

Participation in Upgrading Housing Projects

Al-Hadwa Area in Aqaba, Jordan

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Introduction

Along the years, Jordan – a Middle Eastern country with a current population of over 4 million – has gone through a lot of physical changes within its population; such as the rural-urban movement and the several consequent immigrations resulting from the economic and political activities in the area. As such, housing has become obvious requiring a sector consideration and has accordingly been in the particular attention of the Jordanian government. As His Majesty the king *Hussein Bin Talal* of Jordan once said;

“We are very aware of the need of every human being for a home where security and peace of mind is found.”

My paper deals with **Al-Hadwa** housing project in the coastal city of Aqaba, southern Jordan. The project involved the upgrading of the existing housing as part of an overall urban development scheme.

Problem Definition

My paper deals with **Al-Hadwa** housing project in the city of Aqaba, southern Jordan. It focuses on how there should be participation between the citizens and the government sector, and how the citizens can accept the idea of the project, since they have lived in this area for a long time and in this upgrading project there are many units that will be demolished for providing and laying out the infrastructure utilities. However, the people are used to living in these conditions and the different needs of the different citizens like children, women, old people and handicapped people should taken into consideration. The government sector was not concerned about these different needs in its strategy, but should have considered the creation of job opportunities for people for example by offering chances to work within the project. This would also help to make people accept the project and the improved living conditions and urban development it is offering in this area.



Figure 1: Map of Jordan.



Figure 2: Al-Hadwa housing project.

Motivation for the Choice of Study

The **Al-Hadwa** project focuses on housing which is my area of expertise. It is located in Aqaba. This tourism city has now a very important change in that it has become a free duty city so it reflects a new economic point in Jordan and it is one of the most important projects in Jordan.

Method of Study

This study is comprised of a background study made earlier and the work here on the course according to the list below

- 1 Visit the site.
- 2 Study of existing situation.
- 3 Meet the people and know how they live and what their needs are.
- 4 Take photos for the existing situation.
- 5 Visit actors to know their policy and the strategy of the project.
- 6 Study the existing infrastructure.
- 7 Study how many units will be demolished totally.
- 8 Refer to references, which deal with same problem for urban housing development and look for case study in Jordan especially in Aqaba.
- 9 Study local resources, materials that will be available and can be used in this project.
- 10 Study the primarily study and reports which had been done by the actors and learn what they did, and what they ignored.
- 11 Get a benefit from the lectures at this course, which I'm taking now (Architecture & Development).
- 12 Exchange knowledge and experiences with the participants in my course from different countries.
- 13 Hopefully as a result get a good benefit to my country.

Background

Country Level

All through the history of humanity, shelter has been one of man's basic needs. Shelter, the third priority after food and clothing is a prime problem to millions around the world, especially third world countries with deteriorating economies.

Accordingly, increasing effort has been put globally to put housing and shelter on the countries' prime interests.

Jordan is Arab country centred amidst the Arab region of the Middle East. Its population is around 4 million.

Housing and Urban Development Corporation

HUDC is the government agency responsible for the housing and urban sector, it is the national umbrella of the housing sector “.

Jordan is at a particular point of appropriate and practical implements of housing policies especially in relation the needs of the poor. There is a very strong overall interest in the housing sector.

HUDC Tasks

HUDC's tasks flow into three streams

- Study, formulation and implementation of policies affecting the housing and urban sector.
- Direct provision of housing units.
- Upgrade of under-serviced urban pockets.

On the other hand, **HUDC** understands that building a community is all the way parallel to building a house, therefore has long been providing for schools, community centres, training and vocational centres, commercial centres, playfields, etc, recognizing the needs of all; women, men and children.

Project Level

Al-Hadwa area is adjacent to the city centre of Aqaba and is considered part of Aqaba downtown. It is 0.5 km north of the Ababa beach.

The area elevation is between 24-67m above mean sea level, and the area within official project area is approximately 0.15 Km². The site is almost flat with a slope of about 6% west. The site is located between King Talal Street (west) and al Amir Mohamed Street (South & East).



Figure 3: Proposed site plan for the project. From Dar Al-Omam Consultant Company.

Buildings are spread across the area located in 7 main blocks, which are separated by several local street (7–10 m wide) that are dusty or in bad conditions, without any infrastructure services except some electric and telephone poles.

The urban texture is confused and mainly comprises of one story housing units. Most of the housing units are built with concrete blocks for walls and with

temporary materials such as corrugated metal sheets for roofs; the other units are built with concrete blocks for walls and covered by reinforced concrete roof.

The site comprises of about 560 housing and commercial units, no civil amenities exist expect for 4 poor buildings (nursery, primary school, mosque and church).

Most housing units are one story only; with the expectation of some new buildings, which are 2-4 stories high.

This area is served by local water network connected to Aqaba network, but it is not served with sewerage or storm water network. In addition the overall of the condition of the existing road network is poor, it is deteriorated and the environmental conditions are very weak. There is a high density of poor people in very bad conditions with poor services. So the Housing and Urban Development corporation (**HUDC**) has an objective to provide **Al-Hadwa** area with proper road network, a safe water supply and distribution system together with an effective modern wastewater collection system, electrical power systems, and telecommunications.

The existing infrastructure components will be enhanced and upgraded through a new *master plan*, taking into consideration the future requirements and needs necessary for developing this area.

HUDC signed with contract with **Dar Al-Omran**, Consultant Company to prepare the new master plan and perform detailed design and tender documents for **Al-Hadwa** area.

Land Ownership

There are four categories of land property in the project area as follows:

- 1 Plots allocated by land title deeds, with total area 18,134 m² (12.5% of project area).
- 2 Sold plots, the total area is 2,890 m² (2% of project area).
- 3 Recommended plots: the total area is 6,130 m² (42 % of project area).
- 4 Government property: 63,350 m² the rest of project area (43.5% of project area).

Existing Land Use

Table 1: The existing distribution of land use is as follows:

Area	%
Residential area	63%
Commercial and industrial services	3.5%
Open and green areas	5.2%
Roads and paths	25.0%
Religious buildings	1.5%
Hotels	0.8%
Educational buildings	1.0%

Building Conditions

The building conditions are divided into three conditions according to the case of the building which mean the quality of the material (concrete) of the building and the health (sun, air) of the building not the infrastructure of the building. 99.0% of the buildings height in this area is one story building and about 1.0% are 2–4-story.

Table 2: The conditions of the buildings

V.good condition (good quality of material for the walls and roof and it is sunny, in this case we don't need any changes for the plots).	2.0%
Good condition (it need few maintenance for the walls and for the roofs).	5.0%
Bad condition (bad material with poor services we can't make any changes. It should be demolished according to plots conditions).	93.0%

Strategies

The goal of my proposed strategy is to prepare the new master plan as well as the infrastructure design in a way that the different interests of the people living there are taken into consideration. The proposed strategy includes the following steps

A: - Primary Study

- 1 Study of the existing situation
- 2 Study the needs of the people.
- 3 Site survey.
- 4 Data collection.
- 5 Co-ordination with regional and local authorities.
- 6 Participation as follows: -
- 7 Several meetings and discussions should be arranged between the different actors, which are:
 - Dar Al-Omran Consultant Company.
 - The representatives of *HUDC*.
 - ARA - the Aqaba Region Authority.
 - WAJ-the Water Authority of Jordan.
 - National Telecommunication Company.
 - Electrical Companies.
 - Water Authority in Aqaba.
- 8 The users (the people living in the area).
- 9 Preparation of design criteria.

Secondary Study

- 1 Site survey.
- 2 Client remarks on primary study
- 3 Establishing the final pipes routes and connections to the public networks.
- 4 Media and urban development society an association founded by media and press people who are interested in the development process.
- 5 Discussion between people and the actors to know their needs and explain for them the benefit from this project.
- 6 Preparations of studying the existing conditions of the units.
- 7 Preparation of cost estimate.

Final Submission

- 1 Use the local material as much as possible.
- 2 Detailed design to reach a good solution.

Participation

In order to create good basis for participation these points should be taken into consideration: -

- 1 Improved housing conditions will improve the entire well being.
- 2 Health conditions.
- 3 Children will have a better playing area and better education.
- 4 Each family will have a good unit with better living conditions in a developed area.
 - Encourage private sector (Dar AlOmran) staff to participate in the supply of low-income housing.
 - Media and urban development society. It works mainly on building trust and understanding between the citizen and decision makers ... where they are allowed to participate in formulating their life and their society.
 - Arab women's needs should be taken into consideration.

When defining design criteria, the following gender aspects should be considered

- Collect desegregated data about issues of the urban sector and special data about the status of women in the Arab region.
- Direct women and men working in the human settlements sector to use the gender perspective in the development process, as well as following up the various stages of the process to ensure that gender is taken into consideration.
- Work with women in the grass roots in order to help them take a better role in the decision making of their living environments.
- Train both men and women at all levels of the urban process.

Actors

The Role of Actors

The activities of actors have been promoting and helping the to take a better role in the urban development. So the success of strategies greatly depends on well-defined institutional framework that takes up the responsibility of directing the implementation process. This is especially true for urban housing and development, which involve a wide range of actors who have complementary roles. Building up partnership between various actors of the public housing sector, private sector, and the user, should be primary task to ensure the continuity of the work. Thus each actor will take the responsibility to catalyse the efforts of the other actors. Through the participation of various actors it is possible to improve the system of urban housing and development for poor people in urban areas. Since my paper deals with a project in Aqaba in very poor area the implementation of the housing policies should be considered especially in relation to the needs of the poor. There are lots of actors who have an influence in the urban housing and development of my project. I will highlight on these actors and their key roles and how they can take part in this project in order to reach adequate solution to better living conditions and urban development.

Public Sector

Housing and Urban Development Corporation (HUDC)

HUDC, being the government's umbrella of the housing sector has initiated an evaluation where studies and research are done to give recommend actions to the government on the strategies affecting the sector. The evaluation directorate has been studying and following up the implementation of the National Housing Strategy (*NHS*). Accordingly, it has also been working on set indicators for housing and urban sector reflecting the actual situation as a tool for laying the right start.

HUDC, while working in a liberal real estate market steered by the acting forces, works on the direct provision of the housing units to the low and middle-income groups, reflecting on the sector and the economic market as a whole.

In terms of liberalising the sector, there are risks that the use of *HUDC* projects as the main vehicle of meeting the housing needs of the poor will inhibit the emergence of the private sector as the key sector in housing, as well as inhibiting the possible roles of non governmental organizations (*NGOs*), community –based organisations (*CBOs*), and local government bodies.

The recent re-organisation of *HUDC* fully reflects its roles and is itself a useful and clarifying step in articulating its possible future directions and operations. A key element in the corporate thinking of *HUDC* is that the projects must be an integral part of policy. In themselves they must reach out to and involve the widest possible participation, particularly of the private sector, and as such must provide a further evolutionary step in the widening and strengthening of the housing sector.

Accordingly, in the long term the principle is that the market does the job and progressively, the owners –developers; private sector developers, financiers and landowners, community action groups and local government will become the main players. Meanwhile, and to push the development forward in this manner, the 'productive' function of *HUDC* is intended to address a series of other sub-functions:

- Build up the private sector's performance/capability for the Low-income target groups by undertaking projects jointly with/on behalf of the public sector.
- Help and encourage communities /local governments to participate in the production of housing units.
- Provide housing for civil servants and military employees.
- Upgrade under serviced areas on behalf of the local governments and infrastructure authorities.

Another important function is the dissemination/education/research/training, etc, on a number of areas (land, finance, law, community development) where the policy issues involved are not fully understood and widely appreciated, and where training and professional development will be required.

Public Agencies

The public agencies are responsible for the provision of the physical and social infrastructure and some agencies are specialized in the rules of Aqaba region. The services provided include schools, clinics, community centres, road network, transportation, electricity, water and sewage. There is a need of creating lower-cost ways of providing water, drainage and sanitation, more appropriate to the needs and resources of the vast numbers of low - income urban dwellers.

The agencies involved are Aqaba region Authority, Ministry of Education, Ministry of Health, Ministry of Public Work, and Ministry of social Development. Ministry of Transports, Water Authority of Jordan & Water Authority in Aqaba, Electricity Authority, and National Telecommunication Company.

Private Sector

The idea is that the future of the public sector would be confined to policy, monitoring, planning and research. Therefore, a strategy must be adopted to activate the formal private sector in land development and housing. A public-private partnership is proposed to increase the formal private sector participation.

Dar Al-Omran Consultant Company

Dar Al-Omran staff made a survey and they know some people don't accept the idea, but they want to carry out the project without any interest in what people said. It's the same for the government, which it is not sustainable and fair for the users.

This city has a special character because it's near to the sea and the characters of buildings have an especial kind of stone with especial colour (yellow and rose). This is because depend of the area and the colour of the mountains that surround the area with especial kind of trees palm trees. I was surprised that the consultant staff didn't take this point into consideration and neither did the government. In my thinking this city started to loose the character of the buildings which will have a side effect since this city is a tourist city in Jordan.

The private sector is an important actor in the housing development process. It is often this sector, which is instrumental in providing basic infrastructure and facilities.

To ensure sustainable improvements the design work activities will be performed to upgrade and rehabilitate the existing infrastructure system and to add here necessary new infrastructure components. Demolishing housing units should be minimized expect in the necessary cases for providing and laying out the infrastructure utilities.

There is also need to understand and increase the knowledge of using local construction materials.

Contractors

The contractor takes on the project implementation, which includes the infrastructure and the individual dwelling.

Industries

The industries are responsible for providing the building material required for the project.

The idea is that the future of the public sector would be confined to policy, monitoring, planning and research. Therefore, a strategy must be adopted to activate the formal private sector in land development and housing. A public-private partnership is proposed to increase the formal private sector participation.

Users

From my survey I know some people and they accept the idea of the project after they heard what will happen, even though some dwelling units will demolished in order to have good conditions. Others do not want to discuss to me and they don't want to change their place since have lived in this area for a long time under the same conditions. Others I think will very happy because they got a chance for jobs because they are suffering from that they have no jobs and they are poor people. Old people will be very happy because they were bored and they are no places for old people and children for recreation, even so the youth.

The users can be divided into several groups according to the different interests and needs of like old people, women, men, and handicapped people.

In participation between citizens, who live in this area and the other actors the following points should be taken into considerations:

- 1 Recognition that there is a variety of ways of providing services.
- 2 **HUDC** must develop a capacity to work with local populations to identify their problems and devise workable, appropriate solutions.
- 3 **HUDC** and local governments must create ways of strengthening community organizations and working with them to ensure that basic levels of infrastructure and services are provided and maintained, and that they must meet the most pressing needs as perceived by the community.

Understanding and knowledge of the community has been increasing especially on how women were incorporated into the project. And taking the *gender* issue into consideration had a relevant role in the process. It was amazing how women participated in the meetings, workshops, and even in the construction process. It was logical, women spent most their time into the houses. So during the design stage there should have been meetings with the women about what they want, a well-equipped kitchen for example. In fact, gender in this project is not only about kitchens for women, it is getting women to the process, hear what they want to say, and take on account their needs.

Creation of new job opportunities for people by the government maybe chances to work at the same project can make people accept the idea of the project. They can get a benefit from this project especially their units are demolished they get a good opportunity to work and improve their life level.

The result is to ensure an adequate solution leading to better living conditions (and urban development).

Design

By working with previous elements in my paper and with the participation of the users old people, women, men and children, we can make their dream true. So in my concept the assignment comprises of the preparation of the new master plan as well as the infrastructure design. The master plan shall show the proposed land use without relocking (building details). The client later on, according, the planning & zoning regulations and building codes, will specify these details. The design work activities will be performed to upgrade and rehabilitate the existing infrastructure system and to add where necessary new infrastructure components, so in my paper I will explain more details about each point in infrastructure design since the area is very poor of infrastructure facilities.

Description & Analysis

Design process will seriously take into consideration the minimum possibilities of demolishing housing units, expect in the necessary cases for providing and laying out the infrastructure utilities. Considering the existing conditions and the development requirements, the proposed plan shall consist of 12 main blocks, where the economical activities shall occupy of the two main corridors; AL –Amir Mohammed road and king Talal road. Each block has a total area of 1250 m² and consists of 6 dwelling units.

Plot configuration is aimed to accommodate dwellings appropriate to Jordanian customs and use of property. This requirement resulted in the following aspects:

- Minimum size of the plot 210 m² taking into consideration the size of the family in this area which about 6-8 persons in each unit, and the income of the family, they are poor people with low income, so I suggest to build this project with in two stages considering vertical expansion in the future.

Primary stage: a total area of 95 m² including: master bed room, living area which can be used as bed room in the first stage, kitchen, small storage, toilet, staircase for vertical expansion in the future, private courtyard which will be connected to another private courtyard in the next plot so each two plots in the site plan will be as a one unit.

Secondary stage with total area 115 m².

- All plots will direct access to roads and parking areas.

- There will be public area (courtyard) in the centre of the project with all the activities (commercial units, health center, hotels, religious buildings, women training centre and community centre, post office...) in the design we made the area to have a good view to the sea. In the main street we put a commercial belt of shops and some of the shops for hand –made things and old things, which is the common in the city to attract tourists.
- Determine the street with a width of about 8 m with dead-ends (cul-de-sacs) where we can have a parking area. And avoid the intersections of the roads, which is dangerous. The site should be served with footpaths with a width 3 m where cars are not allowed and determine paths for handicapped people.
- Frontage and depth ratio to be not less 1:1.5 preferred 1:2, to minimize the cost of the infrastructure.
- Dwelling design should accommodate family requirements especially the women's need in the use of the space within the following standards:
 1. Flexibility of design to accommodate future horizontal and vertical extension.
 2. Built up area not to exceed 60% of the plot area, with maximum 3 storeys high.
- The system of hierarchy of roads is on function with discouragement of high speed and through traffic and the roads should done parallel to avoid additional construction cost and reduce retaining walls.
- Dwelling unit should take into consideration the character of the whole city and make a good view to sea, for example made the living area have a good view to the sea.
- Close attention to the climate in design process so the buildings should oriented where possible to avoid high wind and solar radiation by using green belt of palm trees to avoid the winds, Since this city has a hot temperature usually in comparison to other cities in Jordan, we should make sure to use trees and green area to decrease the temperatures .
- Building materials: we should taken into consideration in design process the use of the local material to encourage the local industries in Jordan, so I suggest below the building material in the project as follows:
 - Floor- 20 cm concrete including cement tiles.
 - Outer wall –30 cm hollow bricks, plastered.
 - Interior wall –10 cm hollow bricks, plastered.
 - Roof –20 cm flat concrete roof with hollow bricks.
 - Doors and windows –metal for outside doors and windows and wooden doors for inside doors.



Figure 4: View of the mountains, which surrounded the site.

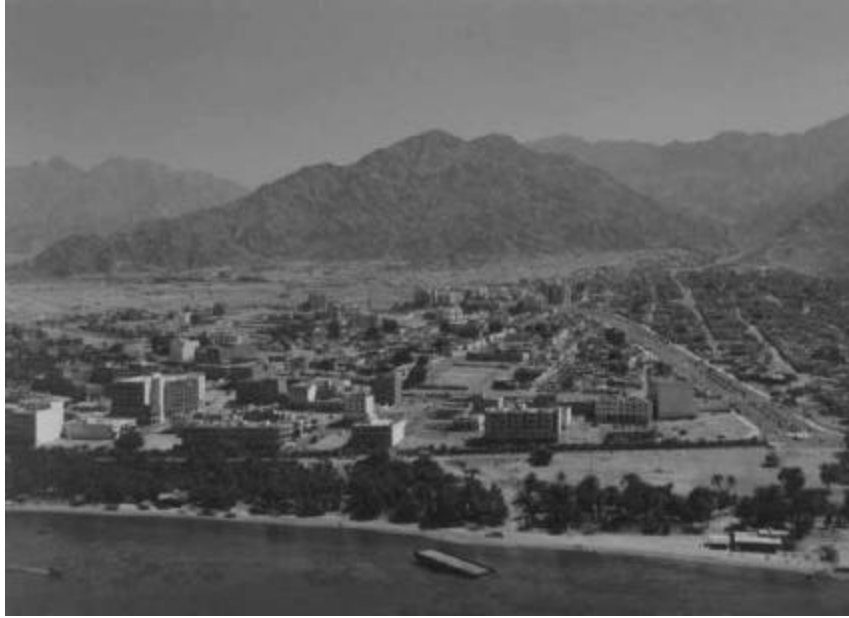


Figure 5: View of the sea, which surrounded the site.

Table 3: Proposed land use with a total area for the project 15 000 m²

Area	% m ²
Residential area	48.5% (7275 m ²)
Commercial area	10.0% (1500 m ²)
Hotels	3.0% (450 m ²)
Religious buildings	1.5% (225 m ²)
Recreational & ballrooms & community centre (for training women, library, culture activities)	2.0% (300 m ²)
Green area	5.0% (750 m ²)
Road & foot paths courtyards	30.0% (4500 m ²)

Infrastructure Design

Water Distribution System

Existing water distribution system is composed of old galvanised steel pipes of various diameters. The water pipes are old, deteriorated and exposed above ground surface in almost all footpaths and streets. According to WAJ –Aqaba records the total number of water meters in Hadwa area is 407.

Proposed Water Distribution System

The proposed WDS will be composed of ductile iron pipes running in the form of ring shape around the Hadwa area with diameter 63 mm HDPE service lines along the internal roads and footpaths. The house connection pipes will be of diameter 25 mm or 32 mm HDPE. So design criteria the following basic design elements of the distribution system will be adopted after WAJ approval, An adequate distribution system must be capable of furnishing the necessary flow of water to all points of the system with sufficient pressure to satisfy the normal requirements of all customers.

The minimum pressure head required is 25 mm and the maximum pressure head is 50 mm, and the average water consumption will be taken as 80/L/C/D and water losses to be 30% of the water supply.

Wastewater Network

Existing wastewater system

The wastewater flow from the household is diverted to located cesspits. Since most of these cesspits are not pumped frequently, spillage will occur. Also, some of these households discharge their wastewater flow into the alleys leading to serious environmental pollution.

Gravity sewer lines of UPVC pipes will collect wastewater flow from the households and public buildings The Hawda area is subdivided into small catchments areas based on topography. The waste water flow from the household

will be collected by 150 mm house collection pipes then to 200 mm upvc pipes along the alleys that will discharge the wastewater flow into trunk line located by main street of the Hadwa area (King Talal street), so in design criteria wastewater flow is assumed to be 85% of the water consumption.

Catchment Areas

The collection system in the Hadwa area is divided into hydraulically independent areas according to topographic conditions and taking into consideration the need to have gravity in the sewer network.

Storm Water Drainage Network

Existing Storm Water Drainage System

The topography at Hawda area is almost flat with a maximum slope of 10% towards King Tala Main Street. Storm water generally runs from the footpaths to the main street, as surface flow on ground surfaces according to its existing slopes.

The Proposed Storm Water Drainage System

The proposed drainage system for Hadwa area will be surface flow, since after installation of water pipes and sewer lines, new concrete or asphalt pavements will be laid for the internal roads & footpaths with designed slopes to permit storm water to drain by gravity as surface flow.

Therefore storm water run off generally runs from the internal roads & footpaths by gravity as a surface flow according to its designed slopes to the main road. The existing slopes of roads and footpaths are good enough for storm water drainage. Thus, the storm water runs quickly by gravity as a surface flow to King Talal main road.

Roads

Alignment

The proposed road network layout design will take into consideration minimizing demolishing of buildings and housing units and maximize usage of open areas as possible.

Classification

The proposed road networks is mostly classified as service roads expect the modified alignment of King Talal part which it is considered as a collector main road intersected with AlAmir Muhammad main road.

Dimensions

All service roads fixed with 10 m right of way divided to 7 m as a carriageway and 1.5 m side walk for both to be common two-way direction. The main collector road fixed is with 7m-carriage way for each side.

Foot paths

All footpaths aligned and fixed with faired width and length, irregular shape for most of them in order to avoid obstacles of the existing buildings making use of the areas in between houses to serve properly. The proposed footpaths area is about 6800 m². So geometrical criteria will follow the existing situation as possible in order to keep the adequate existing levels of house entrances and other services, expect where there is a need to preserve the minimum slope required for surface drainage of rain water. Old damaged asphalt or base courses will be removed and reconstructed them according to road profiles design levels which are to be connected with existing asphalt levels of good roads in the project area.

Conclusions

Finally, I would like to highlight on lessons from these projects, which can be carried out in future projects:

Housing policy for the low –income families, which must be promoted through housing projects with direct participation of these families .The low-income people should be motivated and encouraged to participate in theses projects. Women should be involved in all stages of the process especially in the planning and the design.

The use of local material to encourage the industries in Jordan and to reduce the cost of the projects should be encouraged.

Understanding the importance of the site location relating to Aqaba city master plan is important and so is keeping in mind the character of the city and its functions that play an role in the economical and tourist activities in present and future.

Understanding the socio-economic situation and the environmental impact of the project on the local community is crucial to set the suitable development criteria. Value of the land, the potentialities of investment against the existing situation and occupation revenues should be considered.

Recommendations

Accordingly, the following recommendations are derived:

- Necessity of insuring work opportunities for the local community as well as generating new investment opportunities by allocating 13% of the area for commercial usage such as hotels.
- Improving the accessibility by adopting efficient road networks to improve car service, pedestrian traffic and laying utilities.
- Insuring social and recreational services for the local community and tourists.
- Improving the environmental conditions by allocating new open and green areas.
- Minimizing the negative environmental impact of the project by avoiding any unnecessary demolishing works and keeping it at minimum.

Finally, I think if those steps in my paper are taken into right directions by the government, represented by *HUDC*, playing the basic role as a facilitator. The private sector with the user will have the major role in housing production in the future. Hopefully this improvement will lead for better future projects of housing.

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Thanks

These people let my dream come true: my family, HDM staff, my friends in Jordan, a special thanks to my friend Ahlam Ewais, my new foreign friends, Sida, Ministry of Public Works & Housing in Jordan, a special thanks to the important persons in my life, my parents.