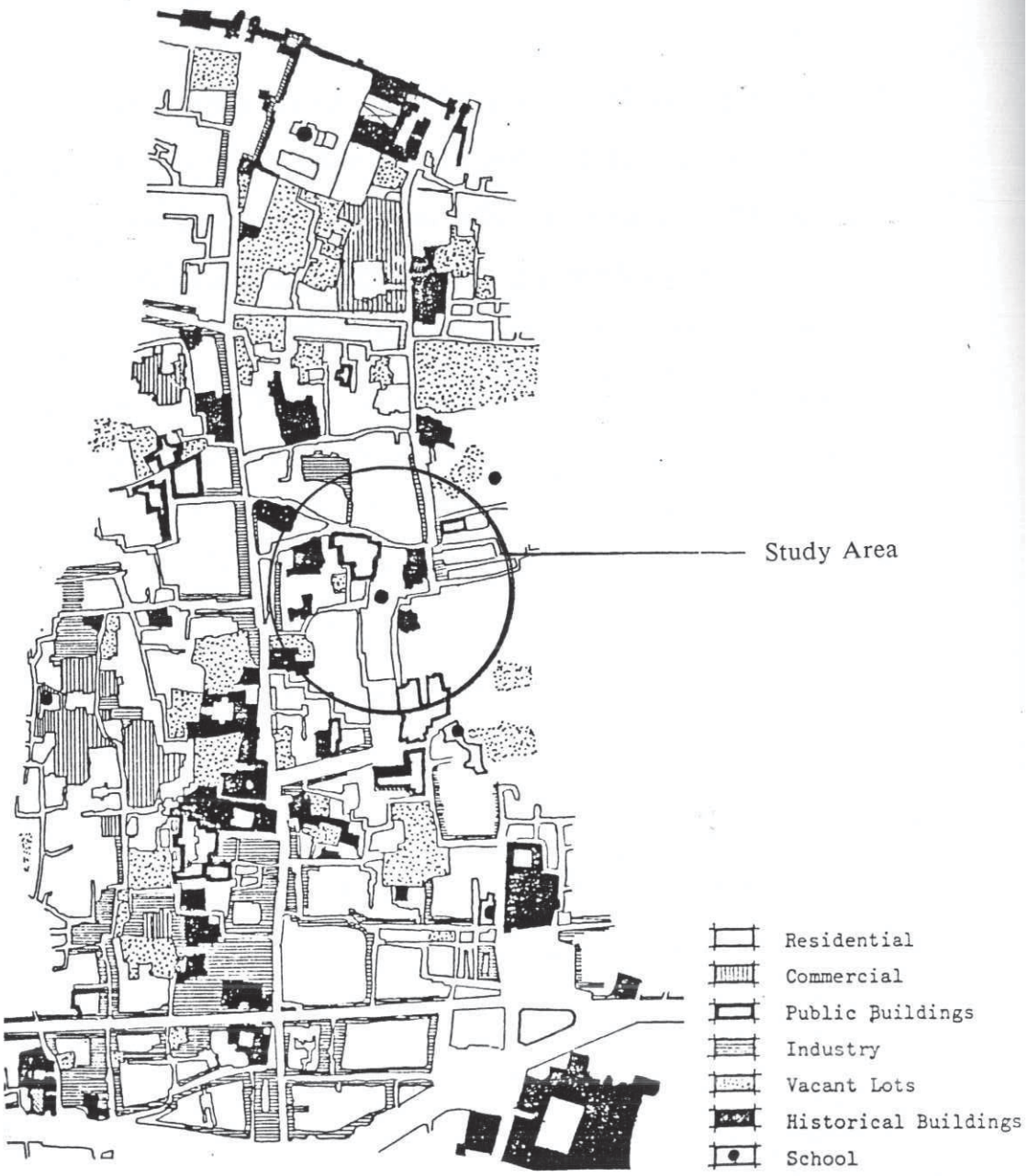


Fig. (34)*: Land use map of the study area.

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* Abdullah A. Al-Erian, Ph. D. thesis, The University of Machester, 1983, p. 347.

General Architectural Features

Facades

Historical buildings facades are homogeneous as a result of the use of local materials and handcrafts. Construction is expressed by exposed beams, lintels or timber roofs. The treatment of the traditional facades is mainly plain and functional with a maximum height of 3 floors. The geometry of the openings ranges from segmental to Roman to flat arches. Doorways are sometimes stone articulated and doors are mainly timber. Window designs vary from pure geometrical to ornamental style. The additions and rennovations contribute to the deformation of the traditional facades. And modern buildings are erected to a height of 4 to 5 floors.

Roofs

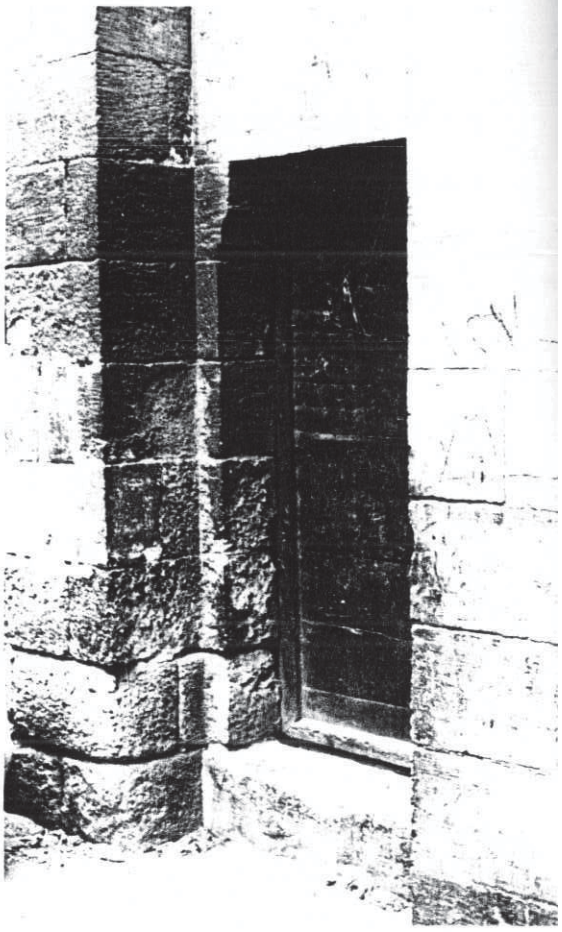
Flat roofs are predominant, sometimes slightly projecting from the buildings. roofs are timber framed with clay finish in traditional buildings. As for modern buildings roofs are concrete.

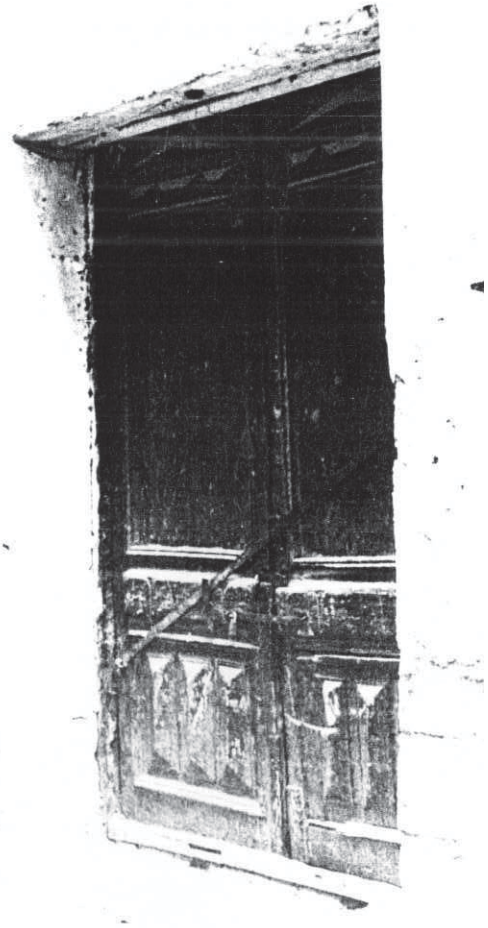
Courtyards

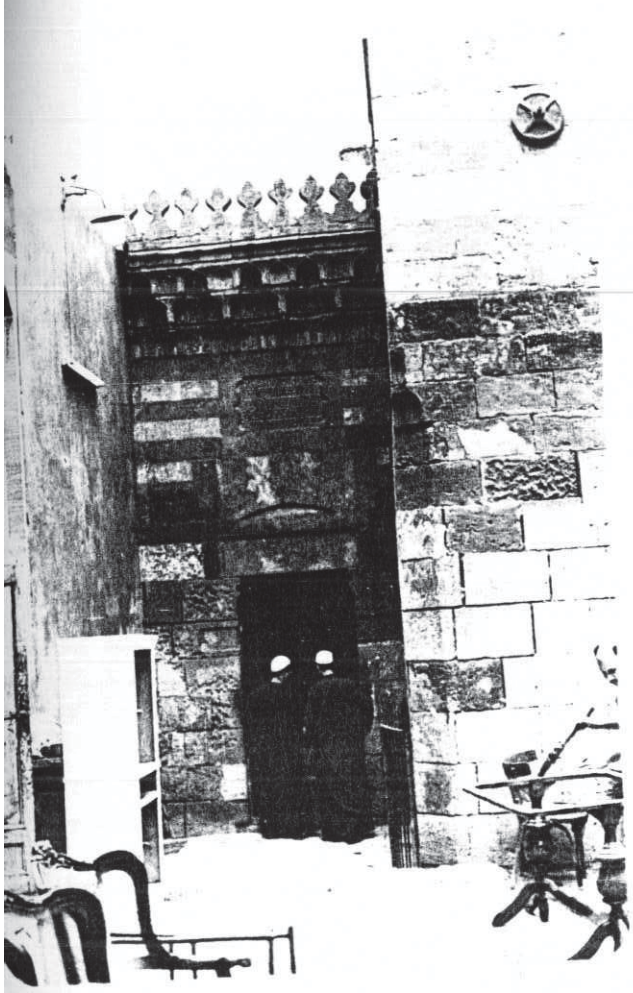
The conditions of the interior courtyards in traditional buildings are not better than the building itself therefore it should be treated with the building as a whole.

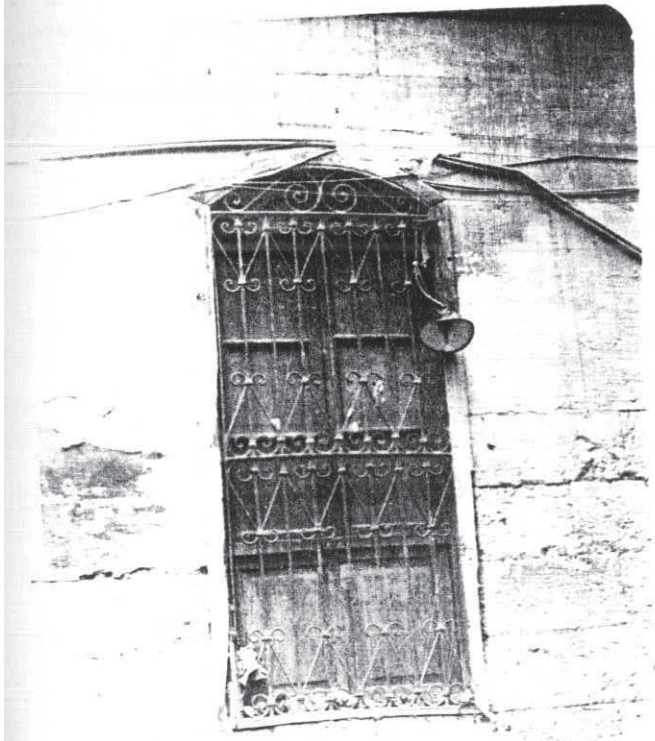
Shopfronts

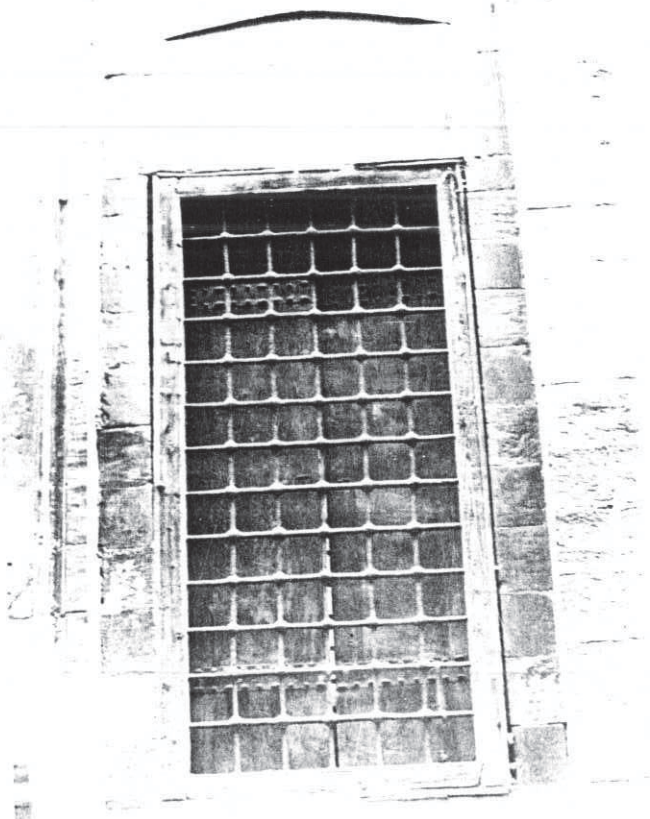
The traditional wooden shop fronts, due to humidity and lack of care had deteriorated and have been replaced with metal rolling shutters which are not in agreement with the quality of the wall.











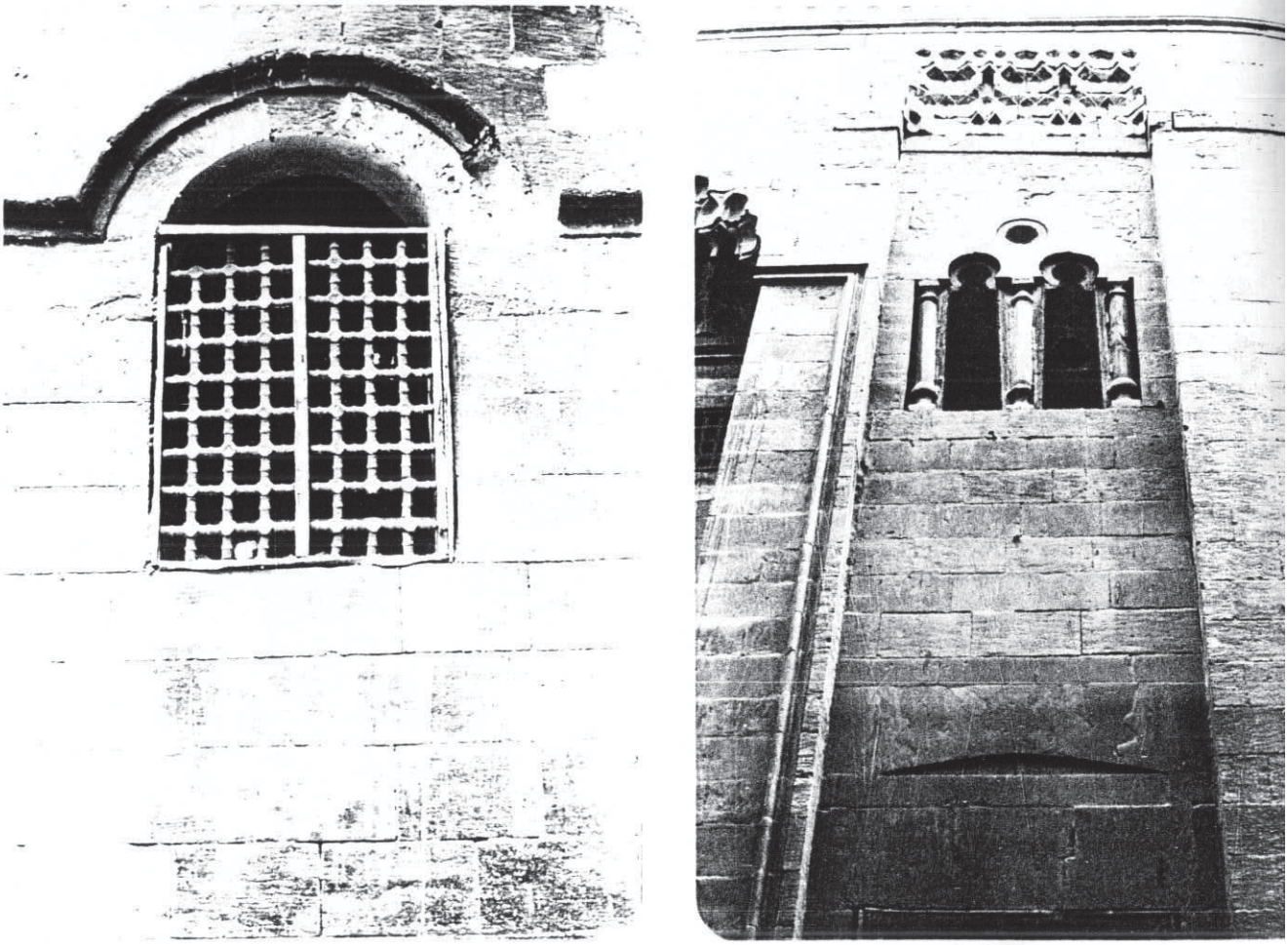


Fig. (35): Variety of windows and doorways from the study area. Their styles vary from pure geometrical to more ornamental designs.

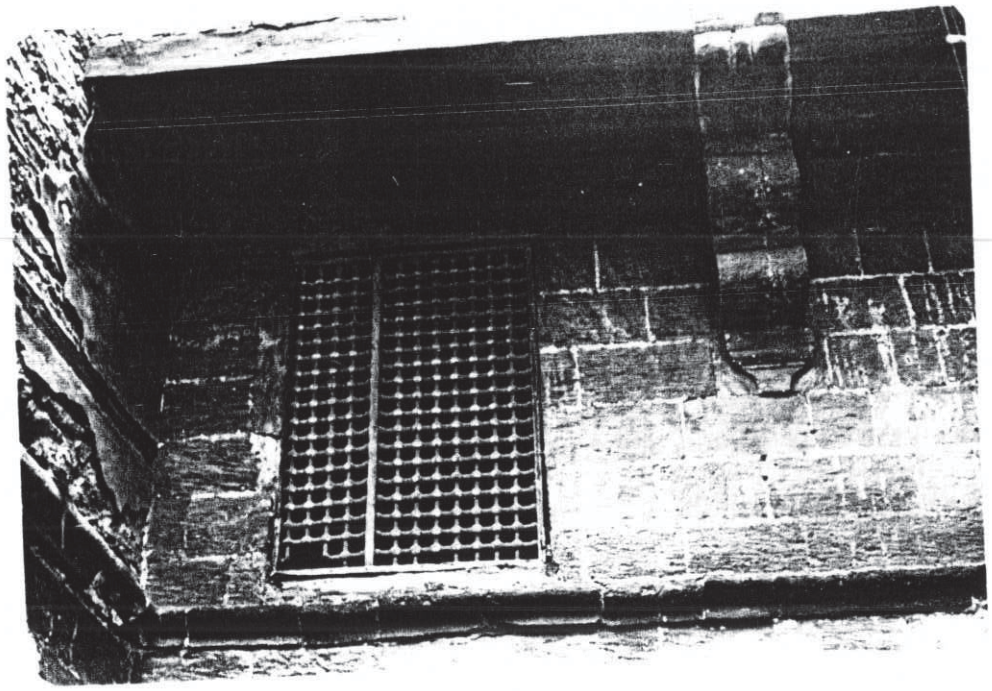


Fig. (36): Roofs are sometimes slightly projecting from the building.

Visual Qualities

Like most traditional Islamic areas, the view through the traditional narrow winding streets is changing and the streets open from time to time exposing focal buildings.

The relationship between the width of the street and the height of the building provides shade, and creates a space enclosure which makes no need for projections in buildings or awnings for shops.

Structural System

The present deteriorating state of the structural system of buildings can be briefed as follows:

- The new materials unbinding with the old and imported technological rennovations[11].

- The lack of the habit of annual inspection and repair.
- The high water table: The immigration of a large number of people into the historical area and leakage of piped water supply and sewerage, have made the dry ground level change drastically to a damp one which attacks foundations.

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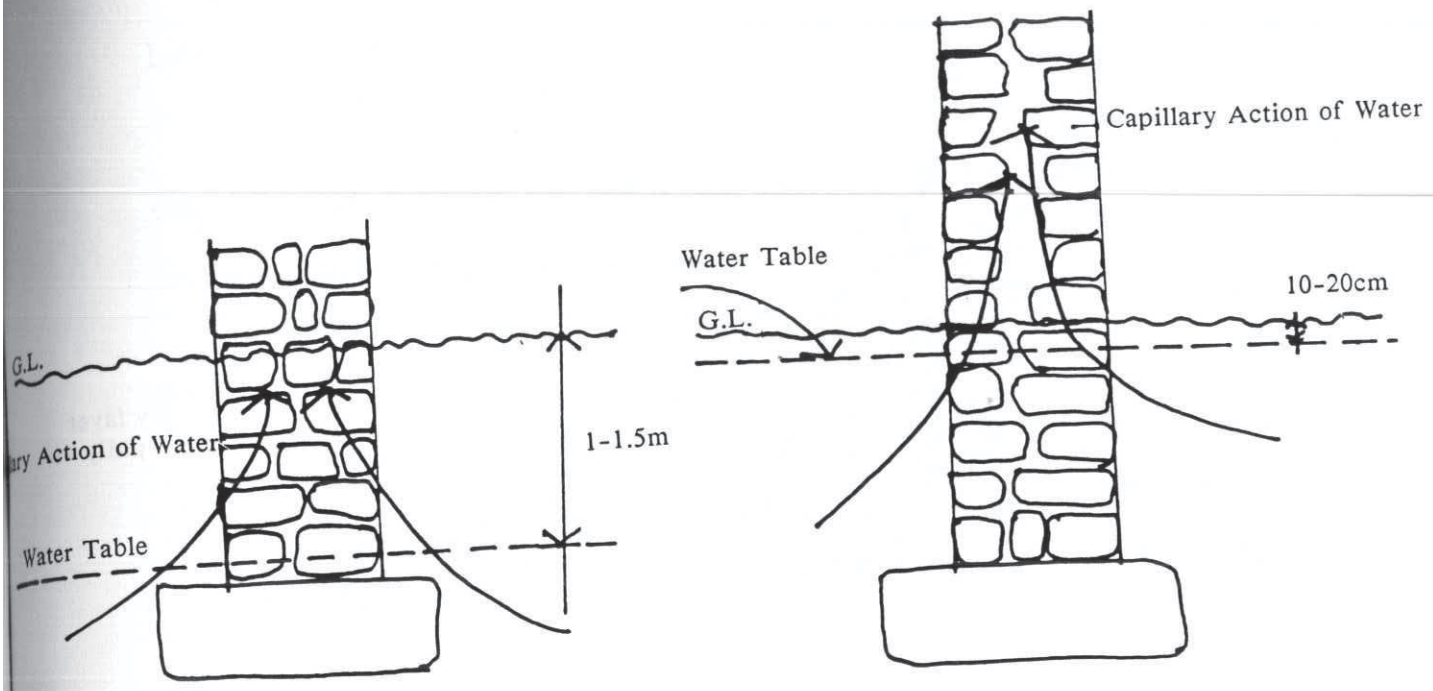
11. Ibid, p. 78



Situation Before 1965:

Capillary Action seldom drew water to above ground level.

Situation From (1975-1980):

Increasing height of capillary action upwards above ground level, resulting salts and destroying masonary, mortar and plaster

Fig. (37): Foundations.

Timber roofs are finished with a coat of lime plaster over a clay layer. Roofs are attacked by dampness from rain due to the accumulation of dust on surfaces, lack of maintenance of the roofs leaving an exposed layer of clay which dissolves leading to the decay of wooden beams. The lack of maintenance of parapets allows the penetration of water.

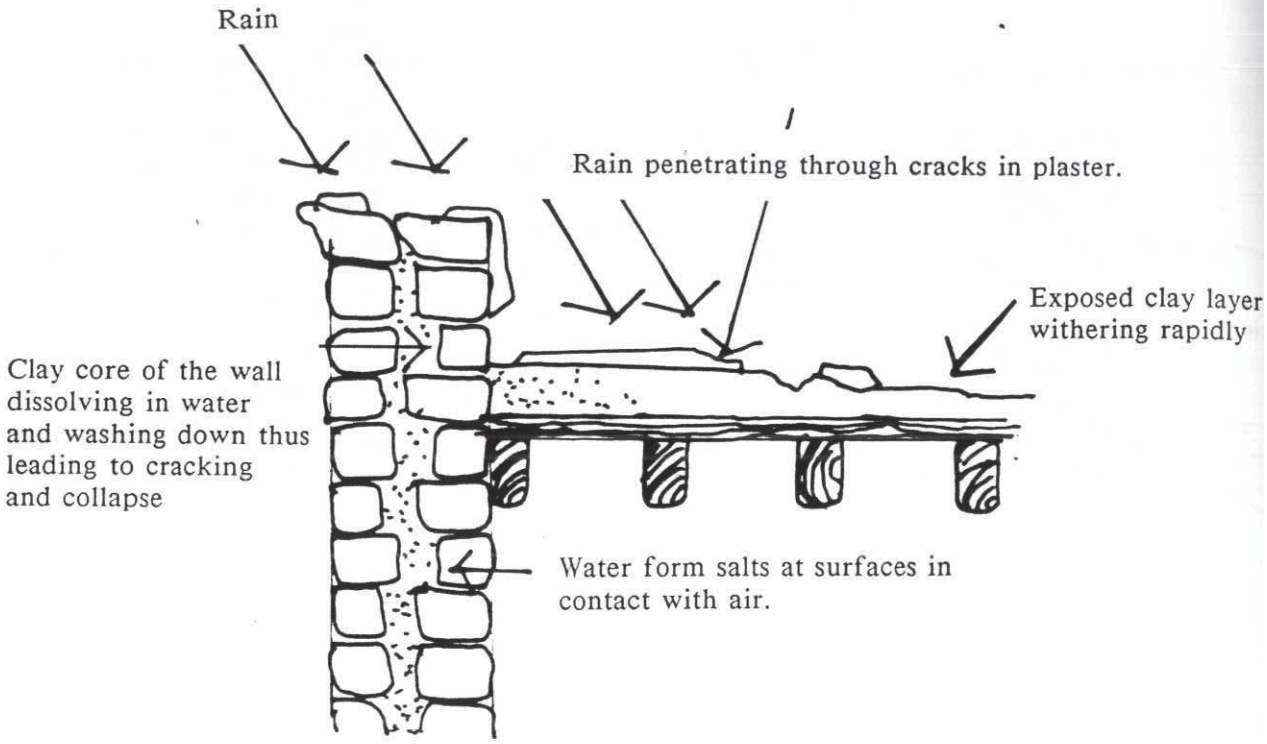


Fig. (38): Walls and roofs.

Infra-Structure

Although the area has an extensive network of services, water supply, electricity and drainage for nearly all premises, these networks are overloaded and insufficient.

Water Supply

The official estimate is that 36% of the water coming into the city does not reach the taps.[12]

Sewage

The problem of sewerage in the historical area arises from the capacity limits of the collecting drain in Port Said St. and the capacity of the trunk sewers from there on. Thus a high priority task is given the improvement of the Port Said St. collector. This would allow the discharge from the old city to be taken off effectively.

Garbage Disposal

The confusion regarding responsibility in this aspect is that the municpality collects rubbish from the market areas and open spaces but not from buildings.

Sub-Surface Conditions

Repair works to piped services will only effect the saturation of the surface clay-layer, the water table of the sand stratum will remain

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12. Ibid., p. 75.

unchanged. A programme of long term research on the behaviour of water in the stratum is underway by the Ministry of Irrigation and the Academy of Scientific research.

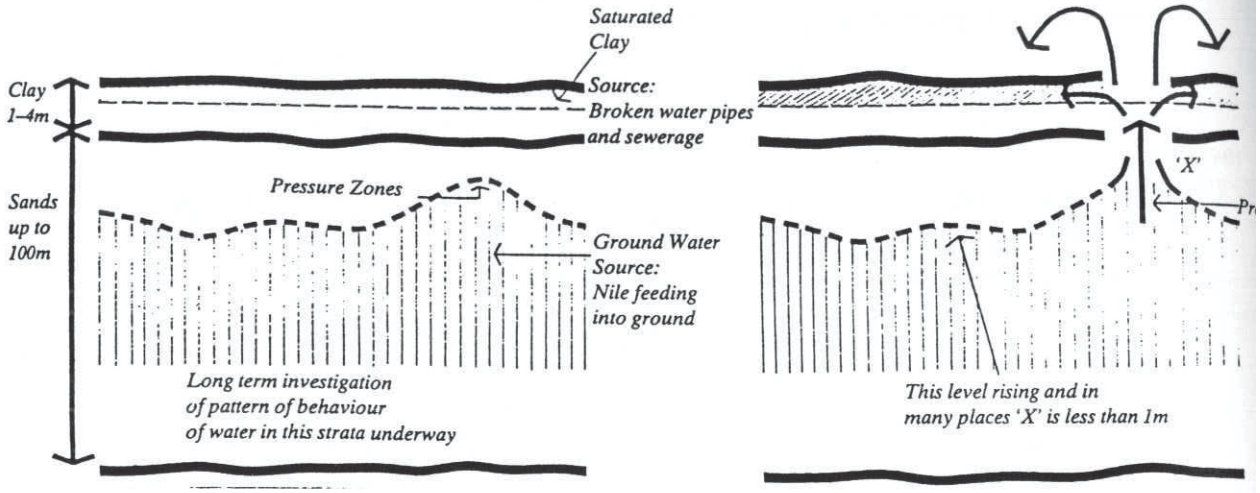

Fig. (39): *Sub-surface conditions

At the present time there is no coherent policy for the future development of the old city by itself. Therefore, infra-structural measures as refuse desposal, sewerage and so on should be integrated in the planned programmes for the whole city. These programmes for the amplification of infra-structural networks, as proposed by the organization responsible for the services, should be continued at the fastest speed possible.

The study of means of lowering the level of the ground water in Cairo is vital and current programmes on this subject should be enhanced and accelerated.

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* UNESCO Consultant Team, The Conservation of the Old City of Cairo, The Expanding Metropolis Coping with the Urban Growth of Cairo, The Aga Khan Award for Architecture, 1984, p. 77.

Population and Growth Trends

Darb Qirmiz has a population of 120 families with altogether 731 persons, thus the average family consists of 6.1 persons.

Over the period 1966-76, the residential population of the area has declined by some 6.8% when Cairo as a whole expanded by some 3.5% per year. This loss is due to the scarcity of dwellings in the area because of the impact of rent control leading to lack of maintenance and loss of dwellings. Another reason for the population loss is the pressures from commercial activities seeking expansion space. And also as a result of the transformation of the city's upper income residential districts to commercial areas. Analysis of available census data shows a strong outward movement of the population from the study area. The following figure shows the central districts that have been losing population since 1960.

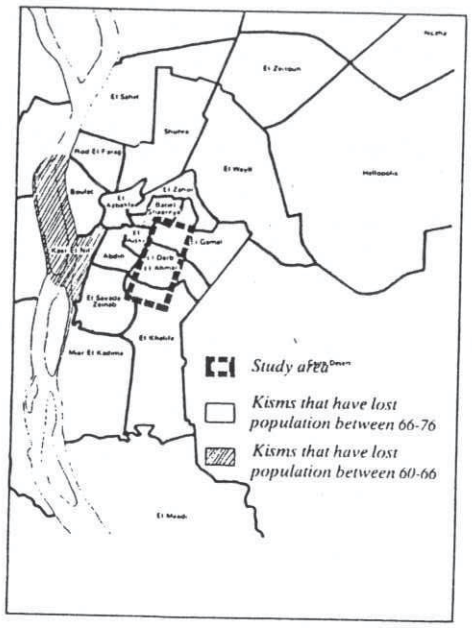

Fig. (40)*: Pattern of population loss.

Table (2.1):

Population loss in Gamaliyya

Sheriakha	Population 1976	Average Annual decrease Since 1966	Trend continued 1980pop	2000pop
Gamaliyya	91.123	-0.28	90.103	85.001

* Ibid p. 70.

Social and Economic Issues

The demographic survey conducted in 1977 revealed that nearly 40 percent of the people living there are housed in flats of only single rooms, in basements, temporary shelters in courtyards, corridors or on roof tops. Between one quarter and one third of the dwelling units had neither water-supply nor toilets[13]. These living conditions are indicators of the deteriorating social status of the quarter.

Another indicator of the relatively low social level of the area is the poor quality of the shops and workshops of small-scale industries located in this quarter. Currently most of the economic activity is centered on the manufacture of small handcrafts, aluminium sheets and utensils from scrap which was introduced to the quarter recently. Few workshops only are connected to the activities of the market nearby.

Distribution of the Working Forces:

High population with unempolyment or low standard of wages is due to the monopoly of the wealth by commercial interests. 63% of the work force depends on commercial and craftwork as the main source of income. About one quarter of households has incomes of less than LE 250 per annum. To improve the economic basis of the quarter, it might be benefical to open the secluded street system which would benefit the industries in the area by attracting customers. Also, for the improvement of housing in the

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13. Michael Meinecke, The Darb Qirmiz Project, p. 44

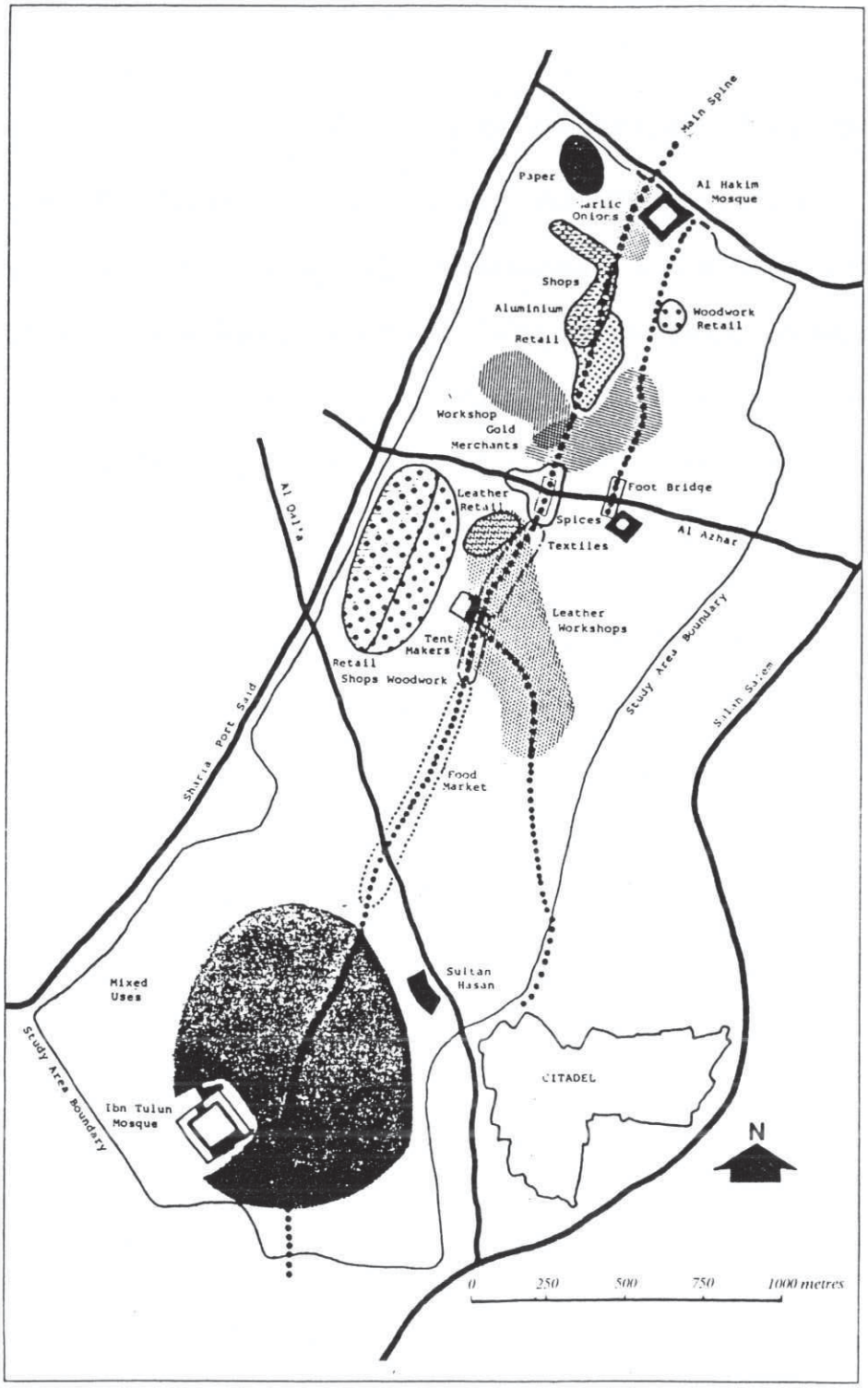

Fig. (41)*: The location of activities in the historical area showing that the study area has no special activity due to its being enclosed from the main street.

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* Ibid, p. 73.

projected revitalization of the area, it might be essential to remove most of the population to newly built satellite towns on the outskirts of Greater Cairo.

2.4.3.2. Modes of Treatment within the Urban Context

Within the historical area there are three kinds of treatments concerning buildings: Architectural rehabilitation for buildings to be restored in order to be used after that in a suitable function, upgrading for substantial buildings which are likely to remain in need of provision of new services, internal upgrading, external surface treatment or height control- demolition and rebuilding with total control of design. And also, there must be some sort of treatment for urban spaces.

Buildings to be Rehabilitated

Rehabilitation is the strategy employed to make decrepit buildings usable again.

A. Adaptive Reuse

According to the Venice charter of The International Council of Monuments and Sites (ICOMOS) in 1969(A), which is a standard guideline for the restoration of historical monuments, the conservation of monuments is always facilitated by making use of them for some socially useful purposes, such use is therefore desirable but it must not change the lay out or the decoration of the building. The theory behind adaptive reuse acknowledges

Fig. (42)*: Darb Qirmiz: map of the built fabric

* German Institute of Archaeology, Cairo.

that standards of living, patterns of housing, commerce and work change, and therefore buildings must be adapted to the society to keep their continuity[14].

The adaptive reuse of old cities must be a part of an organic process integrated into the normal physical planning activities of governments and local bodies. It should relate to the man in the street, the user of such spaces and involve the community without which it will never be able to be maintained[15]. In order to serve the needs of the population, historical buildings should be rejuvenated by giving them a new function which is compatible with the modern way of living.

Some types of buildings, like mosques or madrasas with parts used for prayer and that could be used for the same function (teaching Quraan), need to be adapted by just changing their interiors to accommodate contemporary requirements for comfort, safety and utility, and the exteriors are left in their original state. While other buildings are no longer needed or no longer in use for the purposes for which they were built, so they can be adapted to serve new uses while at the sametime maintaining their original form and character. Palaces, for instance, could be turned into open museums, cultural centres or institutes, caravenserais could be used as

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14. Wayne O. Attoe, Historic Preservation, Introduction to Urban Planning, Editor Antony Contonese, James Synder, Mc. Graw-Hill Book Company 1979, p. 299.

15. Hasan-Uddin Khan, A view point, Mimar, Architecture in Development, 12 (1984), p.p. 18-19.

hotels, cultural centres or articraft centres as the location could provide a suitable place for the continuity of traditional handcrafts in the area.

In some rare cases, the interior and exterior of a building could and sometimes should be dealt with as two very different problems. One can shelter activities, while the other can contribute to the character of the urban fabric or townscape.

The future purpose should be defined before the actual conservation work is begun.

B. Restoration

The most conservative form of the preservation activities is restoration[16]. It involves returning buildings to their original condition by replacing the features that had been destroyed and removing elements that had been added, so that visitors can experience a version of life at an earlier time. One of the consideration in restoration is deciding on the period to which the building is to be returned when extensive alternations had been made in successive countries. Other considerations relate to utility and how to incorporate necessary amenities like bathrooms, electricity, central conditioning and insulation, and how to restore a community but still provide shopping facilities, community centres and parking lots demanded by twentieth-century citizens. In any restoration work it is required to

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16. Wayne O. Attoe, Historic Preservation, p. 298.

undertake as few alternations as possible with regard to the future purpose of the building which has been defined previously. Part of the work has to be decided in advance, while the other is decided instantly. For example, the extent of walls to be pulled for their bad condition can only be decided during the actual work, but the basic architectural measures should be planned in advance, as the aesthetic appearance and the rennovations and improvements required. Also, there must be an obvious difference between the old and the new elements of the building. In order to avoid the introduction of construction methods, materials and decorative elements alien to the historical fabric, use should be made of traditional materials and techniques still current in the historical quarter.

The following two examples of the rehabilitation proposal for wakalat Bazaraa and the restoration project of Mithqal Madrasa in Darb Qirmiz illustrates the rehabilitations process in details.

Example I:

A proposal for The Restoration and Rehabilitation of Wakalat Bazaraa (By Flemming Aalund)[17]

The Wakalat Bazaraa is situated in the heart of the medieval town quarter Al Gamaliyya. It belongs to a vanishing type of warehouses in Cairo

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17. Flemming Aalund, Proposal for the Restoration and Rehabilitation of the Wakalat Bazaraa, Die Restauierung der Madrasa des Amirs Sabiq Al-Din Mithqal Al-Anuki und die sanierung des Darb Qirmiz in Kairo, ed. Michael Meinecke, Mainz, Deutsches Archaologisches Institut-Abteilung Kairo, 1980, p. 119.

which used to serve as a centre for wholesale trade and also as housing and lodging place for the merchants and it lost its function gradually due to socio-economical changes.

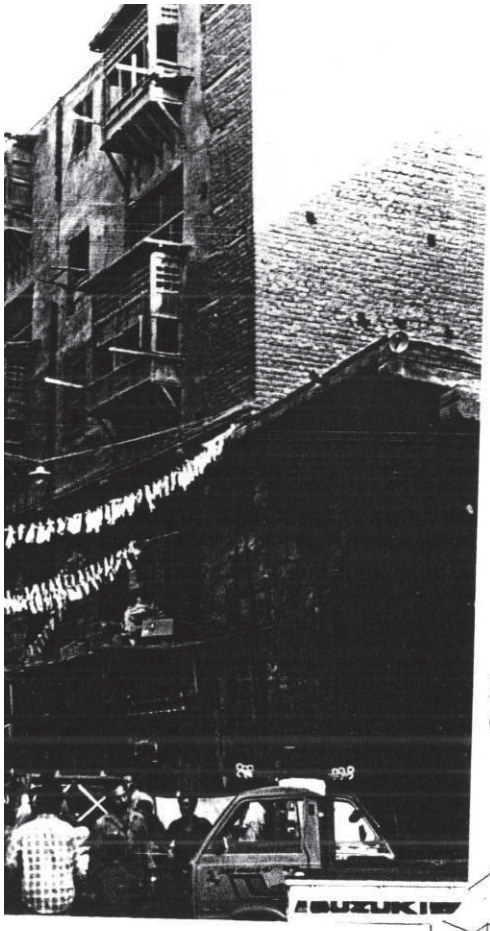
The building is a characteristic example of a caravansary from the Ottoman period built about the end of the 11th/17th century. When the wealthier and more enterprising section of the population moved out to new areas, they were replaced by people from low income groups unable to maintain the building which fell into disrepair. The building is no longer occupied, in 1974 all the tenants were forced to move out because of the endangered structural and insanitary conditions. Also the projected demolition of the building was favourably stopped by the Antiquities Organization.

It is the best preserved example of a Wakala in Cairo and that is the reason for working out a proposal for its restoration, and its conservation will be of great importance to the surrounding and will support local endeavours to secure the Islamic buildings against demolition.

First, the architectural features and the structural condition of the building were studied.

Architectural Features

The building covers an area of about 46 x 34m. It consists of five storeys, each storey about 1000m^2. The building faces a rectangular



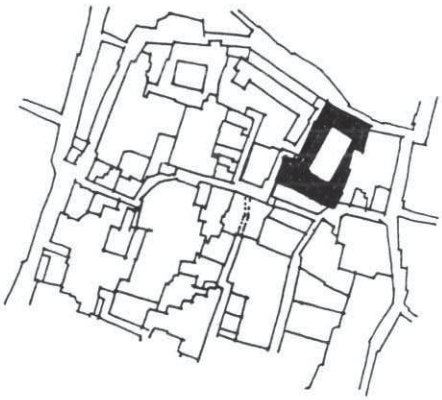


Fig (43): Wakalat Bazaraa, North -western facade, present condition.

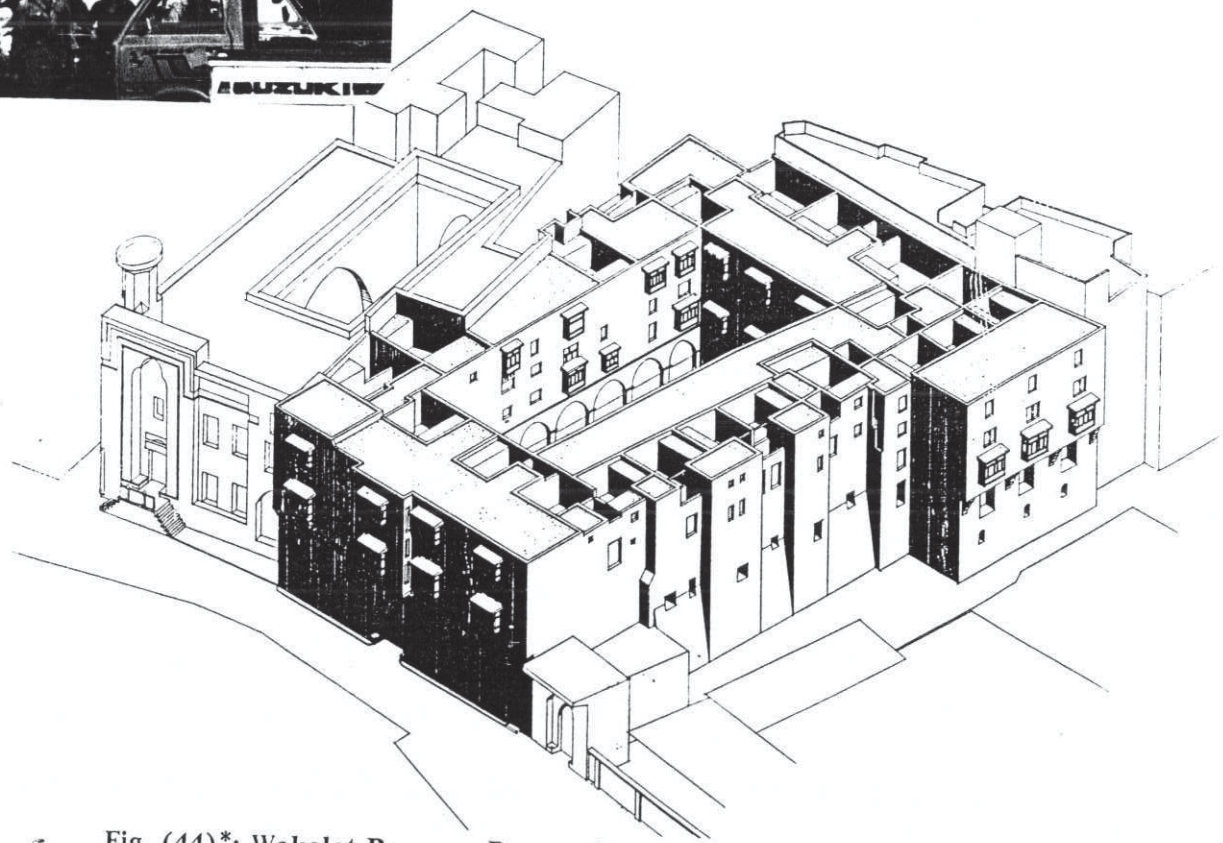


Fig. (44)*: Wakalat Bazaraa, Perspective view from south-west proposal for restoration.

Fleming Aalund, The Rehabilitation of a Commerical Strucure in the Old City, Islamic Cairo: Architectural conservation and Urban Development of the Histroic Centre, German Institute of Archaeology, 1980, p. 37.

courtyard. The two lower storeys are in stone and the three upper storeys are in plastered masonary. The plan is irregular in shape as is the case in medieval town quarters with a high floor space ratio. The most intact part of the building is the northern facade located towards Al Tambaksiya street which, together with the gateway of Wakalat Abbas Aga, the Madrasa of Gamal Al-Din Al Ustadar and Wakalat Dul-Fiqar, composes a fine ensemble of the regional Islamic building tradition. The typical corbelled upper storeys of this building, together with the narrow streets are means of protection from heat during summer. The windows were originally filled with wooden lattice screens allowing air ventilation and softening the glare. Each main living room has a projected window (mashrabiya) as a prominent feature which creates a feeling of more interior space and allows a free view down the street.

At ground floor level, there is direct access from the courtyard to the 25 single barrel-vaulted storerooms running through the whole building. At the first floor level, every single room has access from an open archade on all four sides of the courtyard. From the second floor, a corridor along the outside gives access to 19 maisonnettes in three storeys with interior staircases. The flats are arranged in a diversified way giving the possibility of choice according to the specific needs of the inhabitants and excluding any feeling of conformity. Every single flat is composed of an entrance-hall and a double height living room with a mashrabiya to the courtyard or the street. A stone staircase leads from the hall to a mezzanine giving room for kitchen

functions. The staircase continues to an open terrace at the top of the house from where there is access to another living room. The larger flats have one or more adjacent rooms.

The double height in the main living-rooms and the numerous shafts for light and ventilation are adaptations to the climate.

The arrangement of the whole building provides a gradual transition from public to private. The function of the rooms is not specific, depending on the time of the year and the time of the day, the inhabitants may move around the place.

The Structural Condition of the Building

The examination of the whole structure revealed that the building is in a poor condition, although the upper storeys are preserved in full height. After the building was abandoned in 1974, all loose parts were carried away, the mashrabiyas are now ruined and the empty window openings reveal advanced decay. The appearance of the building has been spoilt by temporary wooden shelters filling up the courtyard. In the northern wing of the building towards the street an excessive vertical load has caused cracks and the facing of dressed limestone has been pushed out from the core of the wall is several parts. Above the entrance gate an iron beam has been inserted to take the load off the tier of beams at the second floor. The walls of the three upper storeys constructed in burnt bricks get thinner in keeping with the decrease of the thrust load.

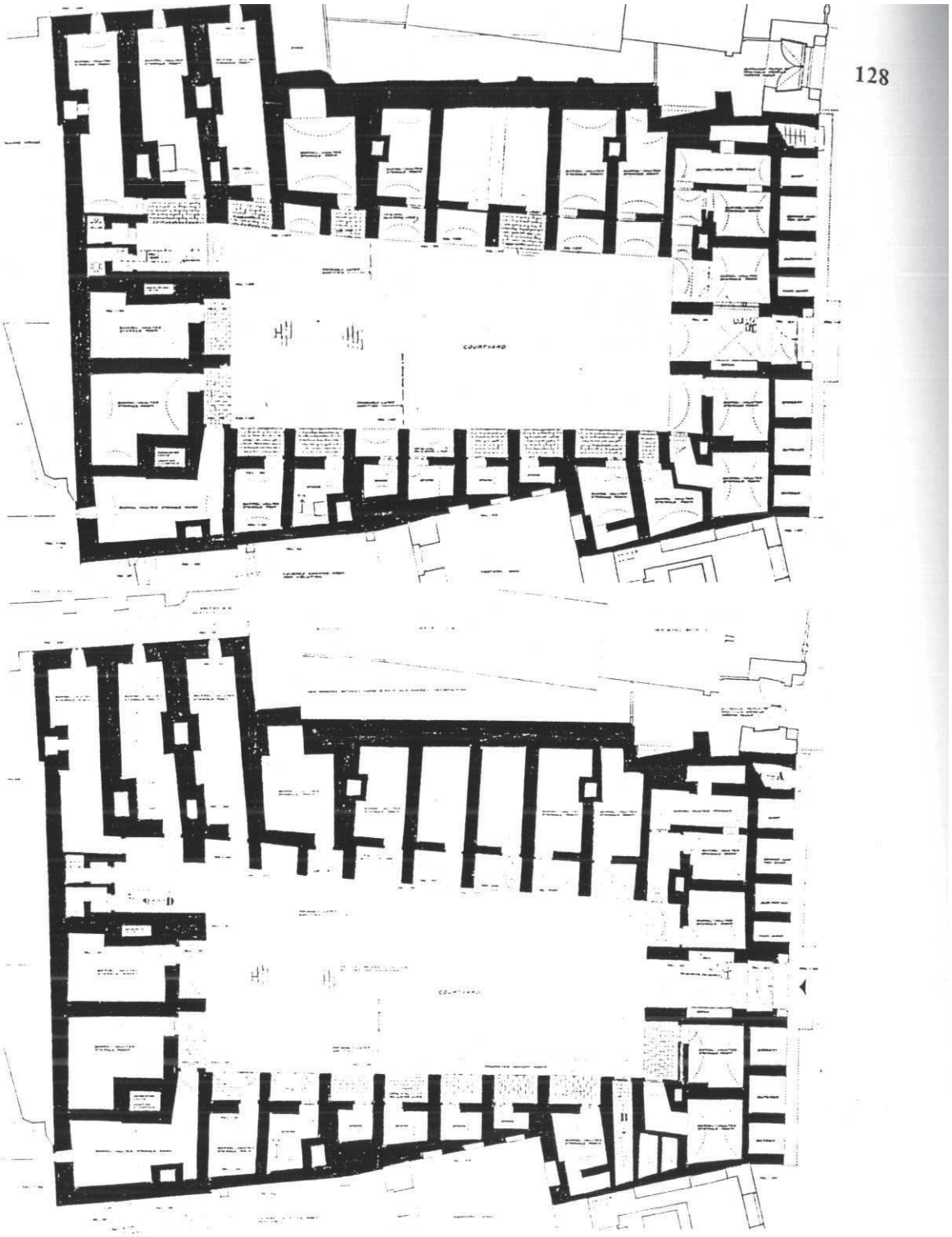


Fig. (45)*: Wakalat Bazaraa, plan of the ground floor, present condition and proposal for restoration.

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* Fleming Aalund, Proposal for the restoration and Rehabilitation of the Wakalat Bazaraa, Die Restauierung der Madrasa des Amirs Sabiq Al-Din Mithqal Al-Anuki und die Sanierung des Darb Qirmiz in Kairo, ed. Michael Mairneck, Mainz, Deutsch Archaologisches Institut-Abteilung Kairo, 1980.

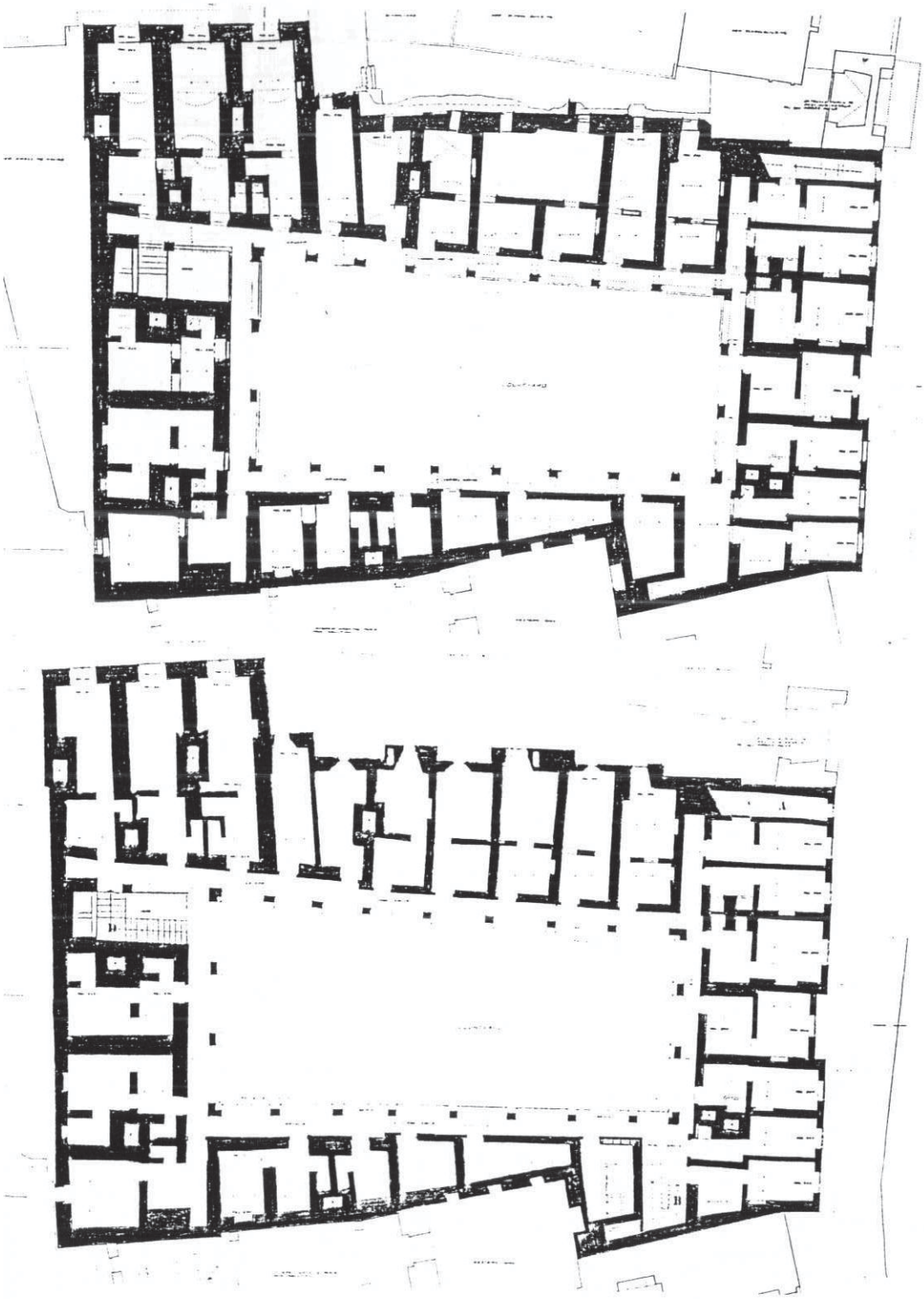

Fig. (46)*: Wakalat Bazaraa, Plan of the first floor, present condition and proposal for restoration.

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* Ibid

Fig. (47)*: Wakalat Bazaraa, Plan of the second floor, present condition and proposal for restoration.

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* Ibid

Fig. (48)*: Wakalat Bazaraa, plan of the third floor, present condition and proposal for restoration.

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* Ibid

Fig. (49)*: Wakalat Bazaraa, plan of the fourth floor, present condition and proposal for restoration.

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* Ibid

The sanitary shafts, together with the damp rising from the ground, caused deterioration in parts of the walls and vaults. The central part of the western wing is completely destroyed causing an open hole through the whole height of the building.

The Rehabilitation Project

1. Adaptive Reuse

As most of the historical monuments in Cairo are in urgent need of repair, searching for a present day function, especially for secular buildings which have lost their original functions in the consequent changes of the society, is very acute. It seemed logical that the building should retain at least part of its original function. This can be achieved by using the stores for workshops and related activities; if they have natural lighting, and the flats again for housing. Therefore the aim of this proposal is to re-establish the original condition of the building as a living organism with storerooms, workshops and housing. The dark vaulted rooms on the ground floor may serve as storage rooms for the shopkeepers of the quarter. According to their needs these shopkeepers could rent one or two storage rooms, so their goods could be easily reached. The rooms on the first floor, which have natural lighting, could for instance be used for offices, traditional handicrafts or for various kinds of small scale industries. This will not require any essential alternation of the building. This would mean that only bathrooms and toilet facilities will have to be installed in this floor.

2. Restoration

It is proposed to undertake a restoration with alternations as limited as possible with respect to the future function of the building. The walls that

must be pulled down because of their condition can only be decided during actual restoration work. But the basic architectural measures should be planned in advance; like the aesthetic appearance of the exterior, the necessary improvement of accessibility to the first and second floors, the renovation of the middle part of the western wing which has totally collapsed and finally the western facade.

a. The appearance of the building

- The surrounding areas:
  * The temporary buildings of wood in the courtyard should be removed.
  * The courtyard and all niches infront of the storage rooms on the ground floor should have a new pavement.
  * The blocked entrance gate to the area formerly occupied by Wakalat Abbas Aga should be opened.
- All facades to the exterior should be preserved in their present state.
  * All brick walls will have to be plastered.
  * New doors reconstructed should be designed according to their original form.
  * All missing mashrabiyas should be restored or remade.
  * All the window openings should be filled with new lattice screens or closed with shutters. New frames with glass should be added in rooms for living purposes.

* New benches and balustrades should be inserted between the pillars of the archades overlooking the courtyard on the first floor.

b. The access to the living units

Today only one staircase leading from the north-western corner of the street facade to the upper floors is still functioning, therefore the access to the living units should be facilitated by further staircases. The missing staircases should be re-established and new staircases constructed.

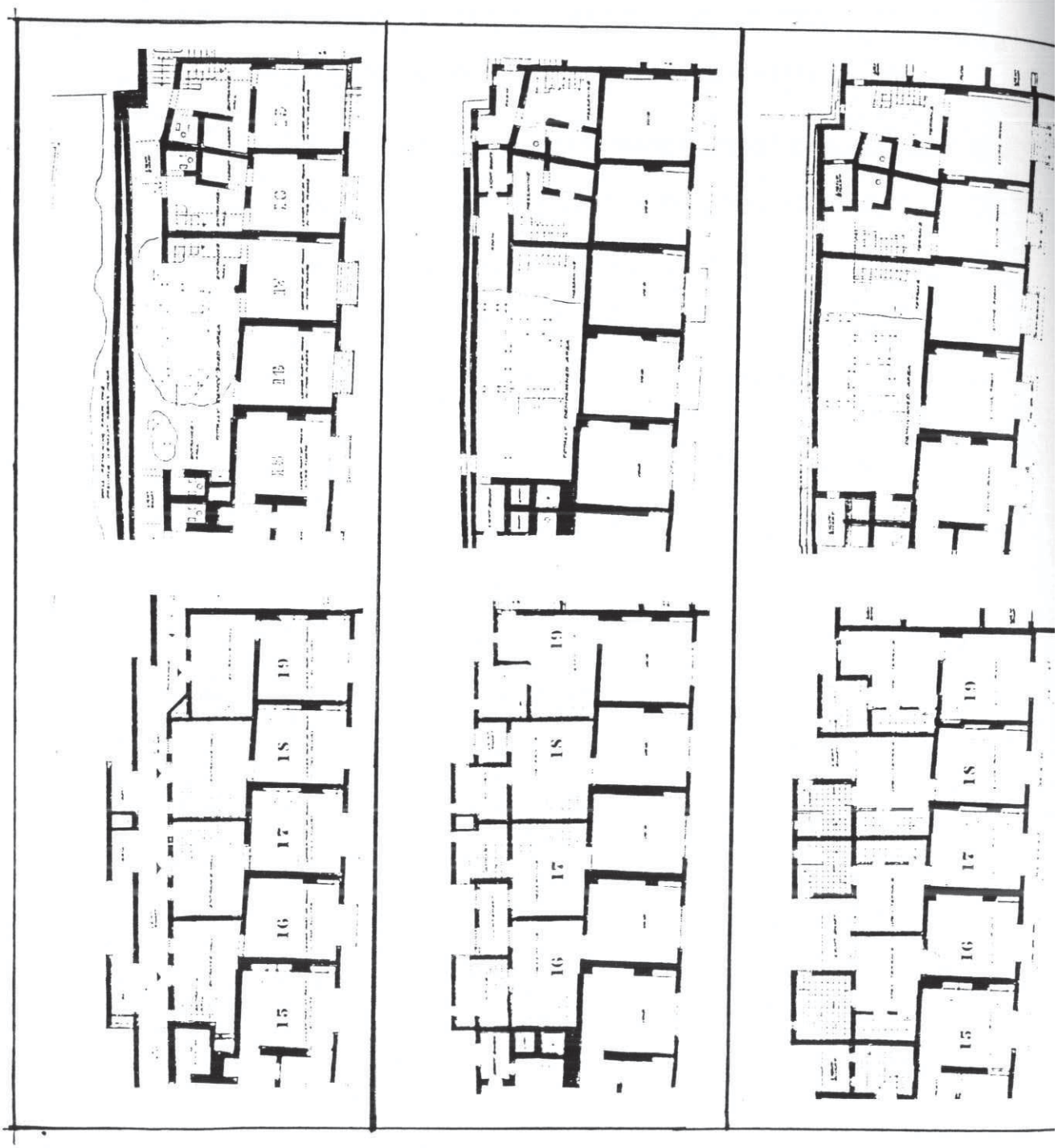
c. The re-activation of the Living Units

- The function of the rooms:

  On the mezzanine-floor of the flats, more open space can be provided by making an opening towards the room with double height. Shutters could possibly be installed if there is a need for more isolation. In some cases it seems to be necessary to put in windows on the roof terrace, which can serve as malqafs. In the large flats there is a room on the mezzanine-floor with a window towards the street which could serve as a working room.

- The Installations

  It has been presumed that it will be possible to provide the necessary installations through the existing shafts in the core of the walls. Flats should be united two by two, so that the flats next to each other will have bathrooms and toilet facilities, with installations of a wash-basin, a shower and a lavatory, either in connection with the entrance or with



Second Floor Third Floor Fourth Floor

Alternations in the Living Units

the roof terrace. The kitchen, functions can be kept at the mezzanine floor by providing tap water and discharge. Electricity should be connected to all rooms, but in general installations should be kept as simple as possible.

- On Accommodation in General

  * Glass windows should be put in all window openings. These glass windows should be opened to the inside, as their exterior should be masked with lattice screens of wood-work or shutters.
  * The staircases leading to the roof-terraces should be covered with a solid construction. Canvas should be put over the terraces to give shade as it is commonly used in the surrounding quarters.
  * New doors should be put between all rooms, as well as cupboards and shelves in all niches.
  * After cleaning the whole wall surfaces in the living rooms, the new plaster can be lime washed.

d. Proposal for the rennovation of the western facade

On the basis of traces in the walls and depending on comparison with the still existing flats it could be possible to reconstruct the destroyed part of the western wing. The part to be added would be a new construction following the original situation with the western facade forming a plain wall surface. All the light to the adjacent rooms in the flats would then have to come through light shafts from above. By having the toilet and the kitchen facilities concentrated above each

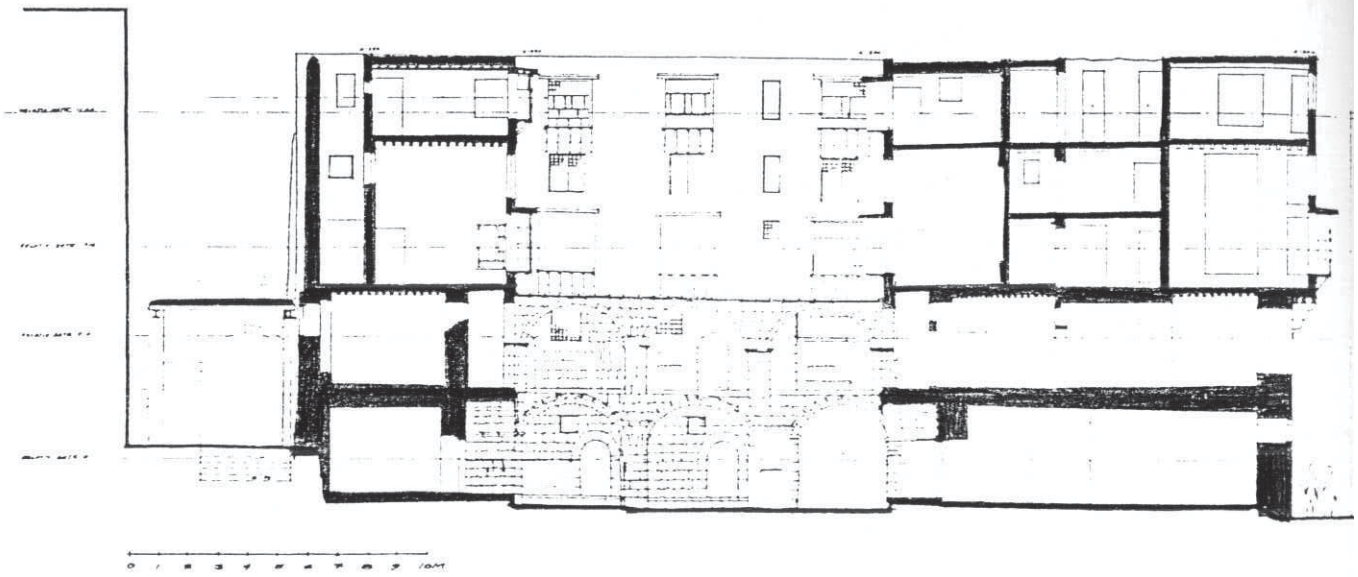


Fig. (50)*: Section east-west through the courtyard, present condition.

* Ibid

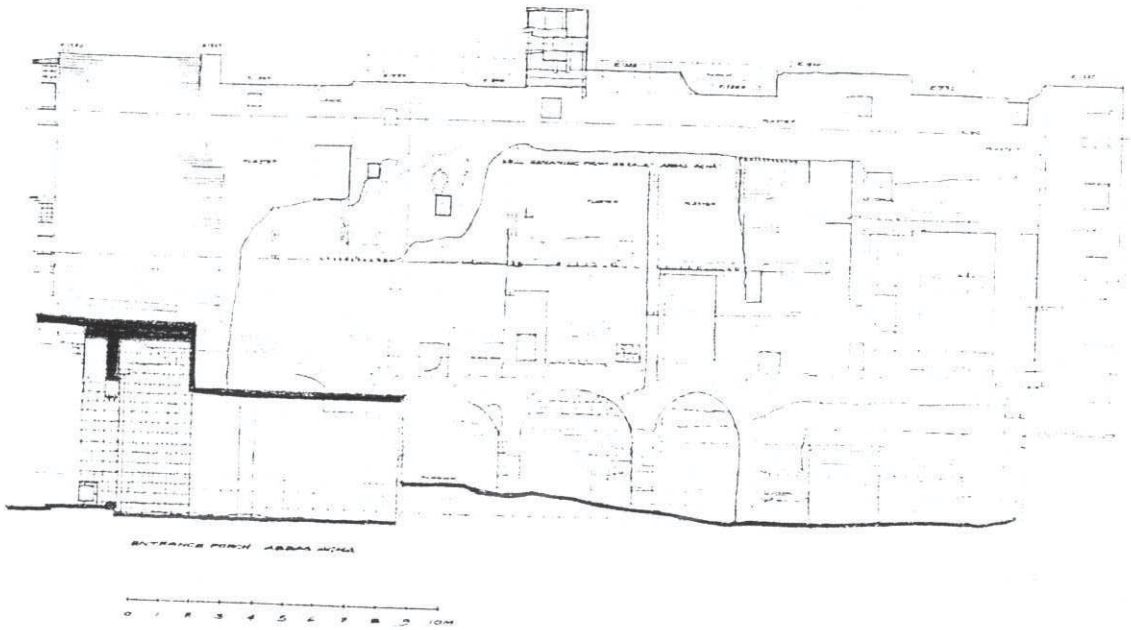


Fig. (51)*: Elevation of western facade, present conditon

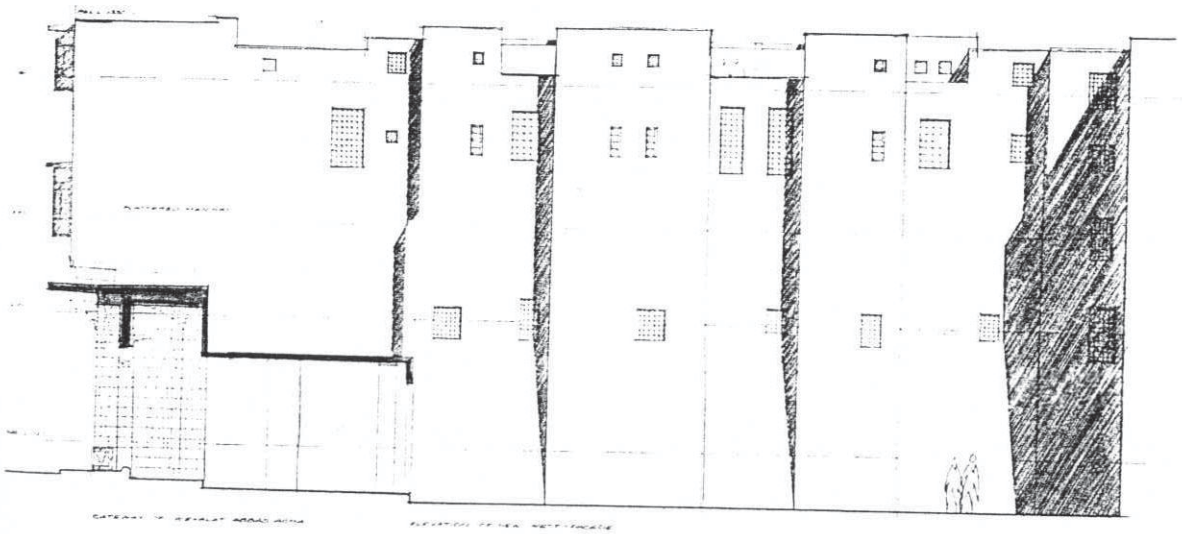


Fig. (52)*: Elevation of projected western facade.

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* Ibid

other in a core projecting 0.5 m from the original facade, it will be possible to reach a room depth of 2.4m, which will be a reasonable space for these functions. And in the second floor of the building, the corrider will have more space that can serve as sitting places for the inhabitants. The windows towards the west should also be reduced to a minimum and mostly oriented south and north.

Example II

The restoration project of the Madrasa of Amir Mithqal[18]

This restoration project was carried out by the German Archeological Institute in co-operation with the Islamic Department of the Egyptian Antiquities Organization and was financially supported by the German Foreign office.

The building was built in 1369/770 by Prince Sabik Al Anouky during the Mamluk period. It is located on a part of the land originally occupied by the eastern Fatimid Palace and in close proximity to Al-Azhar mosque and Al-Moez street.

Architectural Features of the Building

The building occupies an area of about 20x20 metres. The importance of its location is demonstrated by the elaborate street facade. Its builder preserved the path leading to a surrounding group of residential

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18. Michael Meinecke, German projects, Islamic Cairo: Architectural Conservation and Urban Development of the Historic Centre, German Institute of Archaeology, 1980, p. 52.

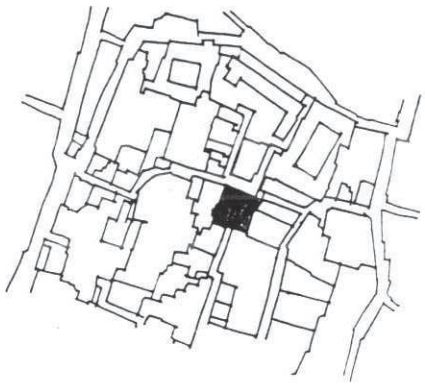
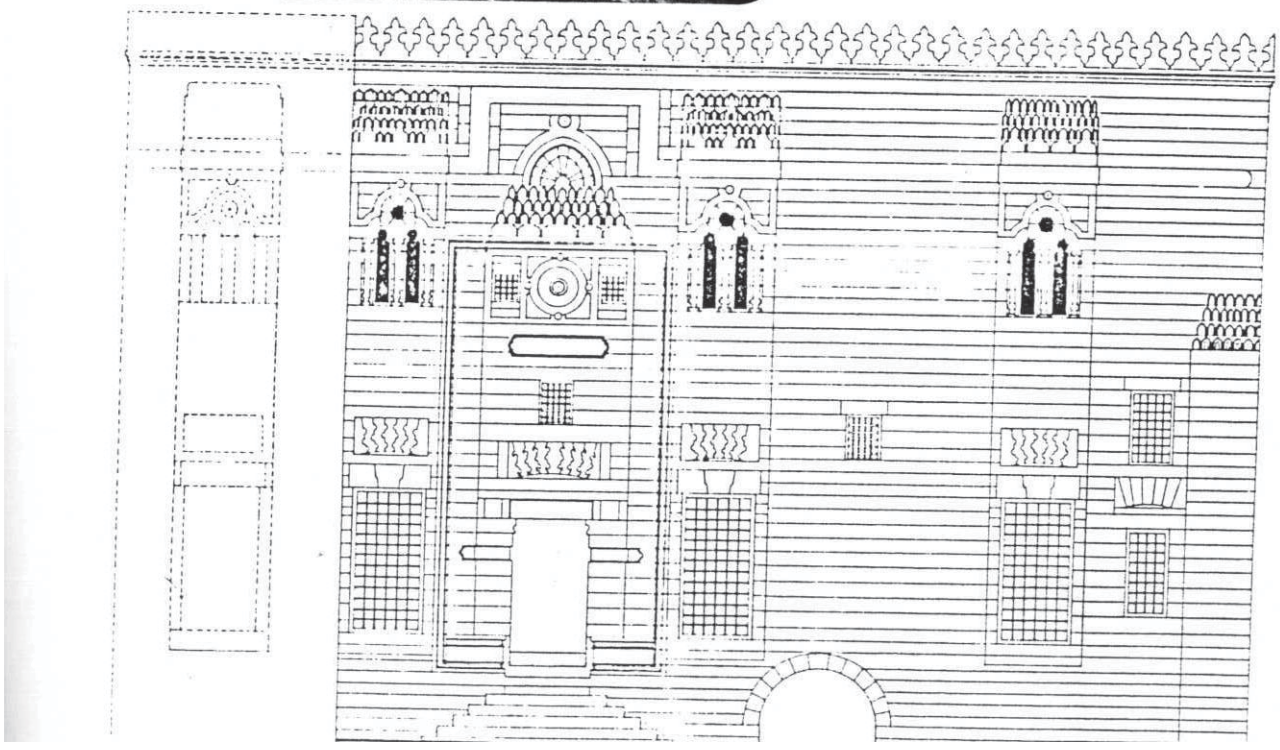


Fig. (53)*: Northern facade after restoration.



buildings by raising the ground floor of the building on vaults and using the underground level as a storage space. This type of building is known as the elevated mosque. The plan was designed according to the style of various buildings which were seen during the Mamluk period. The designer followed the usual plan of Cairene madrasas with a central courtyard surrounded by four open-ended axial iwans. The main iwan lies towards the qibla. In the two upper floors there are rooms for teachers and students. A great care was given by the builders to the interior space and that is revealed by the details of mouldings; the decoration of the wooden ceilings, using mashrabiyas and covering the mehrab with coloured marble.

The Structural Condition of the Building

During the structural examination, several recent layers of plaster were removed in order that the interior wall could be examined properly. The investigation of the structural situation revealed that, the central rooms and the open courtyard with the iwans were relatively intact inspite of the structural danger caused by the movement of the arch of the qibla-iwan. An advanced state of destruction was present in the upper floors which were completely unserviced as nearly all ceilings had caved in and all staircases had collapsed. Also there was evident deterioration in the ceiling and mouldings and the marble covering the mehrab was partly damaged by the rising damp in the walls of the building.

The Rehabilitation Project

The function of the building as a madrasa still plays an integral part in the daily life of the Islamic society. Therefore the building was to retain its original function.

Restoration

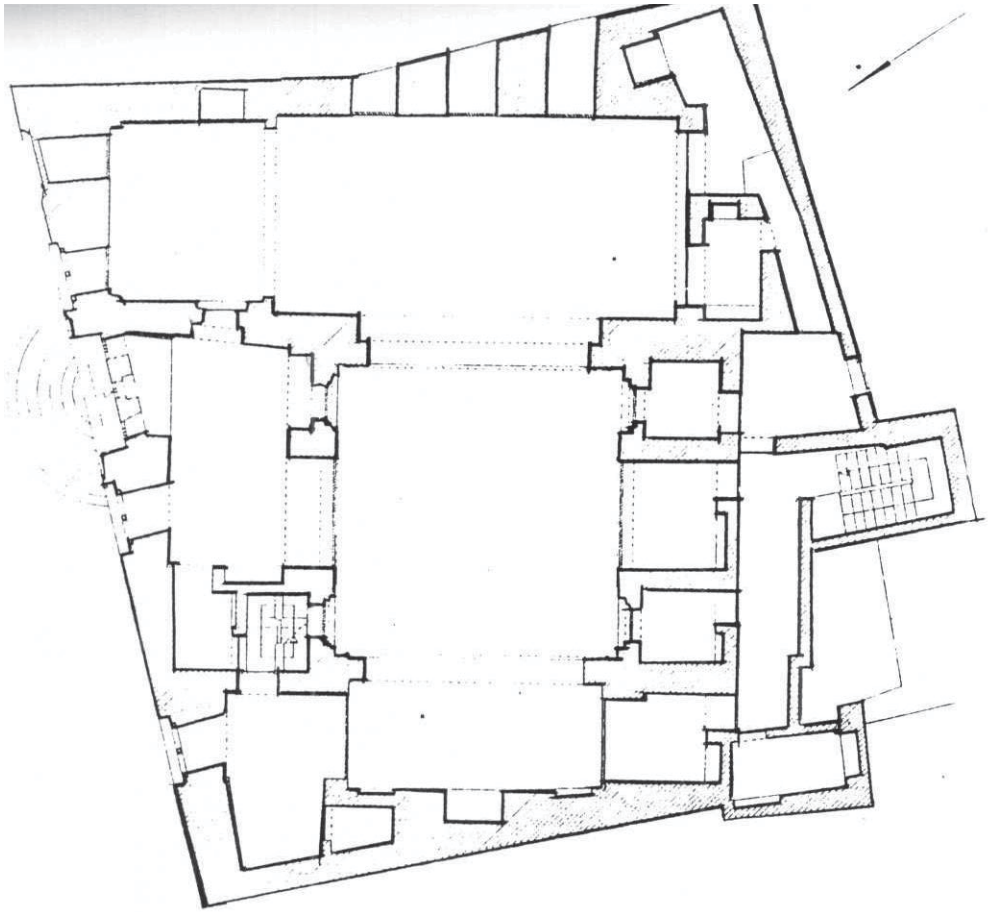
Drawings showing the existing condition and structural state were prepared before the actual work began. The original plan was reconstructed along the lines of the ruined remains. The remaining parts of the building's fabric were secured and the missing portions totally rebuilt. Rooms in the northern and southern sides, toilets and staircases were reconstructed. A great deal of the stonework destroyed by saline corrosion, especially on the lower part of the walls, had to be exchanged. Care was taken to use the traditional methods still practiced in Cairo, and local craftsmen for the conservation and completion of the architectural decoration. Those craftsmen included stone cutters, experts in gypsum and carpenters. The stone mosaic and the marble of the qibla-iwan: which had been partly destroyed by saline corrosion, were replaced. Other decorative details like the arabesque panels and the blue glass columns of the arcaded horizontal frieze were completed. The lost crenellations that had topped the walls surrounding the inner courtyard were renewed. The plaster work and the glass lattice windows which had been filled in from behind were cleared and pieced out. The painted and partly, carved woodwork was carefully cleaned, then chemically strengthened and restored. A new marble floor was laid, its

After restoration in 1976

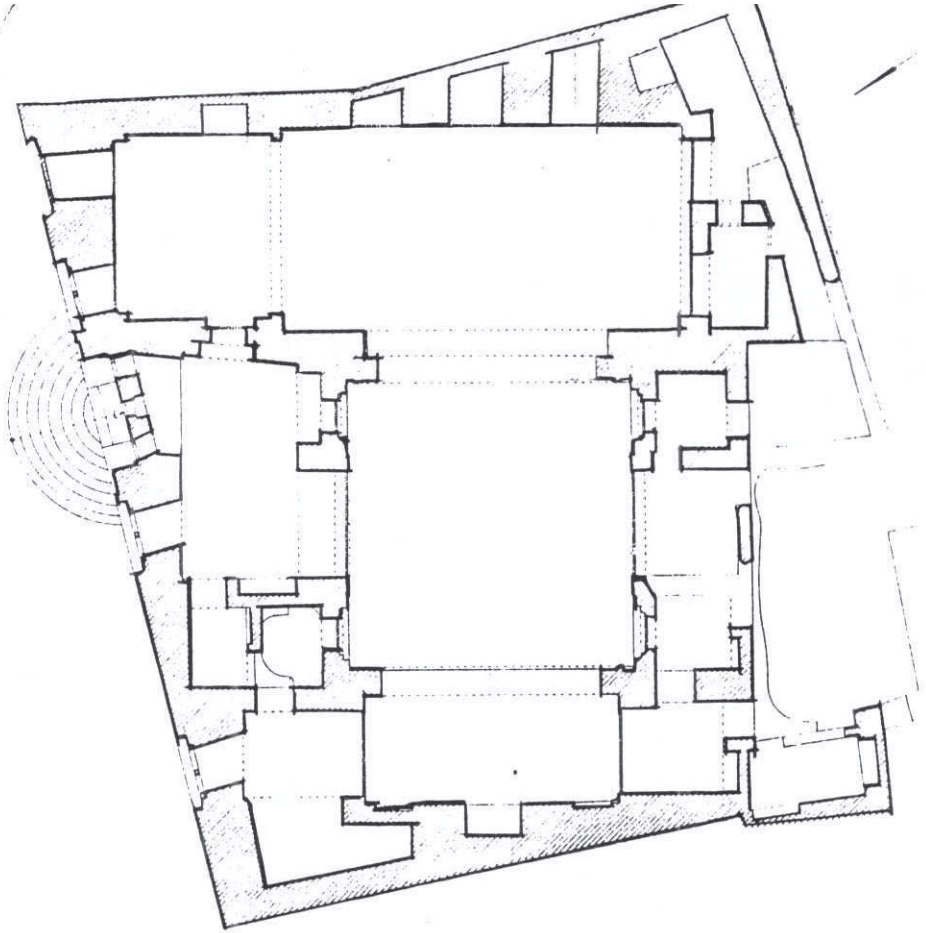
Before restoration in 1973

Fig. (54)*: Mosque-Madrasa of Amir Mithqal, plan of first floor.

* Die Restauricrung der Madrasa des Amirs Sabiq Al-Din Mithqal Al-Anukj and die Sanierung des Darb Qirmiz in Kairo. von Michael Meinecke Verlag Philipp Von Zalem, Mans Am Rheim.



After restoration in 1976



Before restoration in 1973

Fig. (55)*: Mosque-Madrasa of Amir Mithqal, plan of the second floor.

* Ibid

Section A-A in 1973 before restoration

Section A-A in 1976 after restoration

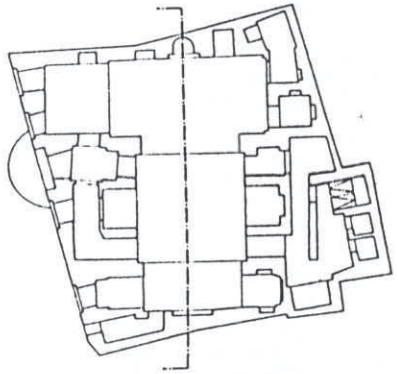


Fig. (56)*: Mosque-Madrasa of Amir Mithqal Section through the northern facade.

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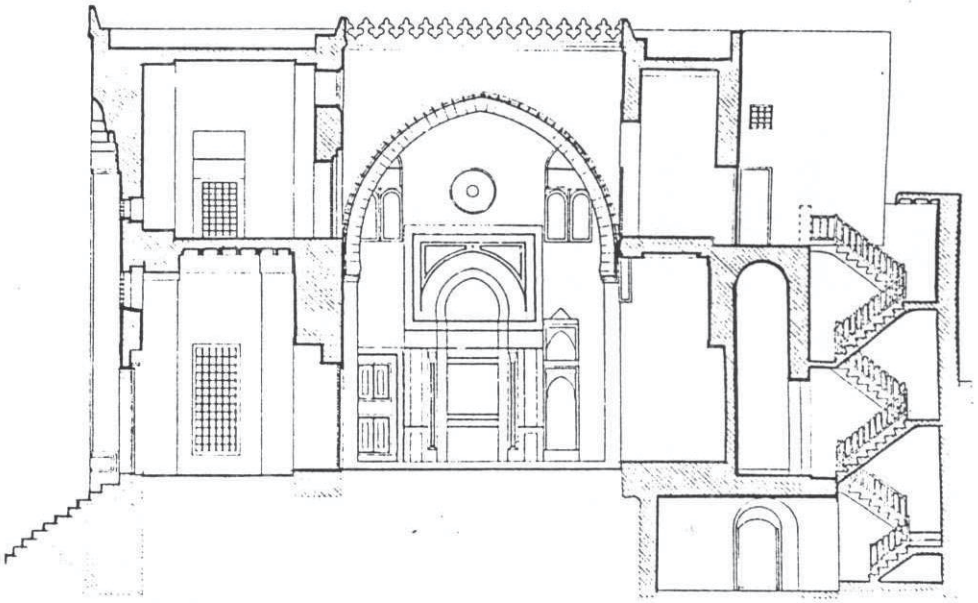
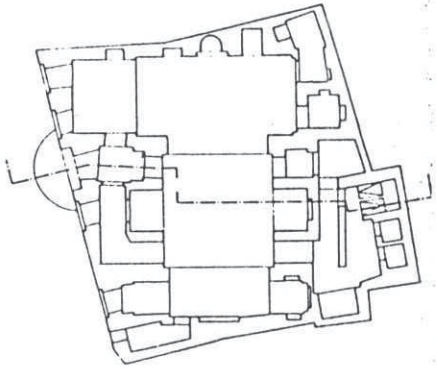
* Ibid

Section B-B in 1975 before restoration



Section B-B in 1976 after restoration

Fig. (57)*: Mosque-Madrasa of Amir Mithqal. Section through the eastern facade.



* Ibid

design was taken from other contemporary buildings. Piped water was laid on and electric light installed, using a modified form of the old system of lights suspended from the ceilings on long chains. A wooden pulpit, put together from several parts kept in the stores of the Islamic Department of the Antiquities Organization, was erected.

In 1976, when all the restoration work was completed, the building was opened again for the local inhabitants to be used as a Friday mosque.

- Buildings to be upgraded

In order to ensure the lasting preservation of historical monuments, it is important that any surrounding building should imitate some features of the historical monument so that it would not seem out of place. Some slight changes could be made for the facades of the buildings which are to be upgraded like changes in height, colour, texture, etc.

In Darb Qirmiz, the buildings in need of upgrading are those built since about a hundred years ago till the fifties. Some of them date back to the turn of the century during the period of westernization, their facades are decorated with a mixture of western and traditional motifs, they reflect the changing social pattern by providing individual flats in the same building. These buildings need internal upgrading and provision of new services and the removal of constructions on roof tops, corridors and courtyards so that they would be compatible in material and proportions to the historical buildings.

In order to control these changes in protected buildings as well as new buildings in need of control of design, we have first to define the characteristics of the historical architecture by extensive studies of townscape which is integrated today into the curricula of all architectural schools abroad. Based on these descriptions, basic characteristics like number and height of storeys, slope of roofs and types of openings could be identified.

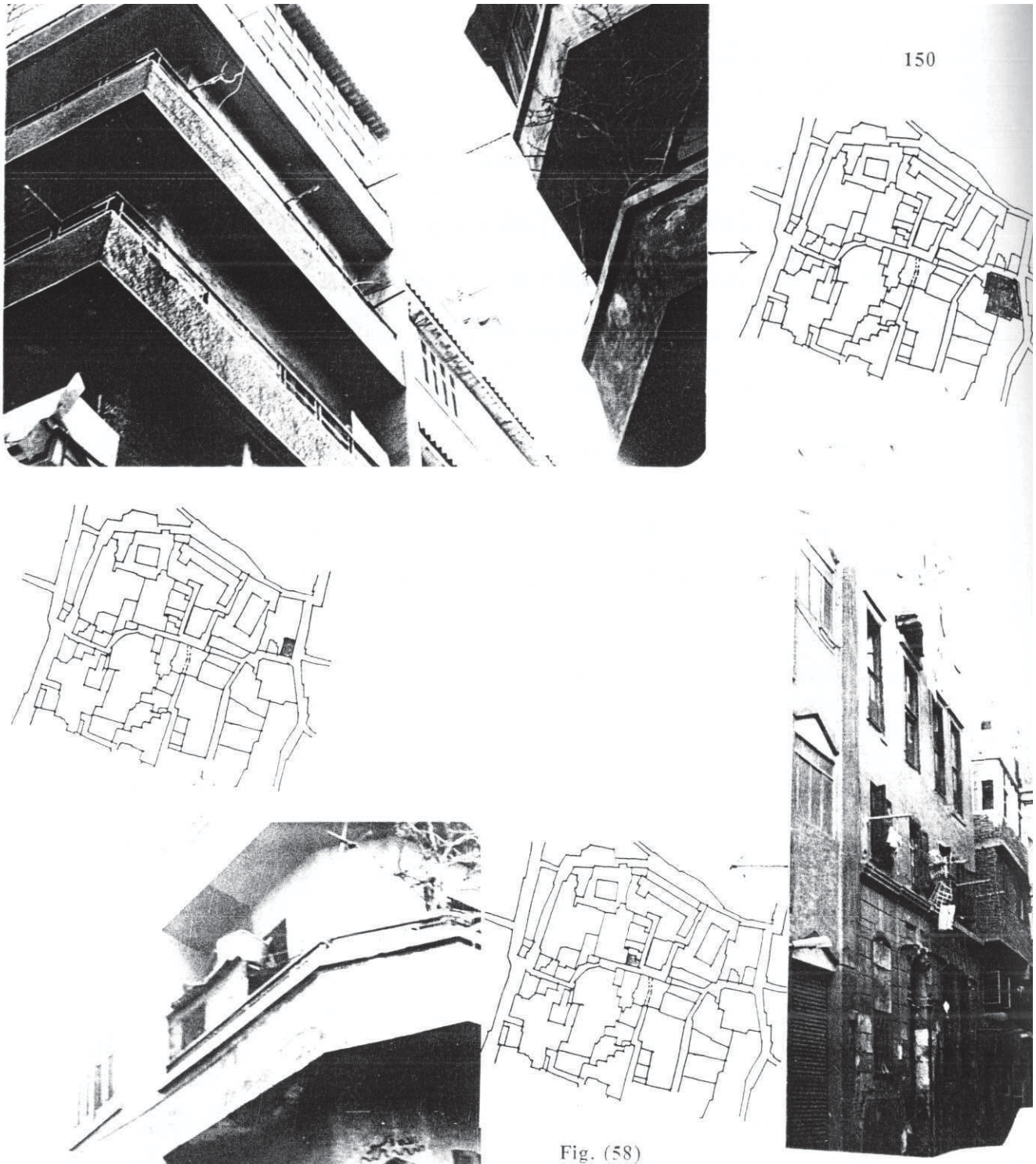


Fig. (58)
Buildings built since 100 years ago till the fifities are still intact and in need of slight repairs and atternations

In the following example from West Germany, townscape analysis was made as a basic requirement for the definition of design guidelines covering the medieval core[19].

Townscape

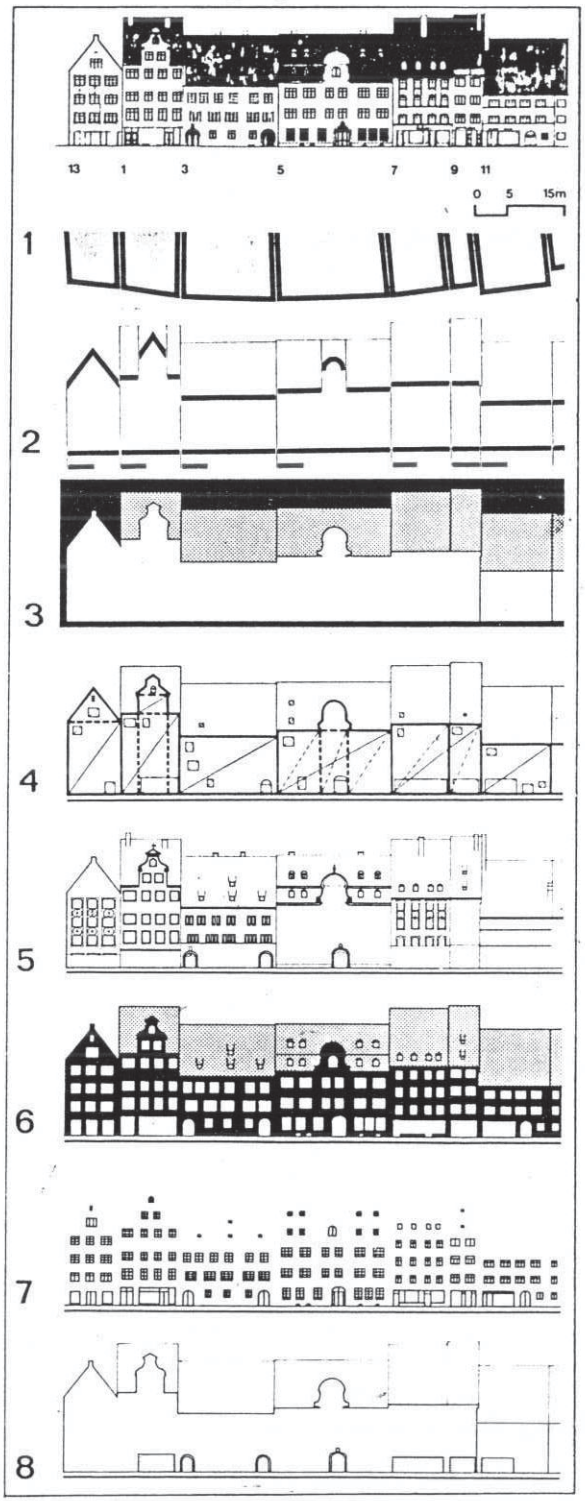
1. Building line and situation of plots.
2. Width of individual buildings.
3. Contour (new buildings should not changes the city's silhouette).
4. Proportions (It should be maintained to preserve the visual impact of the structures)

Construction

5. Structure of construction, Ornamentation

Architecture

6. Proportion: mass aperture
7. Size and proportion of windows.
8. Building materials and colour.



19. Neils Outschow, Area Preservation and Compatible Architecture, Islamic Cairo, German Institute of Archeology, 1980, p.98

According to these descriptions they were able to control the protected buildings as well as to change the design of new buildings which is expected to cope in scale and use of material with the historical environment.

Buildings to be Demolished and Rebuilt:

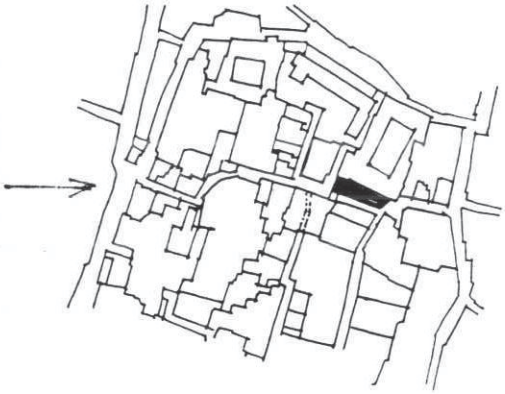
Generally, a building within a historical site might be demolished for three reasons: if it is not historically ranked: either it is blocking the visual perspective or it is in a deteriorated state or it is unmatching with the historical site.

In Darb Qirmiz there are examples of each of the previous cases. The small house number twenty-one blocks the street and by its removal it would expose the masked part of the facade of the Madarasa of Mithqal and also the masked part of Wakalat Bazaraa.

It would also bring other monuments into focus: The domed mausoleum of the madrasa of Tatar Al Hijaziyya and the minaret of the mosque of Mahmoud Moharram. And also a new thoroughfare connecting Al Moez St. and Al-Gamaliyya St. would be obtained.

Examples of deteriorated buildings are obvious in buildings mostly dating back to the 1960s and 1970s which are characterized by bare functionalism which does not make the slightest concession to the traditional surroundings. They are now distinctly alien components to the built fabric, which ought to be pulled down giving way for better adapted new constructions.

All new constructions should be prohibited until the guidelines for the new architecture of the quarter have been defined. The stopping of



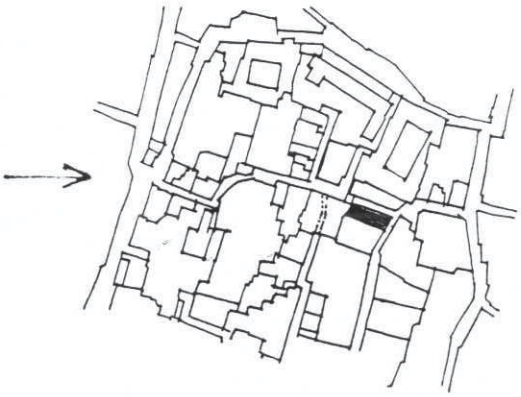
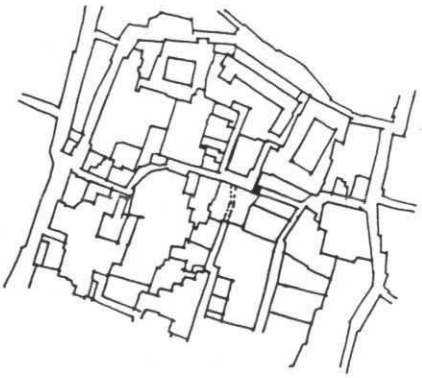


Fig. (59): Buildings built after the 60s are in bad repair and not in agreement with the historical environment.



House no. 21 in Darb-Qirmiz.

Fig. (60): Present condition

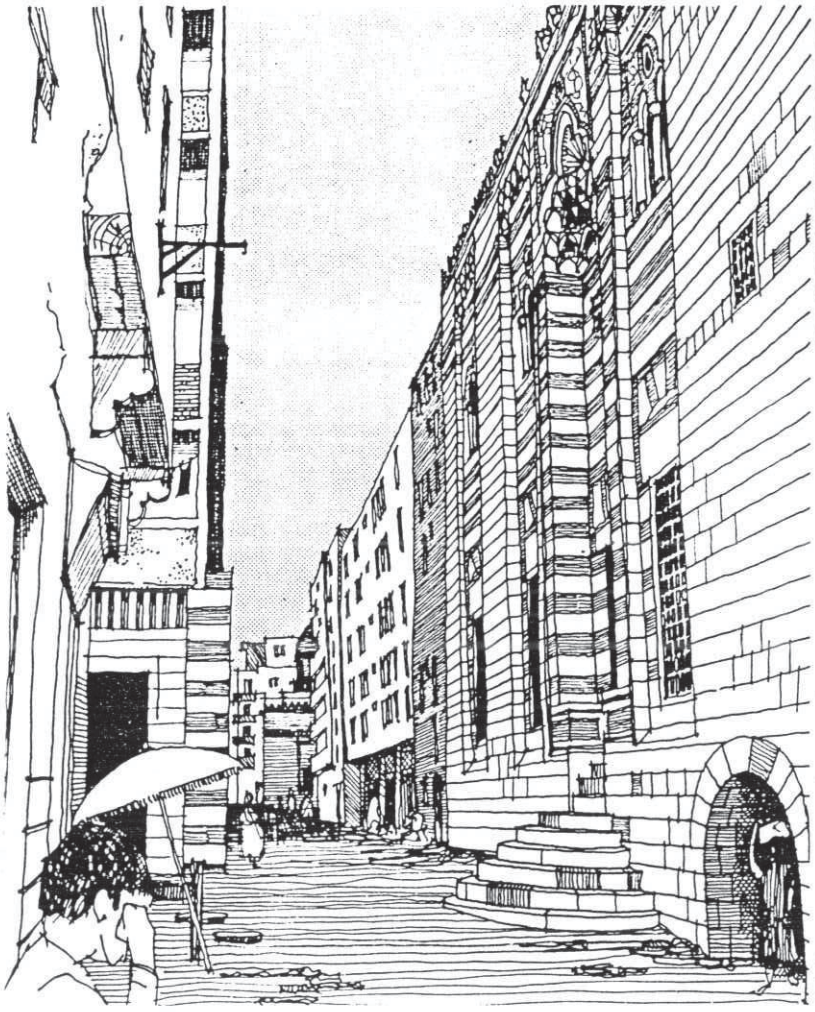


Fig.. (61)*: The perspective expected after demolishing house no. 21

* The German Institute of Archaeology, Cairo.

further construction would also prevent land speculation and profiteering which accounts for much of the current decay.

Rebuilding

When a historical district has a particular architectural character, it is often required that any new construction built on vacant lots or instead of demolished buildings or even built to fill a gap between existing buildings should initiate the features of nearby buildings so that it will not be obstructive. These features may include height,massing, setbacks, overall dimensions, materials, fenestration, colour and style.

Urban Spaces

Conservation process is not related only to buildings or neighbourhoods, street lights, park s and facades are as important to the conservation process as individual buildings because they are significant ingredients of town form and character[20]. Conservation of urban spaces is integral of historical building as its aim is the retention of the historical ecological balance that has made urbanization possible. The composition of each space has to be studied in relation to its sense of enclosure, continuity, character, expression, compactness and furnishings.

In the study area, some sorts of attraction should be provided to the activities taking place in the street to increase its vitality.

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20 Wayne, O. Attoe, Historic Preservation, p. 304.

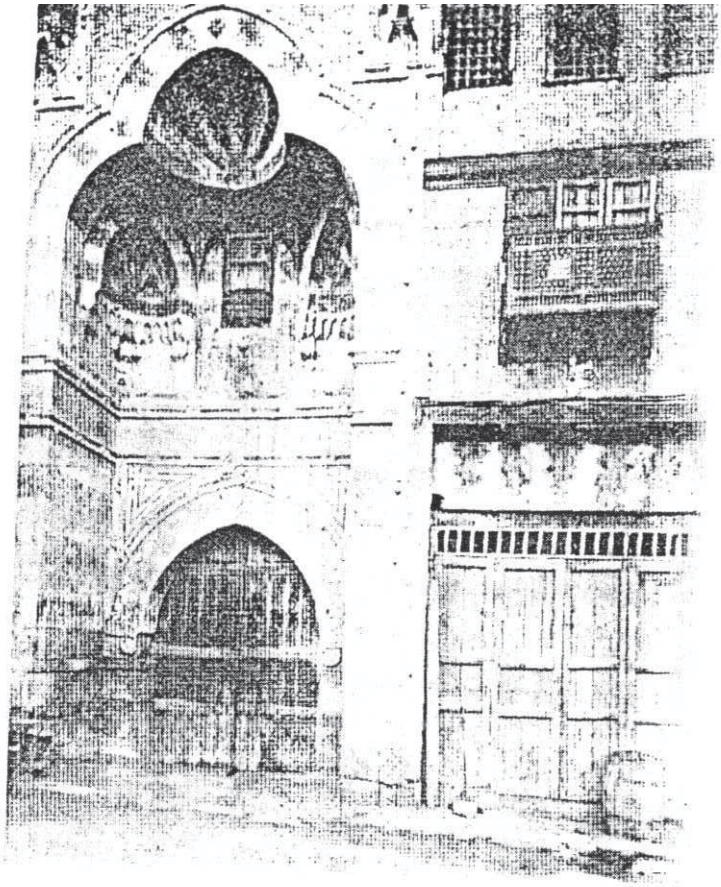

Fig. (62)*: Wakalat Qaitbay, wooden shop fronts in the past

Fig. (63): Wakalat Qaitbay, the wooden shop fronts are now replaced by rolling shutters

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* Dr. Saleh Lamie Moustafa, The Architectural Heritage of Cairo, P. 117.

Fig. (64): Light installations which were once a piece of art were replaced by functional installations with no aesthetic value.

In Darb Qirmiz, the continuity that could be provided by opening the quarter towards Al-Gamaliyya street would cause economic revival which would attract the pedestrian movement.

Upgrading the general appearance of the street such as cleaning, paving the ground, street furniture and shop fronts would enhance its visual quality.

The streets might be cobbled as the old streets or they might be paved with the more economical cement tiles or bricks. The wooden shop fronts, due to humidity and lack of care had deteriorated and have been replaced by metallic rolling shutters which are in no agreement with the quality of the wall.

2.4.4. Operational Management and Maintenance

The operational management cannot be merely a stage in conservation, but it is a necessity throughout the whole conservation procedure. The board responsible for the process would be responsible for the operational activities which could be summarized as follows:[21]

- Quantifying: Defining specifically the location and scope of work.
- Specifying: Deals with selecting the right materials, methods and techniques to be used.
- Programming: Skillful programming with enough flexibility to deal with unexpected situations.
- Commissioning: Entails the selection of the building contractor and to attain cost quality.
- Production: A full time presence of professionals able to assume decisions for unexpected problems and a well documented system to record technical instructions.
- Supervision and Monitoring: Ensures the acceptability of the standard work at an early stage.
- Completing: Plays a role in improving the efficiency in a rolling programme or at the end of completing the pilot scheme

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21. UNCHS Habitat: Strategies and Mechanics for the Rehabilitation of the Existing Housing Stock, p.p. 16-20.

The aforementioned steps are essential for effective operational management to be co-ordinated in order to suit the characteristics of each project.

Maintenance

It is essential that all structures be inspected regularly for maintenance and repair, as neglect is the main cause of the decay of historical buildings. Local authorities should train people and specialists to help in the maintenance activity.

When dealing with the built fabric, these basic maintenance procedures should be established[22]:

1. Day to day maintenance: This includes work necessitated by unpredictable damage.
2. Cyclic maintenance: this includes preventive maintenance i.e. works undertaken to prevent failure. It also involves regular examination of the building components such as doors, taps., etc.
3. Planned maintenance: This deals with the work being carried out to restore a facility to an acceptable standard.

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22. A.J. Fagg, Maintenance of the Building Structure and Fabric, Building Maintenance and Preservation, Editor, Edward D. Mills, London Butterworth & Co. Ltd., 1980, p. 73.

Also, the spaces surrounding the historical buildings should be also inspected for neatness. Garbage disposal system should also be enhanced for more efficiency.

CONCLUSION

The main aim of this research is to point out paths and criteria to be applied for conservation projects of all towns in developing countries. Along these paths more research could be directed to enhance and contribute for the continuity of the traditional heritage.

The conclusion includes:

I. The importance of conservation projects.

II. Different aspects of conservation.

III. Towards and integrated approach for the conservation in developing countries.

IV. A conservation strategy.

I. The Importance of Conservation Projects

1. To protect our legacy:

   Instead of reading about the scale in an old town, one can experience it. Also in a period of declining craftsmanship, it is important to be able to experience the work of early craftspeople[23].

2. To ensure variety in the urban fabric:

   By conserving the past we can guarantee visual variety and be assured that our districts will not become repetitive and monotonous.

3. Economic importance:

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23. Wayne O. Attoe, Historic Preservation, p. 313.

Conserved historical buildings are often a sound investment and a good source of profit for investors, also historical buildings produce potential income from tourism.

4. Symbolic importance

Buildings or groups of buildings are sometimes conserved as monuments and symbols of the past to prove that the past survives and tradition continues.

II. Different Aspects of Conservation

1. Urban planning and architectural aspects:

Urban planning aspects involve studies of street networks, public buildings, residential structures and the socio-economical situation.

For architectural conservation, detailed studies are required to reach designs that would match with the spatial qualities conveyed by the historical districts. These studies involves:

- Facades: facades should be maintained according to the original styles of buildings by recommeding appropriate designs. For shutters, doors windows and shop-fronts.
- Roofs: Roofs and parapets should be maintained in order to improve the sklyine of the building.
- Courtyards.
- Land-scape.
- Setting: Settings such as the remains of traditional structures like old city gates should be conserved.

Through these studies, it would be possible to set urban renewal measures for extensions, additions and building on empty lots.

2. Technical aspects:

Technical difficulties which affect the conservation projects like deteriorating infra-structure, high water-table, traffic circulation, using unsuitable repairing materials and lack of maintenance could be solved as follows:

- By research and study:

  A technical service laboratory could undertake experiments to determine the differing behaviour of the materials used in the conservation work towards the conditions under which they will be exposed.[24]

- By monitored experiment:

  Monitored experiments in the buildings themselves would necessitate co-operation between the supervising architects, the material technicians and the scientists.

- By co-ordinating technical development through the provision of a technical committee which would direct the technical work of the architects and material scientists and would co-ordinate activities for all the participants.

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24. UNESCO, consultant team, The Conservation of the old city of Cairo, 1989, p. 88.

- By setting programmes for the improvement and amplifications of the infra-structural networks.
- By raising the public archeological consciousness through seminars and mass-media.
- By regulating the traffic within the historic sites. Traffic should be carefully studied and regulations are to be formulated.

3. Financial Aspects

In conservation projects there are two types of financial resources, institutional and non-institutional, and allocating scarce resources among competing demands is the main problem in developing countries. Therefore, for any project to be affordable, there must be an economic link between the area to be conserved and the rest of the city. Also, public and private partnership is needed to mobilize every possible resource to deal with spatial, socio-economic and legal problems and to attract private resources and initiatives.

4. Training and Educational aspects.

Education for conservation should be perceived through short and long-term, measures. And the training process by local and foreign technical experts and institutes should include students, architects, engineers, material scientists, craftsmen and builders.

5. Legal Aspects

Legal aspects of conservation are: listing and registration of historical buildings and areas, setting laws and regulations for the system of ownership of historical buildings, zoning restrictions, demolition control and the co-ordination between various authorities that are involved in the conservation process.

III. Towards an Integrated Approach for the Conservation in Developing Countries.

In most of the developing countries, old cities are being threatened. The centre of activity had sometimes been pulled away from the old core due to competition from new commercial areas spreading away from the centre and also due to changes in industrial techniques.

Sometimes, the attitude of urban planners, intentionally or unintentionally, was to extract the monuments from the surroundings.

Due to cultural unawareness, lack of finance and change of the social standard of the inhabitants of old areas, some buildings have been transferred to functions very far from their original ones. Moreover, buildings are overcrowded, ill-maintained and misused and as a result of this most of the housing stock is dilapidated.

Problems of ownership of historical buildings and the weak local authorities are also of the main setbacks to the conservation process.

Therefore, developing countries have their own circumstances which dictate the mode of action needed and which cannot be transferred from foreign experiences, but have to be precisely set to suit our needs, problems and circumstances, the following points should also be put into consideration:

* There must be accurate knowledge of all sides of the problems setting back the conservation projects in order to find a way out.
* For all projects and all scales of conservation, there should be a certain technical procedure set to simplify the task.
* Some sort of co-ordination between public and private sectors should be sought to achieve a conservation project that is financially and socially feasible and as soon as possible because the endangered monuments can hardly tolerate any delay to be rescued.
* A strong political will and legislation are essential for the process and progress of the conservation plan.
* Determining the ability and willingness of the inhabitants to participate is a necessity before proceeding in the project. If the time is available, increasing the awareness of the people of the cultural and historical value of their heritage is required to make use of their aid in the conservation project.

IV. A Conservation strategy

A conservation Strategy should include:

1. Area definition

Historical buildings or sites are given the priority to be conserved according to: their existing state, historical significance, scarcity, quality and being a source of enhancement of adjacent areas.

2. Preparatory Measures:

Including: Training

Sources of finance.

Provision of experts.

Legislations.

3. Establishing a plan for implementation:

A. Analysis of the existing situation

- Studying the architectural features in order to set architectural guidelines and then building codes for new constructions.
- Studying the structural system and infra-structure to go through all the improvements and repairs needed.
- Studying the land-use and setting the relationship between commercial and residential areas.
- Indentifying socio-economical characteristics to determine the ability of the inhabitants to participate. Identifying means of improving economic resources and studying the ways of liking

the economic base of the conservation area with the economic base of the whole city.

- Studying the circulation pattern in case of the need of improving zoning regulations by urban planners.

B. Setting a policy for the treatment of buildings within the historical area, classifying buildings and spaces and selecting modes of treatment for every structure or open space.

C. Establishing priorities

- Starting by buildings or areas in need of immediate rescue to prevent collapse or stop further deterioration.
- Taking the work at group level in order to reduce costs.

D. Treatment of buildings and open areas:

- Historical buildings are to be rehabilitated through:

  * Adaptive reuse:

  Buildings should be adapted to serve new functions while at the same time maintain their original form and character.

  * Restoration

  After the future function of the building has been decided, the actual restoration work takes place. Traditional materials should be used and there should be an obvious difference between old and new elements of the buildings.

  Restoration work includes: The study of the architectural features of the buildings, the study of the structural condition deciding on the restoration work needed for the appearance of

the buildings and the facades, repairs needed for the interior, changing the functions of some spaces and fixing the installations according to the needs of each building.

- Buildings to be upgraded:

  In order to control the design of protected and new buildings, the characteristics of the historical site should be defined through townscape analysis. These characteristics include: building line, situation of plots, width of individual buildings, skyline, proportion of solid and void, building materials, textures and colours.

- Buildings to be demolished.

  Demolishing occurs because the building is in a deteriorated state, blocking the visual perspective of historical buildings or not in agreement with the historical character of the area.

- Urban spaces in need of conservation.

E. Maintenance

Appendix

APPENDIX

Text of the Venice Charter 1969. Articles (9-13). (Venice Charter is a standard guideline for restoration).

Article 9

The process of restoration is a highly specialised operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument.

Article 10

Where traditional techniques prove inadequate, the consolidation of a monument can be achieved by the use of any modern technique for conservation and construction, the efficacy of which has been shown by scientific data and proved by experience.

Article 11

The valid contributions of all periods to the building of a monument must be respected, since unity of style is not the aim of a restoration. When a building includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional

circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance if the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work.

Article 12

Replacement of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration do not falsify the artistic or historic evidence.

Article 13

Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.

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17. Alaund, Flemming: Proposal for the Restoration and rehabilitation of the Wakalat Bazaraa, Die Restauierung der Madrasa des Amirs Sabiq Al-Din Mithqal Al-Anuki und die Sanierung des Darb Qirmiz in Kairo, ed. Michael Meinecke, Mainz, Deutsches Archaeologisches Institut-Abteilung Kairo, 1980, p. 119.

18. Meinecke, Michael: German Project, Islamic Cairo, Architectural Conservation and Urban Development of the Historic Centre, German Institute of Archeology, 1980, p.52.

19. Goutschow, Neils: Area Preservation and Compatible Arcitecture, German Institute of Archaeology, 1980, p. 98.

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21. UNCHS Habitat: Strategies and Mechanics for The Rehabilitation of the Existing Housing Stock, pp. 16-20.

22. Fagg, A.J.: Maintenance of the Building Structure and Fabric, Building Maintenance and Preservation, Editor, Edward, D. Mills, London: Butterworth & Co. Ltd., 1980, p. 73.

23. Wayone O., Attoe., Historic Preservation, (1979) p. 313.

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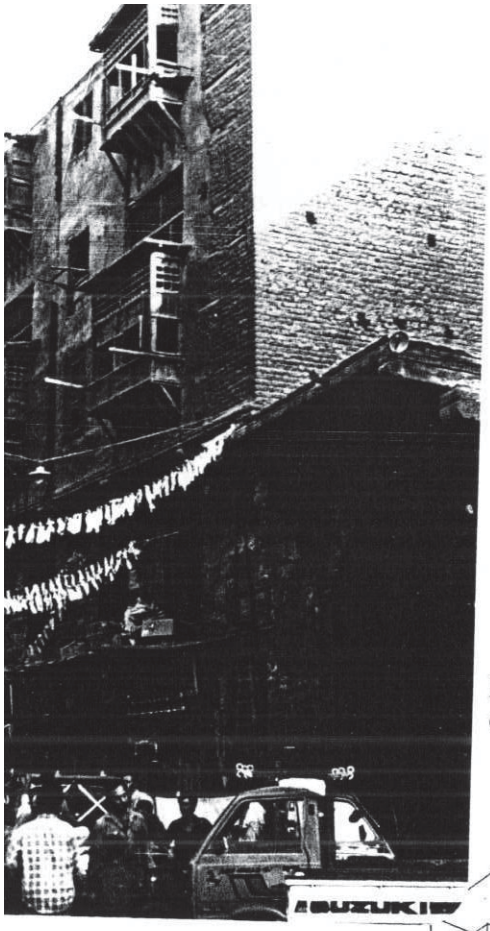
Summary



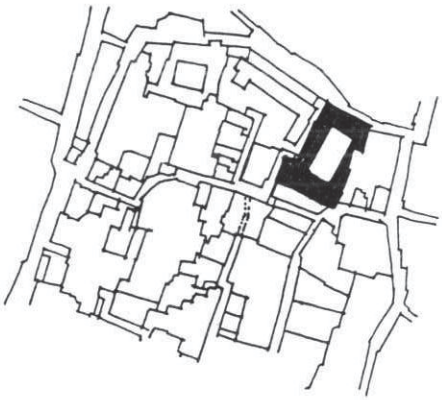


Fig (43): Wakalat Bazaraa, North -western facade, present condition.

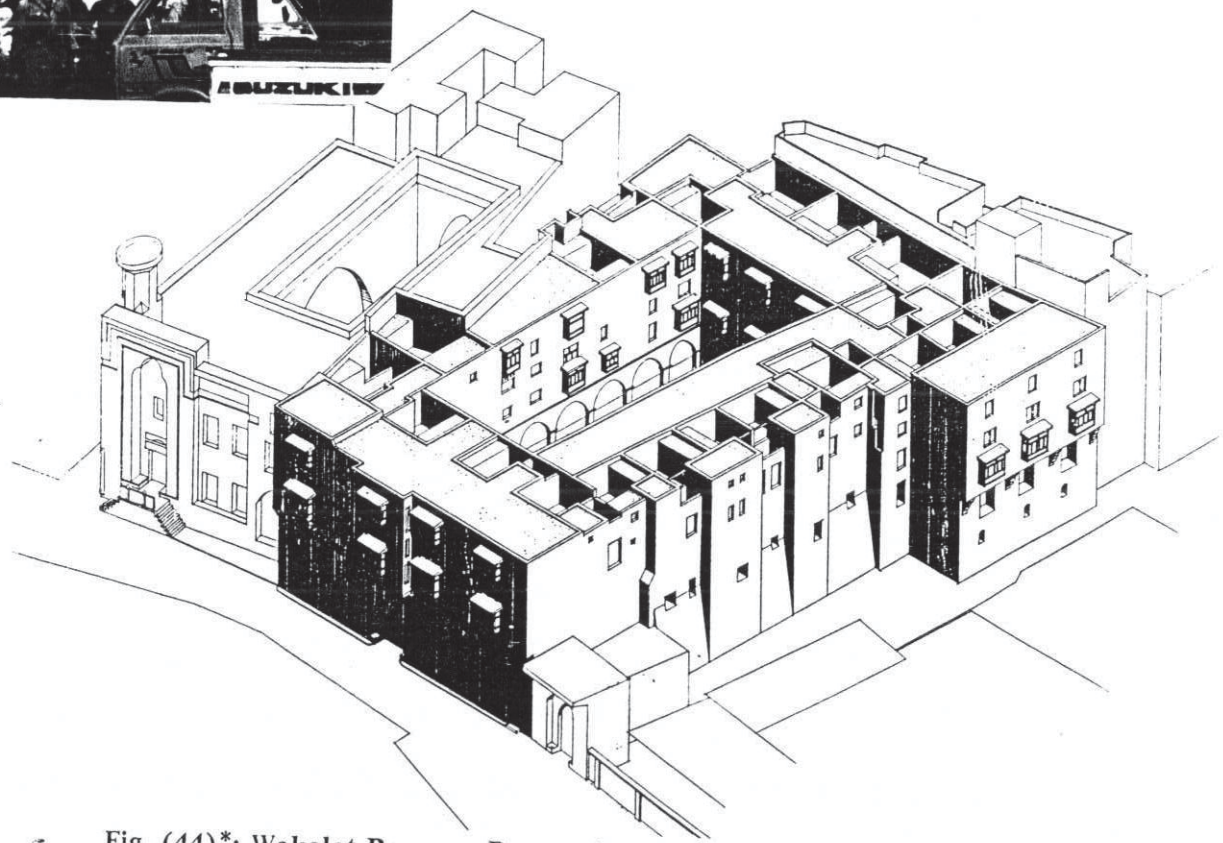


Fig. (44)*: Wakalat Bazaraa, Perspective view from south-west proposal for restoration.

Fleming Aalund, The Rehabilitation of a Commerical Strucure in the Old City, Islamic Cairo: Architectural conservation and Urban Development of the Histroic Centre, German Institute of Archaeology, 1980, p. 37.

courtyard. The two lower storeys are in stone and the three upper storeys are in plastered masonary. The plan is irregular in shape as is the case in medieval town quarters with a high floor space ratio. The most intact part of the building is the northern facade located towards Al Tambaksiya street which, together with the gateway of Wakalat Abbas Aga, the Madrasa of Gamal Al-Din Al Ustadar and Wakalat Dul-Fiqar, composes a fine ensemble of the regional Islamic building tradition. The typical corbelled upper storeys of this building, together with the narrow streets are means of protection from heat during summer. The windows were originally filled with wooden lattice screens allowing air ventilation and softening the glare. Each main living room has a projected window (mashrabiya) as a prominent feature which creates a feeling of more interior space and allows a free view down the street.

At ground floor level, there is direct access from the courtyard to the 25 single barrel-vaulted storerooms running through the whole building. At the first floor level, every single room has access from an open archade on all four sides of the courtyard. From the second floor, a corridor along the outside gives access to 19 maisonnettes in three storeys with interior staircases. The flats are arranged in a diversified way giving the possibility of choice according to the specific needs of the inhabitants and excluding any feeling of conformity. Every single flat is composed of an entrance-hall and a double height living room with a mashrabiya to the courtyard or the street. A stone staircase leads from the hall to a mezzanine giving room for kitchen

functions. The staircase continues to an open terrace at the top of the house from where there is access to another living room. The larger flats have one or more adjacent rooms.

The double height in the main living-rooms and the numerous shafts for light and ventilation are adaptations to the climate.

The arrangement of the whole building provides a gradual transition from public to private. The function of the rooms is not specific, depending on the time of the year and the time of the day, the inhabitants may move around the place.

The Structural Condition of the Building

The examination of the whole structure revealed that the building is in a poor condition, although the upper storeys are preserved in full height. After the building was abandoned in 1974, all loose parts were carried away, the mashrabiyas are now ruined and the empty window openings reveal advanced decay. The appearance of the building has been spoilt by temporary wooden shelters filling up the courtyard. In the northern wing of the building towards the street an excessive vertical load has caused cracks and the facing of dressed limestone has been pushed out from the core of the wall is several parts. Above the entrance gate an iron beam has been inserted to take the load off the tier of beams at the second floor. The walls of the three upper storeys constructed in burnt bricks get thinner in keeping with the decrease of the thrust load.

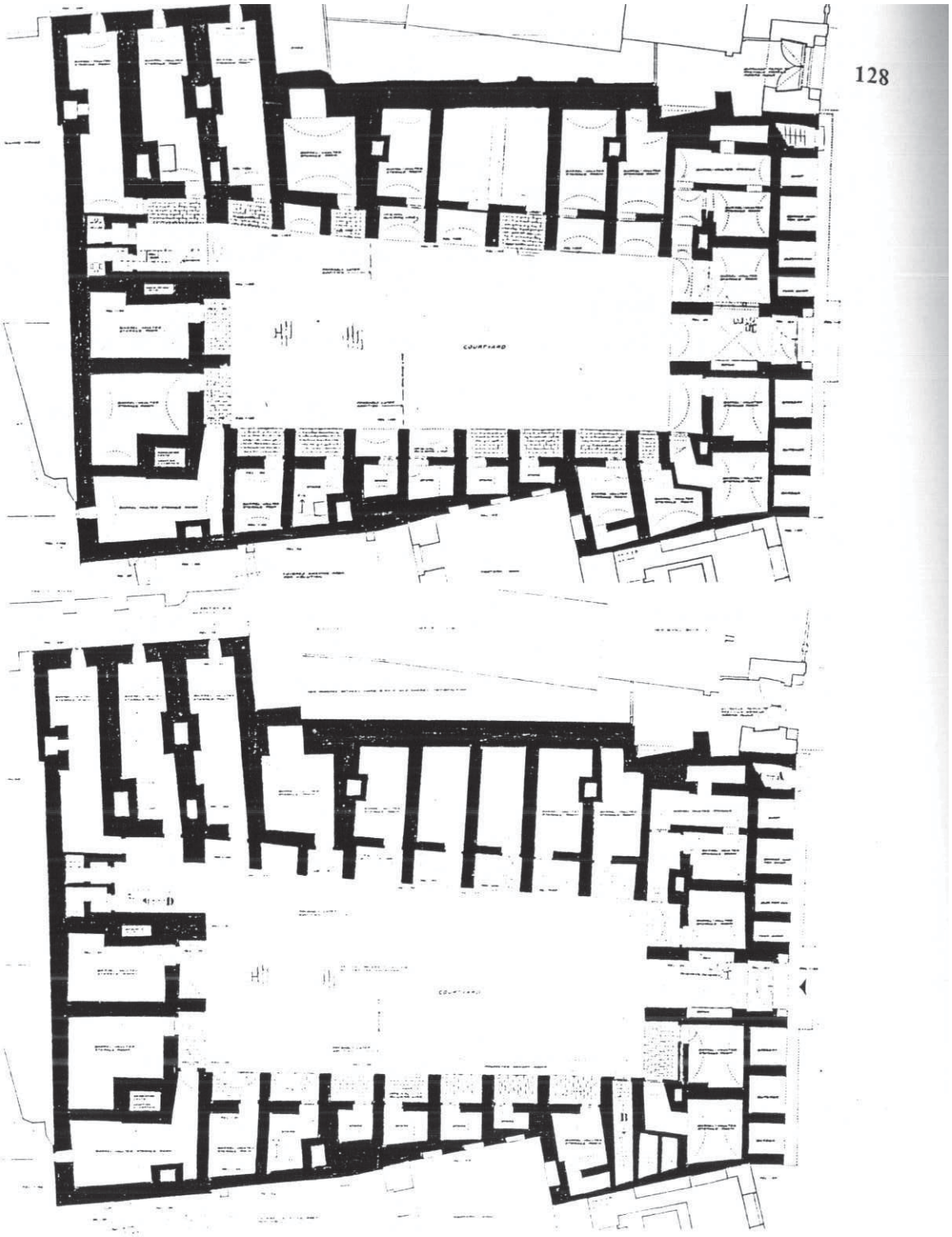


Fig. (45)*: Wakalat Bazaraa, plan of the ground floor, present condition and proposal for restoration.

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* Fleming Aalund, Proposal for the restoration and Rehabilitation of the Wakalat Bazaraa, Die Restauierung der Madrasa des Amirs Sabiq Al-Din Mithqal Al-Anuki und die Sanierung des Darb Qirmiz in Kairo, ed. Michael Mairneck, Mainz, Deutsch Archaologisches Institut-Abteilung Kairo, 1980.

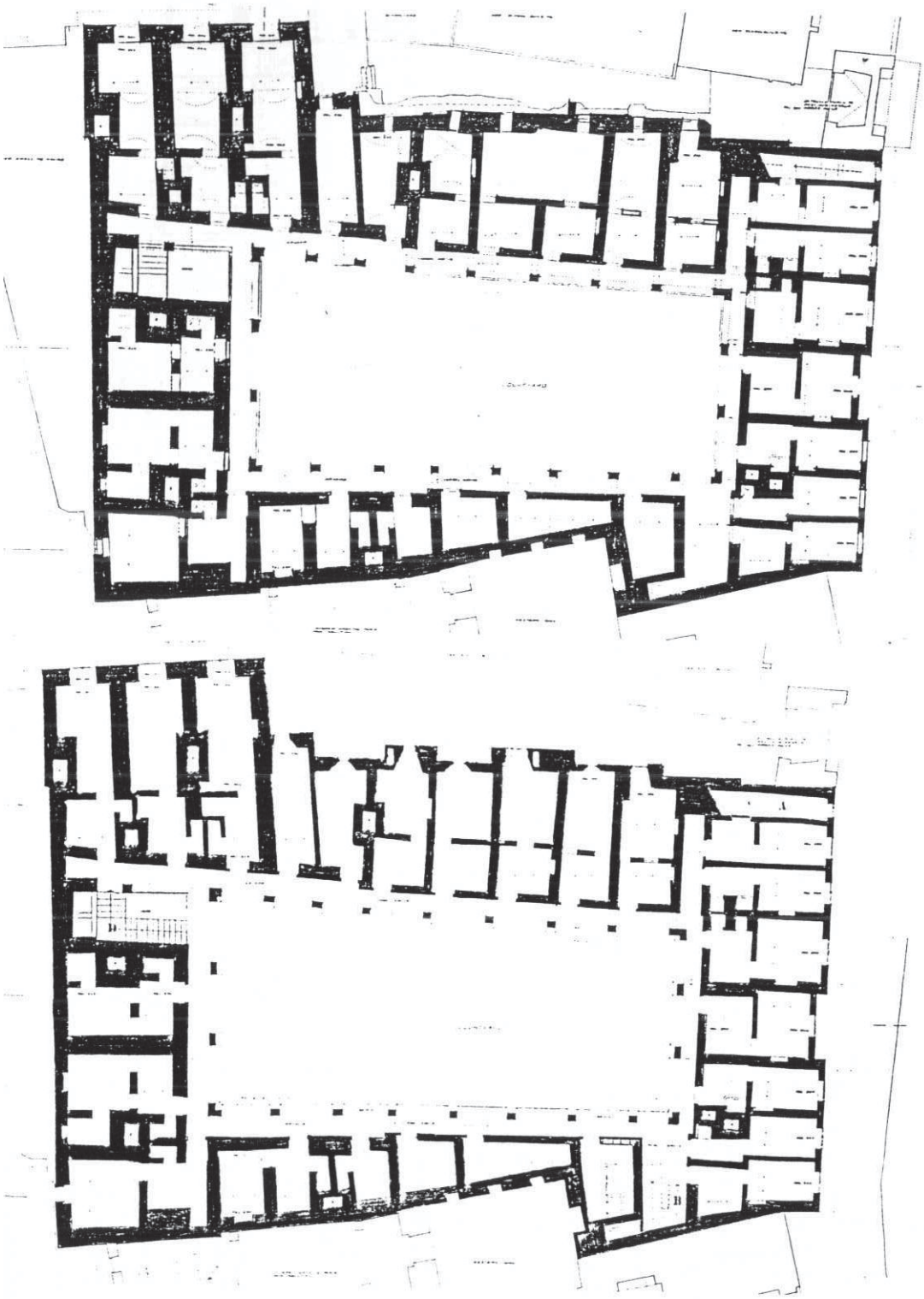

Fig. (46)*: Wakalat Bazaraa, Plan of the first floor, present condition and proposal for restoration.

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* Ibid

Fig. (47)*: Wakalat Bazaraa, Plan of the second floor, present condition and proposal for restoration.

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* Ibid

Fig. (48)*: Wakalat Bazaraa, plan of the third floor, present condition and proposal for restoration.

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* Ibid

Fig. (49)*: Wakalat Bazaraa, plan of the fourth floor, present condition and proposal for restoration.

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* Ibid

The sanitary shafts, together with the damp rising from the ground, caused deterioration in parts of the walls and vaults. The central part of the western wing is completely destroyed causing an open hole through the whole height of the building.

The Rehabilitation Project

1. Adaptive Reuse

As most of the historical monuments in Cairo are in urgent need of repair, searching for a present day function, especially for secular buildings which have lost their original functions in the consequent changes of the society, is very acute. It seemed logical that the building should retain at least part of its original function. This can be achieved by using the stores for workshops and related activities; if they have natural lighting, and the flats again for housing. Therefore the aim of this proposal is to re-establish the original condition of the building as a living organism with storerooms, workshops and housing. The dark vaulted rooms on the ground floor may serve as storage rooms for the shopkeepers of the quarter. According to their needs these shopkeepers could rent one or two storage rooms, so their goods could be easily reached. The rooms on the first floor, which have natural lighting, could for instance be used for offices, traditional handicrafts or for various kinds of small scale industries. This will not require any essential alternation of the building. This would mean that only bathrooms and toilet facilities will have to be installed in this floor.

2. Restoration

It is proposed to undertake a restoration with alternations as limited as possible with respect to the future function of the building. The walls that

must be pulled down because of their condition can only be decided during actual restoration work. But the basic architectural measures should be planned in advance; like the aesthetic appearance of the exterior, the necessary improvement of accessibility to the first and second floors, the renovation of the middle part of the western wing which has totally collapsed and finally the western facade.

a. The appearance of the building

- The surrounding areas:
  * The temporary buildings of wood in the courtyard should be removed.
  * The courtyard and all niches infront of the storage rooms on the ground floor should have a new pavement.
  * The blocked entrance gate to the area formerly occupied by Wakalat Abbas Aga should be opened.
- All facades to the exterior should be preserved in their present state.
  * All brick walls will have to be plastered.
  * New doors reconstructed should be designed according to their original form.
  * All missing mashrabiyas should be restored or remade.
  * All the window openings should be filled with new lattice screens or closed with shutters. New frames with glass should be added in rooms for living purposes.

* New benches and balustrades should be inserted between the pillars of the archades overlooking the courtyard on the first floor.

b. The access to the living units

Today only one staircase leading from the north-western corner of the street facade to the upper floors is still functioning, therefore the access to the living units should be facilitated by further staircases. The missing staircases should be re-established and new staircases constructed.

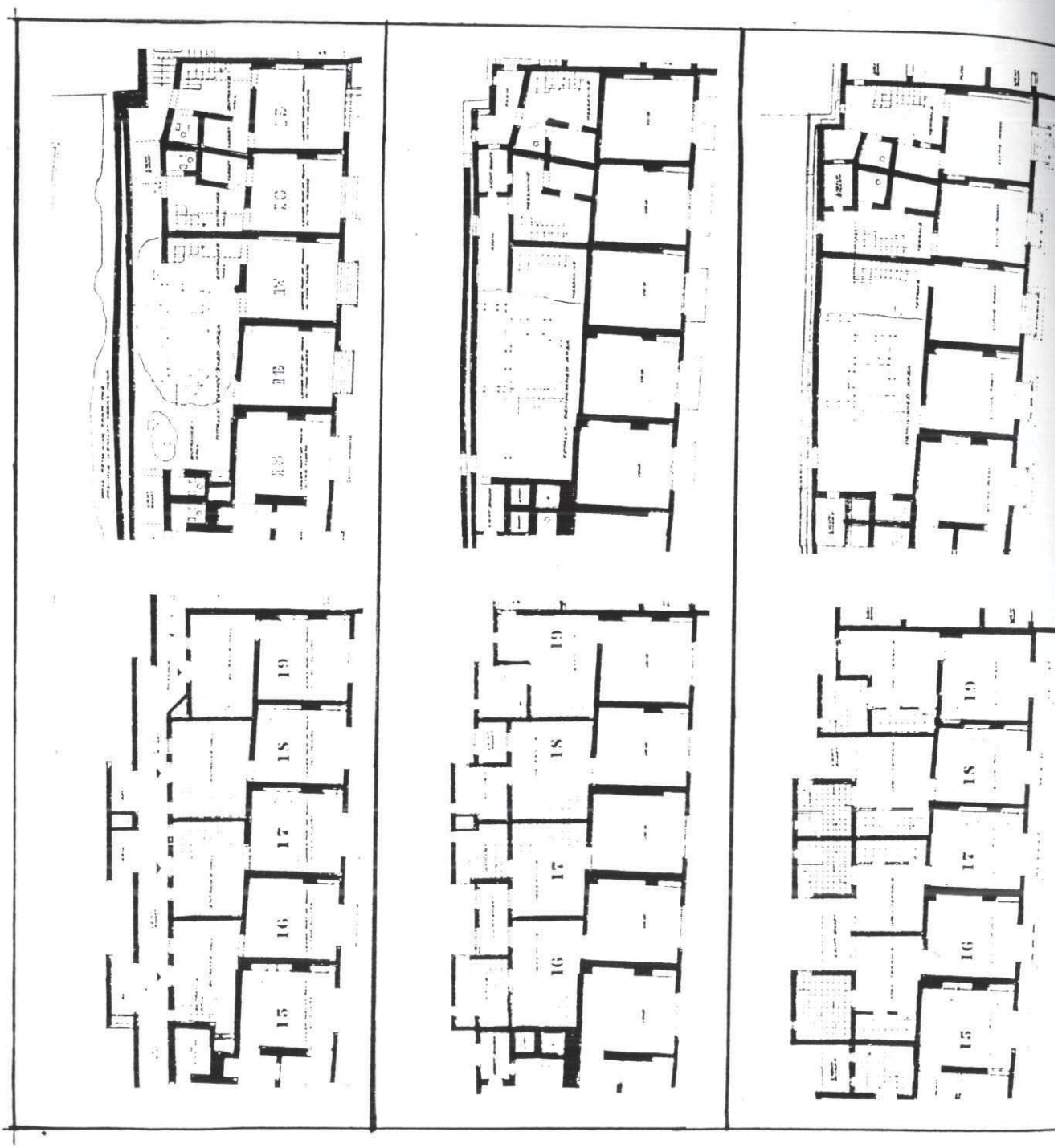
c. The re-activation of the Living Units

- The function of the rooms:

  On the mezzanine-floor of the flats, more open space can be provided by making an opening towards the room with double height. Shutters could possibly be installed if there is a need for more isolation. In some cases it seems to be necessary to put in windows on the roof terrace, which can serve as malqafs. In the large flats there is a room on the mezzanine-floor with a window towards the street which could serve as a working room.

- The Installations

  It has been presumed that it will be possible to provide the necessary installations through the existing shafts in the core of the walls. Flats should be united two by two, so that the flats next to each other will have bathrooms and toilet facilities, with installations of a wash-basin, a shower and a lavatory, either in connection with the entrance or with



Second Floor Third Floor Fourth Floor

Alternations in the Living Units

the roof terrace. The kitchen, functions can be kept at the mezzanine floor by providing tap water and discharge. Electricity should be connected to all rooms, but in general installations should be kept as simple as possible.

- On Accommodation in General

  * Glass windows should be put in all window openings. These glass windows should be opened to the inside, as their exterior should be masked with lattice screens of wood-work or shutters.
  * The staircases leading to the roof-terraces should be covered with a solid construction. Canvas should be put over the terraces to give shade as it is commonly used in the surrounding quarters.
  * New doors should be put between all rooms, as well as cupboards and shelves in all niches.
  * After cleaning the whole wall surfaces in the living rooms, the new plaster can be lime washed.

d. Proposal for the rennovation of the western facade

On the basis of traces in the walls and depending on comparison with the still existing flats it could be possible to reconstruct the destroyed part of the western wing. The part to be added would be a new construction following the original situation with the western facade forming a plain wall surface. All the light to the adjacent rooms in the flats would then have to come through light shafts from above. By having the toilet and the kitchen facilities concentrated above each

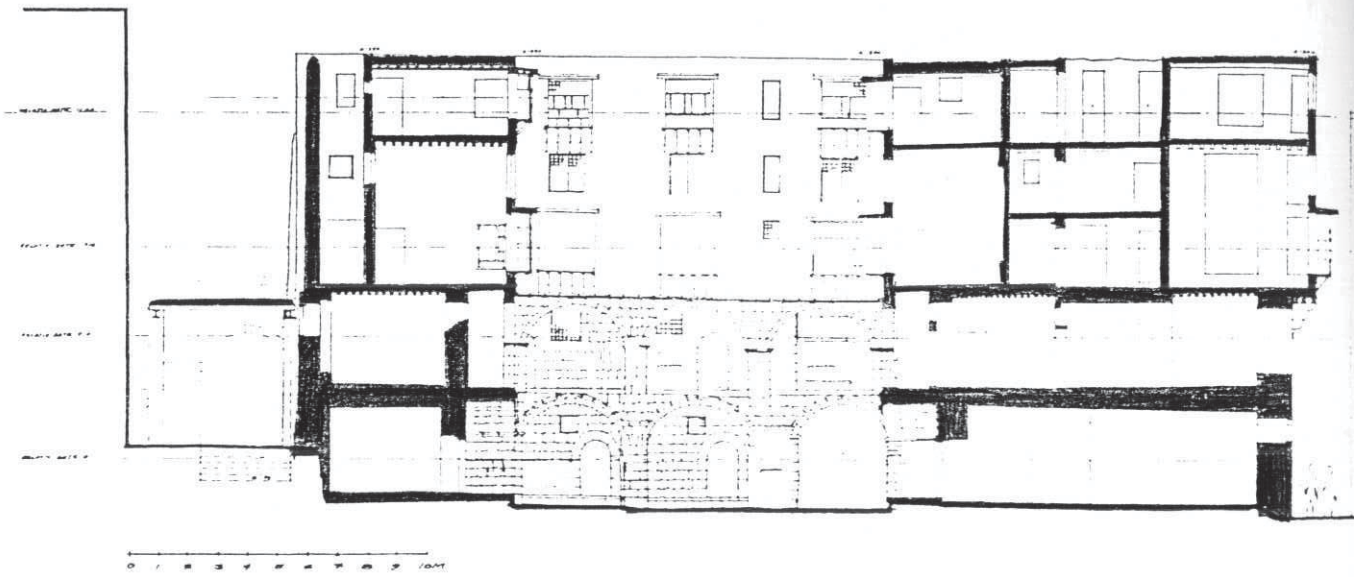


Fig. (50)*: Section east-west through the courtyard, present condition.

* Ibid

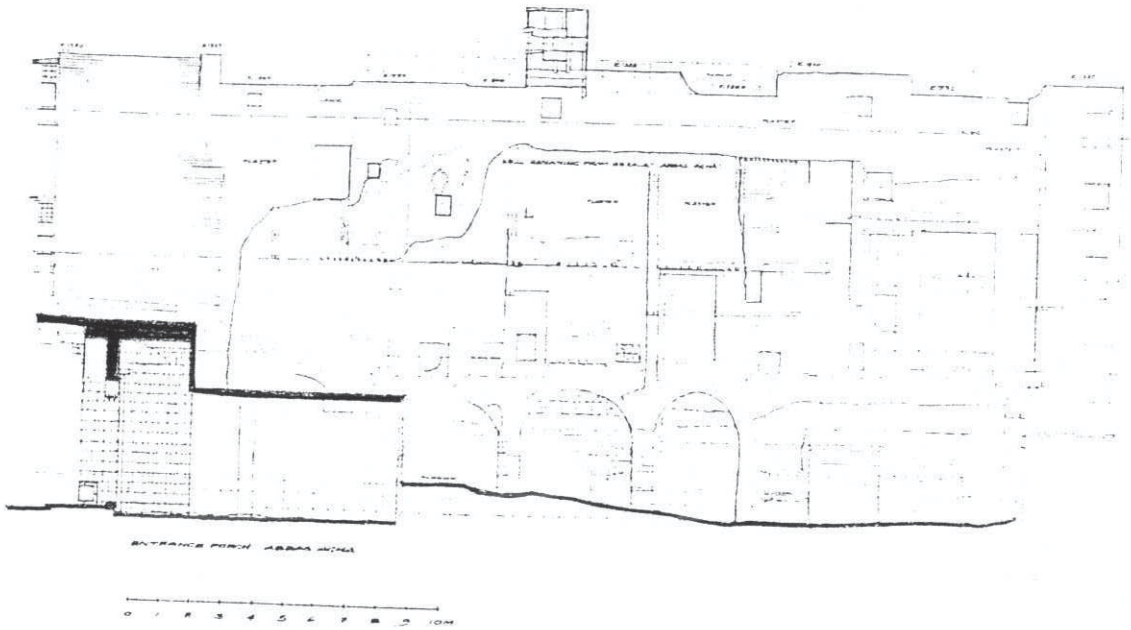


Fig. (51)*: Elevation of western facade, present conditon

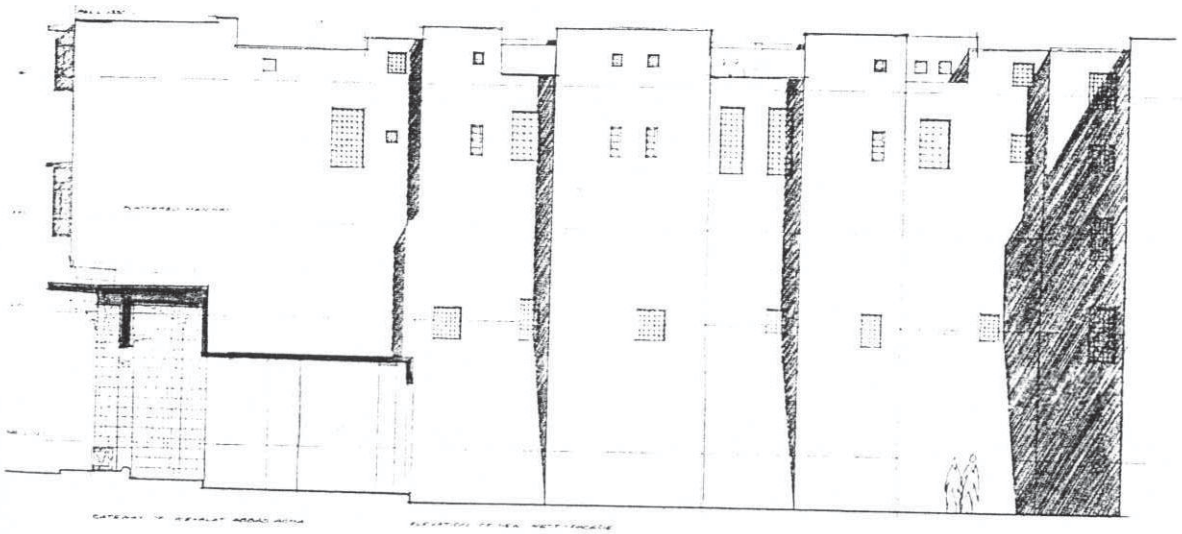


Fig. (52)*: Elevation of projected western facade.

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* Ibid

other in a core projecting 0.5 m from the original facade, it will be possible to reach a room depth of 2.4m, which will be a reasonable space for these functions. And in the second floor of the building, the corrider will have more space that can serve as sitting places for the inhabitants. The windows towards the west should also be reduced to a minimum and mostly oriented south and north.

Example II

The restoration project of the Madrasa of Amir Mithqal[18]

This restoration project was carried out by the German Archeological Institute in co-operation with the Islamic Department of the Egyptian Antiquities Organization and was financially supported by the German Foreign office.

The building was built in 1369/770 by Prince Sabik Al Anouky during the Mamluk period. It is located on a part of the land originally occupied by the eastern Fatimid Palace and in close proximity to Al-Azhar mosque and Al-Moez street.

Architectural Features of the Building

The building occupies an area of about 20x20 metres. The importance of its location is demonstrated by the elaborate street facade. Its builder preserved the path leading to a surrounding group of residential

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18. Michael Meinecke, German projects, Islamic Cairo: Architectural Conservation and Urban Development of the Historic Centre, German Institute of Archaeology, 1980, p. 52.

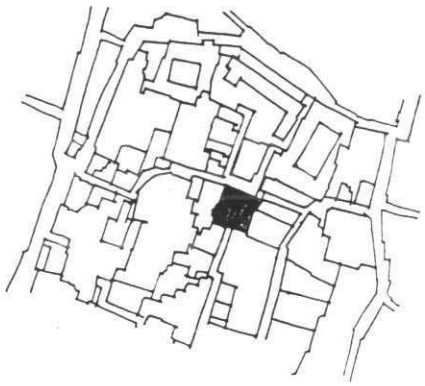
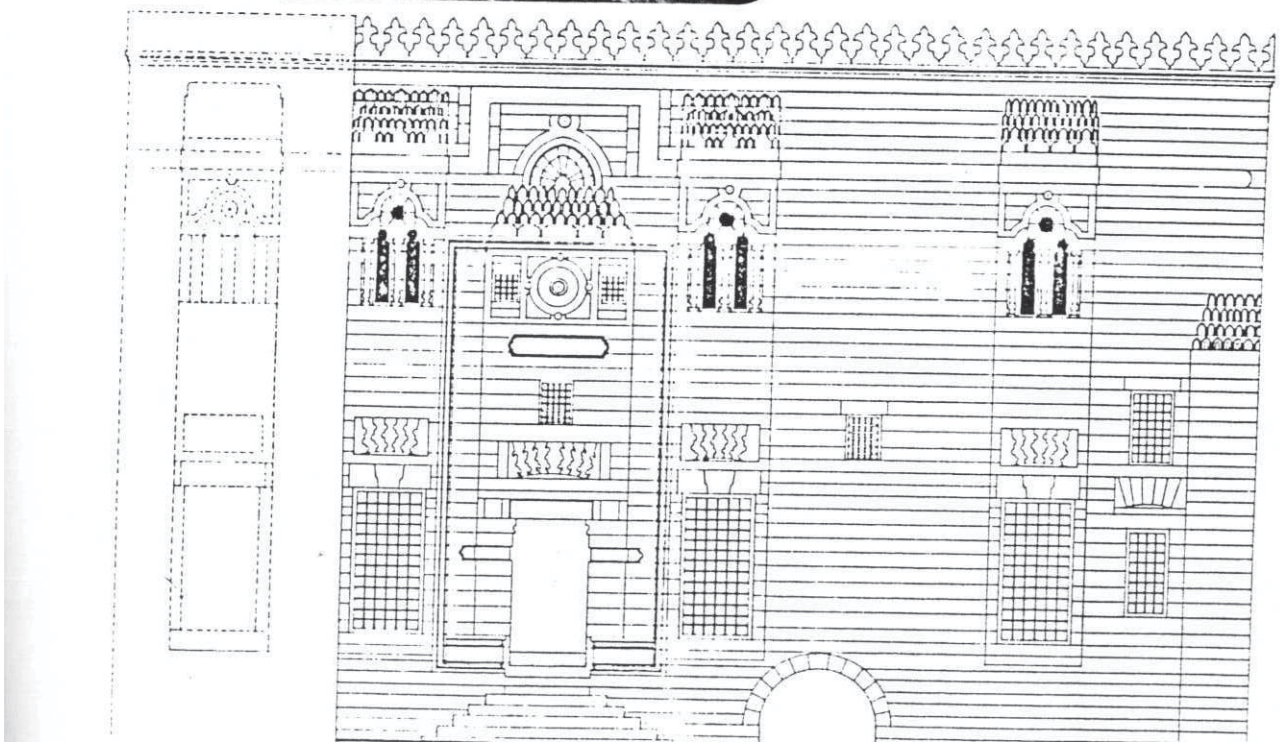


Fig. (53)*: Northern facade after restoration.



buildings by raising the ground floor of the building on vaults and using the underground level as a storage space. This type of building is known as the elevated mosque. The plan was designed according to the style of various buildings which were seen during the Mamluk period. The designer followed the usual plan of Cairene madrasas with a central courtyard surrounded by four open-ended axial iwans. The main iwan lies towards the qibla. In the two upper floors there are rooms for teachers and students. A great care was given by the builders to the interior space and that is revealed by the details of mouldings; the decoration of the wooden ceilings, using mashrabiyas and covering the mehrab with coloured marble.

The Structural Condition of the Building

During the structural examination, several recent layers of plaster were removed in order that the interior wall could be examined properly. The investigation of the structural situation revealed that, the central rooms and the open courtyard with the iwans were relatively intact inspite of the structural danger caused by the movement of the arch of the qibla-iwan. An advanced state of destruction was present in the upper floors which were completely unserviced as nearly all ceilings had caved in and all staircases had collapsed. Also there was evident deterioration in the ceiling and mouldings and the marble covering the mehrab was partly damaged by the rising damp in the walls of the building.

The Rehabilitation Project

The function of the building as a madrasa still plays an integral part in the daily life of the Islamic society. Therefore the building was to retain its original function.

Restoration

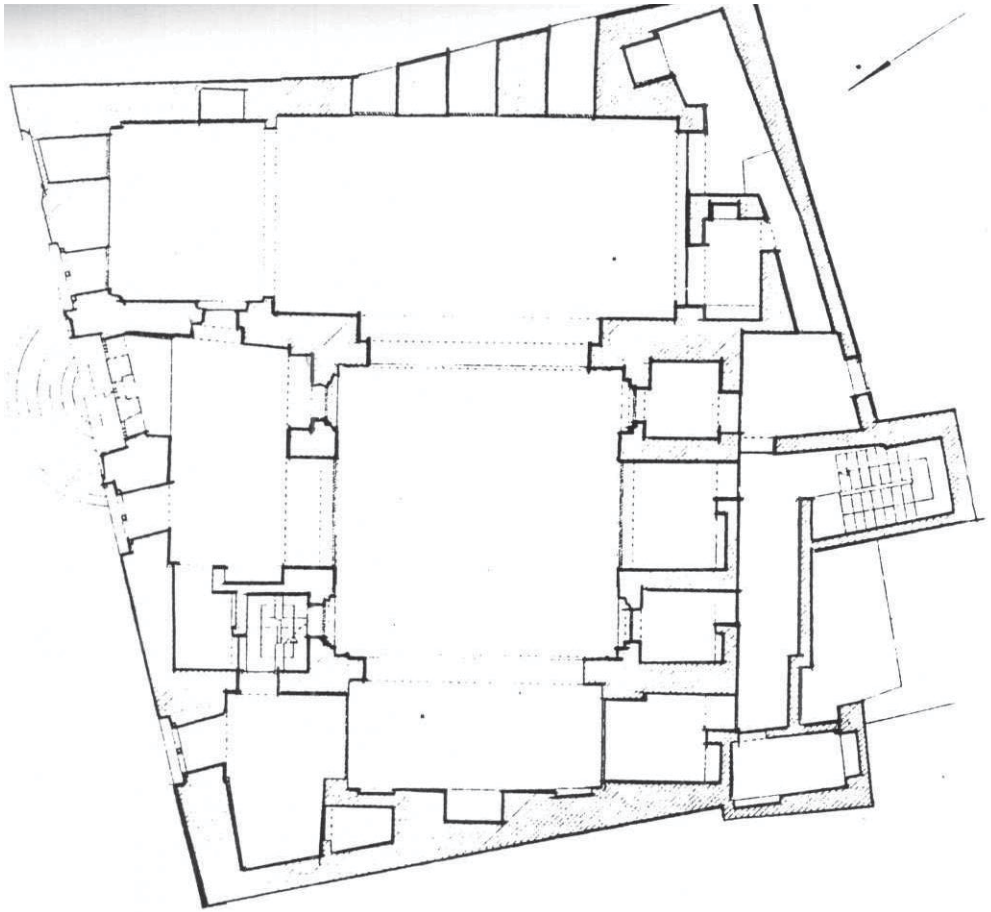
Drawings showing the existing condition and structural state were prepared before the actual work began. The original plan was reconstructed along the lines of the ruined remains. The remaining parts of the building's fabric were secured and the missing portions totally rebuilt. Rooms in the northern and southern sides, toilets and staircases were reconstructed. A great deal of the stonework destroyed by saline corrosion, especially on the lower part of the walls, had to be exchanged. Care was taken to use the traditional methods still practiced in Cairo, and local craftsmen for the conservation and completion of the architectural decoration. Those craftsmen included stone cutters, experts in gypsum and carpenters. The stone mosaic and the marble of the qibla-iwan: which had been partly destroyed by saline corrosion, were replaced. Other decorative details like the arabesque panels and the blue glass columns of the arcaded horizontal frieze were completed. The lost crenellations that had topped the walls surrounding the inner courtyard were renewed. The plaster work and the glass lattice windows which had been filled in from behind were cleared and pieced out. The painted and partly, carved woodwork was carefully cleaned, then chemically strengthened and restored. A new marble floor was laid, its

After restoration in 1976

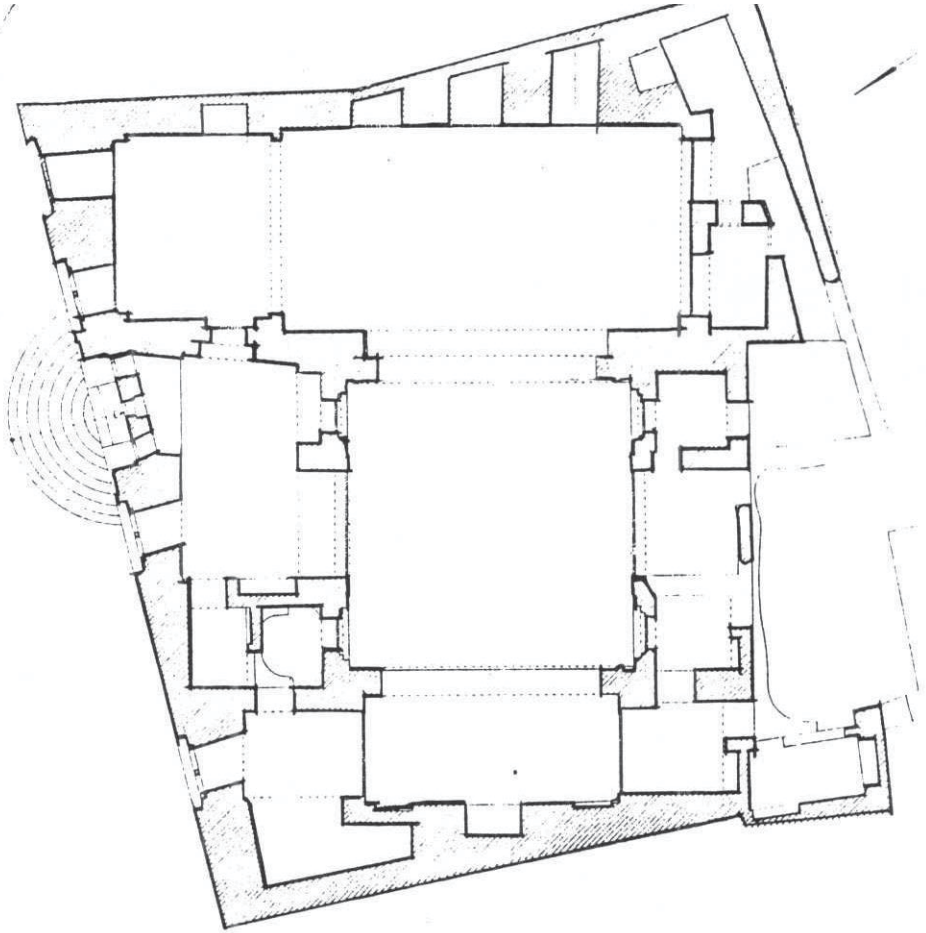
Before restoration in 1973

Fig. (54)*: Mosque-Madrasa of Amir Mithqal, plan of first floor.

* Die Restauricrung der Madrasa des Amirs Sabiq Al-Din Mithqal Al-Anukj and die Sanierung des Darb Qirmiz in Kairo. von Michael Meinecke Verlag Philipp Von Zalem, Mans Am Rheim.



After restoration in 1976



Before restoration in 1973

Fig. (55)*: Mosque-Madrasa of Amir Mithqal, plan of the second floor.

* Ibid

Section A-A in 1973 before restoration

Section A-A in 1976 after restoration

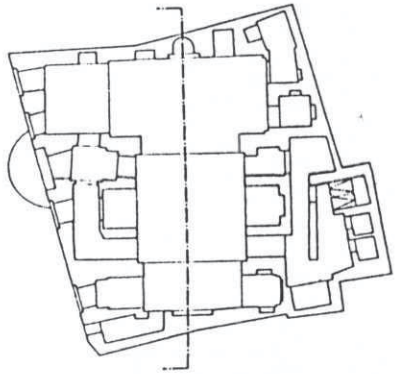


Fig. (56)*: Mosque-Madrasa of Amir Mithqal Section through the northern facade.

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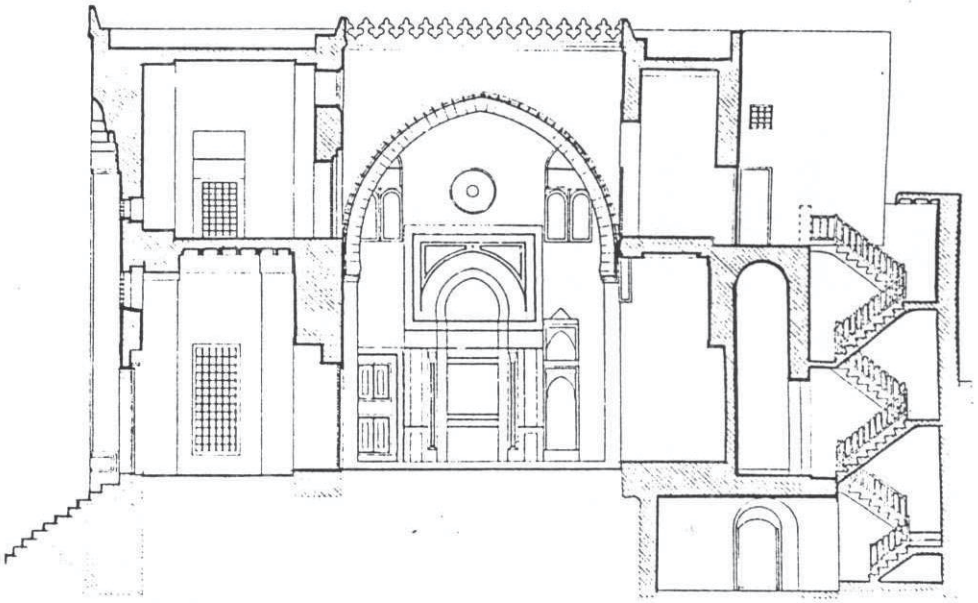
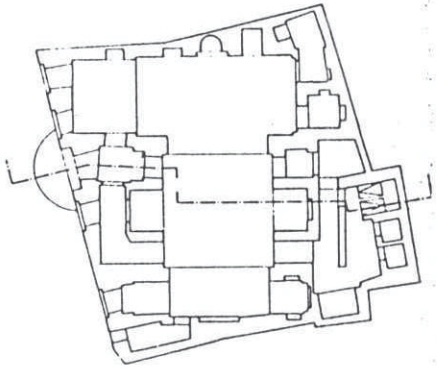
* Ibid

Section B-B in 1975 before restoration



Section B-B in 1976 after restoration

Fig. (57)*: Mosque-Madrasa of Amir Mithqal. Section through the eastern facade.



* Ibid

design was taken from other contemporary buildings. Piped water was laid on and electric light installed, using a modified form of the old system of lights suspended from the ceilings on long chains. A wooden pulpit, put together from several parts kept in the stores of the Islamic Department of the Antiquities Organization, was erected.

In 1976, when all the restoration work was completed, the building was opened again for the local inhabitants to be used as a Friday mosque.

- Buildings to be upgraded

In order to ensure the lasting preservation of historical monuments, it is important that any surrounding building should imitate some features of the historical monument so that it would not seem out of place. Some slight changes could be made for the facades of the buildings which are to be upgraded like changes in height, colour, texture, etc.

In Darb Qirmiz, the buildings in need of upgrading are those built since about a hundred years ago till the fifties. Some of them date back to the turn of the century during the period of westernization, their facades are decorated with a mixture of western and traditional motifs, they reflect the changing social pattern by providing individual flats in the same building. These buildings need internal upgrading and provision of new services and the removal of constructions on roof tops, corridors and courtyards so that they would be compatible in material and proportions to the historical buildings.

In order to control these changes in protected buildings as well as new buildings in need of control of design, we have first to define the characteristics of the historical architecture by extensive studies of townscape which is integrated today into the curricula of all architectural schools abroad. Based on these descriptions, basic characteristics like number and height of storeys, slope of roofs and types of openings could be identified.

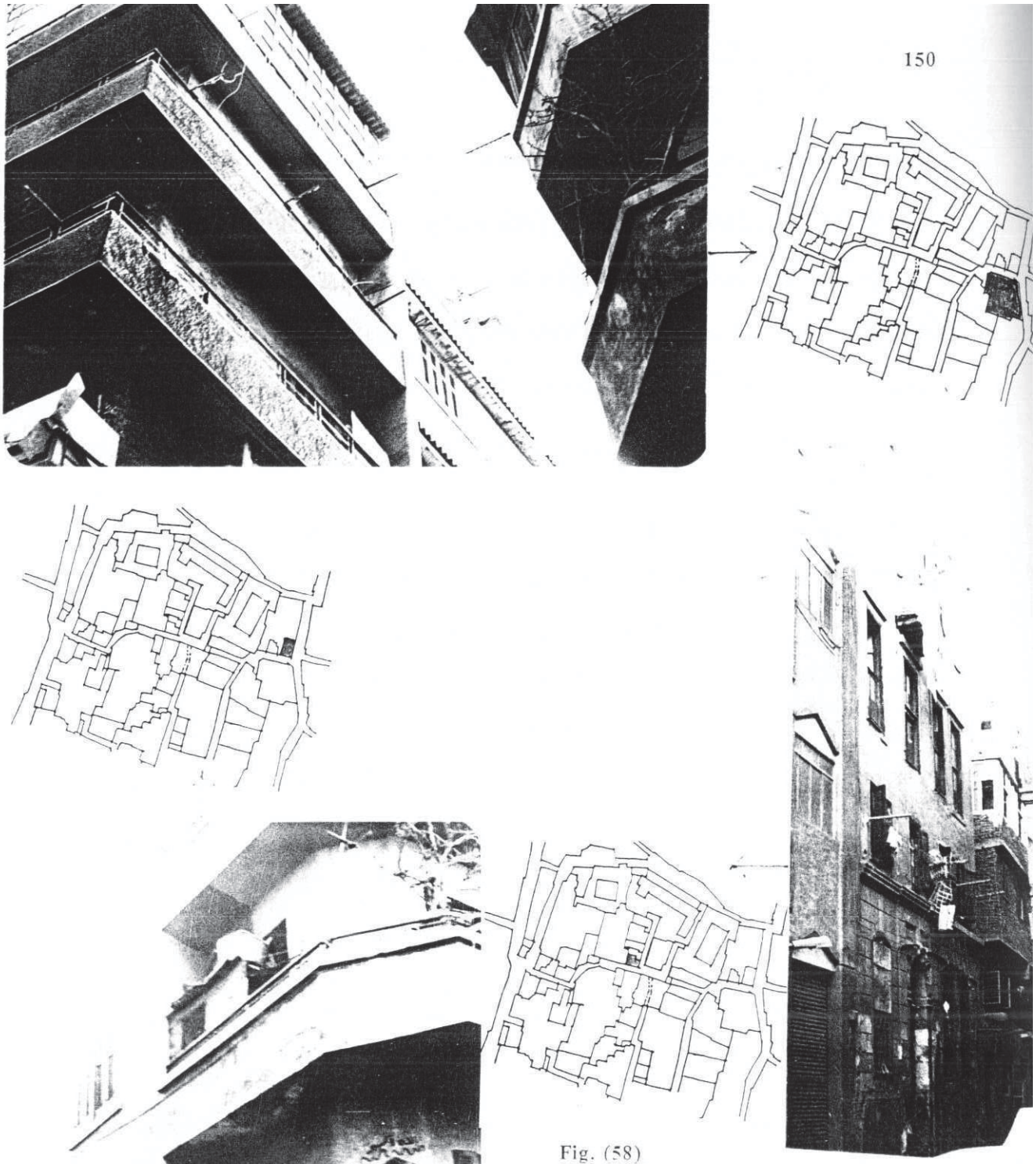


Fig. (58)
Buildings built since 100 years ago till the fifities are still intact and in need of slight repairs and atternations

In the following example from West Germany, townscape analysis was made as a basic requirement for the definition of design guidelines covering the medieval core[19].

Townscape

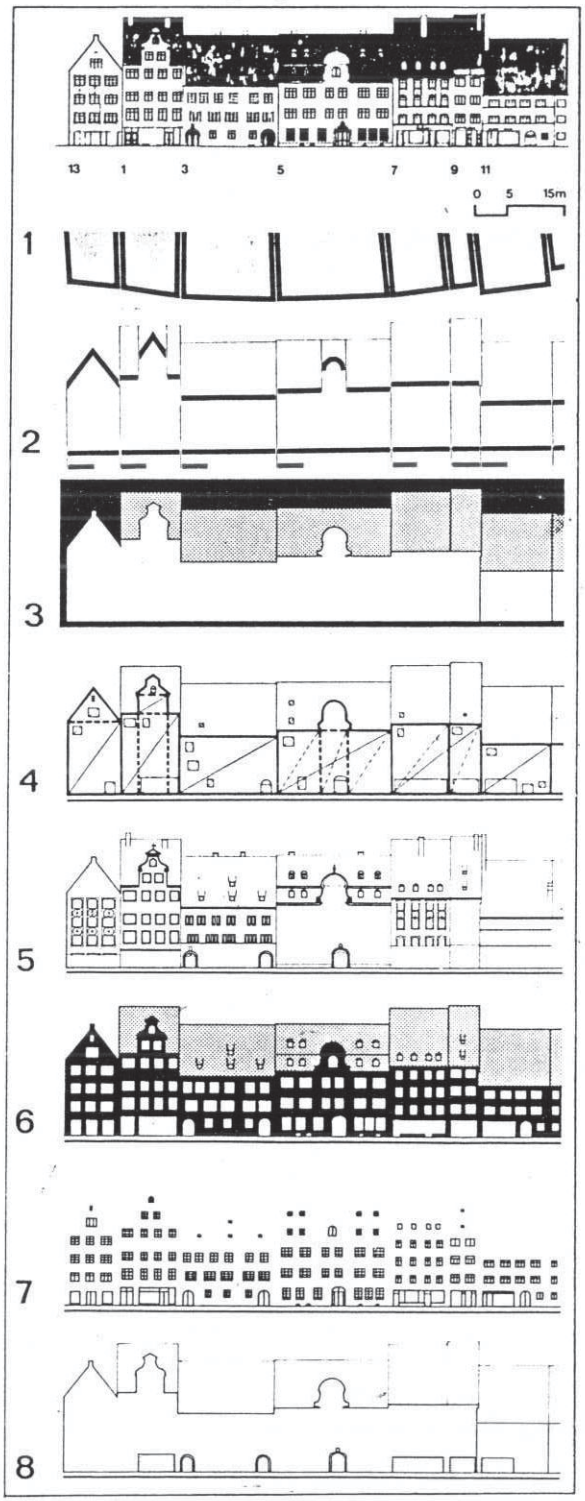
1. Building line and situation of plots.
2. Width of individual buildings.
3. Contour (new buildings should not changes the city's silhouette).
4. Proportions (It should be maintained to preserve the visual impact of the structures)

Construction

5. Structure of construction, Ornamentation

Architecture

6. Proportion: mass aperture
7. Size and proportion of windows.
8. Building materials and colour.



19. Neils Outschow, Area Preservation and Compatible Architecture, Islamic Cairo, German Institute of Archeology, 1980, p.98

According to these descriptions they were able to control the protected buildings as well as to change the design of new buildings which is expected to cope in scale and use of material with the historical environment.

Buildings to be Demolished and Rebuilt:

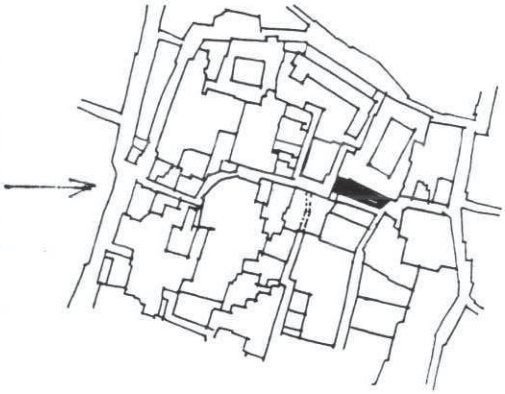
Generally, a building within a historical site might be demolished for three reasons: if it is not historically ranked: either it is blocking the visual perspective or it is in a deteriorated state or it is unmatching with the historical site.

In Darb Qirmiz there are examples of each of the previous cases. The small house number twenty-one blocks the street and by its removal it would expose the masked part of the facade of the Madarasa of Mithqal and also the masked part of Wakalat Bazaraa.

It would also bring other monuments into focus: The domed mausoleum of the madrasa of Tatar Al Hijaziyya and the minaret of the mosque of Mahmoud Moharram. And also a new thoroughfare connecting Al Moez St. and Al-Gamaliyya St. would be obtained.

Examples of deteriorated buildings are obvious in buildings mostly dating back to the 1960s and 1970s which are characterized by bare functionalism which does not make the slightest concession to the traditional surroundings. They are now distinctly alien components to the built fabric, which ought to be pulled down giving way for better adapted new constructions.

All new constructions should be prohibited until the guidelines for the new architecture of the quarter have been defined. The stopping of



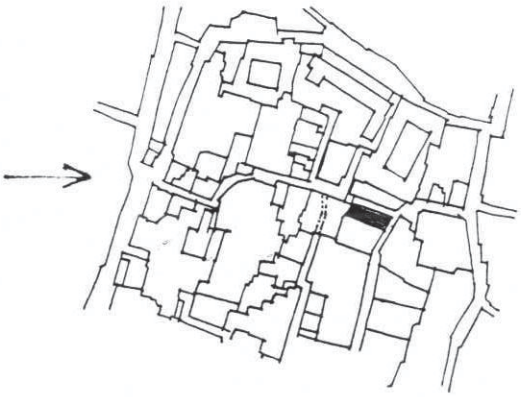
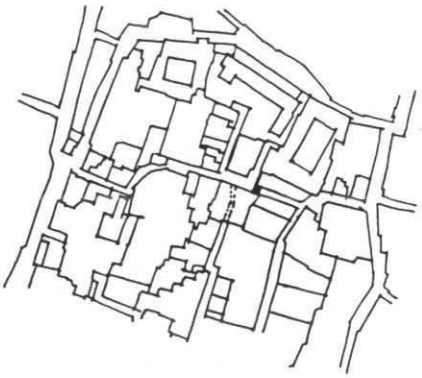


Fig. (59): Buildings built after the 60s are in bad repair and not in agreement with the historical environment.



House no. 21 in Darb-Qirmiz.

Fig. (60): Present condition

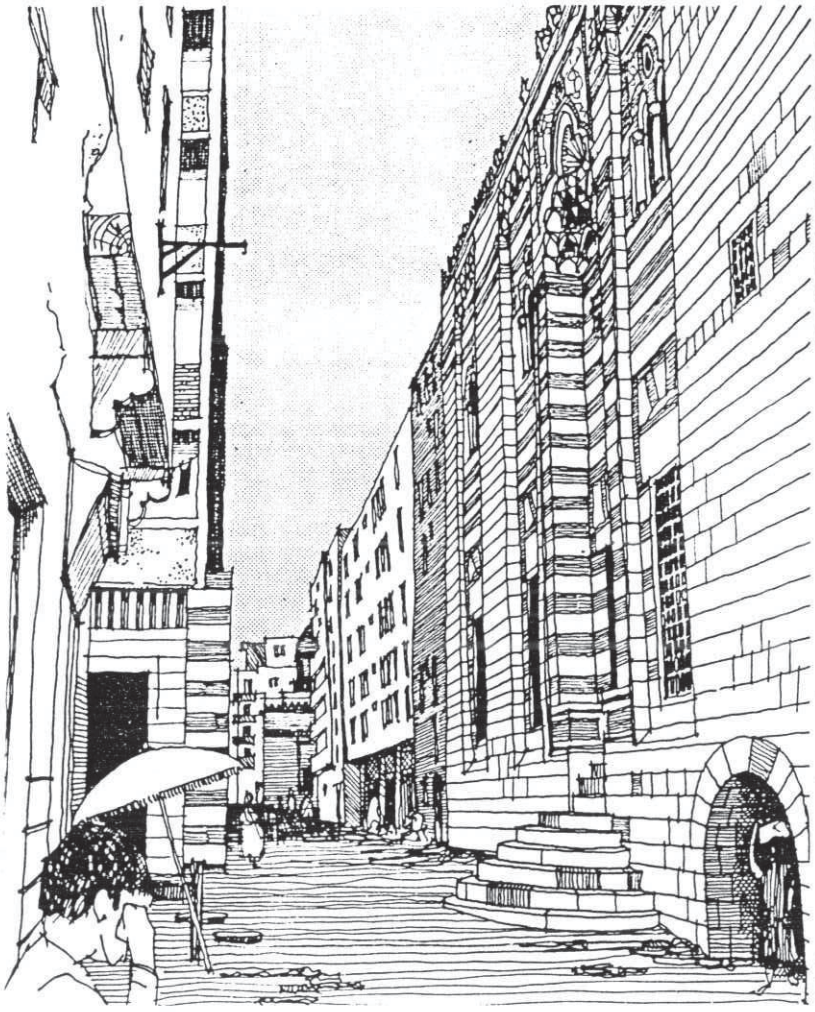


Fig.. (61)*: The perspective expected after demolishing house no. 21

* The German Institute of Archaeology, Cairo.

further construction would also prevent land speculation and profiteering which accounts for much of the current decay.

Rebuilding

When a historical district has a particular architectural character, it is often required that any new construction built on vacant lots or instead of demolished buildings or even built to fill a gap between existing buildings should initiate the features of nearby buildings so that it will not be obstructive. These features may include height,massing, setbacks, overall dimensions, materials, fenestration, colour and style.

Urban Spaces

Conservation process is not related only to buildings or neighbourhoods, street lights, park s and facades are as important to the conservation process as individual buildings because they are significant ingredients of town form and character[20]. Conservation of urban spaces is integral of historical building as its aim is the retention of the historical ecological balance that has made urbanization possible. The composition of each space has to be studied in relation to its sense of enclosure, continuity, character, expression, compactness and furnishings.

In the study area, some sorts of attraction should be provided to the activities taking place in the street to increase its vitality.

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20 Wayne, O. Attoe, Historic Preservation, p. 304.

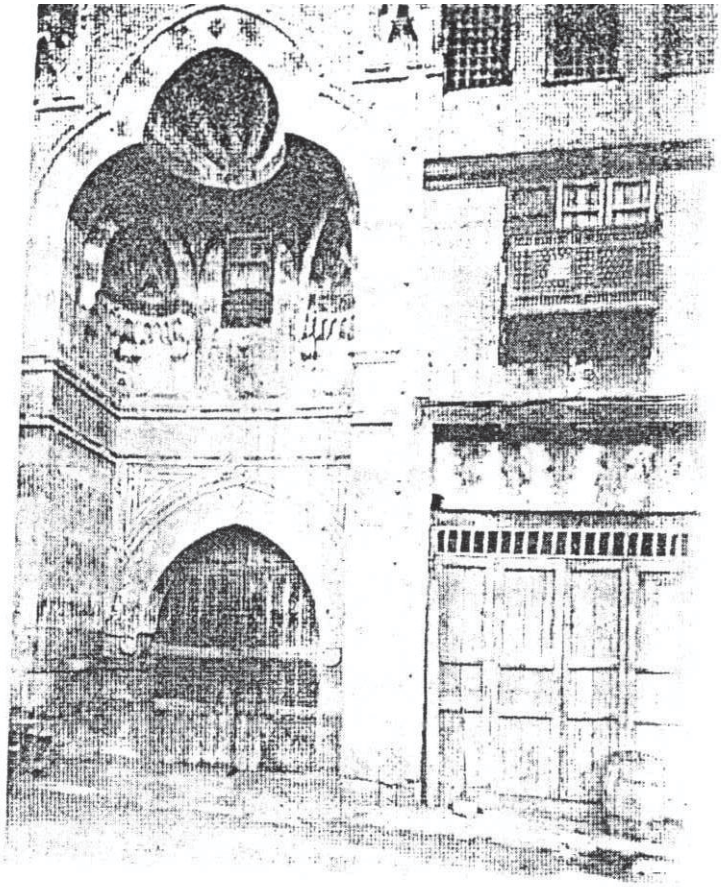

Fig. (62)*: Wakalat Qaitbay, wooden shop fronts in the past

Fig. (63): Wakalat Qaitbay, the wooden shop fronts are now replaced by rolling shutters

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* Dr. Saleh Lamie Moustafa, The Architectural Heritage of Cairo, P. 117.

Fig. (64): Light installations which were once a piece of art were replaced by functional installations with no aesthetic value.

In Darb Qirmiz, the continuity that could be provided by opening the quarter towards Al-Gamaliyya street would cause economic revival which would attract the pedestrian movement.

Upgrading the general appearance of the street such as cleaning, paving the ground, street furniture and shop fronts would enhance its visual quality.

The streets might be cobbled as the old streets or they might be paved with the more economical cement tiles or bricks. The wooden shop fronts, due to humidity and lack of care had deteriorated and have been replaced by metallic rolling shutters which are in no agreement with the quality of the wall.

2.4.4. Operational Management and Maintenance

The operational management cannot be merely a stage in conservation, but it is a necessity throughout the whole conservation procedure. The board responsible for the process would be responsible for the operational activities which could be summarized as follows:[21]

- Quantifying: Defining specifically the location and scope of work.
- Specifying: Deals with selecting the right materials, methods and techniques to be used.
- Programming: Skillful programming with enough flexibility to deal with unexpected situations.
- Commissioning: Entails the selection of the building contractor and to attain cost quality.
- Production: A full time presence of professionals able to assume decisions for unexpected problems and a well documented system to record technical instructions.
- Supervision and Monitoring: Ensures the acceptability of the standard work at an early stage.
- Completing: Plays a role in improving the efficiency in a rolling programme or at the end of completing the pilot scheme

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21. UNCHS Habitat: Strategies and Mechanics for the Rehabilitation of the Existing Housing Stock, p.p. 16-20.

The aforementioned steps are essential for effective operational management to be co-ordinated in order to suit the characteristics of each project.

Maintenance

It is essential that all structures be inspected regularly for maintenance and repair, as neglect is the main cause of the decay of historical buildings. Local authorities should train people and specialists to help in the maintenance activity.

When dealing with the built fabric, these basic maintenance procedures should be established[22]:

1. Day to day maintenance: This includes work necessitated by unpredictable damage.
2. Cyclic maintenance: this includes preventive maintenance i.e. works undertaken to prevent failure. It also involves regular examination of the building components such as doors, taps., etc.
3. Planned maintenance: This deals with the work being carried out to restore a facility to an acceptable standard.

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22. A.J. Fagg, Maintenance of the Building Structure and Fabric, Building Maintenance and Preservation, Editor, Edward D. Mills, London Butterworth & Co. Ltd., 1980, p. 73.

Also, the spaces surrounding the historical buildings should be also inspected for neatness. Garbage disposal system should also be enhanced for more efficiency.

CONCLUSION

The main aim of this research is to point out paths and criteria to be applied for conservation projects of all towns in developing countries. Along these paths more research could be directed to enhance and contribute for the continuity of the traditional heritage.

The conclusion includes:

I. The importance of conservation projects.

II. Different aspects of conservation.

III. Towards and integrated approach for the conservation in developing countries.

IV. A conservation strategy.

I. The Importance of Conservation Projects

1. To protect our legacy:

   Instead of reading about the scale in an old town, one can experience it. Also in a period of declining craftsmanship, it is important to be able to experience the work of early craftspeople[23].

2. To ensure variety in the urban fabric:

   By conserving the past we can guarantee visual variety and be assured that our districts will not become repetitive and monotonous.

3. Economic importance:

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23. Wayne O. Attoe, Historic Preservation, p. 313.

Conserved historical buildings are often a sound investment and a good source of profit for investors, also historical buildings produce potential income from tourism.

4. Symbolic importance

Buildings or groups of buildings are sometimes conserved as monuments and symbols of the past to prove that the past survives and tradition continues.

II. Different Aspects of Conservation

1. Urban planning and architectural aspects:

Urban planning aspects involve studies of street networks, public buildings, residential structures and the socio-economical situation.

For architectural conservation, detailed studies are required to reach designs that would match with the spatial qualities conveyed by the historical districts. These studies involves:

- Facades: facades should be maintained according to the original styles of buildings by recommeding appropriate designs. For shutters, doors windows and shop-fronts.
- Roofs: Roofs and parapets should be maintained in order to improve the sklyine of the building.
- Courtyards.
- Land-scape.
- Setting: Settings such as the remains of traditional structures like old city gates should be conserved.

Through these studies, it would be possible to set urban renewal measures for extensions, additions and building on empty lots.

2. Technical aspects:

Technical difficulties which affect the conservation projects like deteriorating infra-structure, high water-table, traffic circulation, using unsuitable repairing materials and lack of maintenance could be solved as follows:

- By research and study:

  A technical service laboratory could undertake experiments to determine the differing behaviour of the materials used in the conservation work towards the conditions under which they will be exposed.[24]

- By monitored experiment:

  Monitored experiments in the buildings themselves would necessitate co-operation between the supervising architects, the material technicians and the scientists.

- By co-ordinating technical development through the provision of a technical committee which would direct the technical work of the architects and material scientists and would co-ordinate activities for all the participants.

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24. UNESCO, consultant team, The Conservation of the old city of Cairo, 1989, p. 88.

- By setting programmes for the improvement and amplifications of the infra-structural networks.
- By raising the public archeological consciousness through seminars and mass-media.
- By regulating the traffic within the historic sites. Traffic should be carefully studied and regulations are to be formulated.

3. Financial Aspects

In conservation projects there are two types of financial resources, institutional and non-institutional, and allocating scarce resources among competing demands is the main problem in developing countries. Therefore, for any project to be affordable, there must be an economic link between the area to be conserved and the rest of the city. Also, public and private partnership is needed to mobilize every possible resource to deal with spatial, socio-economic and legal problems and to attract private resources and initiatives.

4. Training and Educational aspects.

Education for conservation should be perceived through short and long-term, measures. And the training process by local and foreign technical experts and institutes should include students, architects, engineers, material scientists, craftsmen and builders.

5. Legal Aspects

Legal aspects of conservation are: listing and registration of historical buildings and areas, setting laws and regulations for the system of ownership of historical buildings, zoning restrictions, demolition control and the co-ordination between various authorities that are involved in the conservation process.

III. Towards an Integrated Approach for the Conservation in Developing Countries.

In most of the developing countries, old cities are being threatened. The centre of activity had sometimes been pulled away from the old core due to competition from new commercial areas spreading away from the centre and also due to changes in industrial techniques.

Sometimes, the attitude of urban planners, intentionally or unintentionally, was to extract the monuments from the surroundings.

Due to cultural unawareness, lack of finance and change of the social standard of the inhabitants of old areas, some buildings have been transferred to functions very far from their original ones. Moreover, buildings are overcrowded, ill-maintained and misused and as a result of this most of the housing stock is dilapidated.

Problems of ownership of historical buildings and the weak local authorities are also of the main setbacks to the conservation process.

Therefore, developing countries have their own circumstances which dictate the mode of action needed and which cannot be transferred from foreign experiences, but have to be precisely set to suit our needs, problems and circumstances, the following points should also be put into consideration:

* There must be accurate knowledge of all sides of the problems setting back the conservation projects in order to find a way out.
* For all projects and all scales of conservation, there should be a certain technical procedure set to simplify the task.
* Some sort of co-ordination between public and private sectors should be sought to achieve a conservation project that is financially and socially feasible and as soon as possible because the endangered monuments can hardly tolerate any delay to be rescued.
* A strong political will and legislation are essential for the process and progress of the conservation plan.
* Determining the ability and willingness of the inhabitants to participate is a necessity before proceeding in the project. If the time is available, increasing the awareness of the people of the cultural and historical value of their heritage is required to make use of their aid in the conservation project.

IV. A Conservation strategy

A conservation Strategy should include:

1. Area definition

Historical buildings or sites are given the priority to be conserved according to: their existing state, historical significance, scarcity, quality and being a source of enhancement of adjacent areas.

2. Preparatory Measures:

Including: Training

Sources of finance.

Provision of experts.

Legislations.

3. Establishing a plan for implementation:

A. Analysis of the existing situation

- Studying the architectural features in order to set architectural guidelines and then building codes for new constructions.
- Studying the structural system and infra-structure to go through all the improvements and repairs needed.
- Studying the land-use and setting the relationship between commercial and residential areas.
- Indentifying socio-economical characteristics to determine the ability of the inhabitants to participate. Identifying means of improving economic resources and studying the ways of liking

the economic base of the conservation area with the economic base of the whole city.

- Studying the circulation pattern in case of the need of improving zoning regulations by urban planners.

B. Setting a policy for the treatment of buildings within the historical area, classifying buildings and spaces and selecting modes of treatment for every structure or open space.

C. Establishing priorities

- Starting by buildings or areas in need of immediate rescue to prevent collapse or stop further deterioration.
- Taking the work at group level in order to reduce costs.

D. Treatment of buildings and open areas:

- Historical buildings are to be rehabilitated through:

  * Adaptive reuse:

  Buildings should be adapted to serve new functions while at the same time maintain their original form and character.

  * Restoration

  After the future function of the building has been decided, the actual restoration work takes place. Traditional materials should be used and there should be an obvious difference between old and new elements of the buildings.

  Restoration work includes: The study of the architectural features of the buildings, the study of the structural condition deciding on the restoration work needed for the appearance of

the buildings and the facades, repairs needed for the interior, changing the functions of some spaces and fixing the installations according to the needs of each building.

- Buildings to be upgraded:

  In order to control the design of protected and new buildings, the characteristics of the historical site should be defined through townscape analysis. These characteristics include: building line, situation of plots, width of individual buildings, skyline, proportion of solid and void, building materials, textures and colours.

- Buildings to be demolished.

  Demolishing occurs because the building is in a deteriorated state, blocking the visual perspective of historical buildings or not in agreement with the historical character of the area.

- Urban spaces in need of conservation.

E. Maintenance

Appendix

APPENDIX

Text of the Venice Charter 1969. Articles (9-13). (Venice Charter is a standard guideline for restoration).

Article 9

The process of restoration is a highly specialised operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument.

Article 10

Where traditional techniques prove inadequate, the consolidation of a monument can be achieved by the use of any modern technique for conservation and construction, the efficacy of which has been shown by scientific data and proved by experience.

Article 11

The valid contributions of all periods to the building of a monument must be respected, since unity of style is not the aim of a restoration. When a building includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional

circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance if the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work.

Article 12

Replacement of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration do not falsify the artistic or historic evidence.

Article 13

Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.

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