URBAN SIMULATION GAMES

APPLICATION TO THE ALGERIAN SYSTEM OF DEVELOPMENT

A DISSERTATION PREPARED FOR

A MASTER IN ARCHITECTURE

by

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Session 86/87

ACKNOWLEDGEMENTS

Grateful acknowledgement is given to Mr. Drew Mackie and Mr. Tony Vogt, my tutors who both gave me advice and stimulated my interest throughout my work.

I wish to dedicate my work to my family and all my friends.

Page No.

CONTENTS

LIST OF FIGURES

SUMMARY:

The very first aim of this study is to introduce gaming simulation in the educational process of the Algerian University. It occurred to me during my first ever experience in gaming at the Mackintosh School of Architecture which was introduced by Drew Mackie, and which was part of the first year course for the M. Arch.

The second aim is to try and inculcate into people's mind the different conflicts existing in the development of an urban fabric.

In the first two chapters I tried to summarise the rules and the principles of the games used in various fields accompanied by particular case studies such as SPUSK (Game for Control of Large Construction Projects), an urban simulation and a house design game.

For my own Algerian game, a site (introduced in the third chapter) was chosen between various ones according to its richness and various social, economic and physical conflicts, and the Algerian system of Development a game was designed and played with a number of players as it is detailed in the fourth chapter.

It establishes at the end a general layout for the site.

INTRODUCTION:

The study has two main objectives: first is to provide instruction for students on the dynamics of urban development in conditions of rapid growth and competitive uncertainty. The second is to provide analysis for the urban planner on the effects of planning, programming and budgetting policies on the spatial and economic structure of urban development. The scope of the study includes the consideration of planning policy, capital and development programmes and financial budgetting and its urban development in the city.

CHAPTER I

SURVEY OF GENERAL GAMING PRINCIPLES AND USES OF GAMING

1.1 HISTORICAL DEVELOPMENT

Gaming simulation techniques are of long standing, such games as chess, go and shogi, having been developed from war games used in the Indian sub-continent, China and Japan some thousands of years ago. Modern war gaming dates from the latter part of the 18th Century, when the Prussian military establishment became conscious of the need to revise the training of combat officers whilst in the last thirty years the training element has remained important. Gaming techniques have been employed in such areas as strategic planning (the Japanese attack on Pearl Harbour) tactical operations planning ('hunt and kill' patterns for submarine search), weapon use and the attempt to define the characteristics and implications of new weapons systems (e.g. the pattern of deployment of nuclear weapons by Nato in Europe). It was not until 1956 that the American Manage- Association in Cooperation with IBM, explored the idea of business games. Since then the growth of business games mainly for training purposes has been rapid. The approach has been applied also to the examinations of operational problems (stock control), though such developments have not been as prolific as the military equivalents.
(C. Greenblat, R. Duke, p.82)[1]

Applications to problems of public administration and land use planning date from 1960 with the demonstration game POGE. Two better known examples, Metropolis (Duke)[1] and Clug (Feldt)[1] date from 1964 to 65 respectively, and

have served to stimulate developments in the public service sector. The present popularity of experiential learning comes primarily from two influences, one theoretical and the other historical. Especially during the late 1950's, and through the 1960's, a number of people in communication began to question the validity of communication education at all levels. Motivated both by an academic concern about what they caused to be a widening gap between theory and practice and by a growing outcry for improved institutions of learning, a number of prominent communication scholars began a national dialogue on communication, mass communication and speech communication that flourished through the mid-1970's.

A second influence came from various subdivisions of the discipline itself. Within speech for example, even the very earliest efforts to teach public speaking and debate involved writing and delivering speeches and preparing for and participation in, debates.

Simulations gaming is used at virtually all educational levels of communication and in nearly all imaginable contexts, including the classroom, the management seminar, the community action group, the factory and the overseas training programme.(2)

1.2 PURPOSE OF THE GAMES

The aim of the minimum structure game is to involve students in generating theorder of problems with which the class will deal.

The simulation treats students as a resource. Rather than the instructor telling students that this course will deal with the following topics and problems, an appropriate game can be devised which raises questions important to the discipline and allows students to grapple with them.

They thereby discover the nature of the problems with which the course and the discipline, or subfield are concerned. They come to recognise that these problems are not hatched in mid-air, but follow logically from the situations and actions of the players. The players' views are simulated when students attend a game and work through its processes according to the games' basic rules.

1.3 RUNNING GAMES

The specific steps to follow to run a game vary of course from one game to another. There are however four major elements of administration common to all games.

a. Preparation

b. Introduction of the game

c. Operation or management of the game

d. Post game discussion or critique

Each of these consists of a series of steps that should be followed and experienced game operators do these quite regularly. I shall attempt to outline the critical elements of game administration and offer suggestions on how to make your run a smooth and successful one.[3]

1.3.A Preparation

a. Know what your intentions, aims or pedagogical

purposes are; review the available games; and select one that seems appropriate. This may sound like a very obvious piece of advice but all too often someone runs a game in a class not because it seems appropriate for what they want to present but because someone spoke enthusiastically about it. A game that works well with one group may not work with a group of different age, background etc. What is successful for one purpose may be a disaster for another. Therefore, the first step is to understand whether the game you have chosen is one that is appropriate to the learning aims that you have in mind, or rather to have a clear understanding of what you want to teach and to select a game in accordance with those goals.

b. Having selected the game, integrate it with other materials. If the game is to be used in a class, then it should be tied into the larger perspective of the course outline if it is to be used in a nonacademic setting, it should be tied in to other materials, topics and activities of the group. A game that is just stuck in a random event without through to the ways in which it relates to the rest of the curriculum or endover will be less successful than one which is meshed with other tools and topics.

c. Become familiar enough with the game so that you can run it well. In some instances, it may be possible to familiarise yourself through prior experience by participating in a prior run. Thisprovides a familiarity with the mechanics not possible to obtain by simply reading the instructions and will give a player a perspective on the

game. Other times it may be feasible to become familiar with the game by running it with a group of friends or a small group of students prior to using it with your real audience. If it does not require too much time or too many people, this may be a viable and fruitful way to learn the game under conditions in which problems you encounter or slowness of your response is less a problem than in the classroom or with the group that has come together at greater difficulty and expense and may give you greater confidence when you run it later.

If neither of these alternatives seems possible then the familiarisation preparation should take the form of working through a typical round or rounds: go through the material, read the rules from the perspective of a player as well as the perspective of an operator, and be sure that you explain what players are to do at each point. If you know someone who has run the game, ask them for hints to more effective administration.

d. Be sure to have adequate personnel to run the game

Having gone through the material and become familiar with the game, you should now understand(whether the manual specified it or not) whether you will be able to run the game alone or will require assistance. If the latter, you should now obtain aids in advance and prepare them. It may be that you can use one of the students or other participants to be an assistant for you and that such a person can be selected at the last moment. But do not count on having them capable of performing difficult or

Complicated operations. Likewise do not count on preparing an assistant at the same time that you are trying to keep the game running. It simply is too much.

e. Make up a time schedule for the game: First, this involves being sure that enough time is available for a successful run. A good game squeezed into too little time will become a bad game. Some games can be divided; that is, they can be played one day, stopped and then continued another day or several additional days. Others require continuous play and even require that initial post-game discussion or critique begin the same day that play takes place. Starpower for example, cannot be started one day, continued into a class period the following day, and then discussed the third day. In order to be used successfully it must be run in at least an hour and a half of consecutive time. This kind of time block of course is notpossible in some circumstances and at those times the game should not be employed.

If you are running the game in several time periods, rather than in one continuous period, you will have to be sure to allow enough time for players to get recharged each time. That is they lose momentum by going out of the game and into their real life world and then coming back and thus require additional time each round get back into the swing of things. This sequence does however, permit more time for reflection and planning.

If the time schedule you arrange involves one long play period be sure you recognise the potential fatigue

that will take place and allow for breaks if possible or at least for some kind of stretch period during which the players can move around. These breaks should fit in with the natural rhythm of the game. The first such break for example should not come until players have had a positive experience after initial confusion. If it comes right after an introductory cycle some will leave if they can. Breaks taken at times of anticipation of something good to come will be easier to end when you want play to resume.

F. Prepare the materials: This obvious step always takes longer than anticipated (whatever the requirements whether it be to cut out Simbucks and tickets in Simsoc or to arrange the cards if Bafa-BAFA) the mechanical chores of preparation must be done, and far enough in advance that you do not find yourself hustling through cards and sorting them into piles as the players arrive. Such last minute preparation always entails a psychic cost even if it does not delay the actual commencement of play.

Separation of materials also means careful checking to be sure all things that should be there are in fact there. Once everything is there and in usable form arrange the materials so that they can be rapidly put in place at the game site.

g. Decide on various dimensions of role assignment:

First you must decide when roles are to be assigned or given out. If materials are to be given in advance perhaps you wish to also allow players to know what roles they will play with games such as "Metro-Apex" or "Dangerous

parallel" the manuals for each player are different. Therefore if materials are to be given out in advance, players must be informed of the role they will play when given the appropriate manual. In a game such as Metropolitics, these two decisions need not go hand in hand. That is materials could be given out early but the players need not be informed of their roles until they actually meet for play of the game.

A related decision is that of how roles should be distributed. Should they be assigned by the game operator? Should they be given at random? Or should players be allowed to choose their roles? The specific game manual may offer some advice on this and it is hard to advise in general terms.

If the decision is made to assign roles, the next question becomes how should they be assigned? Should aggressive students or players be given leadership positions? Alternatively should quiet people be given leadership positions in hopes that they will emerge from their shells? It is, of course, tempting to give the roles to those you know will play them in an active manner.

Finally, you must give thought to the number of players per role. What should be kept in mind, however, is that the best learning experience may emerge if several people play a role together.

B. INTRODUCTION TO THE GAMES

The way in which the game is introduced to participants by the game operator may well be critical in determining the success of the experience. There are several things that you must present to participants before they are ready to begin play. These will vary in specifics from game to game. The following are a few general suggestions for ways of introducing games to maximise the probability of success.

1. The early comments should include references to the following:

a. Gaming simulation as an instructional medium.

b. The purpose of the specific gaming simulation you are employing that day.

c. The rules ofthe game in outline form.

d. The roles represented by players in the room.

Instead of your introducing roles you may wish to begin play by having participants introduce themselves in the role. Where this is possible, it often proves a good idea because it begins their interaction.

2. Do not take too much time for the introduction. Not only will a long explanation of the nature of the game, the rules and the reasons you are running it etc.... not help create a successful run, but it is likely to kill it. Keep the introduction short! As questions arise later, you will be able to deal with them. Covering all points at the beginning is a poor idea, for players will forget those not seen as relevant because the questions have not yet arisen.

3. Sound decisive: if you convey the idea that you are sure it will be a good learning experience, you will be more convincing to players. This does not mean that you must sound as though you are an expert on the game and know exactly what will happen. You must however, explain the rules clearly and decisively so players gain confidence that although they may be confused, you know what is going to happen in general terms.

4. Explain the expectability of initial confusion: you know that as play begins players are confused but the novice player may not realise that the confusion he is experiencing and the concern he feels about whether he will be successful in developing a strategy is common to all. Whereas you should not announce that everyone in the room is hopelessly confused and ready to walk out, it will be helpful to them if you say something such as the following: I know that by now you probably are feeling confused, Do not worry about this.

5. Acknowledge that you, the game operator, recognise the nervousness and feelings of self-consciousness that some of the players feel. In that way, they will feel that you are less critical of their early attempts to cope with a situation fraught with ambiguity.

C. OPERATION OF THE GAME

The particulars of administration are highly variable. In one game the operator may be constantly involved in a variety of management enterprises. In another, the operator may be largely free from such tasks and able to circulate, seeing what is going on and collecting vignettes for use

in the post game discussion-critique. There are a few activities, however, which are typically engaged in by the game operator:

1. Remind players of the rules as situations arise.
2. Give out necessary resources at the beginning of the round.
3. Collect forms which must be submitted to the game operator.
4. Check forms and other materials that are submitted for accuracy.
5. Perform the necessary calculations by hand, with a desk calculator or on the computer, depending upon the nature of the game.
6. Announce the time limits, if there are any.
7. Announce the amount of time left in the round at several intervals.
8. Careful observation and assistance to those who require it.
9. Watch the players when they get the results of a particular cycle.
10. Watch the general lassitude of the player.

D. POST GAME DISCUSSION-CRITIQUE

1. The first phase involves letting theplayers vent their spleens about the things that happened in the game itself.
2. The second stage is a systematic examination of the model presented by the game from the perspective of

other role players.

3. The last stage of the critique, urge that the players and the operator should focus on the reality which was represented by the game rather than the game itself. This means bringing them down and it involves getting out of the game situation altogether and addressing thoughtfully and at some length the actual reality that the game simulated.

1.4 ELEMENTS OF GAMING SIMULATION

The use of games for training and operational planning is both ancient and novel, but in all theapplication of gaming simulation certain common elements can be found. These are:

a. People playing roles not necessarily corresponding to those they assume in the real life situation.

b. A scenario defining a problem area or a given state of the system.

c. An accounting system designed to record such decisions and events together with their consequences as are taken or occur during play.

d. Some algorithms (implicit or explicit) which indicate operating procedure for playing and controlling the game.[4]

1.5 COMPUTER SIMULATIONS

At this point it may be useful to distinguish a gaming simulation exercise from a computer or machine simulation.

Gaming simulations will always employ all four elements (roles, scenarios, accounting systems and operating procedures) - and at least the major roles will be represented by human players. In the computer simulation whilst the four elements are present they are represented in symbolic or analogue form within a model. Thus the relatively free decisions taken by role players in a gaming simulation exercise are replaced in the computer or machine simulation by programmed responses to a series of alternatives.

Gaming simulations which use a computer employ it as part of the accounting system.

1.6 GAMING SIMULATION TECHNIQUES

The elements of gaming simulation (roles, scenarios, accountancy systems and operatingprocedures) encompass a range of alternatives for use in both construction and presentation of exercises. This section outlines some of the possibilities.[4]

a. Role and role playing: There are two aspects to be considered in relation to roles:

a. Role definition

b. Role allocation

Roles may be defined to correspond to their real-life counterparts or may be an amalgam of certain interest groups which have selected characteristics in common.

b. Scenarios: The scenario in a gaming simulation exercise defines the situation presented to the players at the start of the exercise. The scenario may be presented in two parts: The first providing a framework for the exercise as a whole and the second detailing points of reference for the individual roles. The scenario provides information. This may be in the form of written reports, diagrams, maps, physical models, statistical information and financial statements.

c. The accounting system: the accounting system may present:

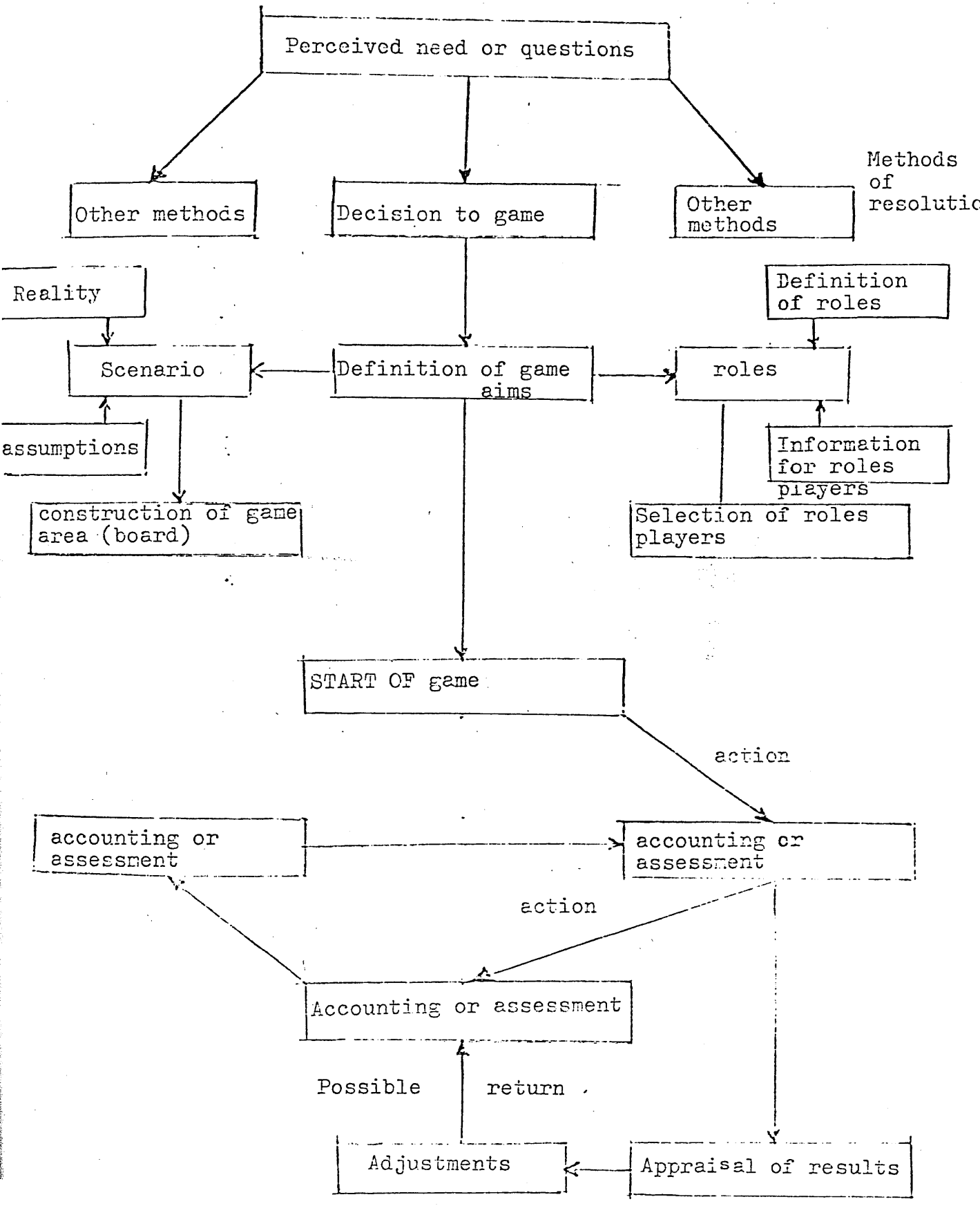
   a. A series of cumulative totals for the exercise as a whole.

   b. A series of cumulative totals for the individuals roles.

   c. An autonomous model which processes the individual items of information or cumulative totals.

d. Operating procedures: Operating procedures for a gaming simulation exercise may be discussed under three headings: a. Procedures for the conduct of the exercise; b. Procedures for roles/role-players; c. Procedures for operation of the accounting system.

Components of a gaming simulation exercise



1.7 ADVANTAGES AND DISADVANTAGES OF GAMING

A. Advantages

To summarise the benefits of gaming, various statements were collected during the 1978 International Institute for Applied Systems Analysis (I.I.A.S.A.) In Laxenburg (Austria). They are:

1. Gaming is a pre-science of clarifying concepts.
2. Gaming is a suitable brain storming device
3. Gaming is a heuristic device for thought experiments.
4. Gaming is the only science which uses humans not only as an end but also as a means.
5. A great benefit of gaming lies in the self-instruction of the game constructor.
6. The running of a game with experienced players is a good device for teaching the teachers.
7. Gaming is a device for two way learning.
8. Gaming opens lines of communication between the players.
9. Gaming aids communication between the analyst and decision makers with regard to problem clarifications.
10. Gaming can be seen as a means for communication between analysts.
11. Gaming changes the nature of feedback loop among information preparers and information users.
12. Gaming exposes deep biases in large-scale models.
13. Gaming is the only way of transmitting the gestalt of the problem.
14. Gaming is the only way of pretesting the behavioural assumptions in decision models. It puts them to the

acid test.

15. Gaming facilitates theunderstanding of goal setting, the link between analysis and planning.

16. Gaming is an important research tool for studying the effects of the variations of policy variables.

17. Gaming is important not only in determining the right policy, but also for determining what the right players should be like.

18. Gaming catches the attraction of the players and is more efficient for transferring ideas and data than a written report.

B. Disadvantages of Gaming as seen by some top managers:

1. Some top managers regard gaming as a non-serious activity and balk at the very idea of letting gaming influence their decisions.

2. Top managers think that there is nothing new that they could learn from gaming exercises.

3. Top managers regard games as too simple and hence too unrealistic to depict complex reality well.[5]

1.8 HOW TO INCREASE THEUSE OF OPERATIONAL GAMING

a. Reduce the costs of obtaining suitable games:

The cost of building a new operational game can be very substantial and this cost may be important for many smaller and middle sized corporations that now avoid the use of gaming. The cost can be reduced by:

1. increasing the possibilities of using an existing

game.

2. Cutting down the actual development costs for a new game.

b. Reduce the cost of operating the game:

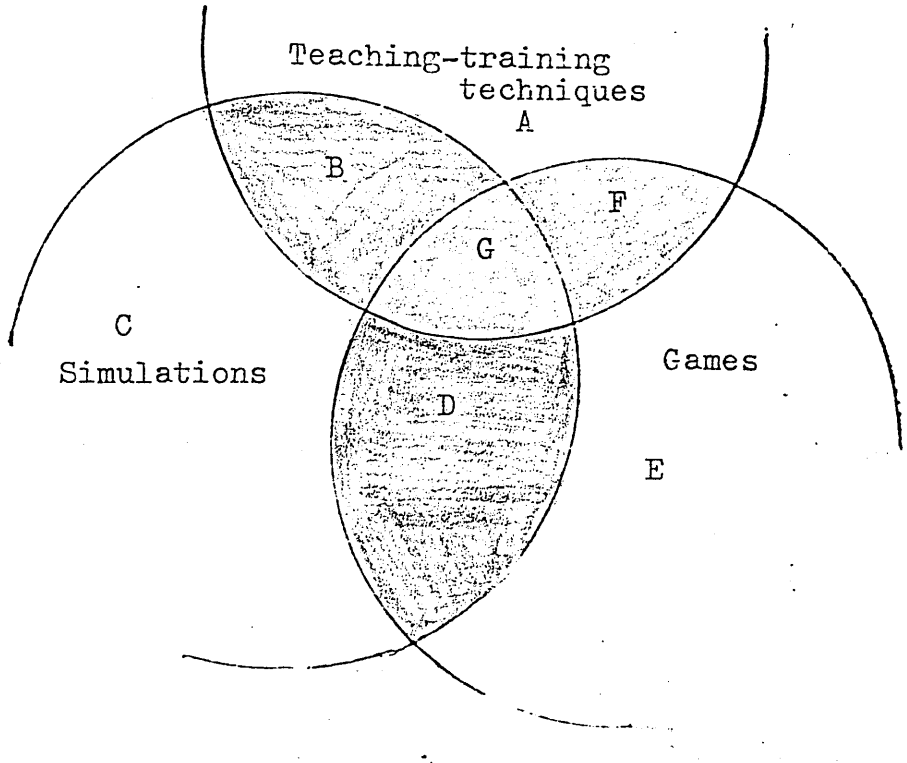
The expense or lack of computer resources with suitable software was previously a problem for the running of games in many organisations with the advent of portable micro-computers with substantial memory capacities; this difficulty will probably decrease, particularly if future game development focuses on micro-computers.

c. Reduce the cost of playing the game:

One of the factors restricting the implementations of operational gaming is the greater difficulty in the computer sector to get top personnel with time for game playing. Since their time is very expensive, the total cost of playing for a long time can be easily become prohibitive. Hence small games, playable in an evening would probably stand a better chance of being implemented provided that they have sufficient outward credibility to satisfy the potential players.

The cost of playing the game is dependent not only on the length of the game, but also on the number of human players involved.

1.9 GAMING SIMULATIONS FOR TEACHING AND TRAINING:



This figure represents the different combinations and types that emerge when "simulation", "game" and "gaming simulation" are put together.

A. In this category are all sorts of teaching training techniques and materials (lectures, case studies, discussions, films, audio visual.....)

B. Sometimes simulations are used for teaching. There are non-game simulations such as flight simulators for pilots and programmes in which disasters are simulated to teach or train medical and paramedical personnel to deal with real world disasters, when they happen.

C. In category C. we find these non-games, non-teaching simulations, such as the simulmatics project undertaken to attempt to predict the outcome of the 1960 presidential election via computer simulation

techniques. (Pool, 1965).

D. There are some game simulations played and enjoyed by many people at home, but generally unused for teaching purposes. These are in category D, represented by Diplomacy and Gettysburg, two gaming simulations of military operations.

E. Some games (Category E) do not simulate a social system or process, and are played for amusement, fun, to pass the time, develop strategy, develop thinking, or any of a number of purposes.

They generally have not been adopted for teaching purposes. Included in this category are such games as Scrabble, Go and Monopoly.

F. Recent years have witnessed the tremendous growth of games for teaching purposes. They include WFF'N Proof, Equations, On-words, Impasse, Et Alia....

G. In Category G we find those gaming simulations employed for teaching and training including Metroapex, Glug, The Marriage Game, Ghetto, Starpower, Sitte.....etc.[6]

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CHAPTER II

CASE STUDIES

2.1 STUDY OF THE SPUSK GAME (GAME FOR THE CONTROL OF LARGE CONSTRUCTIONS PROJECTS)

A. Game Participants, their purposes and functions:

The simplest version of the game involves a group of 10-15 persons working under the guidance of a game director. The group is distributed as follows:

a. The management: The management of the construction projects consist of one or more persons. The goal of the management in every stage of the game is to achieve the project on time.

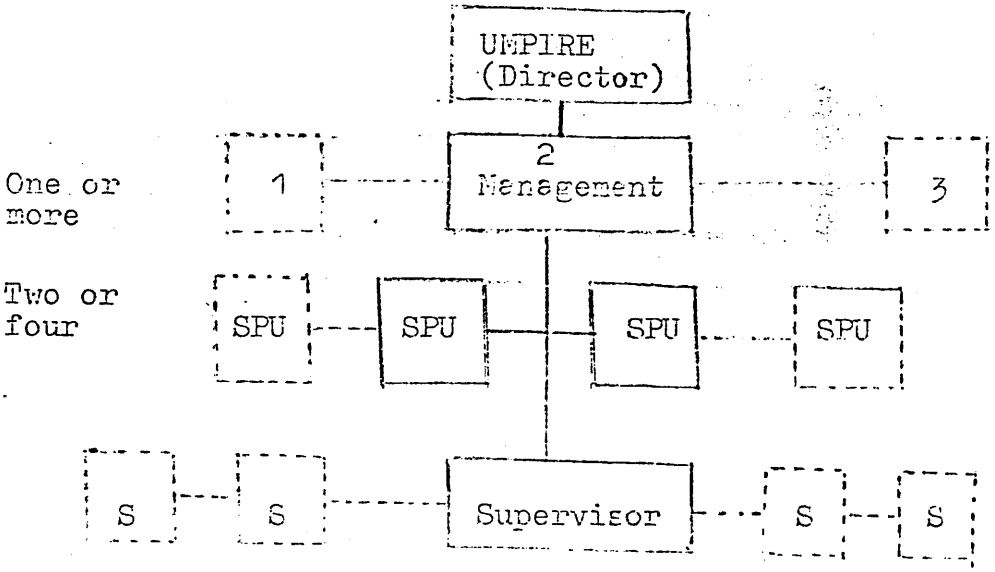
b. The network planning and control (SPU) system service: It is attached to the management and consits of between two and four persons. Its goals are the same as that of the management.

c. Supervisors: In addition there are supervisors, each of whom is responsible for the completion of a certain set of operations in the project (e.g. the project groundwork of foundation laying). The goal of them is to ensure the meeting of scheduled deadlines as regards this specific set of operations. This also means ensuring normal conditions for the operations of individual teams and sections, full use of machinery and installations, good quality, low cost and a low percentage of accidents.
The interest and goals of the management and the supervisors are different. The supervisor tries to extend the time allowed for the completion of

their specific set of operations. However, the management wants to reduce it.

d. The umpire: A role usually exercised by the game director, issues decisions made by higher authorities (e.g. directives on theproject schedules) to the management. The umpire acts as a generator of problem situations, solves controversial questions, control gaining, conditions and assesses the activities of all the participants in the game.

Structure of the SPUSK Game:



B. INTERESTS AND CRITERIA

The quality of decisions made by each player is evaluated by the sum of points, collected during the game. Each participant, in cooperation with others, tries to amass as many points as possible. It is possible to get a negative score.

The careful awarding of points ensures a fairly objective and comprehensive assessment of thepositive and negative contributions made by each participant.

The four stages of the game:

Stage 1

Preparation:

- The management studies the documentation and the system service available.
- Outlines some general features of the project (separation into sits, flow process priorities, etc.....)
- The umpire controls the work of the management. If necessary, he suggests that work be repeated and penalises the incompetent management by deducting a certain number of points in accordance with a penalty scale.

Stage 2

Initial planning:

1. During the first step the system service specifies the tasks to be handled in the initial PERT models.

The specification list contains theprimary resources and the alternatives durations allowed for each task.

2. Second step:

- The supervisors in charge, after being informed about the task, construct initial PERT models and hand them over to the system service.
- The system service checks these models and the accompanying specification lists, and if there are any errors imposes corresponding penalties and insists on the models being reconstructed.

3. Third step:

- The system service assembles theinitial PERT models into an integrated model of the whole project, using data on forthcoming events presented by the supervisors.
- If the networks involved are extensive, a computer is required for these calculations.

4. Fourth step:

- The system service analyses the results of its calculations and prepared preliminary suggestions for changes in the individual PERT model.

5. Fifth step:

- The management calls for a meeting of all supervisors who do not have enough resources for the completion of their tasks by the specified deadlines.
- The system service also takes part in the meeting.
- The management, having decided on the total amount of points to be used for the timely completion of the whole project announces how many bonuses it will distribute for speeding up the work and meeting the project deadline.

- The supervisors inform the management, in written form, on how many days they are ready to cut from the initial time allotted for completion of the tasks under their control.
- After familiarising itself with all the suggestions the management decides which of them should be accepted. If none is satisfactory the management will use the procedure until a final decision.

Stage 3

Control of the Operation

1. First step

The Umpire informs the management about the decisions made by higher authorities.

The umpire introduces random values characterising the state of each operation (e.g. the number of days delay in the work).

2. Second Step:

- The supervisor received information about their own operations.
- They decide whether the expected delay could or should be eliminated in order to avoid penalties.

3. Third step:

- The system service checks the reports of the supervisor.
- The system service records all changes that have taken place.
- The system service recalculates the time parameters of the integrated model.

After this calculation it becomes clear which operations

overran their allotted time - Penalties will be imposed. The fourth, fifth steps are then similar to the steps implemented in Stage 2.

Stage 4

Calculation and analysis of the results.

- The number of points per section is recorded.
- The results are calculated and general comments are made by the umpire. [1]

2.2 STUDY OF URBAN SIMULATION CARRIED OUT AT THE MACKINTOSH SCHOOL OF ARCHITECTURE

INTRODUCTION

This document records an urban simulation carried out at the Mackintosh School of Architecture in April 1985 as part of the Urban Design course. It was run by Drew Mackie of Edinburgh and Tony Vogt of the Mackintosh. The exercise lasted five days, the first day being a set of introductory talks by Drew Mackie followed by three and a half days of simulation with a half day of recapitulation.

The equipment used was simply a table covered in white paper, approximately eight hundred wooden blocks in three sizes related by a 25mm module and approximately five hundred 'house-shaped' wooden blocks.

Nine students took part in the exercise, each of them taking separate roles.

The aim of the simulation was to enable students to gain an understanding of the forces that are at work

during the formative period of an urban settlement's growth.

STAGE 1

Game Rules

An arbitrary line was drawn across the table which divided land from sea and arbitrary lines were drawn across the land area to produce four defined ownerships. Students volunteered to be land owners. Initially all students were issued with two building blocks for immediate use and they could purchase more blocks from the bank at a cost of ten per cent interest per round of the game. Properties occurred in four grades, A, B, C and D. These cost different purchasing prices and produced different rents. At this time it was assumed that all players of the game were either land owners or fishermen. The land owners promptly built their own houses and left the fishermen to fend for themselves. (Fig. 1).

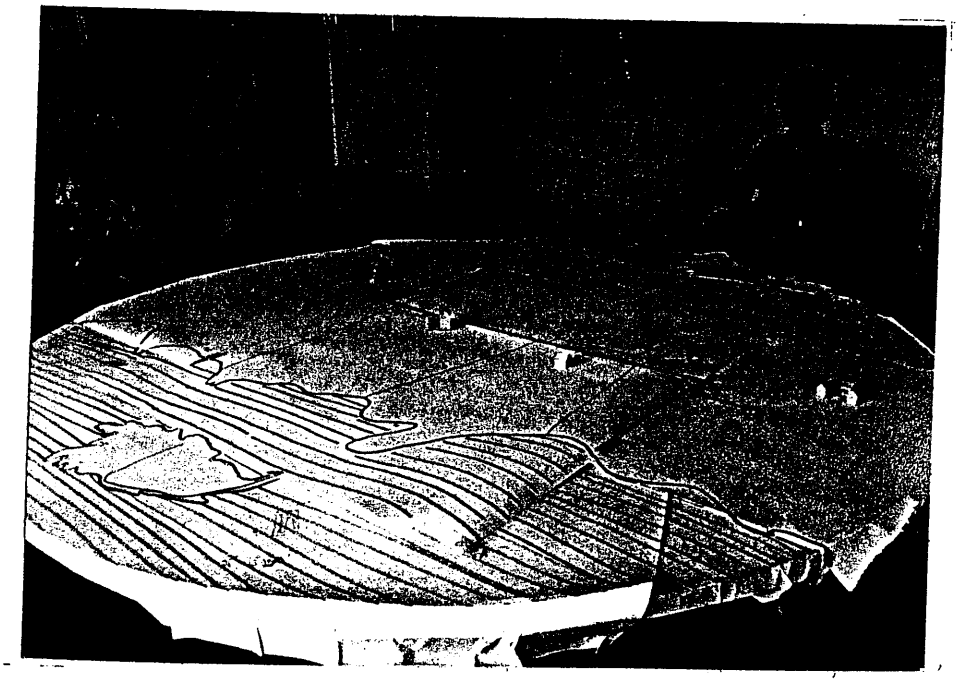


Fig. 1. THE GAME BOARD: Lines were drawn to define four ownerships.

STAGE 2

Rules of the Game

It was agreed that the fishermen could purchase a plot of land for the cost of one third of their catch.

.....

The game now started in earnest with the land owner, Lady Djamila, deciding to sell off areas of land. Her first action was to produce a landing area for the fish around which the fishermen built their individual houses and workshops. At this stage the other land owners refused to sell. (Fig. 2).

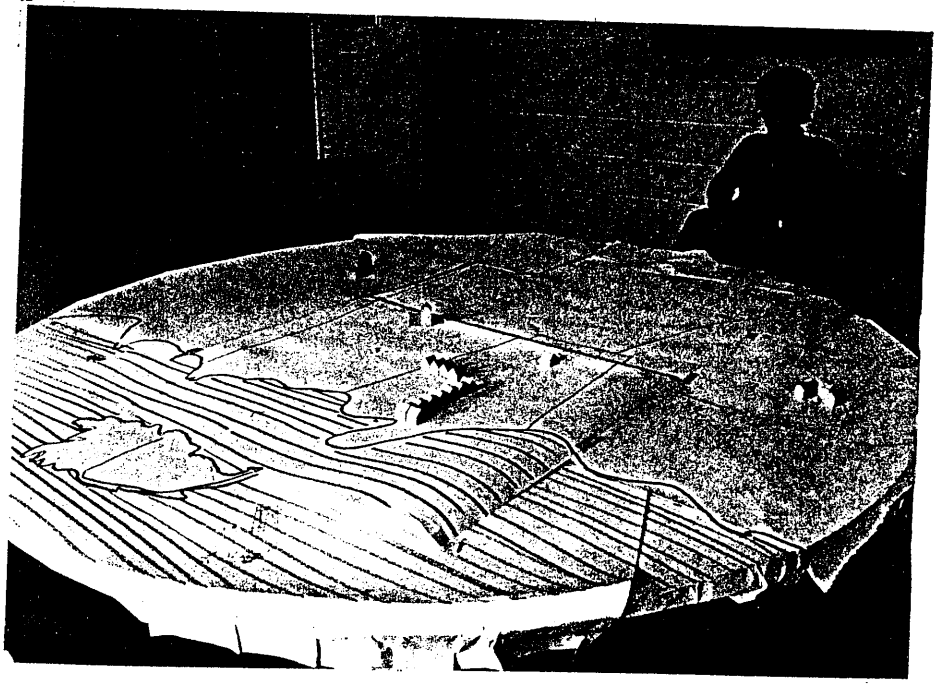


Fig. 2. THE GAME BOARD: Fishermen's houses and workshops have been built.

STAGE 3

Rules of the Game

No change.

.....

The fishermen had now filled the available part of Lady Djamila's land next to the square with the dwellings. The other side of the square, bordering Lord Ibrahim's land was the only land available for development to continue. By promising to build only the best quality buildings, Lord Ibrahim allowed the third side of the square to be developed. By this time the quantity of fishing meant that the community could diversify. The result was a large fish factory built some distance from the village.

Observations

With no prompting the participants had produced a settlement where they lived and had placed the factory some distance away from themselves on relatively useless land. (Fig. 3).

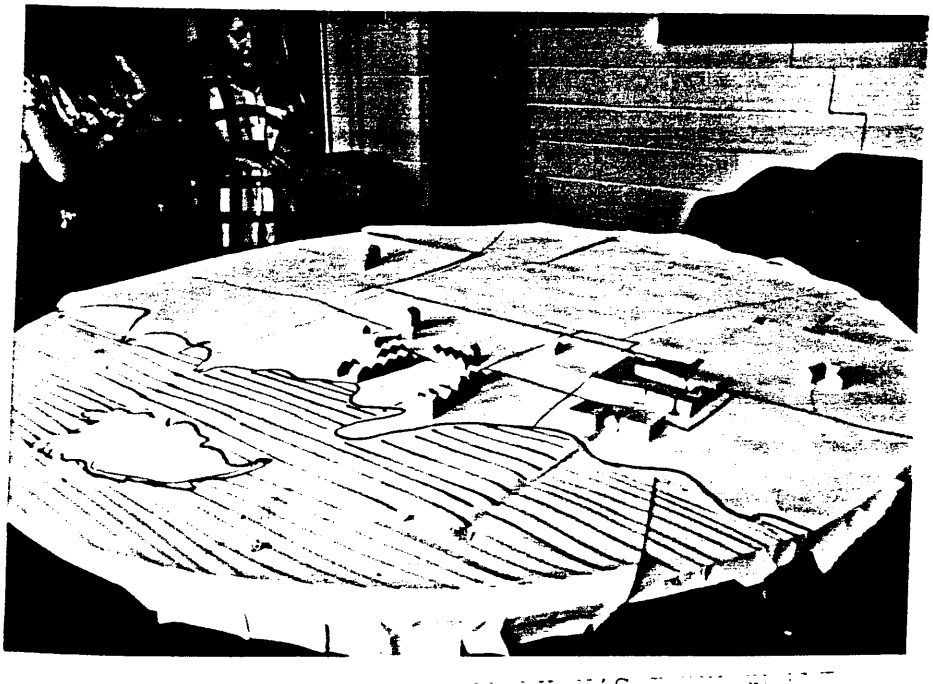


Fig. 3. A LARGE FISH FACTORY HAS BEEN BUILT

STAGE 4

Rules of the Game

With the increase in interaction between the players it was decided that some form of political decision making must be incorporated. The players therefore allocated three people who were to be their local government and it was agreed that ten per cent of the value of the properties would be paid to the local government for theinstitution of such things as roads. Lord Ibrahim donated a mosque to the community which was built close to the village and considerable building activity in the form of housing offices and local government administration took place. By this time all land owners had become keen to see when they realised theprofits that were possible. Most of the community was still related to fishing, including a fish market, secondary industries and the original factory which had now been extended. This growth which was spreading quite rapidly worried the local authority who decided to limit the growth by imposing a line approximately round the edge of the existing settlement, their intention being to refuse to allow building beyond this line. In order to enforce this it became necessary to have spokesman so elections were held which results in Ahmed being elected mayor.

As a result of the limit of growth the island became highly desirbable real estate and the municipality agreed to build a road out to it on a causeway. (Fig. 4,5.)

Observations

By this time the number of units of property had risen so that it became necessary to have the names of the owners upon them. It was interesting to note that the decision to limit the growth resulted in a completely arbitrary line just being taken round the urban area with no regard to what effect this would have on the future.

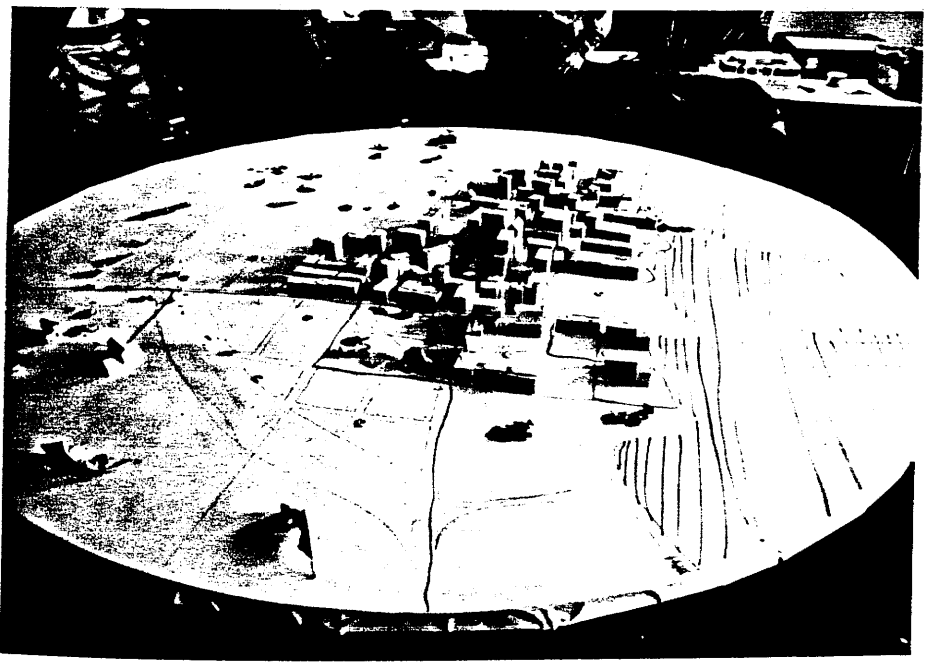


Fig. 4. THE ISLAND HAS BEEN CONNECTED TO THE EXISTING VILLAGE.
A LINE WAS DRAWN TO LIMIT THE GROWTH.

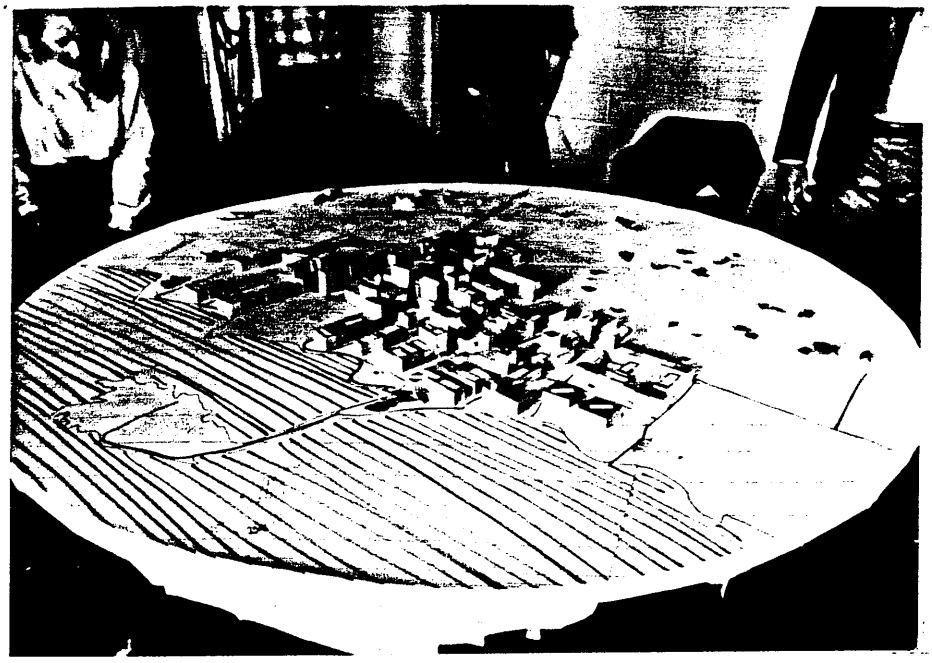


Fig. 5.

STAGE 5

Rules of the Game

A directive had come from the State saying that a main highway was being built and was due to pass through the centre of their settlement. Decisions had to be made as to how this was to be done. It was now considered that properties had been in existence sufficiently long for them to be showing signs of decay. It was therefore agreed that properties would be degraded on a throw of the dice. Four grades were used, represented by the four faces of the dice. The number on the dice represented the drop in the grade of the property. This regrading was to take place at the end of each round.

The new elections had produced a new mayor, Madjid, who insisted that the town had to improve its facilities as by this time a considerable tourist industry was deveoping which was greatly helped by the development of the off-shore island which changed from a small green island to being almost entirely covered by hotels. The government requirement for a road produced heated argument as to whether it should pass through the town on the inside line andproperties be demolished to make way for it. This was opposed by the property owners who suggested a ring road. This was opposed by the land owners who could see that such a ring road would limit their chances of land speculation. Eventually by popular vote a ring road was accepted. Outside institutions now started to build in the town, most noticeably a national bank. However, the main boom was now the tourist industry. (Fig. 6-7).

Observations

The planners seem to show no consideration for the environment, seeing hotels and land simply as a method of gaining a large financial return. The squabble over the ring road came to represent a very accurate reflection of the likely 'real' argument. The sites which were now being developed, particularly at the boom edge of the town, showed, in spite of the players chosen profession, the greed and insensitivity commonly associated with this type of development.

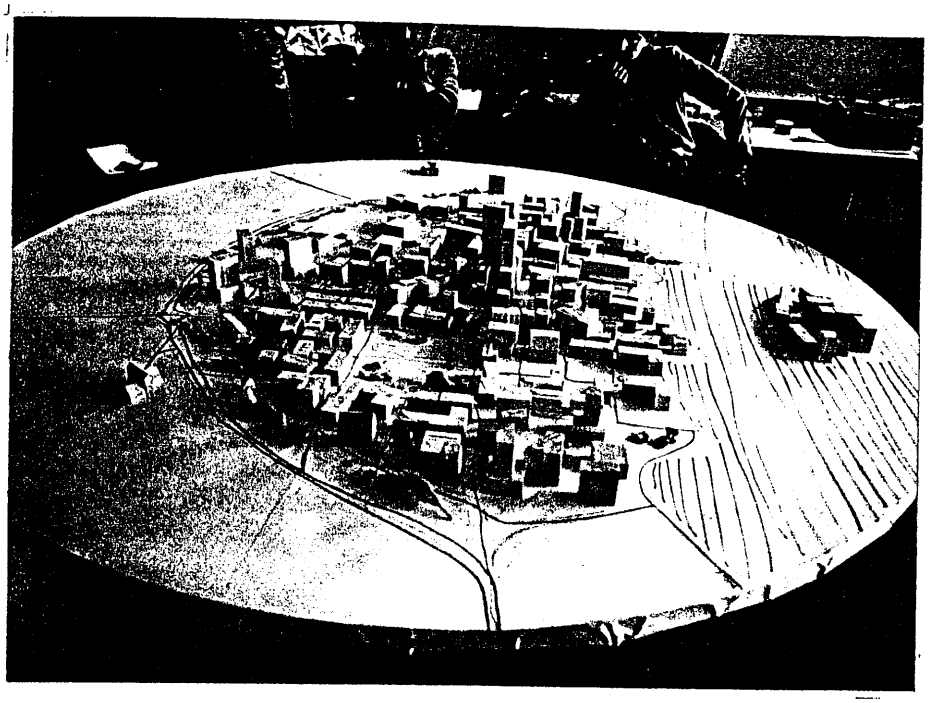


Fig. 6. A HIGHWAY IS BEING BUILT
THE ISLAND OFF-SHORE IS BEING DEVELOPED
THE FIRE WAS INTRODUCED TO DEFINE THE DISASTERS

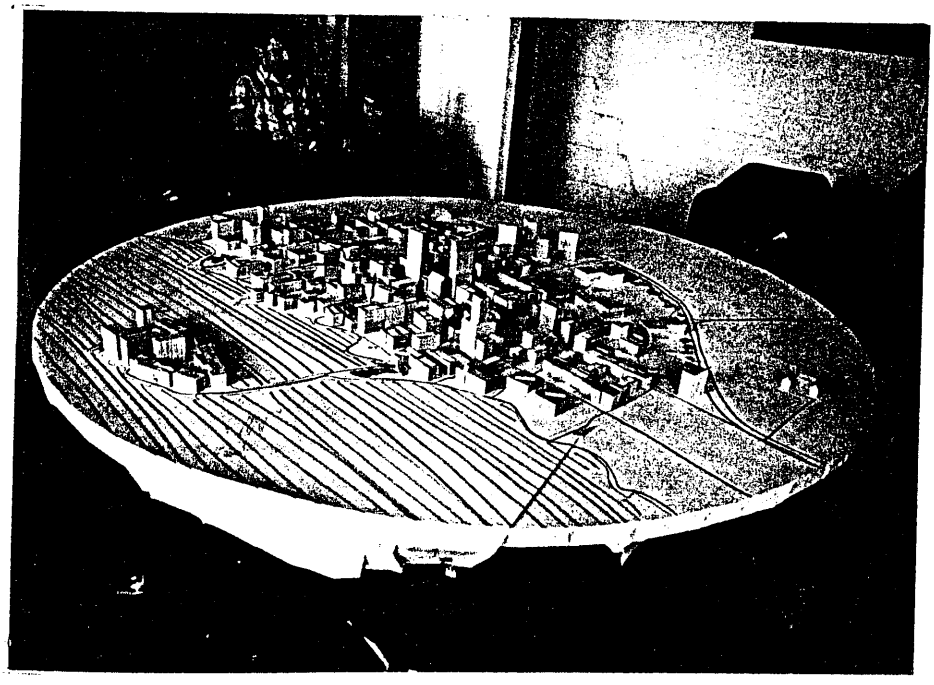


Fig. 7.

STAGE 6

Rules of the Game

No development was allowed across the ring road unless a bridge was built which cost the land owners one thousand dinars. No development at all was allowed until the local authority had built a sewage works and this had to be located next to the sea.

.....

The town was now booming. Everybody was operating as a building speculator. Those who had made the most money in the earlier stages were now happy to invest in the cost of a bridge to open up more land to the existing town. When this development was stopped by the lack of a sewage works, long arguments ensured before the necessary land could be purchased. The owner of this land was able both to be paid for his land in money and to be allowed to undertake considerable development elsewhere incompensation. The railway company agreed to bring a railway into the town provided its route could be agreed. Again, after considerable argument, the railway line was allowed along the coast to the fish factory and to follow the ring road. The railway company bargained with land owners as to where stations should be, exchanging the right of access for the necessary land to build on.

The city, which had originally grown in an organic manner, was now expanding on a crude grid system. People were taking little regard for facilities in the town other than those agreed in the last round.

At the municipal elections Ahmed was re-elected and the population decided that they wanted to make him mayor for life with the one provision that if a majority of the citizens

decided to vote to remove him, then elections would restart. Ahmed agreed to this provided he was allowed ten per cent of all their profits to form his income. The mayor's first action was an attempt to nationalise all the land. This was narrowly defeated by the land owners persuading one or two other wealthy citizens that it was got a good idea.

The national government prompted the city by suggesting that it needed a fire station. In the boom situation of the town this was forgotten and at the end of this round a disaster in the form of a great fire removed a considerable number of properties. (Fig. 8-9).

Rules of the Game

The disaster was decided by a throw of two dies with doubles causing disaster. The disaster was in the order of one to six, two sixes resulting in total demolition.

Observations

Interestingly the town had now developed into an east and west end, the east end containing the old fish factory, new sewage works and the goods railway, the west end being devoted mainly to tourist hotels and residences.

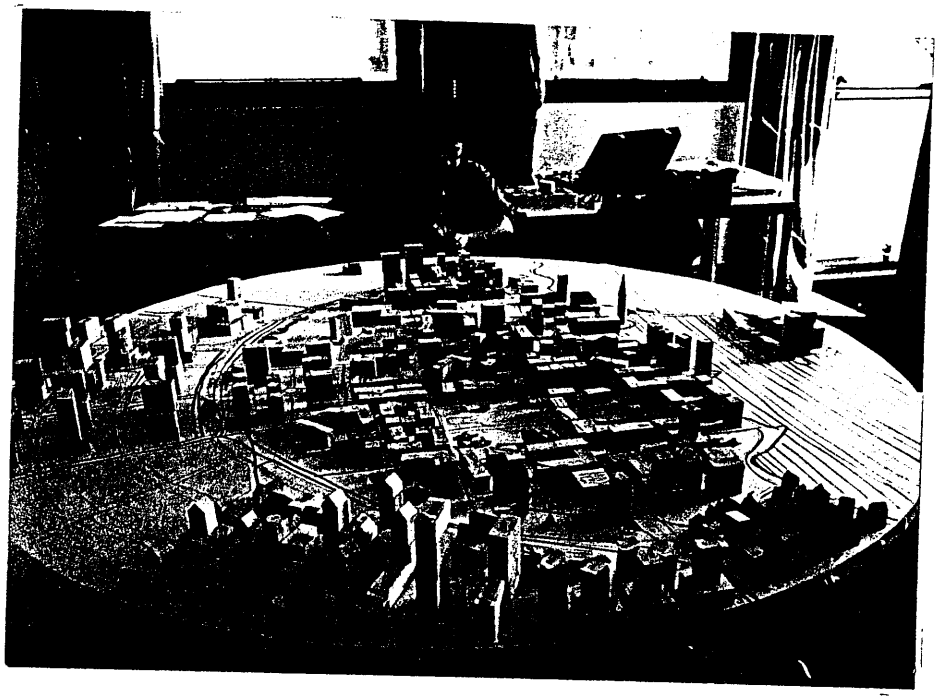


Fig. 8. A RAILWAY WAS BUILT.

AT THE END OF THE ROUND A FIRE DESTROYED A PART OF THE CITY.

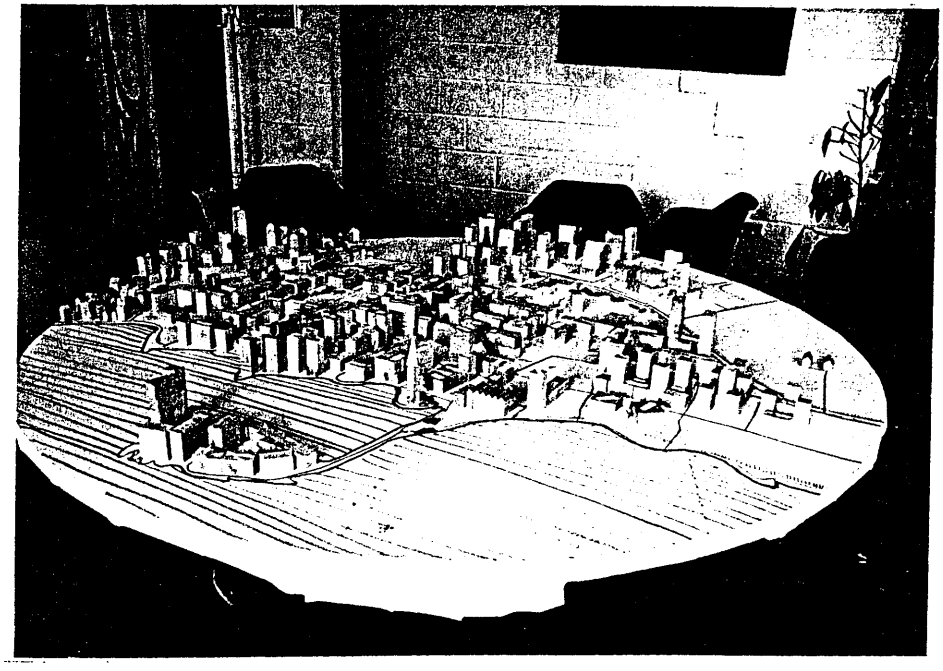


Fig. 9

STAGE 7

Rules of the Game

As property was still getting older and six faces of a dice are available, it was decided there would be six gradings of property with the two additional grades being adde at the bottom of the scale.

.....

The town continued to boom. People still operated as property developers in spite of the apparent minor change in the rules. Now that considerable development had taken place across the ring road and therefore access to the centre was limited, sub-centres began to develop. The municipal offices that were greatly damaged by the fire in the last round were re-built on a far grander scale. Developments were now increasing in height as only one piece of new land remained unbuilt on. This piece of land remained as it required a new access across the motorway and was of relatively small size.

At the end of this round, the new six faced dice syste had a drastic effect upon property values and many players found they had lost money during this round and one had gone bankrupt and had to borrow from the bank in order to remain i the game.

At the end of the round, it was also noted that in the excitement, the players again overlooked the building of a fire station. This sresulted in more fires, one of which swept through an area of flats on the edge of the town.

Observations

It was surprising that only one player realised that property investment was now not as lucrative as it had been, due to the drop in values. The remaining players continued to invest as they had done and it was not until the financial reckoning at the end of the round that they realised that property no longer represented the easy money it had done previously.

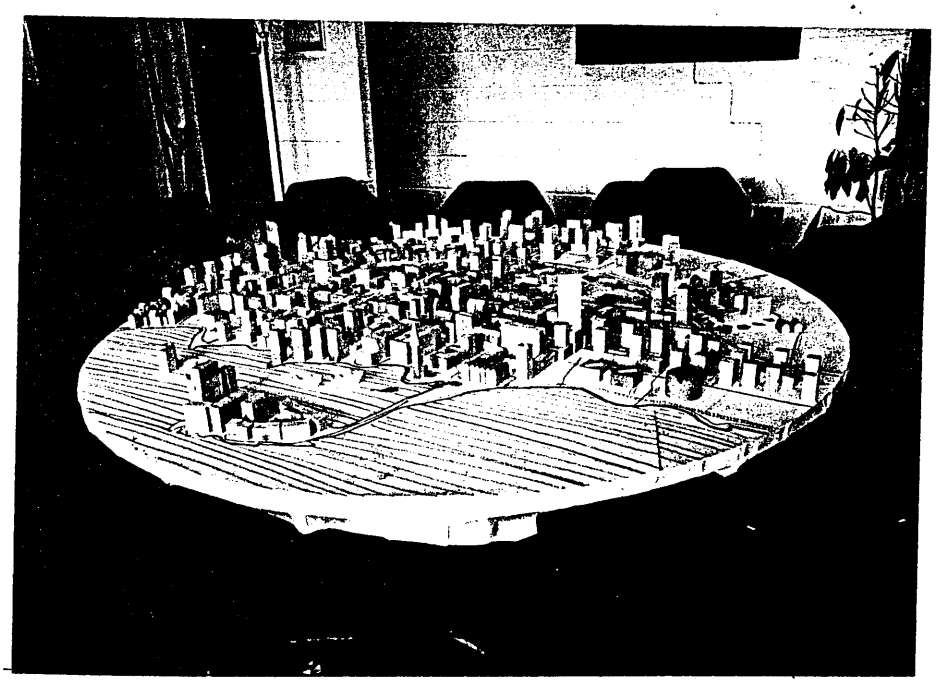


Fig. 10: THE DICE PRODUCED A DECREASE IN THE LAND VALUE.

THE FIRE STATION WAS IGNORED WHICH RESULTED IN MORE FIRES.

STAGE 8

Rules of the Game

Realising thatproperty had ceased to provide good returns, it was decided that the various activities of the town should be allowed an income within the rules of the game. In order to facilitate this, the value of property was multiplied by a factor relating to each particular occupation. This factor was produced by a throw of a dice. One player elected to remain in property, his decision being supported by the fact that he had made the most money. The others became (fig. 11-12).

1. Import/export agents
2. Managers
3. Service industries, notably a bus service
4. Purveyors of education
5. Hotels for tourism
6. Manufacturing industry

The first action in this round was for the municipality to build a fire station in order to limit the disasters that had previously befallen the town.

The change in the usefulness of property as a generator of money produced far more buildings of different types, notably manufacturing industry. Players now discovered that upgrading their property cost them so much that this did not represent a good return on money invested. The difficulty that this placed them in was that now that the town was fully developed, they had to gain permission from the municipality. This took time and was not always for quite the way in which they wanted it, the most noticeable case being a multi-storey

tower block proposed by Lord Ibrahim beside the old mosque which, although no higher than buildings on the periphery was a planning application that virtually every player was involved in, arguing for or against. On appeal to the umpire, a decision was given that it could be built four floors less high than originally proposed.

At the end of this round when the transactions were completed it was discovered that people were now making more money from their occupations than from financial speculation in property and that the student with the bus service had actually made more than anybody else. This incensed the municipality who promptly nationalised it.

Observations

The six grades of property had proved to be a far more effective mechanism than expected, producing not only a shift in the financial pace of the town but also bringing a very effective mechanism into play to show up therelationship between upgrading a building and rebuilding it.

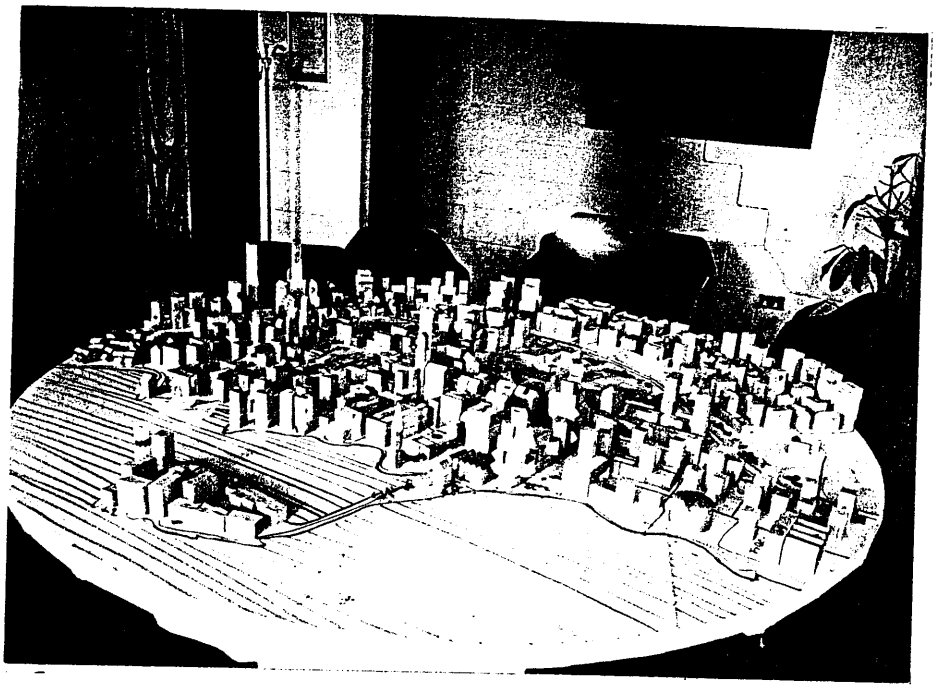


Fig. 11. THE DICE WAS THROWN AND PRODUCED AN INCREASE IN THE VALUE OF PROPERTY.

THIS RESULTED IN A HIGHER INCOME FOR CERTAIN ACTIVITIES.

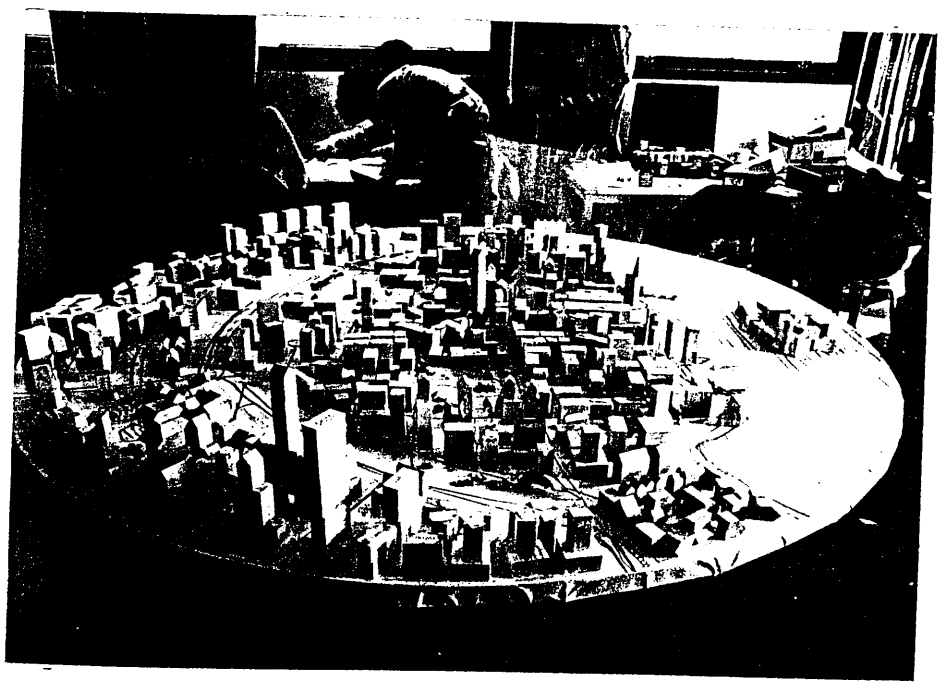


Fig. 12.

STAGE 9

Rules of the Game

Up to now the town had been allowed to develop with everybody operating equally. It was decided as a last round to see what would happen if the number of landowners changed. Therefore several players were asked to give up their role as owners of property or other interests and were divided up with three areas of power.

1. The business interests
2. The development interests

   and
3. The community interest which was represented by private citizens.

The citizens out of the game in theory had no power except what they could produce politically. The community however did have a leader in the mayor and he was supported by a planning officer.

The appointment of a planning officer slowed down development as the process of gaining permission to build now required consent at several levels and those given the consent were under pressure from the community at large, resulting in lengthy arguments. Also the nature of the town was changed by the original old development with its narrow roads being pedestrianised. In order to make any new development possible without increasing the land used, greater heights were allowed. A new aspect appeared in the form of squatter settlements which were inclined to occur on any open spaces. Continued pressure from this caused the municipality

to build housing but it experienced considerable difficulty in obtaining land from the remaining land owners. (Fig. 13,14)

Observations

The complexity of the town now overran the ability of this gaming form to keep up with the interplay of the various power groups. Also, the limited number of players meant it was impossible to get a realistic balance between the community and the other interests. In this game the community actually represent only half the available population. Also the necessary bureaucratic back up to work out the negotiations and losses of the various players require more manpower than was available. Finally it became obvious that the use of the building block gave a good representation of a town being built but did not give all that good a representation of a town actually working.

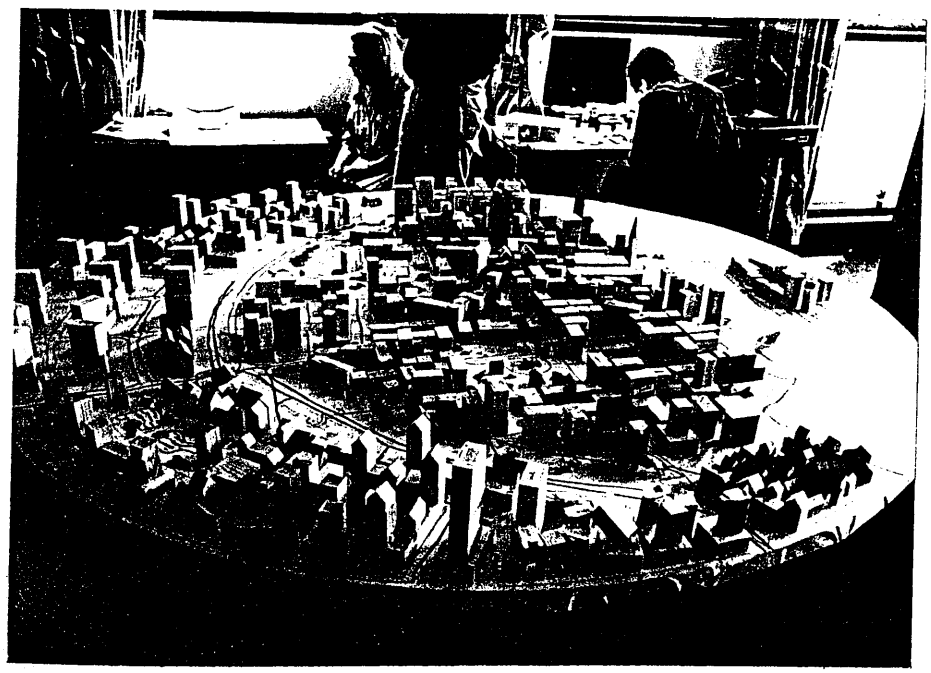


Fig. 13: SEVERAL PLAYERS WERE ASKED TO GIVE UP THEIR ROLES AND DIVIDED UP WITH THREE AREAS OF POWER

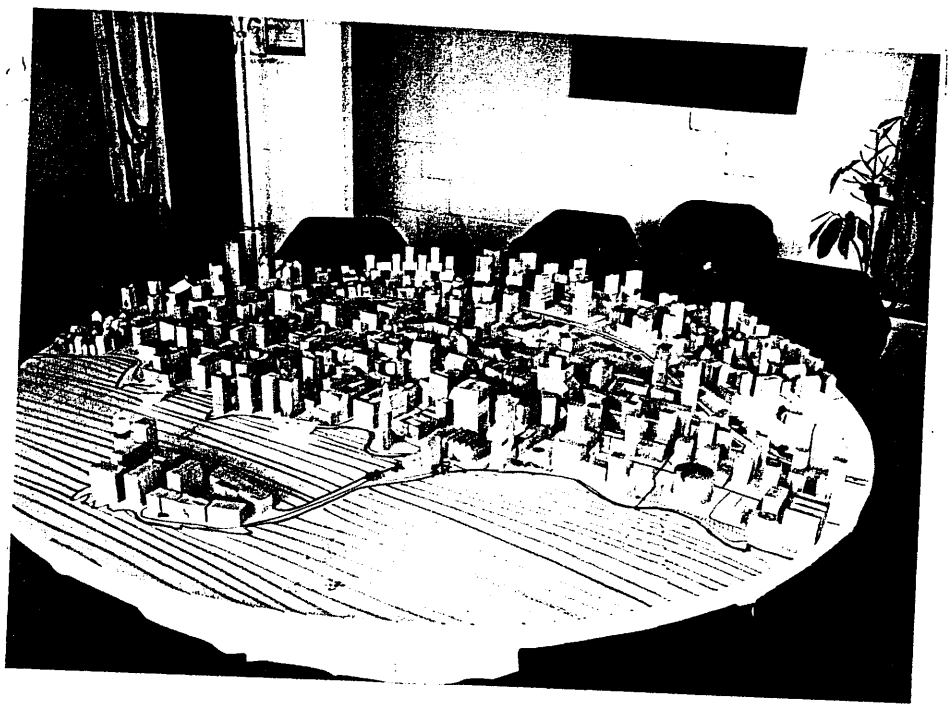


Fig. 14.

CONCLUSION

Looking back over the processes of the game, a number of conclusions can be drawn. Firstly players gained considerable enthusiasm for what was in fact a relatively primitive piece of equipment. The game also, as a side effect, brought out the players' personalities in the way in which they played their roles. It was generally agreed that it was amazing how accurately the system appeared to simulate the growth of an actual city and the participants found it interesting to look back over the way they had reacted to their roles, in particular when the game was finished and they looked at it more objectively, they were amazed at the way they had developed the town and the lack of foresight

that they had used. This style of game was probably pushed to fairly near its limit in this exercise. To take it further would require more mechanisms to enable the students to interact with one another on levels other than property dealings. However, as an exercise it was agreed to have been extremely interesting.

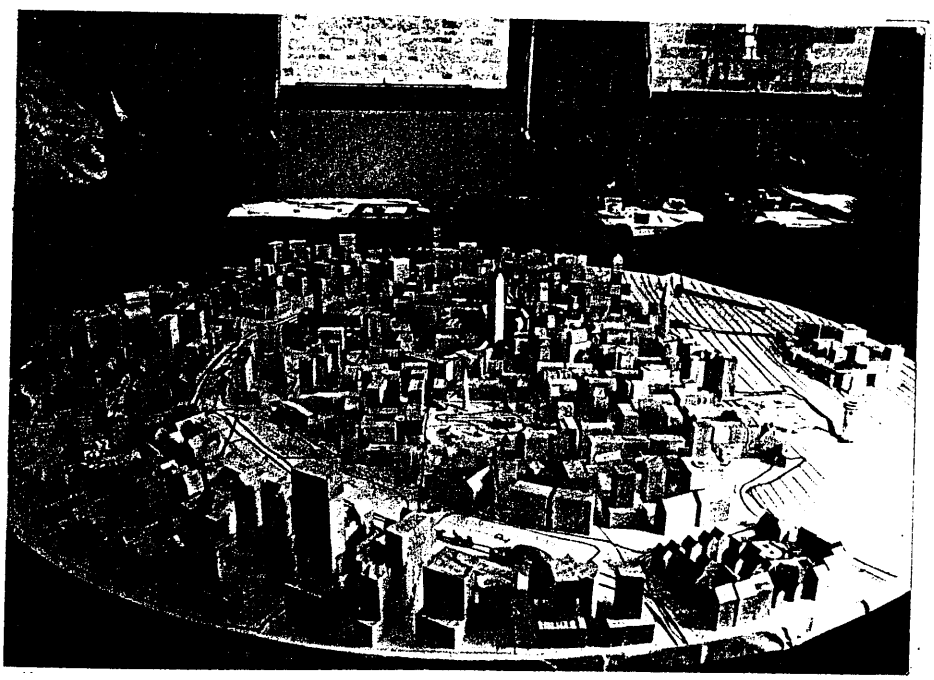


Fig. 15. RESULTS OF THE GAME

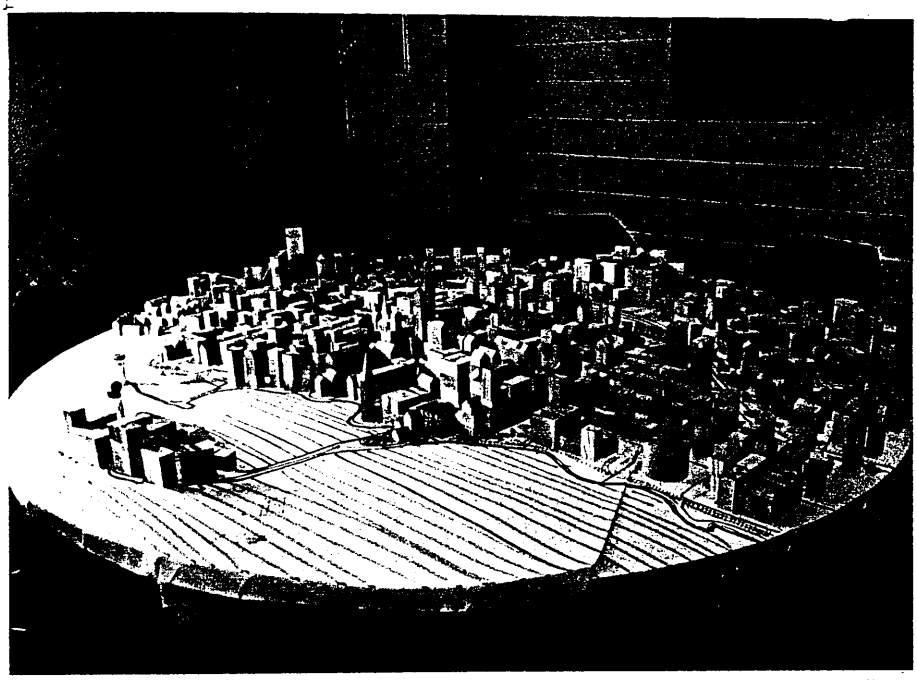


Fig. 16.

2.3 THE HOUSE DESIGN GAME:[2]

The objectives of this simulation are based on the following needs:

a. The need to involve the user in the design of his/her house.

b. The need to shorten the important but often inefficient preliminary design stage.

c. The need to improve communications between house designer/builder and its user.

d. The need to inform the designer and the user on the consequences of their decisions.

e. The need to bring the services of the environmental designer.

There are three stages in the process of house design:-

1. A pre-planning stage
2. A planning stage
3. An operational stage

Each of these sequential stages was made into an operational game.

The first game in the sequence is the pre-planning simulation and its purpose is to gather initial information about the users.

During this game the client and the architect explore the family's time dependent spatial and functional needs, and desired life style. The output of this game is an interaction diagram and a description of the family's spatial needs.

The second simulation, the planning game, takes the output of the pre-planning game and translates it into an operational layout.

Each space in the house is independently designed (for ideal size), and in turn all spaces are assembled together on a site.

The third game is the house operation simulation. This simulation evaluates the operation of the house produced by the planning ame through mortgage time, 1-30 years.

Decisions made by the client and the architect are evaluated and success or failure is achieved through adequate or inadequate fit of the house to the social and economic demands of the family through time.

"So you want to build a house"

The housing pre-planning game:

A game has been created which involves the interactton between the prospective house owner (the client) and the architect. The client can be one of many people within a family, now or in the future. This is the role oriented type of game in which the players, act in each of the roles which might affect the design and/or the continuing development of a house.

The basic concept is the design of a house by an architect with the aid of the family for whom the house is being constructed.

The rationale is that people are often confused in ascertaining exactly what they want or really need in a house. This game will force them to have a better understanding of their goals and the achievement thereof or suffer the consequences. Success will be measured by balancing what the family desires in a house, their means of acquiring these wants (finances) and the end result.

All interactions will be between the members of the family or families and the architect. The latter of which becomes game overall director. The Participants are the architect (game overall director), the father, the mother, the sons, the daughters with the possibility of various relatives, such as mothers-in-law, uncles, aunts, etc.

The objectives of the player are to achieve his goals whether it be in terms of maximising desired life style, utility, spatiousness or whatever, in the context of available finances.

The creation of game reality is achieved by giving the architect or game overall director all of the basic elements of a house in three degrees of size (large, medium, small) and three degrees of quality (high, medium, low). Players will be able to assemble their house from the components available. Freedom of a choice is only limited by the funds given to a player or family.

The concept then revolves around what the family wants at the start of the game in terms of a house, the compromise between what they want and what they can afford.

The steps of play of the pre-planning game:

1. Client fills out the evaluation array.
2. Determine the economic group of client through the roll of dice, or by client's economic position, and purchase a site.
3. Determine the family size through roll of dice or by client's actual family size.
4. Client purchases rooms, paying game controller:
   a. Client chooses between 3 sizes and 3 finishes for each room.
   b. Client will have a list of rooms available, their sizes and finishes included.
   c. Client will make purchases with available funds.
   d. Client can at any point during the game, change his mind about previous decisions. They will pay out or recover funds accordingly.
5. Game overall director will arrange rooms to client's desires.

6. Determine total sizes and cost of house.

"So you have a site"

The house planning game:

The house planning game is in reality the stage in the design of a house where the architect having gathered all the needed program data, and determined the spatial interactions, proceeds to give form to the interaction diagram.

The object of this game is to interest the client in a design and budget that would meet his required needs while the architect tries to compromise his ideas and knowledge with that of his client.

The interactions, participants, and objectives of this game are the same as for the pre-planning game.

The steps of play of the Planning Game:

1. The architect draws all site characteristics such as location of trees, location of utilities and easements, required setbacks, desirables and undesirables, views and other pertinent environmental information.
3. Different ordinances such as setbacks, density, etc. may be applied now.
4. Each individual space is now reexamined and reevaluated so as to make desirable effects or furniture arrangements possible.
5. Circulation and room relationships are formalised and iterated until an acceptable layout is obtained.
6. The total square footage is computed and the pre-planning cost assumption is compared with this new

value. If large discrepancies occur, new room sizes and spatial arrangements are made.

"So you bought a house"

The house operation game:

This game simulates and evaluates the operation of the house designed in the planning game through time (1-30 years). The object of this game is to make the client and the architect aware of the future consequences of their design decisions.

The interactions, participants and objectives are the same as for the pre-planning game.

The steps of play of the operation game:

1. Owner fills out compatibility array
2. Owner gets financing
3. Owner is given 40% of his yearly income every 5 years.
4. Owner purchase insurance
5. Owner pays bills, taxes, utilities,.....etc.
6. Natural disaster.
7. May build additions at a cost of 1.2 x original cost of similar Room ^{2}.

CONCLUSION

The house design game is a tool that demonstrates the many existing constraints in the processes ofhouse design and house ownership.

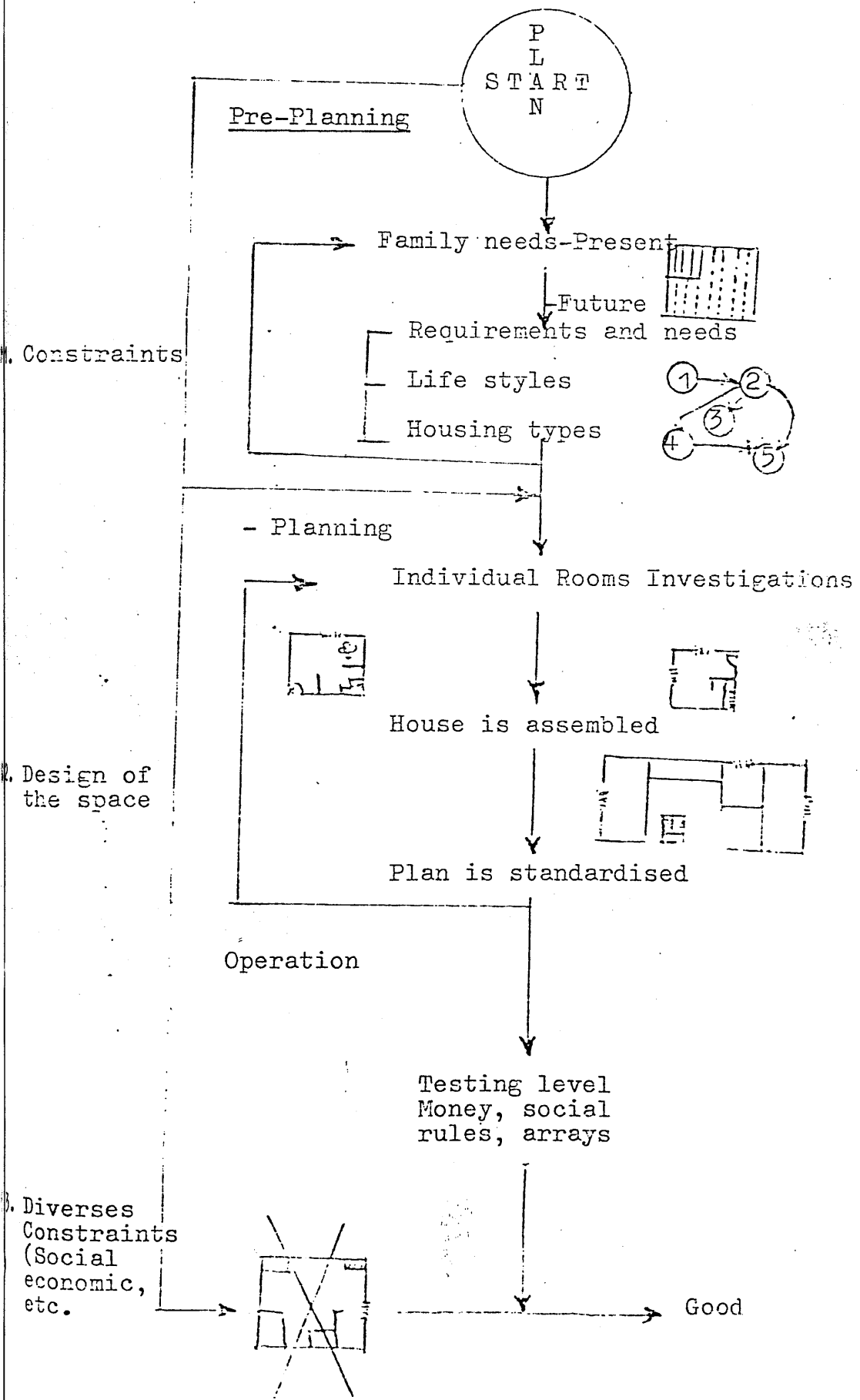
If the house design game guides the client-architect team into the realm of acceptable feasibility.

If the users of the house are set up to invent a new housing milieu, then the game can be used as an exploratory tool for possible futures.

The house operation game is presently restricted to a thirty year mortgage period, this restriction will be lifted and the game will be adapted to play over any mortgage period.

The teacher can use the house design game to effectively and rapidly demonstrate the processes involved in house design and house ownership.

The structure of the game can be altered to incorporate a series of pre-programmed situations such as diverse sites, diverse clients, etc. This allows the student to experience a wide variety of simulated life experiences.


P
L
START
N
Pre-Planning
Family needs-Present
Future
Requirements and needs
Life styles
Housing types
1. Constraints
- Planning
Individual Rooms Investigations
House is assembled
2. Design of the space
Plan is standardised
Operation
Testing level
Money, social
rules, arrays
3. Diverses Constraints (Social economic, etc.
Good

CHAPTER II. REFERENCES

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   (p.27-5.1)

CHAPTER III

A. DESCRIPTION OF THE SITE

B. THE ALGERIAN SYSTEM OF DEVELOPMENT

Summary:

In this chapter I shall be making one step forward to the introduction of Gaming Simulation into the Algerian educational process by selecting a scenario for the game situated in the City of Algiers (Quartier de la Marine).

The application of the game on an Algerian context will enable students to understand not only the rules of the game but dealing with the local system of development and the existing conflicts in the Algerian society.

When confrontation is made between the two (game and site) we actually end up with a general layout for the site (Quartier de la Marine) and hopefully this will show a different approach to how development proposals can be generalised.

A. THE DESCRIPTION OF THE SITE (THE QUARTIER DE LA MARINE).[1]

3.1 THE"QUARTIER DE LA MARINE"IN ITS CONTEXT

Historically the upper casbah formed an urban system which worked as a whole with its centre located in the lower part. During the colonian era, under the pressure of the topography and due to social and political changes, the city grew eastwards. With the harbour extending east, new activities connected to the part started to develop. Meanwhile, the centre moved towards this direction on a linear development along the coast. The Bab-El-Oued neighbourhood to the north west is a secondary centre operating at a local level.

3.2 THE TOPOGRAPHICAL IMPACT

The old town of Algiers is topographically divided into two parts:

The upper casbah, stepping down on a sloping site

The lower casbah on the flat site, where the marine neighbourhood is located.

The lower casbah has a very attractive setting within the urban context of Algiers. There are excellent views from the height of the city overlooking the historic centre.

3.3 THE VEHICULAR TRAFFIC MOVEMENT

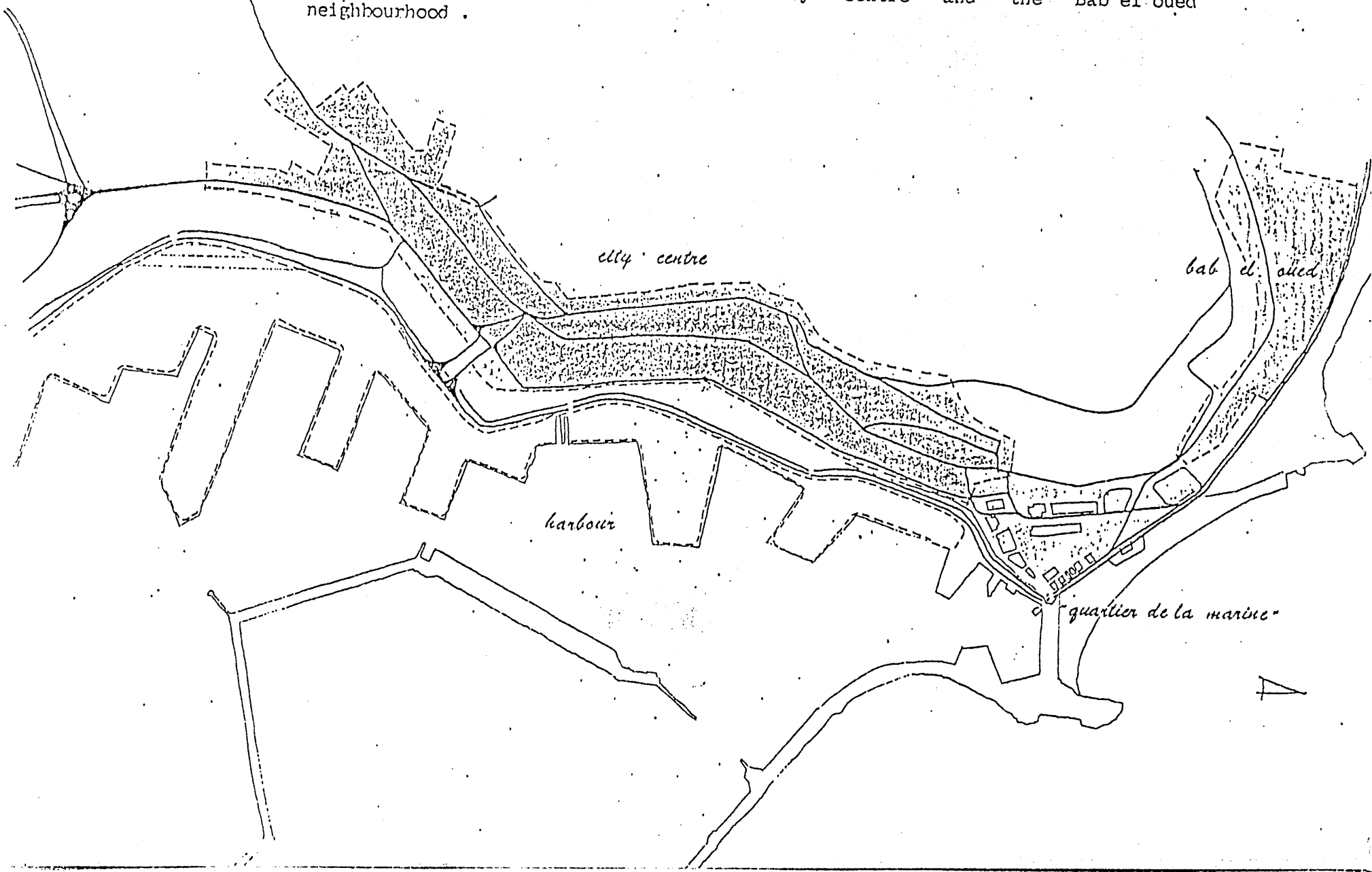
Today's traffic situation destroys the former quiet character of the quartier to la marine. The "Rue Amara Recluid" leading the transit traffic in a south-north direction carries heavy and busy traffic cutting off, the area from the sea. Anti-environmental effects of traffic have been identified as a major problem within the study area, such as danger, noise, fumes, vibrations, etc.

3.4 THE PEDESTRIAN MOVEMENT

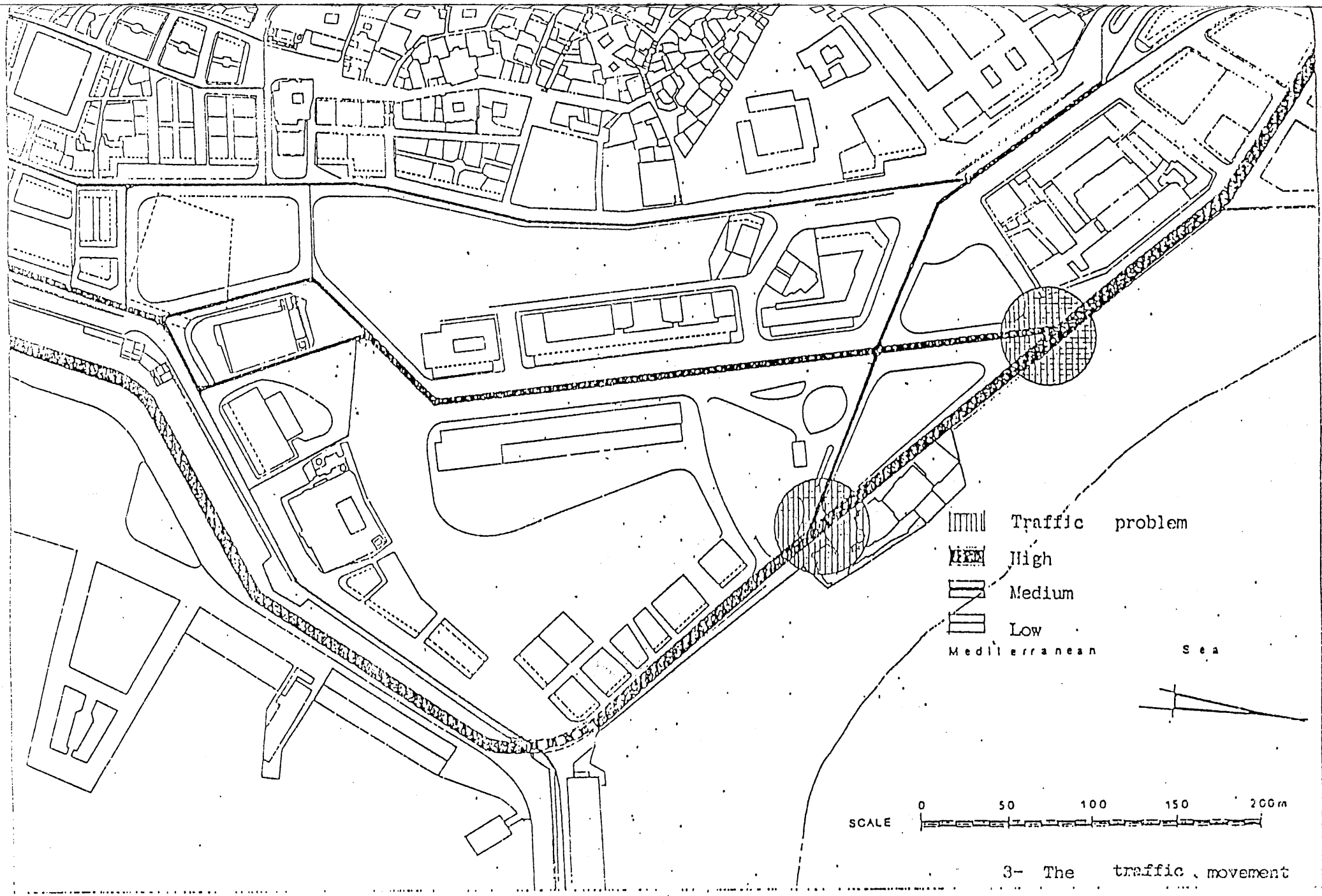
In addition to the streets which accommodate most pedestrian movement there is a pedestrian route of particular significance. The historic axis generated by the "Rue Bab el-oued " and "Rue bab Azzoun" linking the city centre to the Bab el oued neighbourhood. The continuous system of arcade linking these two streets is suidenly interrupted in the "RueBab-el-oued ", where only the west side of the street is partially bordered with arcades, whereas the

1. The Quartier de la Marine : the enclave.

Thee area is located between the city centre and the Bab el oued neighbourhood .



2 Topographical impact; the contour map.



3- The traffic movement

last side is left completely open facing new ten storey buildings. (Refer to plan "Vacant Site") The Rue Anatolefrance" and "Rue Amara Rachid" present great potential and offer excellent views out to the sea and the admiralty.

5. THE VACANT SITE

Negative open spaces were left after theold buildings had been pulled down. The tall and self-righteous blocks laid out in 1950 are unrelated features destroying the whole townscape. The traffic movement in addition destroyed the relationship of this old core with the whole casbah. Considerable areas of the chosen site are vacant and present great possibilities to restructure this decaying centre.

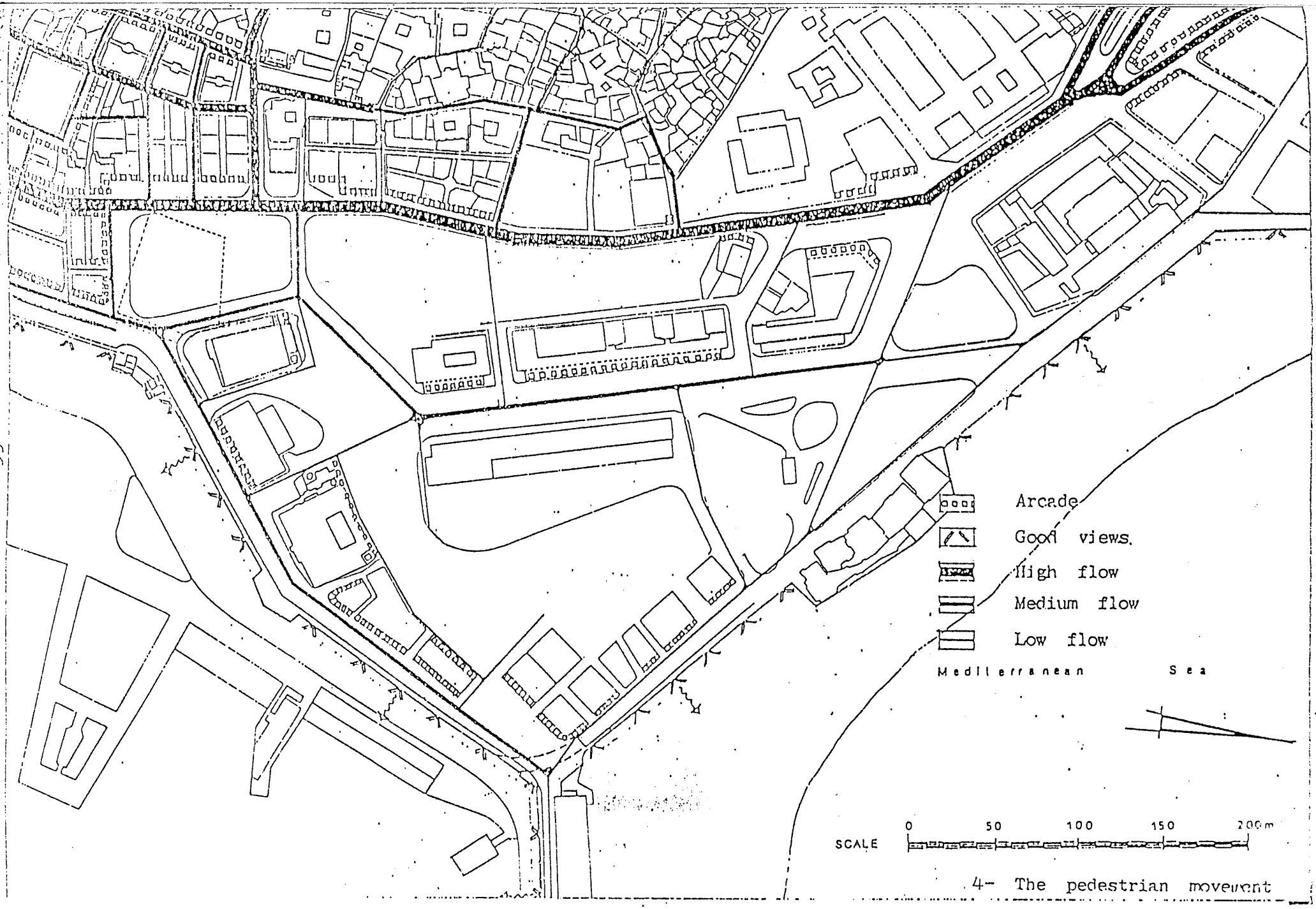
6. THE LISTED BUILDINGS

The casbah is one of the nation's historical treasures and its eleventh to nineteenth century work is the city's greatest historical architecture.

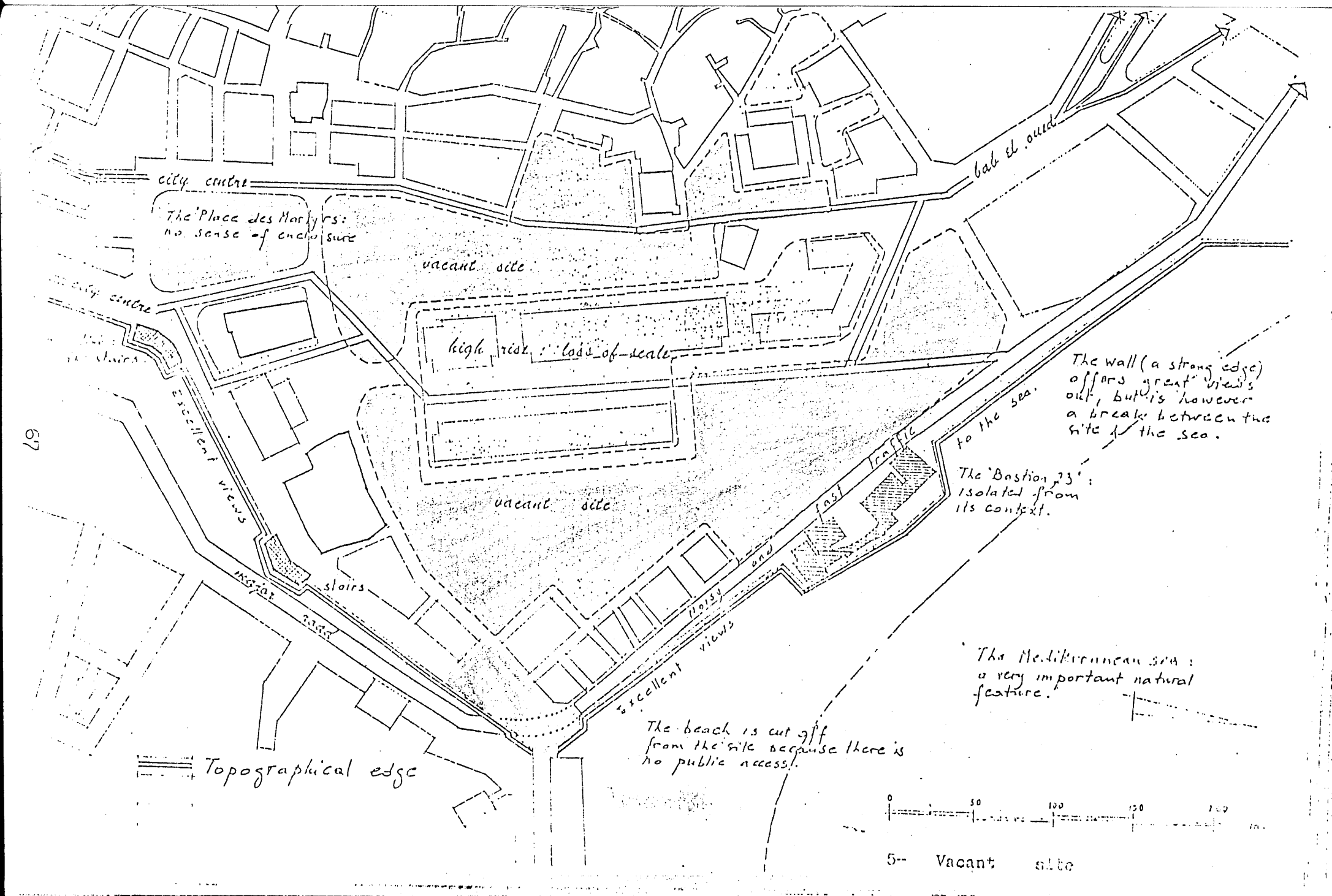
a. "Djamaa el Kebir": the Great Mosque is a well preserved 11th century mosque, known as the oldest one in Algiers belonging to the Arabo-Berber Era.

This almorarid mosque which is not very large, is provided with eleven naves perpendicular to the Quibla, and five boys separated by two lines of transversal arches. The rectangular courtyard is lined on the east and west by three galleries which in fact, constitute the extension of the prayer hall.[4]

b. Djamaa el Djeidid: The fishermen's wharf mosque. This building was founded in 1660 during the Ottoman era.



4- The pedestrian movement


city centre
bab el oued
The 'Place des Martyrs':
no sense of enclosure
vacant site
city centre
high risk : lack of scale
The wall (a strong edge)
offers great views
out, but is however
a break between the
site & the sea.
to the sea
traffic
The 'Bastion 23':
isolated from
its context.
excellent views
vacant site
stairs
noisy and
excellent views
The Mediterranean sea :
a very important natural
feature.
The beach is cut off
from the site because there is
no public access.
Topographical edge
0
50
100
150
200
5-- Vacant site

This cruciform building demonstrates some features typical of Algerial mosques during the Turkish period. The sanctury is covered with barrel vaults and there is a central ovoid dome supported on Ottoman type penditives and semi-circular arches.[5]

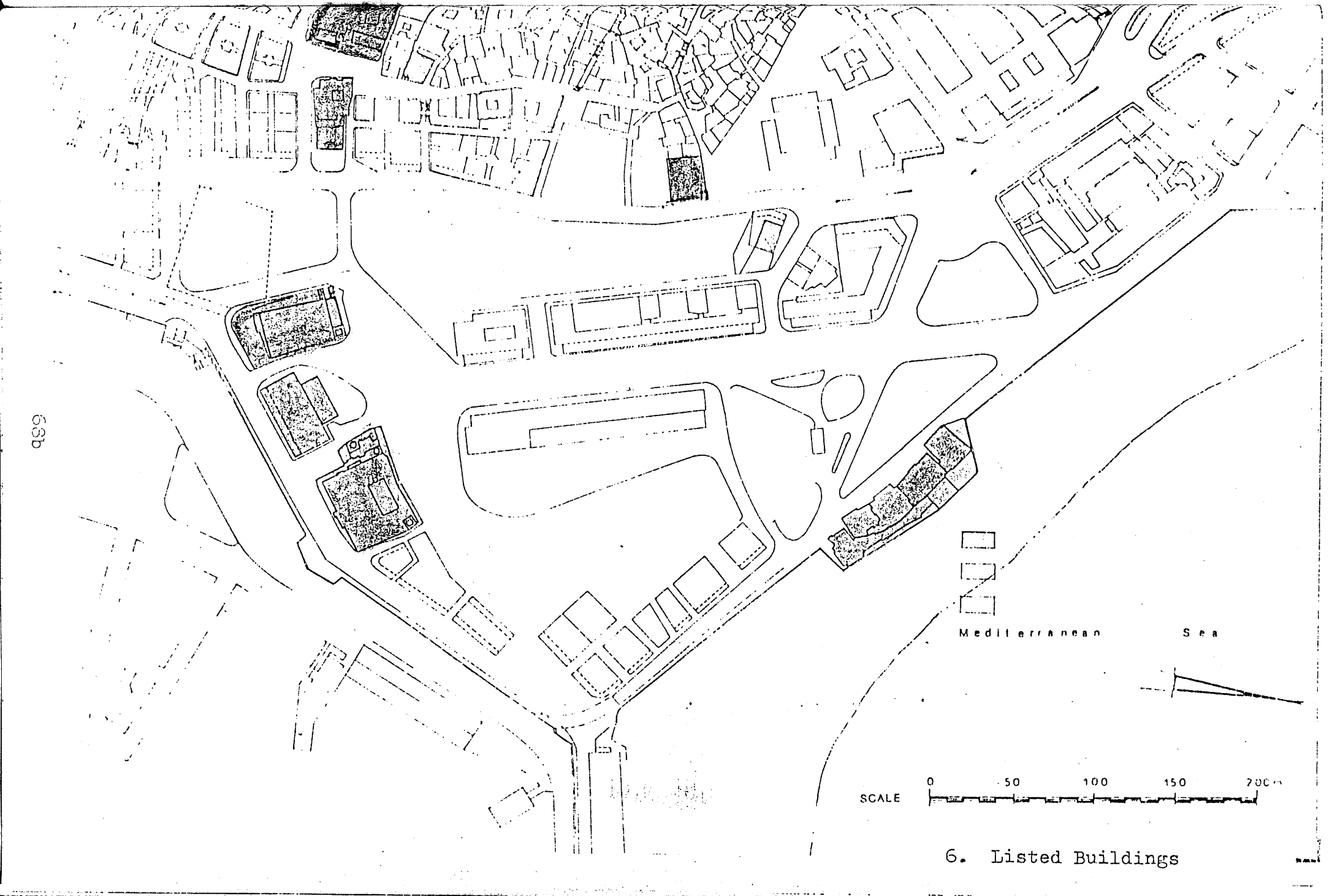
c. The Katshawa Mosque: This moseque which was probably erected in 1612 was entirely rebuilt in 1794 by Pasha Hassan, but its transformation into a church has considerably altered its aspect.[6]

d. The waterfront: This arcade system supports the waterfront. It was designed by Chasseriau and built in the mid 19th Century. This impressive and monumental realisation is today a break between the port and the city. This very elegant waterfront presents however many possibilities for reusing the volumes underneath.

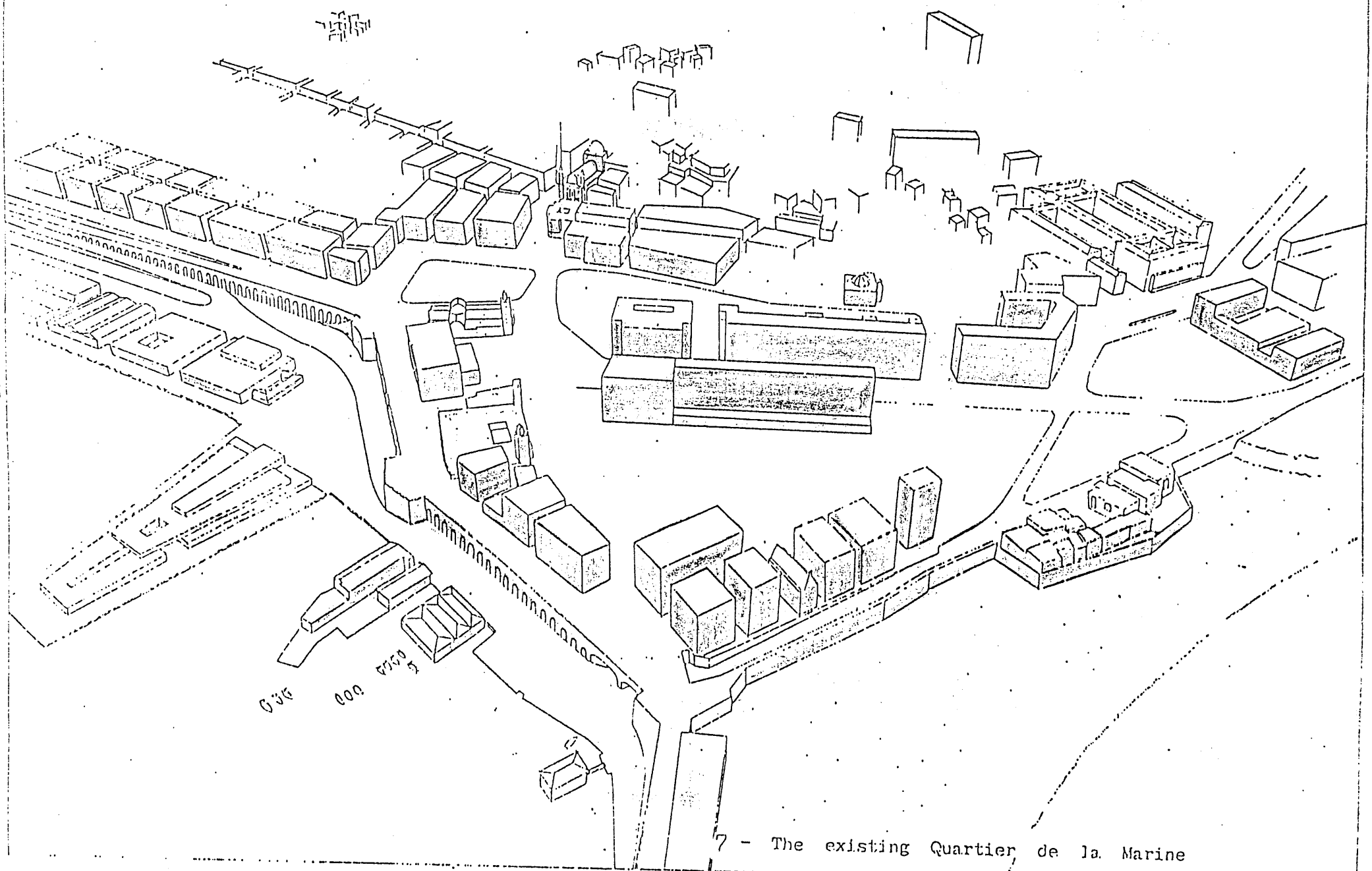
e. The Dar Aziza Palace: This delightful building, which faces the Katshawa Mosque is constructed round a central square courtyard reached by a narrow corridor. Diverse rooms open out into this courtyard on the ground floor, whilst on the first floor a gallery with carved wooden balconies and wreathed columns precedes other chambers.[7]

This building is today isolated from its context.

f. The vaults of the "place des Martyrs": The lower level, belongs to the Turkish era. Material of old Roman buildings were reused to build the vaults. The upper level on which stands the present "Place des Martyrs" was raised in the 19th century.

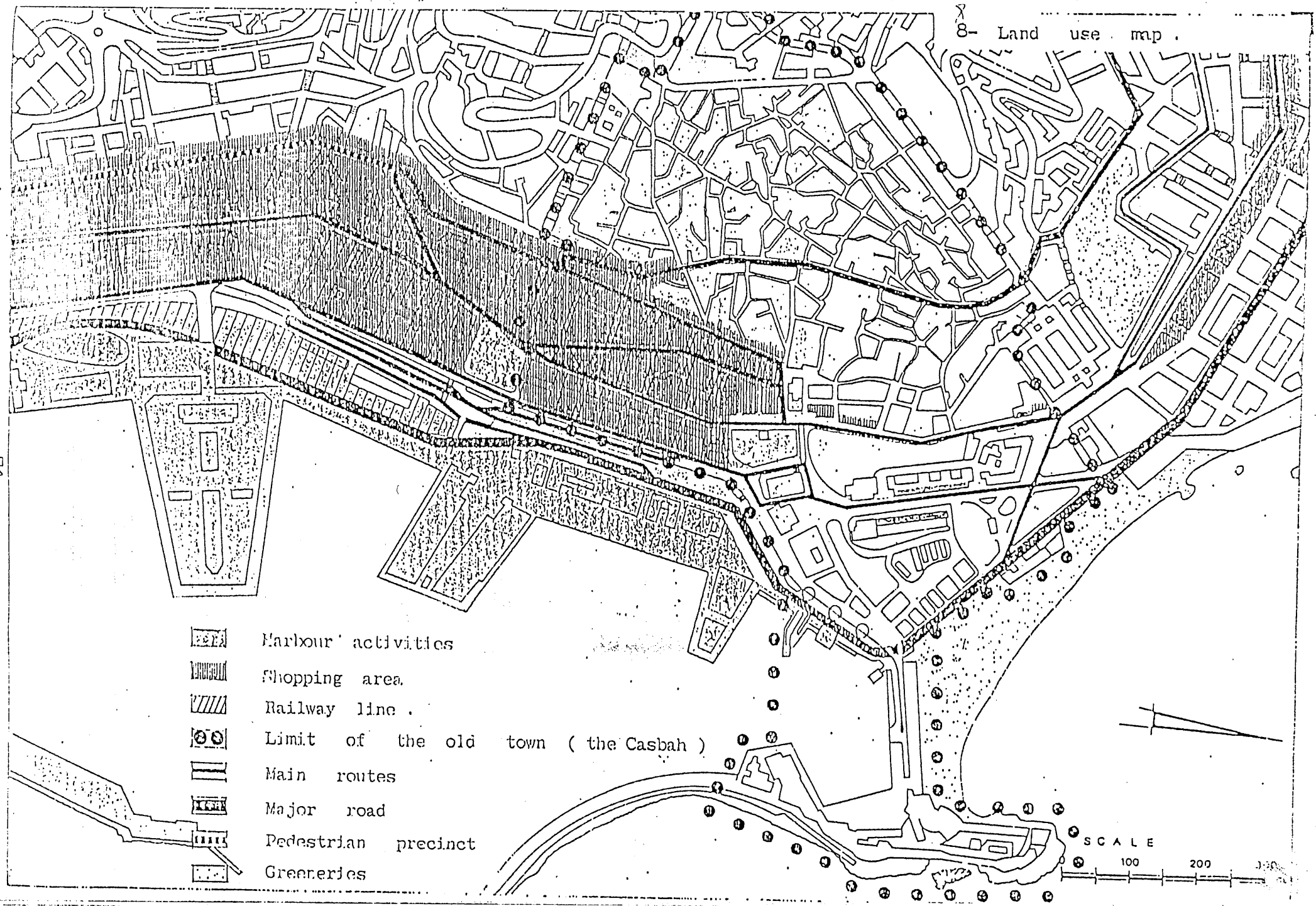


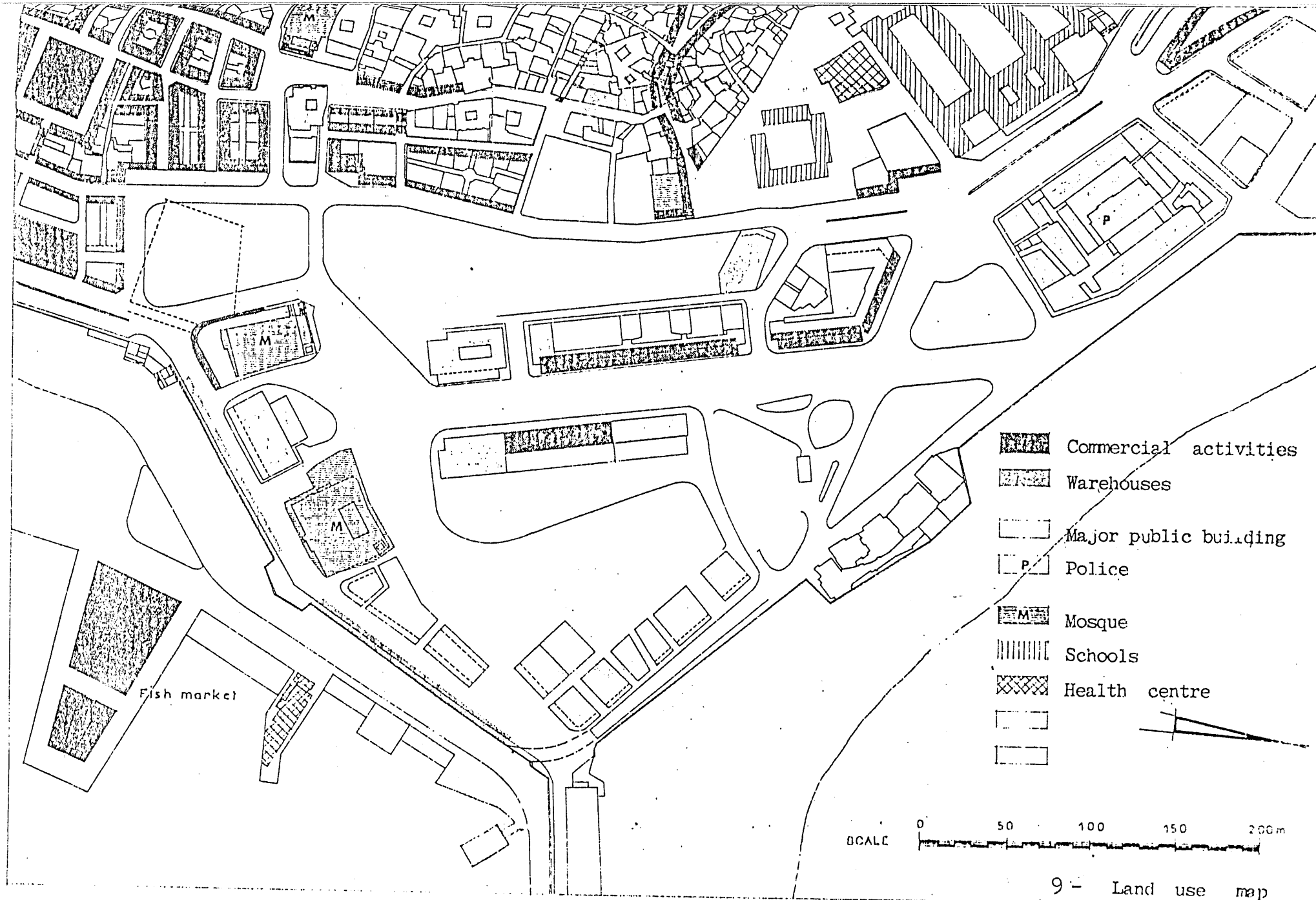
6. Listed Buildings



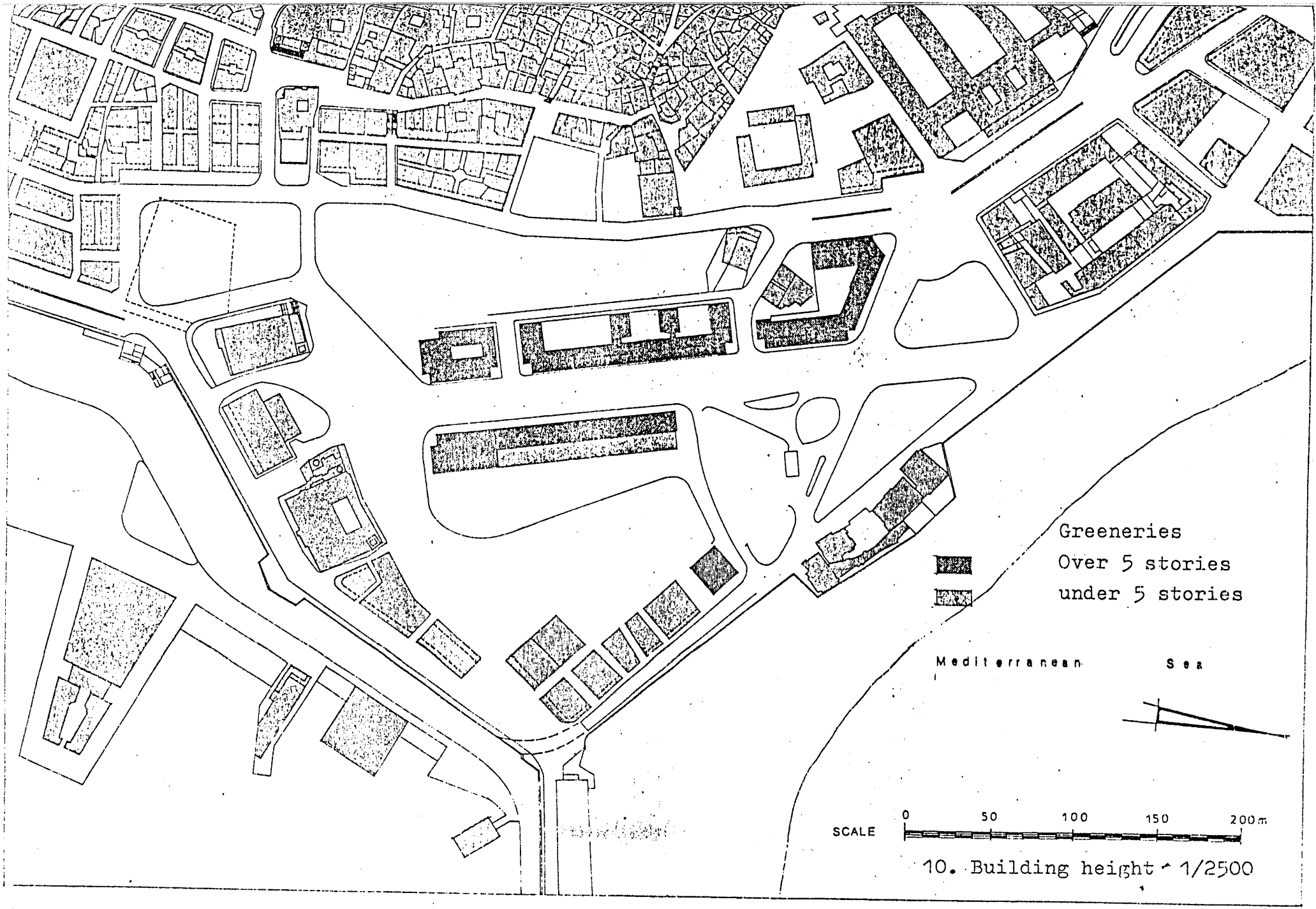
7 - The existing Quartier de la Marine

8- Land use map .

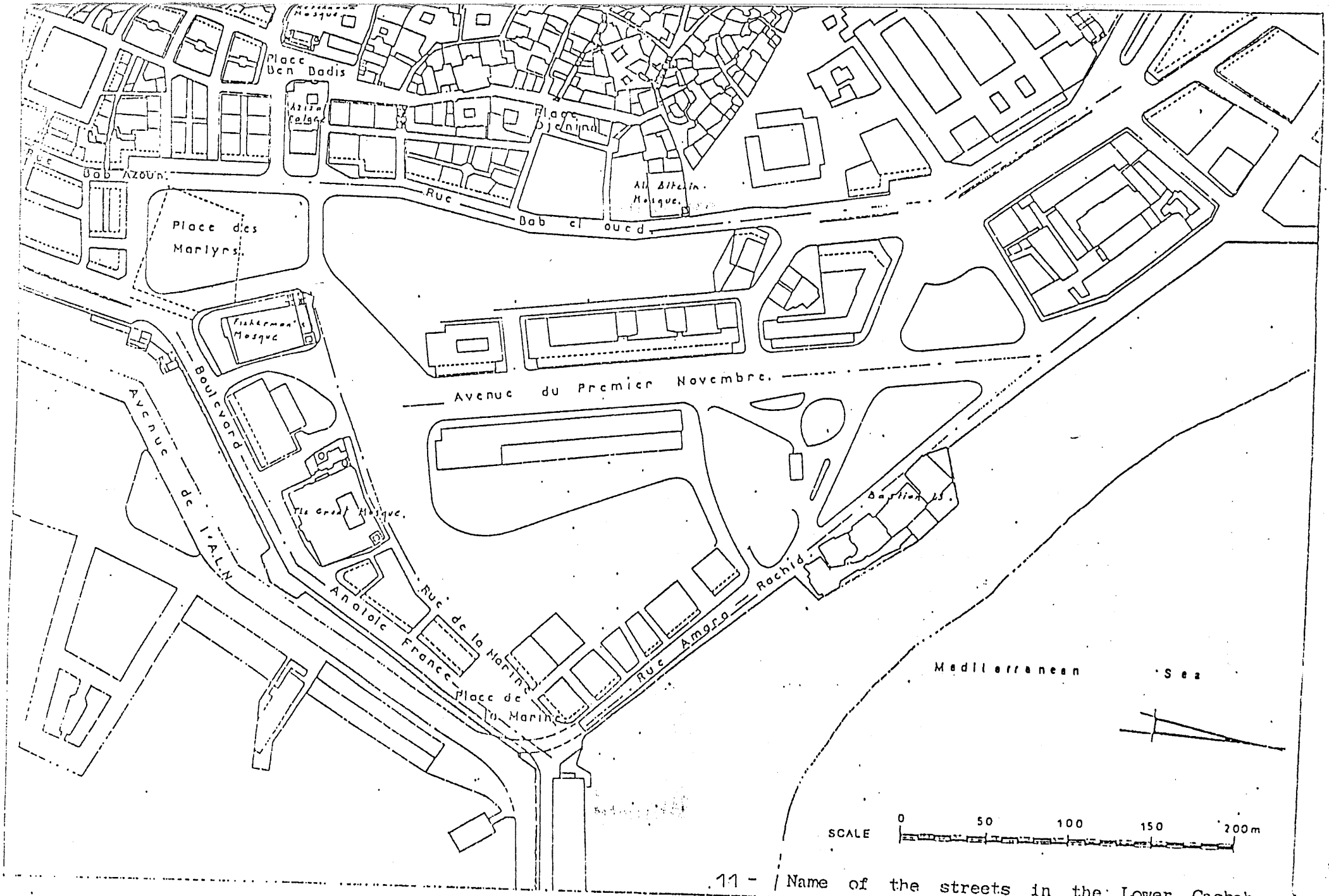




9 - Land use map



10. Building height - 1/2500



- 11 - Name of the streets in the Lower Casbah

g. "The Bastion 23": The unique historical grouping of houses and palaces surviving the old town on the edge of the sea. They need to be restored.[8]

h. "The Chambre of Commerce": Located between the two mosques, Djamaa el-Kebir and Djemaa el Djedid. This realisation is one of thefirst steel buildings of the 19th century in Algiers.

B. THE ALGERIAN SYSTEM OF DEVELOPMENT

A plan which is called the PUD (Plan d'urbanisme directen) is issued for a five year time by the Ministry of Town Planning and Development with the the approval of the Ministry of Urban Development and Housing and the Finance Ministry. The PUD is the main instrument of the political development of the town and country planning, the socio-physical planning of an area and spatiale traduction of the set up measures for a period of five years.

The PUD is a set of documents whose contents are elaborated and based on the following aspects:

1. Legal aspect: The content is based on the legislative references in planning, construction, housing and civil rights terms.

Normatif aspects: The content has to be based on the national or local norms in terms of use amenities coefficient and the density....etc.

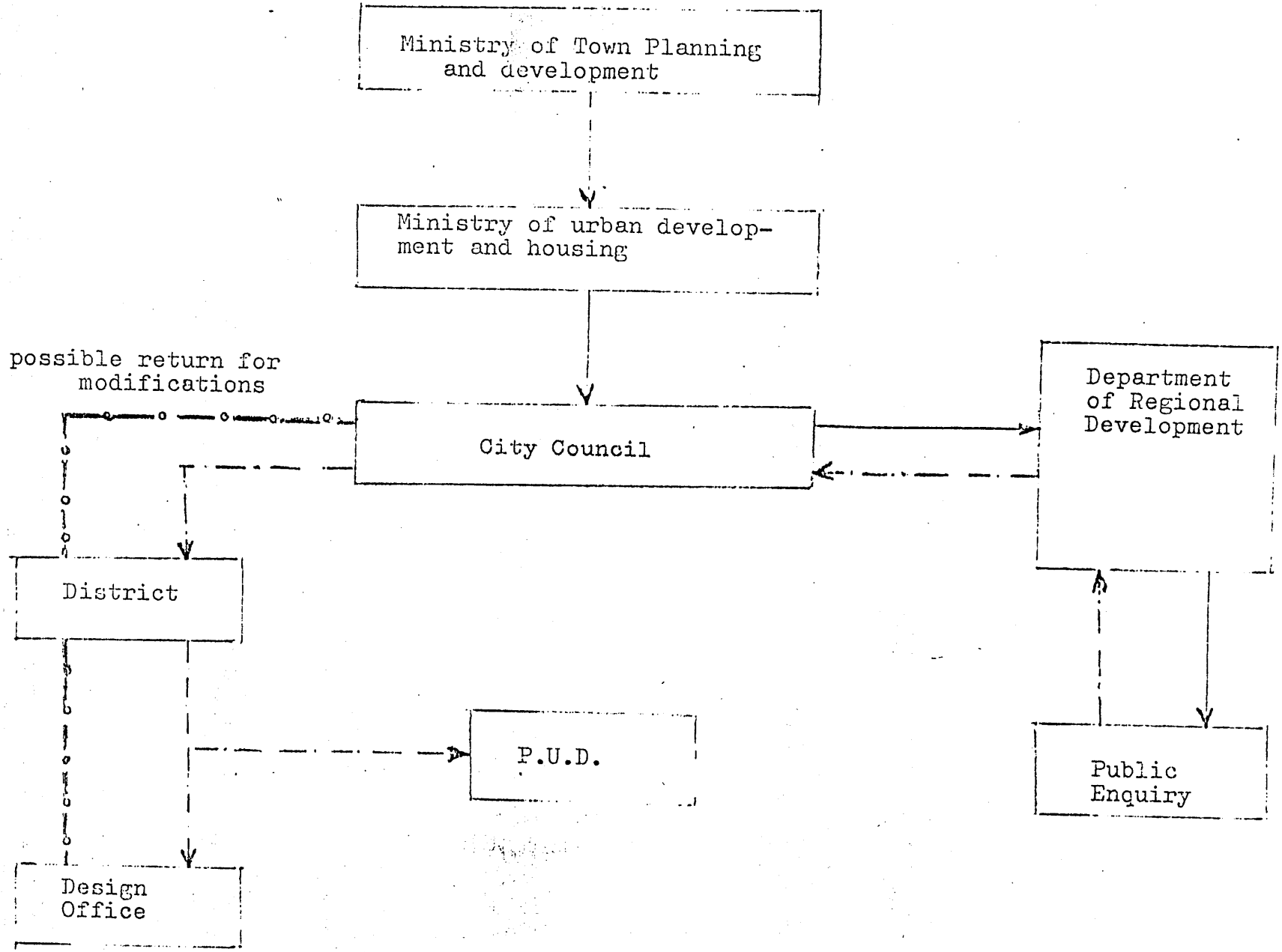
Technical aspects: The content is shown through the settlements, organisation, functioning, size.....etc.

The function of the PUD: is to ensure a planned frame for the actions taken by individuals and community on the space this frame is set up with the directives and arrangements.

The recommendations of the PUD are:

- The nature of the form of the intervention
- Conditions of the land use (constraints and limits
- The execution phasage.

APPROVAL PROCEDURE OF THE P.U.D.



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2. Golvin Lucien: Islamic Architecture in North Africa, 1976 (p.115).

3. Grube Ernest, J.: Architecture of the Islamic World; its History and Social Meaning (p.218).

4. Golvin Lucien: Islamic Architecture in North Africa. 1976 (p.117, 118).

5. Ibid.

6. Ibid.

7. Alberto Zuchelli: Intrcduction a l'urbanisme operationnel et a la composition Urbaine, vol. 1. O.P.U. 1983. (p.311).

CHAPTER IV

APPLICATION TO THE ALGERIAN SYSTEM AND CREATION OF A NEW GAME

A. CONSTRUCTION OF THE GAME

The major elements had to be defined before the start of the actual game. They are:

1. Game board 2. Roles 3. Rules

4.1 THE GAME BOARD

During the first game played as a trial one between three players, a game board was drawn representing the different activities on the site without taking into account the exact form of the existing buildings. From that experience, a player suggested that for the next game the site has to be exactly represented on the board and that would make the game more realistic. The board comprises a 60 x 40 grid with each square representing approximately a 25m x 25m area (625sq.m.) on the scale of 1:1000.

The existing buildings are materialised by wooden blocks in three major sizes related by a 25mm module.

4.2 THE ROLES

At the first stage of the game roles have to be given to the players deliberately. Those roles represented by the different ministers who take part at this level in the Algerian political system.

Twelve players were sitting around the table; eight of them had the ministers' roles, a president (myself) and three were left for the next round.

At the second stage four major roles occur. They are:

1. Fishermen. 2. Shopkeepers. 3. Local population 4. Designer.

The first two roles (fishermen, shopkeepers) were chosen because of the impact of those two activities have on the area. They are given a chance to protect their interest.

The local population select a representative to take part at the different meetings during the second stage. His role is mainly to record all the problems and the needs of the population and display them during the game.

The number of players represented at ministerial level is approximately one player equals one minister but sometimes equals two. This is produced by the minor activities in the area and as there is no need of them to be represented, those roles are played by the different ministers represented.

The number of players at the second stage is approximately one person equals thousands (e.g. the representative of the local population).

4.3 THE RULES OF THE GAME

During the first stage of the game a plan is produced for each five years time at the ministry level, which equals approximately one hour.

A budget is also constructed by the Ministry of Finance which is restricted to a hundred units for each five years.

At the start of each round the players are asked to discuss the different projects to be set out in the area and evaluate exactly their cost. Once this operation is done the Ministry of Finance allocates everyone with units needed. Then the players are invited to materialise the different project on which everyone has agreed, with the

wooden blocks.

The income of the buildings, being built on the site, is added to the budget which is decided at each beginning of the round.

A number of chance cards have been reproduced by myself (the president) representing the possible disasters which can affect the country, e.g. economic crisis, draught, earthquake, etc...

After the first round and at the start of each round a chance card is picked up to determine exactly the disaster which leads most of the time to a cut in the budget by an amount to be determined by the thrown of a dice during the game. In this case, as the budget is restricted the priority has to be given to the projects according to the needs.

B. THE ACTUAL GAME

PHASE 1

1. The material used

10.30am

The game board represents a site plan 1:1000 on a grid of 25 metres. The site is partly occupied with some remains (refer to the listed building).

The existing buildings are materialised by pieces of timber. Photographs and maps of the site, its development and land use on display around the model.

A price list is given out by the President:

Land: 1 unit/1 square on board (25m x 25m)

Activity	Number of Units	Quantity to be built
Roads (Main Road)	1 unit	30m
Road (side road)	1 unit	100m
Hotels	5 units	1 ½
Tourist hotels	5-7 units	1
School	4 units	500 children
Museum	8 units	
Housing	0.25 units	1 house
Luxury house	0.5 units	1 house
Health centre	3 units	1
Offices	0.1 units	1 office
Government offices	0.2	1 office
Shops	0.1	1 shop
Bank	3	1 bank
Park	0.5	1 square on board
New Mosque	9	
Restoration into Hotel	3	1 hotel
Restoration into Museum	6	
Restoration into Theatre	6	
Restoration into Cinema	4	
Restoration into Restaurant	2	
Office	0.5	1 office
Sewage plant	8	
Road Tunnel	1	20m
Fire Station	2	

10.45am

Roles and Rules given out:

The game has two stages

I Decisions taken at ministry level

II Decisions taken at local level

PHASE 1

The roles are given for the first stage of the game to the ministers by the President (myself) who is the controller of the game.

a. Ministry of Town Planning and Development:

His role is to:

- Identify the problems of the area.
- Prepare a programme of works to improve the performance of the local economy.
- Prepare a plan for the next five year period.
- All projects must be listed in order of priority.
- Your only function here is in response to events as they are determined by the President.

b. Ministry of Finance:

His role is:

- Responsibility to construct the national budget for each five years.
- Familiarise yourself with the map board and the price list.
- Take particular note of the cost and returns for the projects.
- You must be watching how your budget stands up to various crises.

- Your only function will be to advise the President on the financial implications of his responses to crisis events.

c. Ministry of Education:

His role is:

- It is your responsibility to provide the area with the schools and different institutions of education.

d. Ministry of Transport and Fishing:

His role is:

- you have to solve the different conflicts occurring from the urban transport and the traffic.
- It is your responsibility to develop the different activities along the harbour.

e. Ministry of Housing & Urban Development & Construction:

- You are responsible for the design and development of the programme issued by the Ministry of Planning.

f. Ministry of Culture and Religion:

- It is your responsibility to preserve and develop the different institutions.

g. Ministry of Commerce:

- You control all the commercial activities in the area.
- It is your responsibility to develop them.

h. Ministry of Tourism:

- It is your responsibility to develop the tourism activities in need in the area.

4.3 FIRST ROUND (5 year period)

11 am

Ownership: At the moment all the land is state owned. If a Ministry buys it, it owns it - although this may change later as the game proceeds.

- Finance Ministry wishes to advise the President.

11.10am

Ministry of Town Planning & Development wishes to make a bid for funds. It makes a proposal:

Site to develop for tourism, as a separate area between Casbah and down-town zones. It does not wish to buy land at this stage.

- Ministry of Culture & Religion supports the proposal and wishes to restore old building.
- Road Engineer: concern about traffic flow
- Commerce wants to transfer functions to shopping in an old building area.
- Tourism: development of Casbah area. (Especially the bastion 23).
- Housing: New housing programme - 600 units.
- Culture & Religion: Wishes to build a new mosque, new cinema, new theatre, 2 new restaurants - needs 29 units and 50% of them for the first 2 years.
- The Finance Ministry: Wish to even out the budget over each five year period and are prepared to operate on yearly basis.

- Education Ministry: wishes to build a school.
- Town Planning & Development: objects unless housing is also built.
- Housing first bid exceeds entire budget.
- Transport wishes to have 20 units to construct a road tunnel. Considerable discussion on route and costs and destruction of amenities.

Education: 8 units for 2 schools
2 units for land
2 units for offices
30

15(50%) in year one, the remainder spread over following 4 years.

Transport: now wishes 80 units for the tunnel.

11.40 am

Budget proposals have come in about 100% over finance available. How to resolve the claims? Cut everything, or work out priorities?

Discussions on how the tunnel or road will give more land for tourist use.

11.55 am

The President announces a 50% cut in all bids to operate at noon unless agreement is made.

- Finance Minister shows a smoothed out budget would help the problem and that priority should be given to tourist proposals to gain maximum returns.
- Argue for biggest cut in roads budget.

12.05pm

- Budget accepted

- All bids accepted
- Details of timing of payments adjusted to smooth out expenditures.

Reports:

Transport	- cost road
Commerce	- Restore old to commercial use
Tourism	- Restaurants and hotels
Housing	- Additional
T.P. & D.	- Sewage system
Culture	- Develop some activities: theatre, cinema, museum.
Education	- Schools

PHASE II: Four other roles are now being introduced.

1. Fishermen
2. Local population
3. Shopkeepers
4. Designer

The first two (fishermen, local population) are highly suspicious of the tourism, worrying about their futures.

The shopkeepers rather look forward to a tourist based economy.

The designer seems to be interested in the picturesque rather than the politics.

After spirited defence of their right to be and to live by the population and the fishermen, the Ministry for Housing claimed an increased budget.

Distribution of budget now revised.

Education and commerce both give up money.

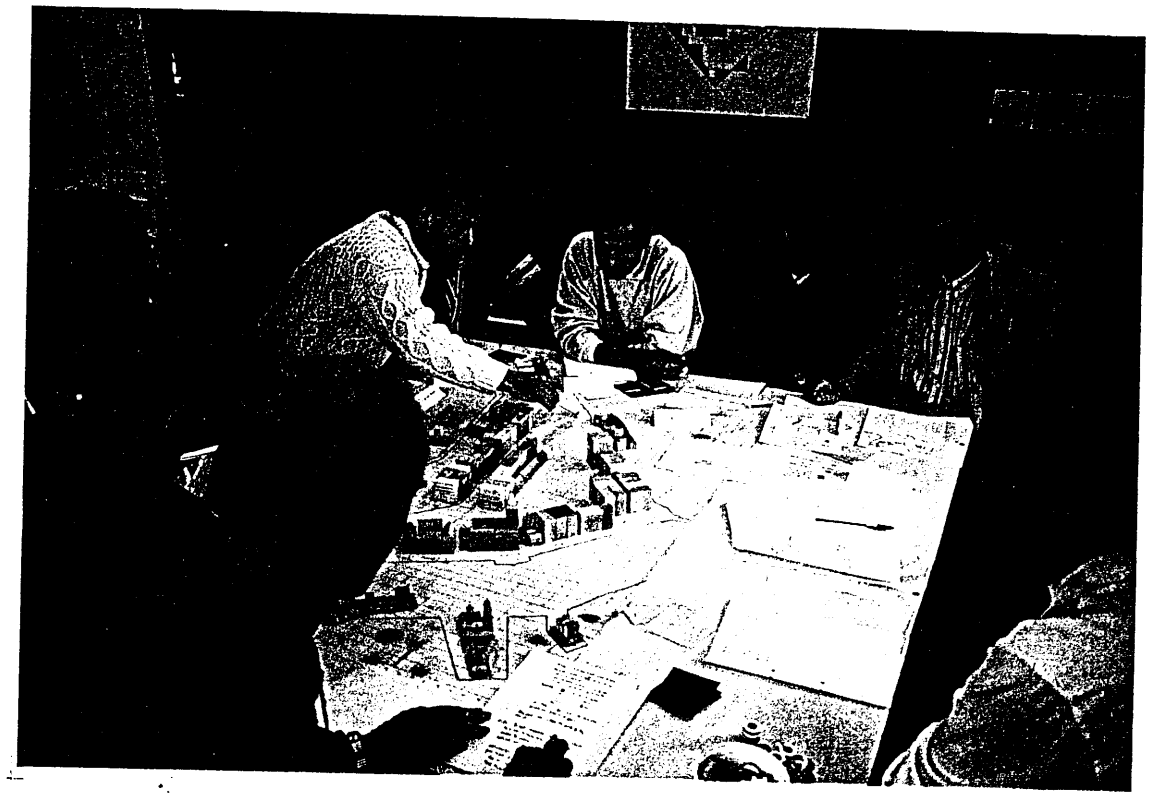
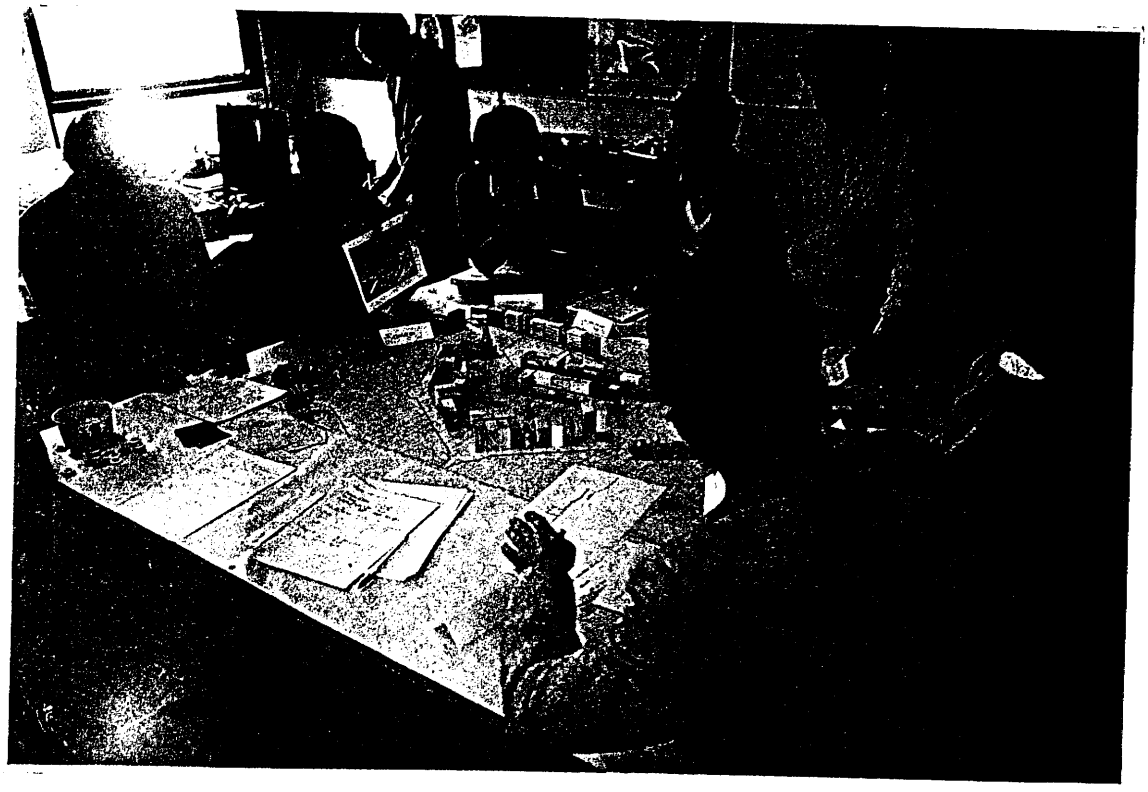


Fig. 1



The first 5 years are ended by materialising the different projects on the site with the wooden pieces.

ROUND TWO

14.00

The next five years are started by picking up a chance card.

The first chance card taken is the economic crisis which is devastating the country mainly because of the fall of the oil prices on the International market. And this means:

- Restriction on the budget
- Some of the operations will be dropped or stopped and give the priority to the necessary ones.

In fact, when a chance card is picked up the dice is introduced to determine the budget for the next five years. The initial budget is 100 units. So, if the dice shows:

1	it means the budget is down to	40	units
2	"	45	"
3	"	50	"
4	"	60	"
5	"	70	"
6	"	80	"

The dice has shown 3 so the budget is cut to 50 units for the next five years.

As there is now an income from the new hotels projected and represented by 60 units in the past five years the income would be 40 units.

This gives 90 units for the next five year period. Discussion on the urban plan that has emerged, mainly in terms of tourist hotels.

Bids: Transport 11 units (5 for fishing, 6 for traffic)

Culture - proposes opera house (30 units)+(2) for parking

Education: will contribute 16 units to Culture

Housing: 15 units

Commerce: 15 units

T.P.& D.: 7 units (Fire station
(Offices (P.Office & bank...etc.)
(Health Centre

. Bids for 118 units have to be reduced to the initial budget (90) by 28 units. Tourist promotion needs 2 extra units. Reduction needed now is 30 units.

. Because of the economic crisis the President intervenes to delay the Operahouse.

The budget now is inside the target, indeed funds are available to build an additional two restaurants.

14.45

Budget - passed for the next five years.

At this stage another throw of the dice is introduced to determine the speed of actual development, i.e. will a project be completed on time -

(6
(5 - on time

(4
(3 - 20% delay

2 - 30% delay

1 - 40% delay

The dice is being thrown for each player.

Tourism	40%	remains
Transport	100%	"
Culture	100%	"
Education	100%	"
Commerce	80%	"
Housing	100%	"
Planning	60%	"

More building takes place

Demolition of some of the new offices

New street is being created from coast to Casbah

Coast line is being built up heavily (sewage, restaurant, hotels....)

Schools, post office, fire station...are being built up around.

Linear park extended from coast line complex (theatre museum etc...) into Casbah (refer to the Photographs).

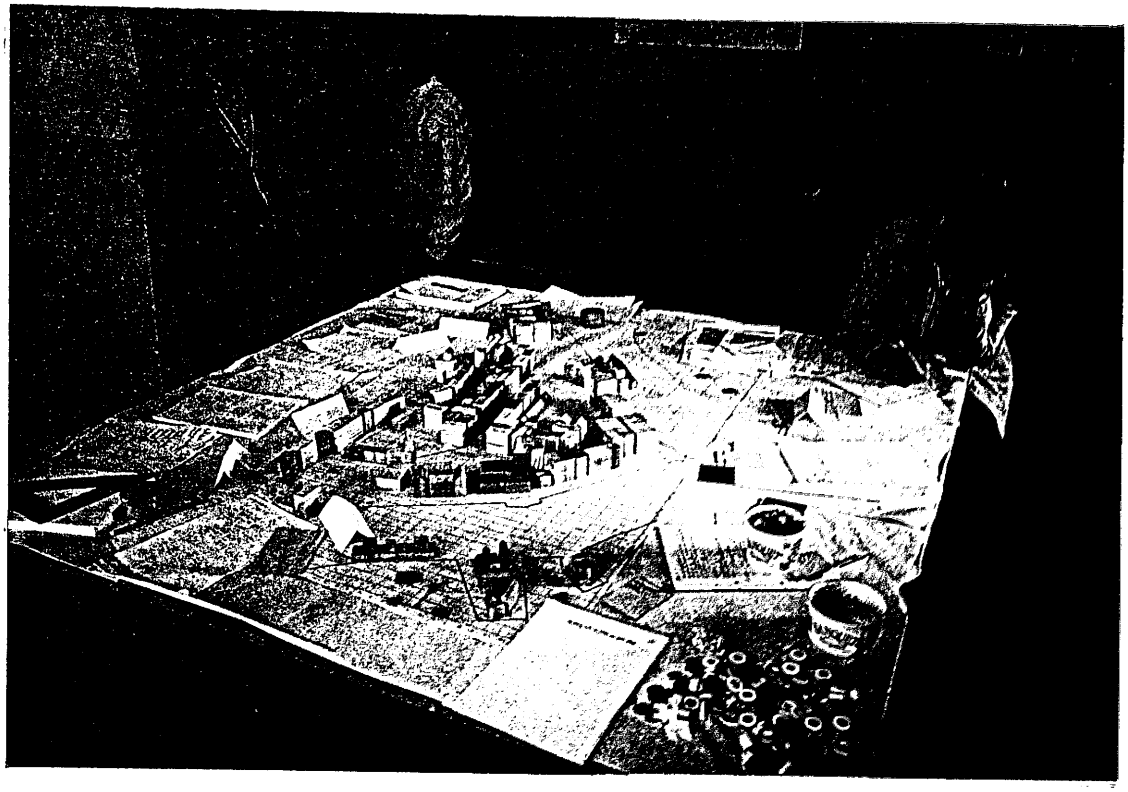
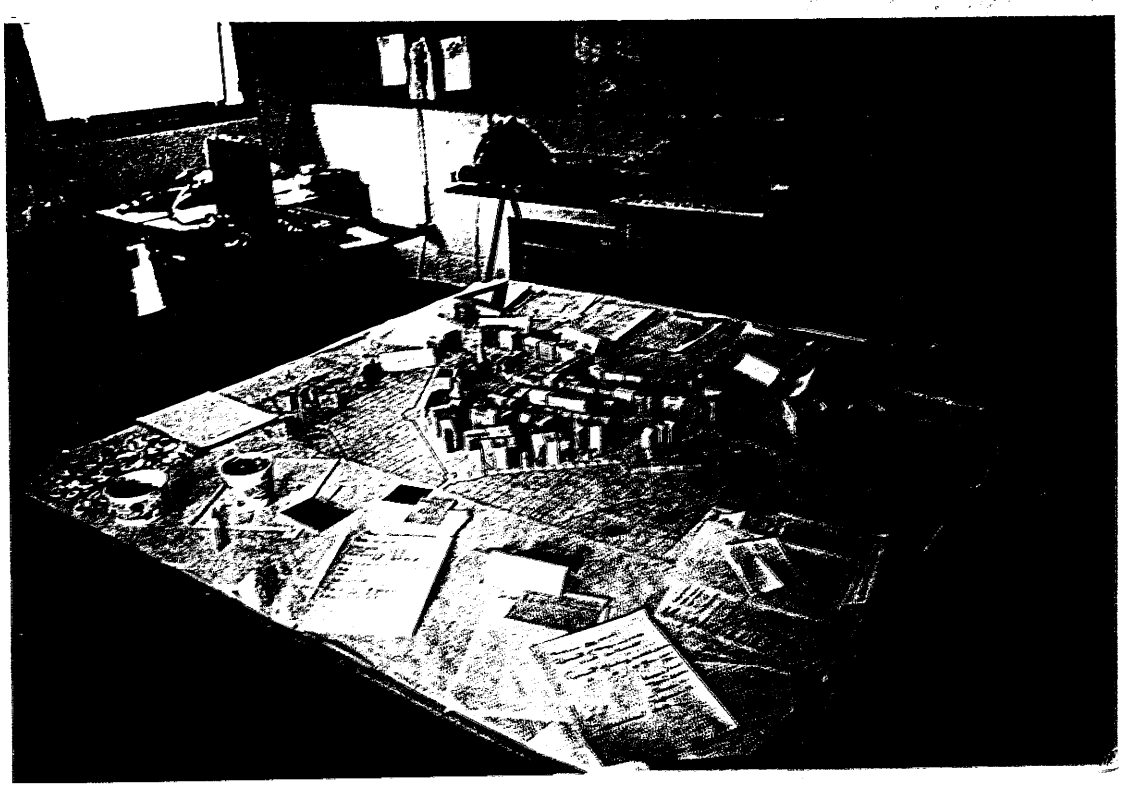


Fig. 2.



15.15

ROUND THREE

A CHANCE CARD IS BEING TURNED

Contracts have been signed with multi-nationals -- more funds are available

- The multi-nationals intend to build their own buildings
- Possible development of a state owned construction company?
- Delays due to the failure of the local construction industry.
- Multi-nationals insist on the maintenance of their international standards and intend to use American expertise.
- Compensation claims for failure to compete.
- Projects control in hands of overseas expertise.
- Hard deal being proposed by the multi-nationals, including a chance to buy in five years time. Also a no-tax agreement for the first five years.

Eventual deal:

The land is being rented

Multinationals construct own projects

Multinationals pay tax at 25% on income

(not a good deal but the multinationals agreed to keep the game going).

We now have a high rise block on the prime site and have demolished housing to put it up and put pressure on the surrounding houses and hotels.

The commercial use of the site is now virtually assured. Discussions now about the pressures for car parking.

Traffic engineer has problems.

16.14

ROUND FOUR

A chance car is turned

Drought

- Restriction on the imports and drop in local production

The dice is thrown and the budget for the next five years is cut down to 50 units. Also 20% of the tourist income is lost due to the drought.

- T.P. & Dev. needs an entertainment centre next to the sewage works and police - wishes to infill with houses.
- Education argue for a development closer to the existing mosques.
- Local population (now largely tourists) argue for development of old docks areas and more houses for tourist entertainment.

In fact the bids were not so high this time round.

ROUND 5

Chance card taken

Impact of a decision to create an attraction centre on another site.

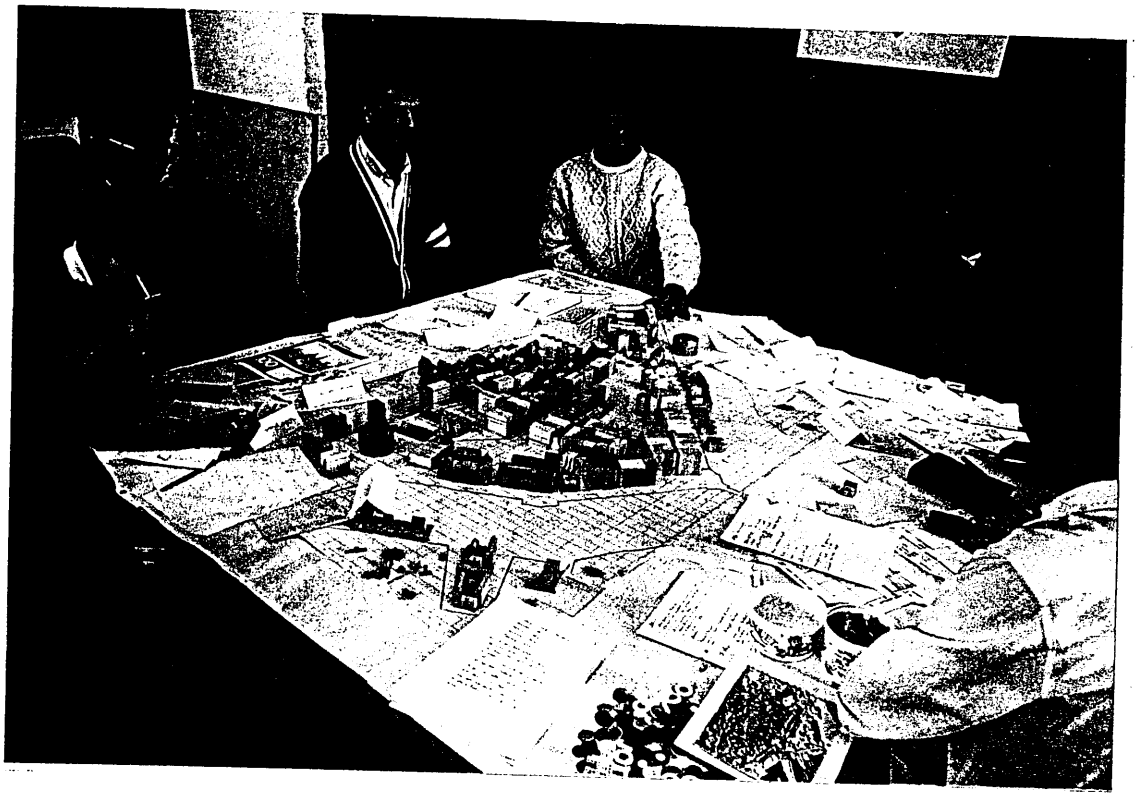


Fig. 3.

The budget is again 50 units for the next five years - Discussions are being held about the different proposals.

- More internationals? Conference centre? How to attract tourists? Hand it all back to Algerians? Make it into a University? Casino? Time-sharing apartments? Used good infra-structure - monorail?

Decisions have been taken in favour of international business and conference centre, take out the ring road and build the tunnel through the area.

- Put in a monorail
- Clean up all areas
- Main expenditure on transportations.

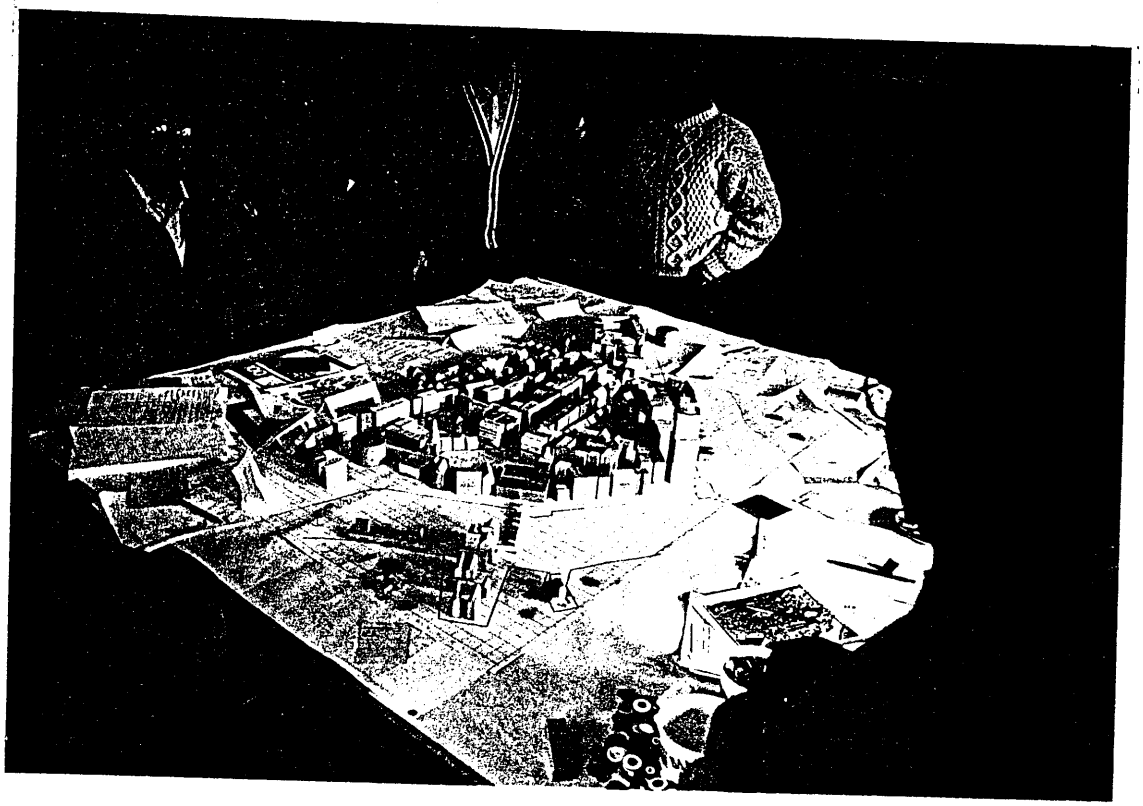
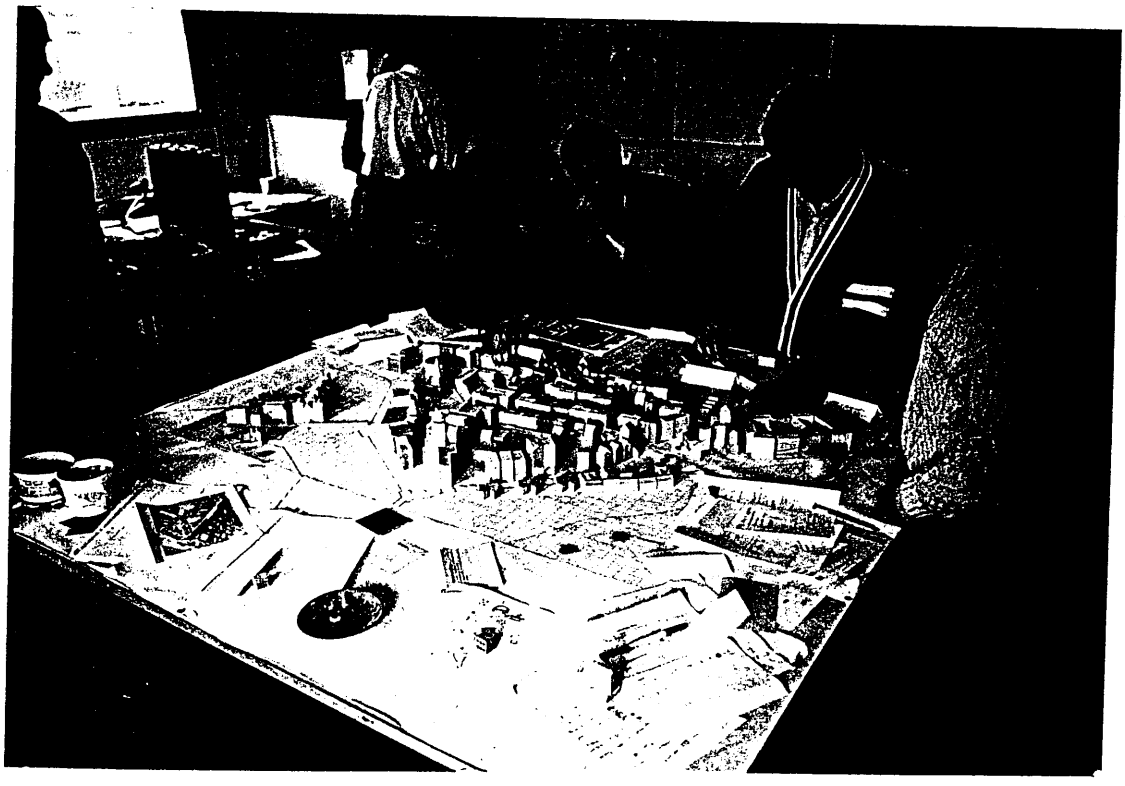


Fig. 4



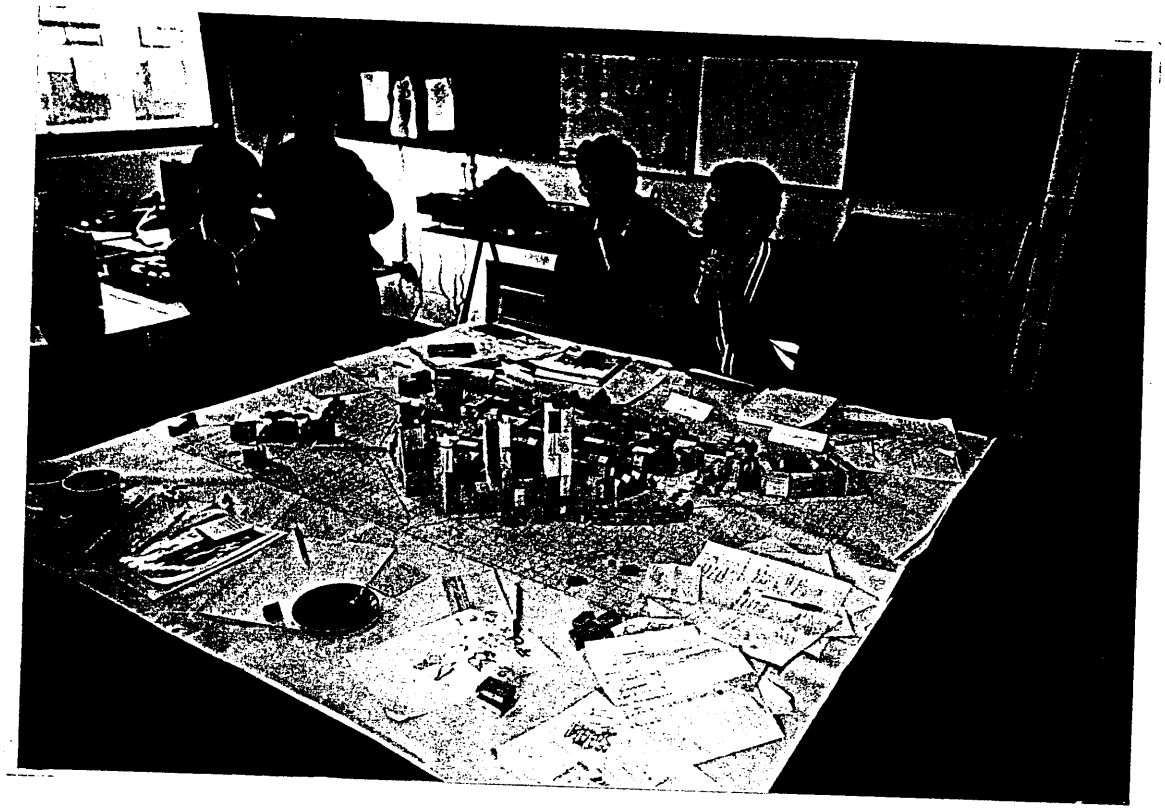
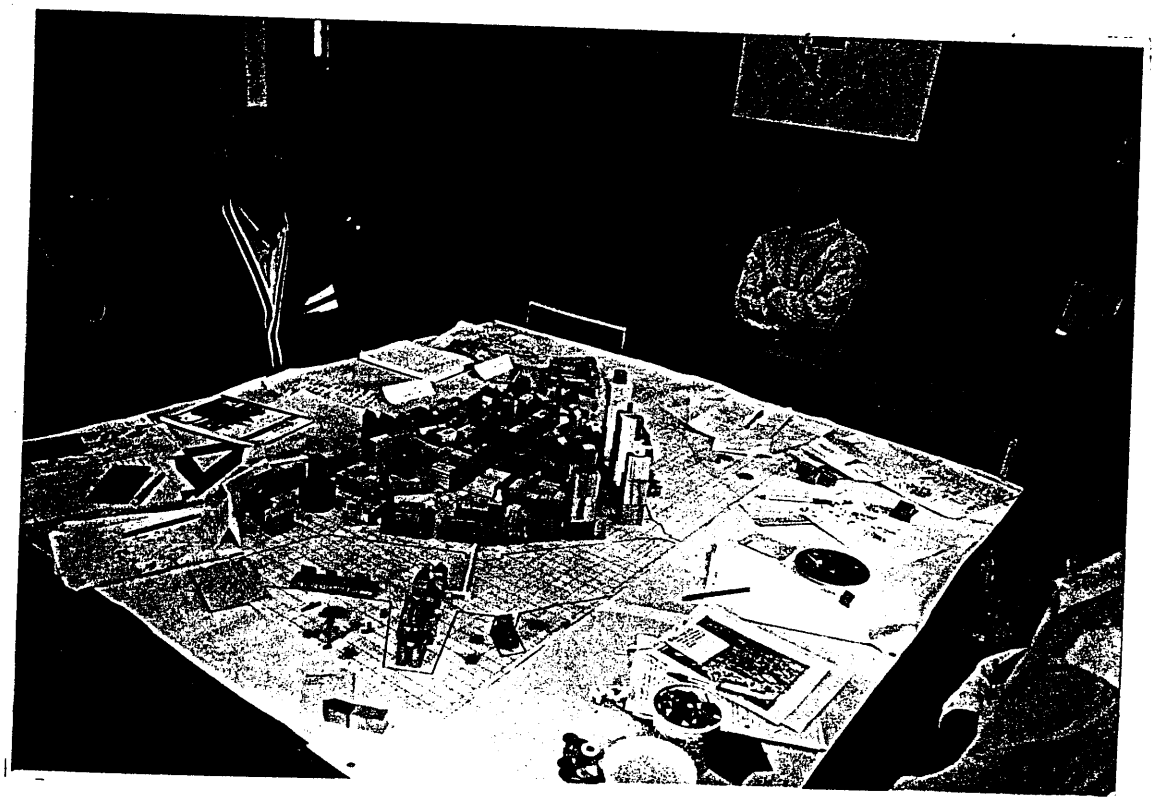


Fig. 5



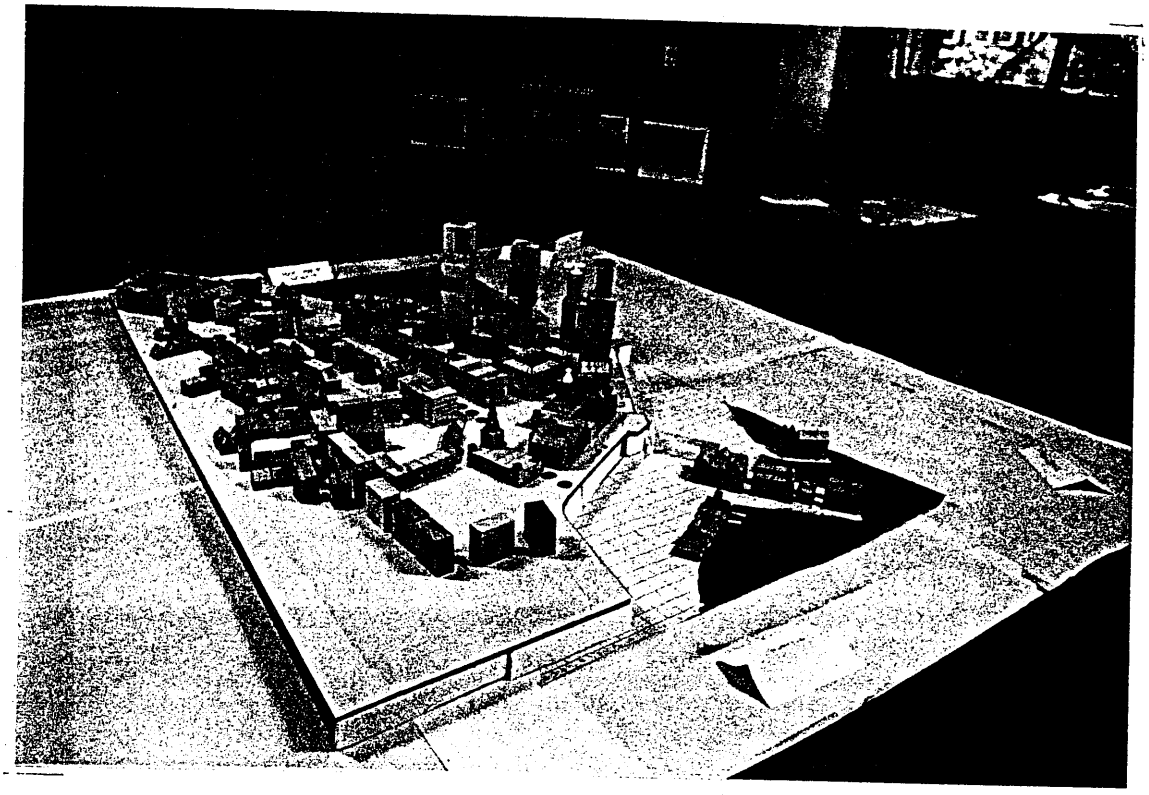
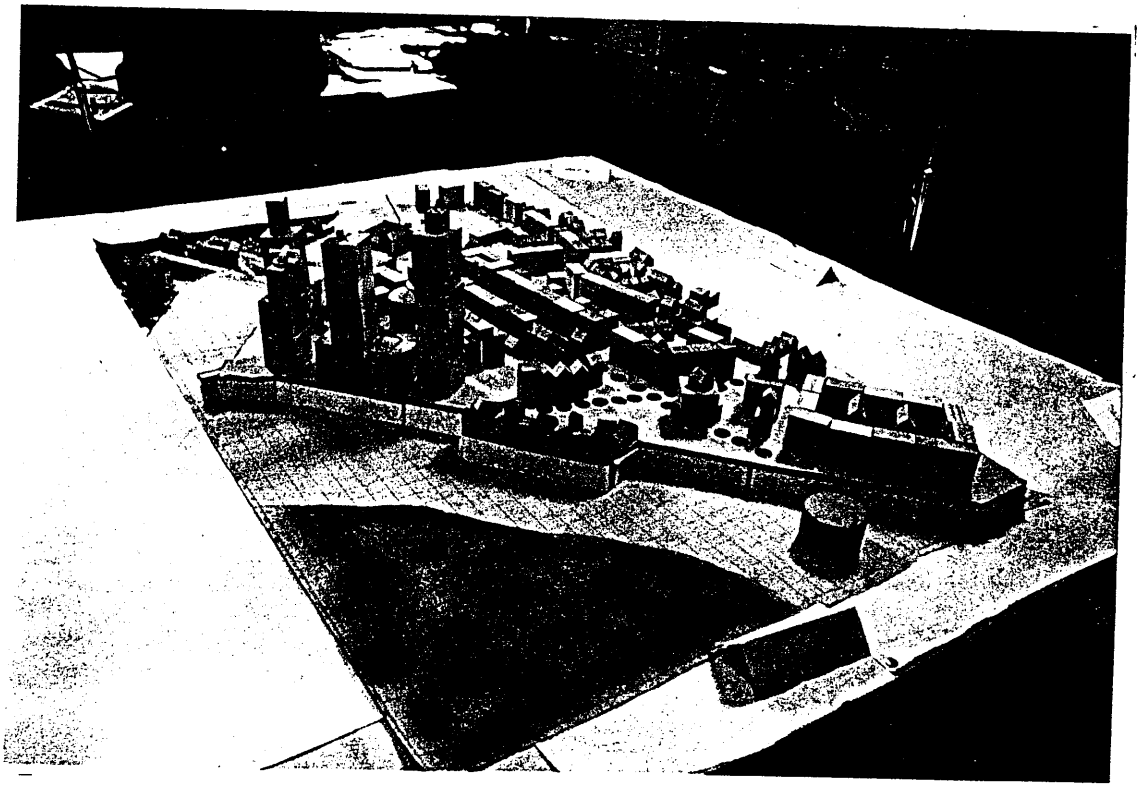


Fig. 6.



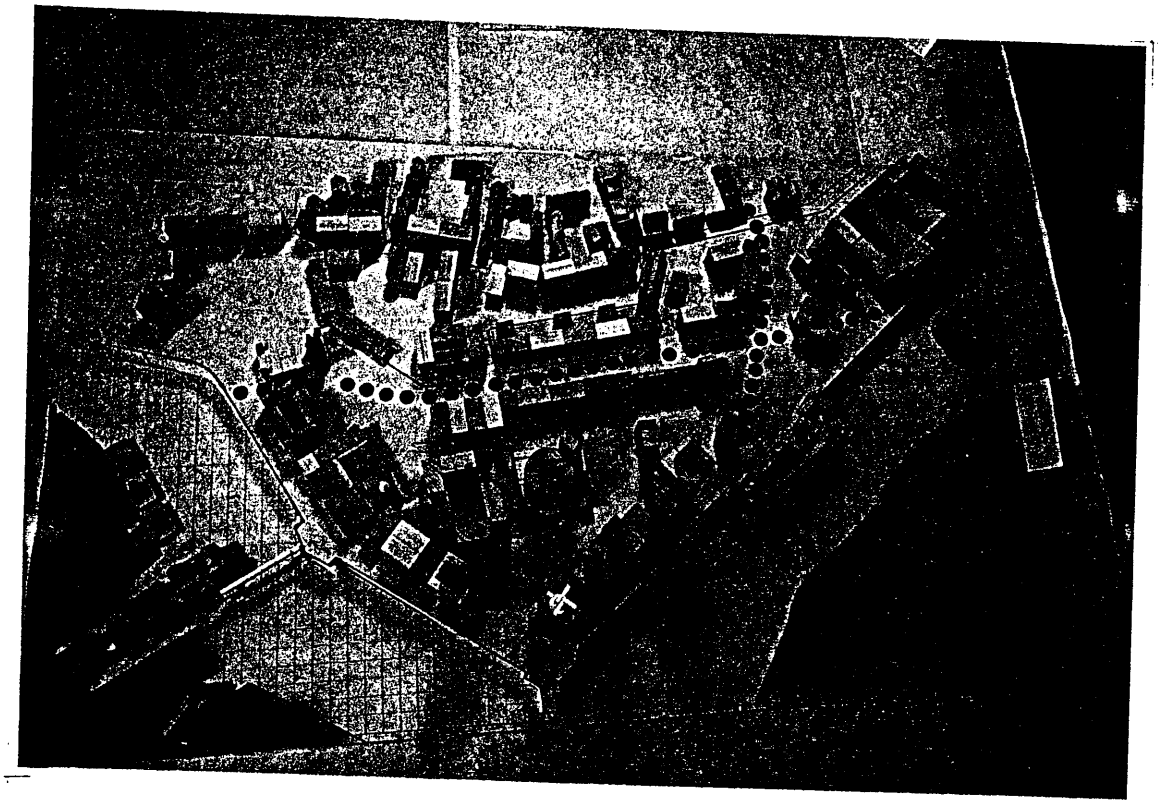
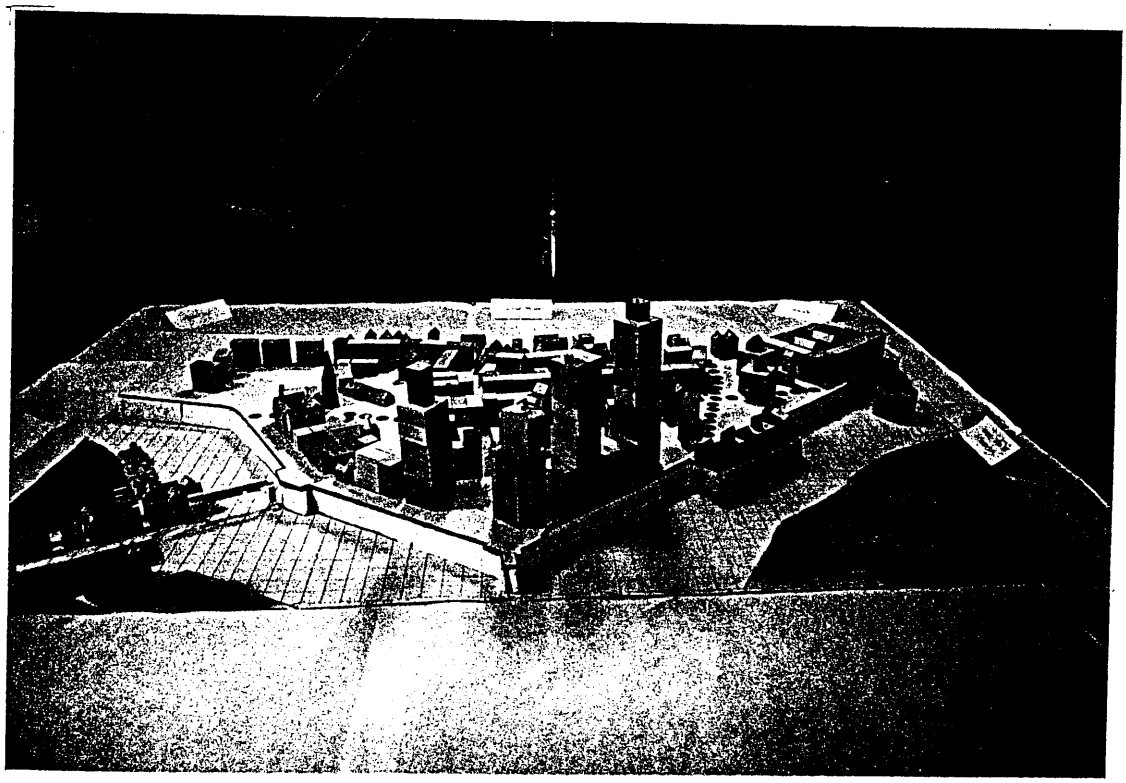


Fig. 7.



CONCLUSION

The game had in general some positive and some negative points. From the first experience one has to learn what is exactly needed to be introduced to the game. At the beginning of the game new buildings were just dumped and no real site use was discussed. This could be played but the results would be different from the one where directives to the site and constraints are given at the start of the game. There was a failure to anticipate, e.g. the tunnel such a big deal in its day, was out of place and redundant 15 years later.

The lack of experience of the players in games was shown in the first round as the game went slowly. Most of them went for very high bids and thought that the more they built the more they get involved in the game. Thus the bids went over the available budget.

As we went through the game the players realised that the game was less complicated than they thought, and the following rounds went faster.

If the political system had affected the physical character of the space, it had not at all affected the rules of the game. In fact the Government's decision to bring in the multinationals in the third round was a big turn in the politics of the country, though the game was continued with the same directives.

Comparing some of the projects done on the same site without using gaming and this particular study, I noticed that the results were different. In the first one the

intention was mainly to study the problems associated with the physical character of the space. However, when using the games in general we ended up with some interesting conclusions resulting from the objectives given out at the start:-

a. Growth: Through the games one has recognised the nature and process of urban growth and has understood the way changes filter through the urban fabric in time and space.

b. Economy: We also understood the economic structure of urban development, and the way in which the components and relationships of urban economic system are organised.

c. Space: Surely after this study one has appreciated the value and cost of urban space and recognised the significance of spatial location, and understood the forms in which that significance is manifested.

d. Decision making: An appreciation of the complexity of urban dynamic systems, and understanding of how a synthesising model may be used to represent certain aspects of the urban space economy.

CHAPTER V

GENERAL CONCLUSION

Implementation of gaming simulation in local planning is connected with a study of how local politicians handle long range planning decisions.

The result of the game we played shows how gaming-simulation is a powerful tool for identification of crucial points and hidden conflicts in the implementation of plans.

Even though the game could be played in any political system with the same rules, the result would be different from one to another. e.g. During my own game, when the chance card of bringing the multinationals into the country was picked up (which is against the local socialist system), we suddently noticed the big change in the physical shape of the site. High rise buildings occurred which would be impossible for the local economy to build. In my opinion the introduction of my own game into the Algerian University will require:-

1. Roles will be defined according to the subject of the game and the field which was played on.
2. A very accurate study of the chance cards. (Try to be more realistic to the political system)

In fact a game becomes more complicated and restricted when it is attempted to simulate the reality. Comparing the urban simulation carried out at the Mackintosh School of Architecture, where the political system was not mentioned at all, and my own game the results were totally different.

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