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A STUDY ON THE ANALYSIS OF AN UPGRADING CONCEPT PLAN FOR DEVELOPING THE KABUL OLD CITY – IN THE CASE OF BAGH-ALI-MARDAN –

Said Mustafa Habibi[1], Hiroko Ono[2]
[1]Department of Civil Engineering and Architecture, University of the Ryukyus, Okinawa, Japan
[2]Department of Civil Engineering and Architecture, University of the Ryukyus, Okinawa, Japan

***Abstract*— The informal growth of urban settlements has become a phenomenon characteristic of developing countries where planning and law implementation are deficient and government agencies are unequipped to deal with rapid urbanization. Kabul is one of those fast growing cities which have experienced a major population growth in the last decades with many challenges including informal settlements, which have become an inevitable manifestation. A rapid increase in the urban population of Kabul and its related consequences have been difficult to handle and manage, furthermore the limited capacity of the government to meet the high demand for building plots has led to the growth of informal settlements. Today informal settlements represent about 69% of all residential areas in Kabul and the residents are suffering from many problems. The government's main planning strategy has been upgrading in the form of paving the roads and provision of basic public facilities. This paper presents an upgrading model which was proposed by the Ministry of Urban Development and Housing (MUDH) for developing a part of the Kabul Old City. It basically focused on the analysis of the model from the socio-economic and environmental point of view and discusses the major pros and cons of their proposed development plan.**

***Index Terms*— Afghanistan, Old City of Kabul, Physical Upgrading, Preservation, Destructions.**

I. INTRODUCTION

Kabul is the capital and largest city of Afghanistan. it is the center of cultural, economic and political decision-making. The city has experienced a series of political turmoil since 1970. During civil wars, particularly after the collapse of the communist regime in 1992, Kabul was destroyed not only in its urban infrastructure but also in its social system for education, medical and services; it has reported that these civil wars caused the deaths of thousands of civilians, serious damages to infrastructure and an exodus of refugees. After the war, Kabul city has become the main destination of migrants who immigrated to neighboring countries during the conflict and war, internal displaced people (IDP) and also those Afghans who were looking for security and better life quality. The population rate has rapidly increased in recent years. However, some available estimates put the city's population growth rate at 15 percent per annum. According to the "*Center for Afghanistan Studies*" the population of Kabul was estimated about 4.8 million people in 2012 [1]. The speedy urbanization and fast migration have significantly contributed to the number of informal settlements in Kabul. The afghan government however couldn't take effective measures to control illegal land transactions and land grabbing proliferation of informal settlements on steep hills and other undesirable activities resulting from the rapid urbanization. Today, informal settlements represent about more than 69% of all residential areas in Kabul and about 82% of the whole populations are living there (Table.1) [2]. The following figure shows the formal and informal settlements in each district of Kabul.

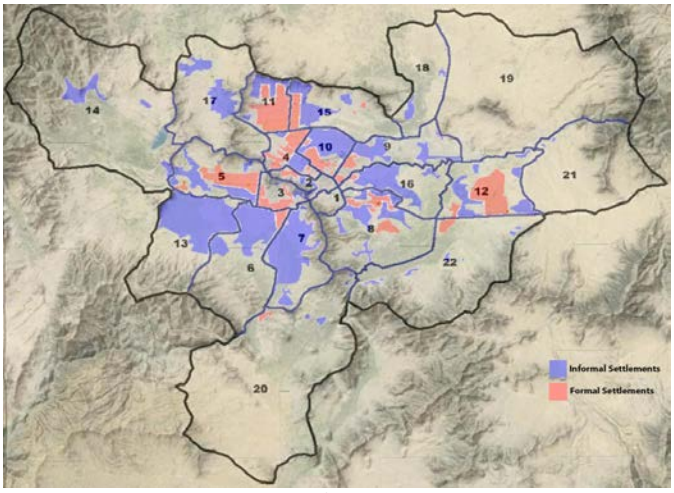

Figure 1. Formal and Informal Settlements in Kabul

Table 1. Area of the Formal and Informal Settlements in Kabul

Informal and Formal Settlements					
Settlements	Area (Km²)	Population	Area (%)	Population (%)	Average Density (Pop/ha)
Formal Settlement	32.66	531,000	31%	18%	163
Informal Settlement	71.56	2,442,000	69%	82%	341
Total Residential Areas	104.22	2,973,000	100%	100%	285
Formal					
Apartment	1.8	91,000	1.70%	3.10%	505
Townhouses	0.17	5,000	0.20%	0.20%	293
Detached Houses	30.69	435,000	29.50%	14.60%	142
Informal					
Detached Houses	3.33	88,000	3.20%	3.00%	264
Courtyard Houses	57.96	1,980,000	55.60%	66.60%	342
Houses on Slopes	10.26	375,000	9.80%	12.60%	365

The residents are struggling with many problems and difficulties in terms of the socio-economic and environmental consideration. As previously mentioned, in the past regimes, the government's main planning strategy for alleviating the slums and informal settlements was "Upgrading". The term upgrading refers to the measure to improve the quality of housing and provision of housing related infrastructure and services of the settlements that are considered to be slum or developed illegally [3]. Unfortunately, the upgrading projects which were implemented in the past for the purpose of slum development could not succeed to achieve the certain objectives.

In Afghanistan, based on their development strategy in the past, the term "Upgrading" was mainly limited in paving the roads and preservation of the area due to minimize the project cost and overcome public resistances. However, sometimes upgrading costs too much compared to other development methods. Moreover, sustainability is not only about being too economy but often seen as a three-dimensional concept that covers social, ecological and economic perspective [4].

On 2011, the Ministry of Urban Development and Housing (MUDH) had proposed an upgrading concept plan for developing a part of the Kabul Old City. In this research, we analyzed their model from the socio-economy and environmental aspects under the urban planning principles and discuss the strengths and weaknesses of their concept. In here, we are going to elaborate a little about the terms related to the informal settlements and upgrading.

A. What is Informal Settlements?

Informal settlements are areas of housing either constructed on land to which the occupants have no legal claim, and/or areas of housing units that do not comply with planning and building regulations. It is important to note that settlements that lack some aspect of legality should not necessarily be discouraged as poor land use – in many cases, overly stringent regulation is the problem. This is particularly relevant in Kabul, where informal housing units themselves are made of more durable materials than in informal settlements in other cities [5].

According to UN-Habitat (2007) report since the 1960s, cities in developing countries around the world have faced a high rate of urbanization which finally ended up with a huge poverty. It is estimated that one in three of the total urban population and one in six of the whole world population lives in informal settlements (USAID/OFDA, 2009; WHO and UN-Habitat, 2010).

These places have through history been named differently, and so even today. Informal settlements, squatter settlements, unplanned towns, among others are some of the popular terminologies adopted in literature to describe them. Hague (1982 cited in Nguluma, 2003) mentions different names that have been used by different authors in classifying informal settlements including; spontaneous settlements, shantytowns, squatter settlements, pirate towns, autonomous settlement and slum. As previously mentioned that the uncontrolled and unorganized urbanization process have contributed to large informal settlements in the city of Kabul, today the informal settlements cover about more than 69% of the city and about 82 % of the people are living in these places (Figure.1).

B. Upgrading

The term 'upgrading' refers to the measures to improve the quality of housing and provision of housing related infrastructure and services of the settlements that are considered to be slum or developed illegally [6]. Moreover, upgrading is a common concept, which basically means the provision of basic services to improve living conditions in an existing settlement in a manner that does not result in major changes to the physical layout of a neighborhood; it also refers to any sector-based intervention that result in quantifiable improvement in the lives of people [7]. According to Cities Alliance (2009), it is a process through which informal areas are gradually improved, formalized and incorporated into the city itself through extending land, services and citizenship to informal dwellers. It involves providing or improving basic infrastructure and services: water supply and sanitation, electricity, drainage, and roads [8].

Upgrading in unplanned urban areas addresses the lack of access to basic services, which municipalities usually do not provide, given the informal status of the settlement. In all cases, urban families are usually unable to afford the provision of such services on their own. For instance, most communities will not be able to construct roads and canals or provide potable drinking water. For this reason, they look to the municipality and government to provide them with at least the most basic services.

It is important to stress that settlement upgrading has moved from the basic historical process of physical developments to encompass environmental, institutional and economic interventions [9].

As aforementioned in Kabul majority of the residents are living in informal settlements and suffering from a low quality of life, unfortunately in the past the government reaction was weak in this regard. The government's main planning strategy has been only physical upgrading in the form of provision of some facilities and paving the roads. The upgrading projects which were implemented in the past for the purpose of slum development, could not succeed to achieve the certain objectives as people were not being properly involved in the project and as well as the concept of upgrading was only limited to the paving of the roads. Although, some evidence represent that *in-situ upgrading* has significant linkage with the socio-economic and well-being to residents living in informal settlement, Adel El Menshary et al (2011) argue that the benefits are simply that people obtain an improved, healthy and secure living environment without being displaced, the investments they have already made to their properties remain and this is significantly better than removing to costlier alternatives that are less acceptable to them, but the term "Upgrading" doesn't mean only paving the road; it is too much connected with the people's life and how to enhance their

quality of life. Moreover, community participation and commitment are essential for any project to be sustainable [10]. According to Huchzermeyer, success in sustainable development projects can also depend on whether or not the objectives of community participation are met [11]. Huchzermeyer further postulates that participation is especially important in informal settlement upgrading, where there are already existing communities and significant numbers of vulnerable households whose livelihood strategies may potentially be at risk because of inappropriate interventions. One of the objectives of community participation is to empower people. This can help people to take control of their destinies by making decisions and having control over resources that affect their lives. In this way, they will be able to attract and manage resources in an efficient way [12]. Furthermore, when communities have control over resources affecting their lives, it can lead to a change in knowledge and skills. In the process, they become self-aware, gain confidence and become self-reliant.

C. Location

The area which have selected for this research is situated in the old city of Kabul and known as "*Bagh-Ali-Mardan*" area. The site depends to historical place and basically located near the CBD with a land area of 113197.20 m². Following figure shows location of the research area.

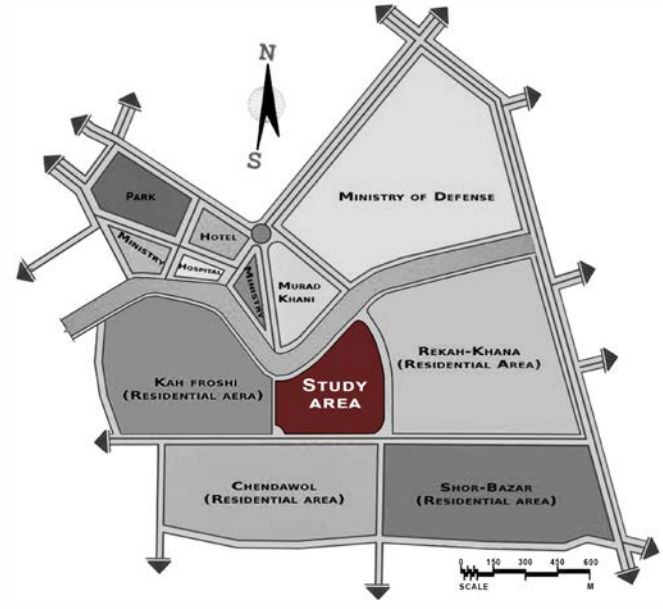

Figure 2. Location of the research area

D. Existing profile of the area

The area which have chosen for this research belongs to informal settlement type II, this type of settlements have covered a vast portion of the dwellings in Kabul city. According to the executive decree No. 83 article 7, private land means a land which the ownership has proved through valid legal instruments [13]. These residents are not legal owners in a strict sense; they have acquired their ownership for their land through purchase from customary or traditional landowners. Their customary land deeds are usually counter-signed by the *Wakil* or community chief of the district. Currently there exist 117 private residential lots with approximately 819 inhabitants. Figure 3 and table 2 presents the existing land use of the area.

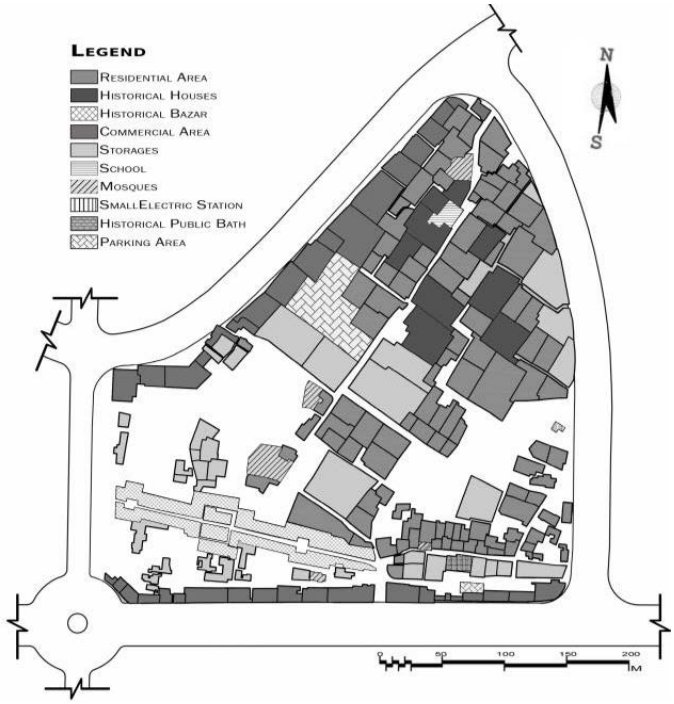

Figure 3. Existing land use plan of the area

Table 2. Existing land use of the area

Existing land use of the area (Before the project)							
No	Land Use	Area		No	Land Use	Area	
		m²	%			m²	%
1	Residential Area	26771.70	23.60	7	Car Parking	2926.83	2.59
2	Historical Houses	6033.10	5.33	8	School	325.89	0.29
3	Historical Bazar	4566.00	4.03	9	Mosques	1402.89	1.24
4	Commercial Area	11509.14	10.17	10	Electric Station	48.57	0.04
5	Storages	14794.30	13.07	11	Roads	18341.95	16.20
6	Historical Public Bath	246.78	0.22	12	Vacant Spaces	26254.91	23.19
Total Site Area 113197.20							

II. METHODOLOGY

The methodology which has conducted in this research consists of the Data collection, analysis and result. Ministry of Urban Development and Housing (MUDH) on 2011 had proposed an upgrading model for developing of the Kabul Old City. The data's and development plan was collected from Urban Planning department and then inserted into GIS for the further analysis. Then several maps and tables prepared to show the location of public facilities, radius of the accessibility and as well as maps and graphs which can represent the destruction areas and houses which will be affected after applying the upgrading model.

III. CONCEPT ANALYSIS

During the past decades the government's main planning strategy toward developing of the informal settlements, was only upgrading. On 2011 the Ministry proposed a development concept for developing of the Kabul old city. The concept was essentially relied on the preservation and road improvement.
The information's were obtained from the Ministry and then geo-referenced in GIS. The map was overlapped on the existing land use plan of the site in order to find out the percentage of destruction and compensation cost. Figure 4 and Table 3 shows the proposed concept and land use plan prepared by the MUDH.

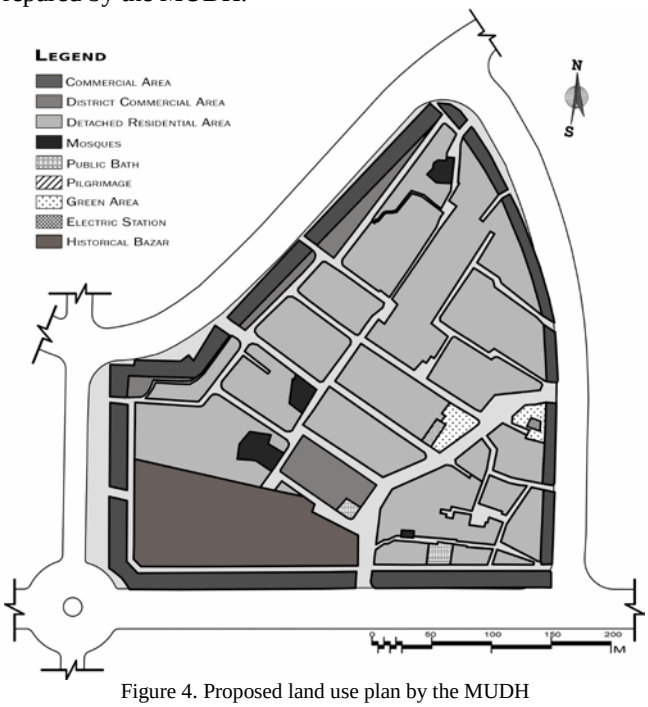

Figure 4. Proposed land use plan by the MUDH

Table 3. Land use specification after applying upgrading model

NO	LAND USE	AREA (M²)	PERCENTAGE (%)
1	Residential	52405.43	46.30
2	Commercial Area (Grade 1)	15110.69	13.35
3	District Commercial Area (Grade 2)	4710.07	4.16
4	Mosques	1554.61	1.37
5	Green Areas	767.98	0.68
6	Historical Bazar (Char-Chatta)	12184.53	10.76
7	Historical Public Bath	551.21	0.49
8	Pilgrimage	200.04	0.18
9	Road	24386.24	21.54
10	Open Area Belongs to Government	694.10	0.61
11	Electric Station	632.24	0.56
	Site Area	113197.20	100.00

In their plan they have defined some rules and suggestions to be taken into consideration within or after the planning such as:

Height

- The height of the all bill boards on the area should be based on the principles.
- The maximum height for the commercial buildings should be within 5 stories (17.5 m above the ground). The second and above floors can have their set-backs due to let the other buildings to have their sun and wind.
- The maximum height for residential buildings should be within 3 stories (11.5m above the ground). The above floors should have their set-backs.

External View of the Buildings

- Using marble stone or any other modern stone is not allowed, due to the historical character of the area.
- The cantilevers should not exceed more than 1meter.
- For building new structures or houses, the style should be considered based on the architectural character of the area.
- The size ratio between the window and façade of the wall should be reasonable and based on the standards.

BCR / FAR

- For the commercial areas, 100% BCR in condition to consider about the setbacks and parking area.
- For the residential and mix-residential areas:

Table 4. BCR/FAR regulation by MUDH

Lot size	BCR
Less than 70m²	100%
70-150m²	70-80%
More than 150m²	65-75%

Overall the concept was basically developed based on the physical upgrading model. The main objective was to preserve the existing houses and provide basic urban services and infrastructure for the residents. The most important factors which considered in their plan have mentioned as follow:

- In their plan a part of the area has proposed for the park but the size and location is not based on any principle.
- About 12184.5m² areas which include the *Char-Chatta* bazaar were completely preserved due to its historical value and background, but there is no any development plan shown in their map in this regard.
- They have specified the boundary of all religious and historical buildings such as mosques, pilgrimage, historical public bath and bazar in their plan and subsequently preserved them all in the new plan, moreover 4710 m² new land use have proposed for district commercial area.
- A collector road inside the area has proposed which is connecting the bazaar with the commercial & residential area but due to the existence of residential houses around; they could not provide a proper circulation and loop transportation network for the area. Table 5, 6 and 7 respectively show the destruction and project cost based on upgrading model which proposed by the Ministry of Urban Development and Housing (MUDH).

Table 5. Road destruction and development cost

Area				Cost				
Existing Road			New Road	Cost for the cleaning of the existed road		Cost for development of the new road	Miscellaneous Expenses	Total Cost
				A		B	C	
Total Existed Road Area (m^2)	Roads to be removed	Poor Asphalt with 2cm thickness (m^3)	Area (m^2)	Earth Work (4$/$m^3$)	Transportation/ Soil Removal (4$/$m^3$)	Concrete road (71$/$m^2$)	(A+B)*0.1	A+B+C
6133.8	1394.02	2788.04	15028.22	5576.08	11152.16	1067003.62	108373.186	1192105
				16728.24				

Table 6. House destruction and compensation cost

Area				Cost				
Existing Road			New Road	Cost for the cleaning of the existed road		Cost for development of the new road	Miscellaneous Expenses	Total Cost
				A		B	C	
Total Existed Road Area (m^2)	Roads to be removed	Poor Asphalt with 2cm thickness (m^3)	Area (m^2)	Earth Work (4$/$m^3$)	Transportation/ Soil Removal (4$/$m^3$)	Concrete road (71$/$m^2$)	(A+B)*0.1	A+B+C
6133.8	1394.02	2788.04	15028.22	5576.08	11152.16	1067003.62	108373.186	1192105
				16728.24				

Table 7. Total project cost

No	Land Use	Compensation Cost ($)	Destruction Cost ($)	Development Cost ($)	Sub Total (Including Miscellaneous Expenses)
1	Houses	1852137.93	266707.86	0	2118845.79
2	Road	0	16728.24	1067003.62	1192105.046
3	Park	0	0	11519.79	11519.79
Grand Total		3322470.62			

In general, the plan was developed essentially based on the preservation of area but despite of that some lots will be partially or completely destructed due to the widening of roads and some alleys. Fig 5, 6 and Table 8 presents the status of the preserved and destructed houses after applying the upgrading model.

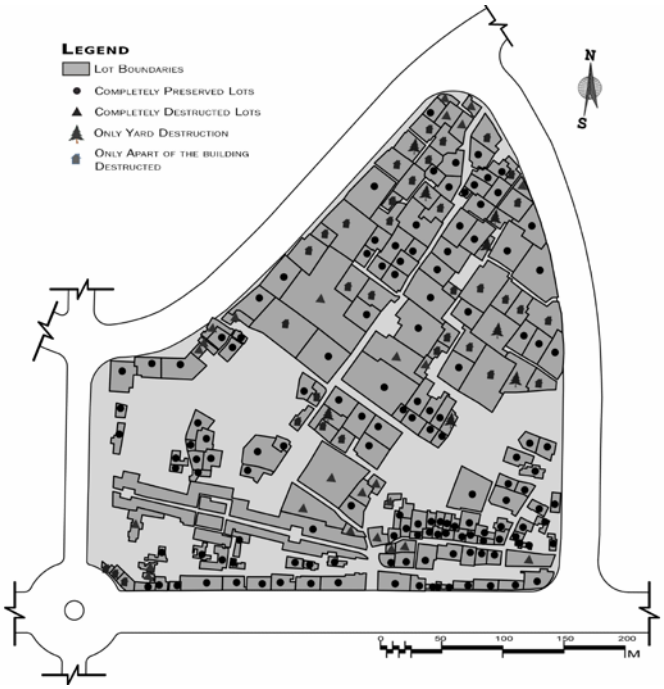

Figure 5. Preserved and destructed lots after applying Upgrading model

Table 8. Status and areas of the affected lots after Upgrading

Land Use	Before Upgrading		Affected Lots (Based on Upgrading model)							
			Only Part of the Building Destructed		Only Yard Destruction		Completely Preserved		Completely Destructed	
	Area	No	Area	No	Area	No	Area	No	Area	No
Residential	32912.9	116	3809.2	23	288.3	7	19754.2	77	2319.2	9
Comercial	11407.6	42	2599.6	8	29.9	1	7246.0	27	724.5	6
Public Facilities	1971.3	7	240.0	1.0	0.0	0	1649.7	6	0.0	0
Storages	17581.0	41	472.8	2	0.0	0	8894.7	29	6687.6	10
Total	63872.7	206	7121.5	34	318.2	8	37544.6	139	9731.2	25

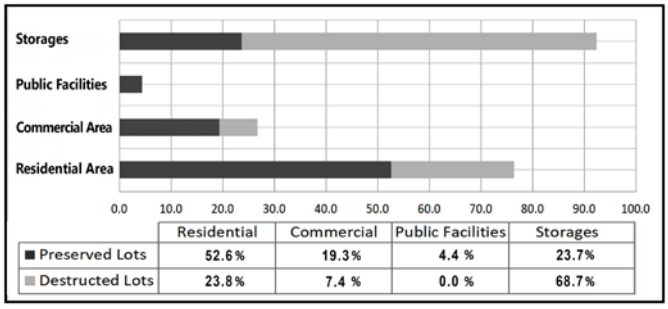

Figure 6. Area and percentages of the preserved and destructed lots

Figure bellow presents the compensation and project cost based on their proposed upgrading plan. The less destructions of upgrading model have significantly impacted the compensation cost which finally minimized the total project cost.

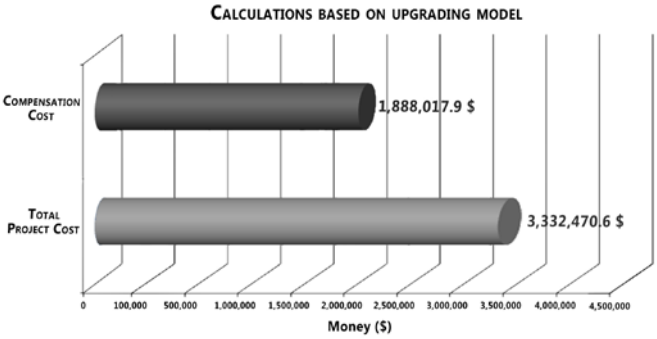

Figure 7. Compensation and total project cost based on the upgrading model

Moreover, the number of preserved and destructed lots for each land uses have presented in bellow chart.

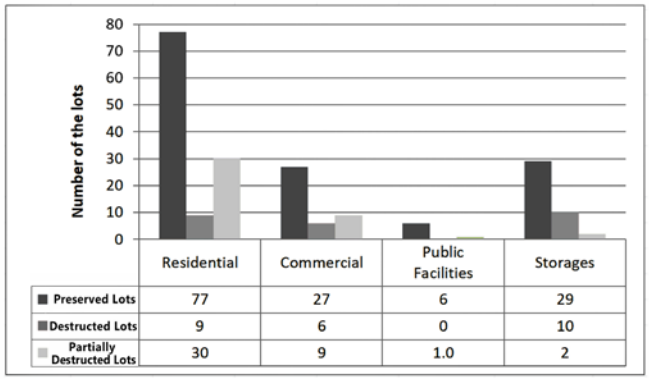

Figure 8. Preserved and destructed lots based on Upgrading model

The detail calculation of the preserved lots and destructions for each individual house and lot have presented in (Table. 9).

Table 9. Status and contribution of each individual plot before and after upgrading

	Before						Destruction After Upgrading					
Lot Number	Lot Area	BCA	Area of the Yard	Number of Storey	Land Use	Land Grade	Affected land by the road	Destructed boundary wall	Building Destruction including the floors	Only Yard Destruction	Complete plot destruction	Completely Preserved	Status of the lots after the upgrading plan
1	106.16	106.16	0.0	1	Residential	B						106.16195	Preserved
2	154.29	59.48	94.8	1	Residential	B						154.286351	Preserved
3	235.16	235.16	0.0	1	Residential	B						235.156348	Preserved
4	111.96	111.96	0.0	1	Residential	B						111.960906	Preserved
5	1705.96	1049.78	656.2	1	Storage	B						1705.956009	Preserved
6	347.94	181.17	166.8	1	Residential	C						347.939925	Preserved
7	236.29	169.11	67.2	1	Residential	C						236.285914	Preserved
8	250.62	139.97	110.7	1	Residential	C						250.62195	Preserved
9	151.63	87.46	64.2	1	Residential	C		15		26.65565			Only yard destruction
10	986.90	456.52	530.4	1	Storage	B	280.172334				456.52		Complete lot destruction
11	129.46	110.45	19.0	1	Residential	C	74.282362				110.45		Complete lot destruction
12	1139.40	715.42	424.0	2	Historical House	B						1139.403162	Preserved
13	132.20	132.20	0.0	1	Residential	C	8.740856		32.027876				Part of the building destructed
14	201.70	78.15	123.6	1	Residential	C	42.056599	16.6	42.797142				Part of the building destructed
15	423.91	253.77	170.1	1	Residential	C	69.40197		136.604947				Part of the building destructed
16	538.47	464.26	74.2	2	Residential	C						538.465974	Preserved
17	1343.28	1083.37	259.9	1	Residential	C	27.287738		165.154659				Part of the building destructed
18	527.86	173.19	354.7	1	Residential	C	60.238332	30		60.238332			Only yard destruction
19	296.97	181.54	115.4	1	Residential	C	66.0597		181.541663				Part of the building destructed
20	504.23	229.85	274.4	1	Storage	A						504.232948	Preserved
21	379.31	233.05	146.3	1	Residential	C						379.306833	Preserved
22	365.42	0.00	365.4	0	Residential	C						365.422436	Preserved
23	866.99	401.36	465.6	2	Historical House	C	80.711438	33		80.711438			Only yard destruction
24	349.09	143.56	205.5	1	Residential	C						349.08897	Preserved
25	926.63	369.53	557.1	2	Historical House	B						926.628985	Preserved
26	416.59	140.43	276.2	1	Residential	B						416.587435	Preserved
27	119.46	42.08	77.4	1	Residential	C	16.583346	6.2	8.301616				Part of the building destructed
28	947.57	523.91	423.7	2	Historical House	C	157.081786	7.8	902.6				Part of the building destructed
29	368.16	225.08	143.1	1	Residential	C	54.580702		138.616304				Part of the building destructed
30	337.43	210.14	127.3	1	Residential	C	37.943114		84.132761				Part of the building destructed
31	636.37	223.43	412.9	1	Storage	A	135.143164	3	223.428495				Part of the building destructed
32	1075.94	508.81	567.1	1	Storage	A						1075.935498	Preserved
33	809.37	248.01	561.4	1	Residential	C						809.374287	Preserved
34	424.31	266.22	158.1	1	Historical House	C						424.307511	Preserved
35	471.57	280.46	191.1	1	Residential	B						471.572761	Preserved
36	494.16	311.83	182.3	1	Residential	B						494.159978	Preserved
37	328.16	243.52	84.6	1	Residential	B						328.163224	Preserved
38	194.67	26.27	168.4	1	Residential	C		1.4		26.271227			Only yard destruction
39	477.43	194.02	283.4	1	Residential	A						477.429481	Preserved
40	426.88	260.86	166.0	1	Residential	C	63.98759		260.861847				Part of the building destructed
41	130.89	0.00	130.9	1	Storage	A	106.461434	47			0.00		Complete lot destruction
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202	131.79	112.58	19.2	1	Residential	C						131.791124	Preserved
203	149.33	149.33	0.0	1	Residential	C						149.328071	Preserved
204	241.94	203.63	38.3	1	Residential	C						241.94213	Preserved
205	187.05	187.05	0.0	1	Residential	C						187.047371	Preserved
206	205.80	165.28	40.5	1	Residential	C						205.799076	Preserved
207	4566.50	4566.50	0.0	1	Historical Bazar	B	192.226231						

IV. CONCLUSION

The absence of a comprehensive and city level upgrading strategy has led to the poor performance of all involved sectors in the informal areas.

Over the last ten years, the government of Afghanistan and several municipalities have worked with a number of supporting agencies in making and implementing upgrading projects. Some of the projects which implemented have focused on specific elements of urban reconstruction and community upgrading, including improving infrastructure and providing very basic social amenities. Based on the experiences, these projects could not succeed to achieve the certain objectives as to why people and community were not being properly involved in the process. People were just involved in decision making steps or even in some projects they were put in the picture at the end of the planning and process.

The upgrading plan which was proposed by the MUDH for developing the "*Bagh-Ali-Mardan*" area is based on the physical upgrading which has mainly focused on paving the roads and provision of Small Park which is not based on any principle and as well as has the problem of functionality.

As in their plan they have destructed only 23.8% of the residential lots and 7.4% of the commercial lots therefore the compensation cost has minimized to 1.8 million dollar and the total project cost for applying this model has estimated around 3.3 million dollar.

Historical buildings and cultural heritages play a significant role in socio-economic development of a country, in their plan they have preserved the "*Char Chata bazaar*" but there is no any development plan shown in their map about the future of this bazaar or any rehabilitation plan. The bazaar was one of the famous commercial establishments of Kabul, it was a two story bazaar and the selling materials in this bazaar were the local products and Afghan handicrafts. Therefore it is much popular among tourists who had visited Kabul.

Unfortunately during the war it was destroyed and it was burned by the British Army in retaliation to their defeat. Currently it is in a very worse condition, the second floor has completely destroyed and the main structure and form of the bazaar has also changed. The role of this bazaar is critical for benefiting from the value of heritage. Urban designers and architects need to make careful analysis of this area and carefully formulate them into coherent strategies for newer developments.

The MUDH proposal is not much sustainable as there are many technical and environmental problems in their development plan. The biggest issue is that while making development plan they have only focused on economy factor, however sustainability is a three-dimensional concept which covers the economic, social and environmental aspects.

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