Upgrading informal settlements in Egypt towards a sustainable urban development

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Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It is about ensuring a better quality of life for everyone, now and for generations to come. This requires meeting four key objectives that are the social progress which recognize the need of everyone; the effective protection of the environment; the prudent use of the natural resources and the maintenance of high and stable levels of economic growth and employments. Informal settlements are areas where groups of housing units have been constructed on land that the occupants have no legal claim to, or occupy illegally; an unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing). In developing countries, cities are experiencing a real demographic explosion. This paper will deal with the problem of the informal settlement phenomenon in Egypt and the means of its upgrading by adopting the concept of sustainable urban development. It applies SWOT-AHP method to analyze stakeholders' perception of quality of life and their relationship to sustainable development. Results revealed significant agreement between stakeholers' groups of perception of strengths, threats and opportunities.

Keywords: community sustainability, environmental sustainability, stakeholder participation, sustainable development, urban development, urban sustainability

1. Introduction:

The urban environmental crisis will continue to be one of the most pressing problems facing humanity in the twenty-first century. Most of the world's gravest environmental threats to air quality, water quality and availability, waste disposal, and energy consumption are exacerbated by the high density and activity of urban life. Governments acting alone cannot successfully address these challenges. What is needed are partnerships between development stakeholders: local governments, the private sector, non-governmental organizations (NGO's) and citizens' groups working together to find solutions. In urban centers, two of the most pressing problems facing the world today come together: poverty and environmental degradation. To improve the quality of life in urban areas, efforts must be made to reduce poverty and environmental threats to the most vulnerable sectors of society. To address the challenges of the urban environment, it will promote an inclusive approach to problem-solving, building on partnerships between all stakeholders to address complicated human settlements questions.

2. Sustainable Development:

Human beings are at the centre of concerns for sustainable development, since people are the most important and valuable resource of any nation. The right of development must be fulfilled so as to meet equitably the population, development and environment needs of present and future generations and a higher quality of life for all people. Sustainable development is a dynamic process whose goal is to ensure indefinitely the real welfare of society through the co-optimization of economic development, state of the environment, quality and level of employment. The concept of sustainable development is based on the principles of inter-generational and intra-generational equity. Going towards sustainable development aims at the benefit for the entire human race of the present and of the future. It also requires fundamental disruptive innovations at every level of the society, on local and global scale. Sustainable Development is depending on Integrating population and development strategies.

3. Quality Of Life (QoL):

Quality of life is the degree of well-being felt by an individual or group of people. Szalai (1980) defined Quality of Life (QoL) as the degree of excellence or satisfactory character of life. A person's existential state, well-being, satisfaction with life is determined on the one hand by objective facts and features of his life and on the other hand by the subjective perception and assessment he has of these facts and factors, of life and of himself. QoL consists of two components: physical and psychological. The physical component includes factors such as health, and protection against pain and disease. The psychological component includes stress, worry, pleasure and other positive or negative emotional states. Measuring differences in quality of life is as a difference in the *"standard of living"*. Achieving Quality Of Life (QoL) has been the implicit goal of public policy in nearly all societies for many centuries.

The quality of life (QoL) index is a social indicator proposed by Nathwani et al.(1997) to reflect the expected length of "good" life, in particular the enhancement of the quality of life by good health and wealth. The distinction between quality of life

indicators and sustainability indicators is that the former measure what is happening today and the latter measure the capacity for what will happen tomorrow.

This paper investigates stakeholders' perception of quality of life indicators. Incorporating perceptions of stakeholder groups is essential for ensuring successful formulation and implementation of any policy that leads to sustainable urban development. The research is based on the case of "Cairo", Egypt. Understanding perceptions of such stakeholders will help in identifying the priorities of QoL indicators which should be addressed in future urban development strategies. Addressing such issue will help in reducing conflicts and improving cooperation among the different stakeholder groups.

4. Case Study: Cairo Slum Areas

Cairo is the largest city in both Africa and the Middle East, capital of Egypt for over a thousand years, and an important political and cultural focal point in the region. The population of Greater Cairo is currently around 14-15 million inhabitants, which represents almost a quarter of Egypt's population of 67 million inhabitants and almost half of the country's urban population. (Table 1).

Table (1) Growth of the population of the Greater Cairo Region (GCR)

Census Years	Cairo Gov.	Giza Gov.	Qaliubila Gov.	Region	Rate (%)	Population
1947	2.062	0.668	0.281	3.013	n/a	12.5
1960	3.356	1.118	0.434	4.910	1.82	15.7
1966	4.232	1.420	0.560	6.211	4.50	17.4
1976	5.74	2.137	0.879	8.090	2.68	18.5
1986	6.069	3.332	1.460	10.860	2.99	18.2
1996	6.789	4.273	2.081	13.144	1.93	17.3

Currently the population of Greater Cairo is estimated to be growing at roughly 2.0 per cent annually. However, the labor force is probably growing at over 3.0 per cent per annum, due to the large youth bulge in the population pyramid now reaching working age.

The problem of transformation of urban patterns in Cairo stems from different reasons. These reasons were: a rapid increase in population not matched by additional new housing units, internal migration from rural to urban centres, deterioration of old parts of the cities without up-grading or equivalent replacement, accumulation of housing shortage over the years, and finally, the increasing gap between the cost of housing and income levels.

The transformations of the urban patterns can be summarized as follows:

1- Decline of traditional districts.
2- Deterioration and vertical expansion of colonial districts.
3- The absence of coherence in modern districts.
4- Transformation in public housing estates.
5- Growth of informal settlements.

Informal sector housing has become widespread, accounting for an estimated 70% of all new construction in Cairo due to the absence of an effectively implemented master plan and of adequate support of low-income housing, and with the increase of immigration from rural areas to the city.

5.1. Urban Slums:

The term slum *"aashwa'i"* is the only one used officially to indicate deteriorated or under-served urban areas, implying that these areas are unplanned and illegally constructed. Thus they are not necessarily slums, although being informal/ illegal, they tend to be the least well served in terms of infrastructure and public services, and they suffer from poor accessibility and high levels of overcrowding. Government officials and the national press frequently see these areas as "black stains" and ascribe to them a whole set of social ills – crime, drugs, and 'backwards' behaviour. In Greater Cairo a total of 81 *aashwa'i* areas were identified, of which 63 were deemed upgradable and 18 smaller pockets were slated for demolition and the resettlement of the inhabitants. Informal settlements have both positive as well as negative aspects. (Table 2).

5.2 Classification of Slums in Cairo:

The following are descriptions of the main types of slums found in Greater Cairo. Salient features and relative sizes are presented (Table 3). The location and geographical extent of these types are also presented (Figure 1).

Table 2: Positive and negative aspects of slums

Positive Aspects	**Negative Aspects**
A. Components of unauthorized development represent a true manifestation of the inhabitants' real needs and requirements but in an unorganized and unplanned fashion. These real needs and requirements may be difficult to arrive at through conventional means of survey and questionnaires. B. Literature on the matter indicates in numerous examples that squatter settlements are more eventful, lively and full of activities if compared with other pre-planned public housing districts. C. Current literature calls for a change of Perception of unauthorized development from a criminal act that deserves punishment and eradication to study it and deeply analyze its components in order to arrive at a useful conclusion in upgrading and re-planning this development.	A. Unauthorized development represents a great shame to the modern city and an eyesore to governments as a constant reminder of their weakness and inefficiency. B. The wide spread of disease and infection in squatter settlements is imminent due to lack of infrastructure such as drinking water and sanitation coupled with severe shortage of health and medical services. C. Squatter settlements present a host environment for criminals and outlaws since they provide them with a safe haven from police forces due to the difficulties of controlling these areas and knowing their roots in advance. D. The negative effect of unauthorized development is not only limited to its boundaries but it extends this to the surrounding areas.

Table 3-Greater Cairo Slum Types and Estimates of Prevalence 1996

Typology	Population	%of total GC population	%of total GC residential area
Type A Informal Settlements on Former Agriculture Land	6,434,000	56.4%	46.1%
Type B Informal Settlements on Former Desert State Land	6,434,000	56.4%	46.1%
Type C Deteriorated Historical Core	n.a.	> 4%	n.a.

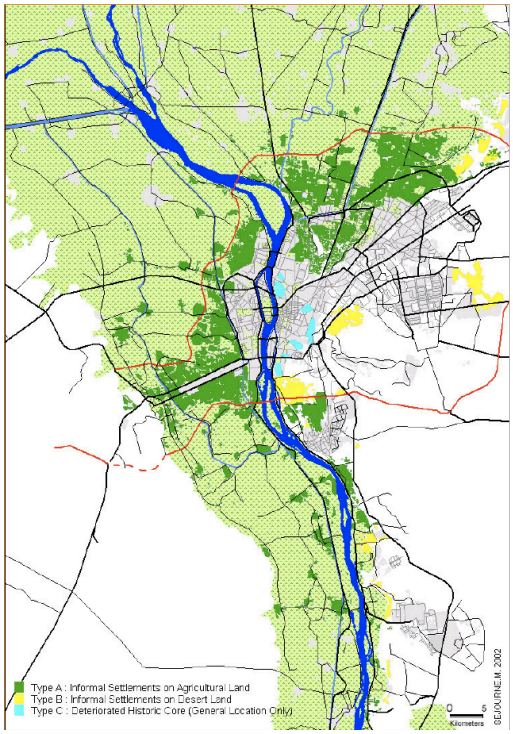

Figure 1- locations of informal settlements in Greater Cairo

5.2.1. Type A: Informal Settlements on Former Agricultural Land

This typology is defined as private residential buildings constructed on agricultural land purchased from farmers in areas where there were no subdivision plans and where building permits were not given. The typology contains over half the population of Greater Cairo and almost half the total residential area. The phenomenon has its roots in the 1960s, when small agricultural areas began to be subdivided by farmers and sold to individual owner-builders. The process was completely informal in the sense that land was bought and transferred and buildings were erected with no legal paper work and a total reliance on personal trust, mediated when necessary by the existing community. The annual loss of 600 hectares of valuable farmland to the growth of Cairo is one of the most serious problems confronting the planning authorities.

In physical terms, the layouts of these informal areas are always determined by the prior agricultural field and irrigation patterns, with canals becoming the only main thoroughfares. Local streets are straight and very narrow (usually 2-4 metres), the minimum required to allow access. Plots tend to be small, ranging from 60 to 140 m2 with 80 m2 being average. Frontages are usually 7 to 10.5 metres. There is 100 per cent plot coverage except for small air shafts or light wells. Buildings are mainly of reinforced concrete frame and floor slab construction with red brick infill walls and are designed for at least five floors.

5.2.2. Type B: Informal Areas on Former Desert State Land

This typology is defined as private residential buildings constructed on vacant state land by citizens under the process of "hand claim". The history of the phenomenon is particular to each location. In every event a core settlement was allowed to take hold, slowly expanding as the usual neglect of the government towards its own property became apparent. Usually quite large plots on the fringes of the established core were walled, and then sub-parcels would be sold by these pioneers to other settlers. The development process was also completely informal, with no legal paper work and a total reliance on personal trust, mediated when necessary by the existing community.
These areas are illegal, but settlers have certain customary rights derived from interpretations of those portions of the civil code pertaining to hand claims on desert land. In any event, settlers amass either the receipts from paying a nominal rent imposed by a Governorate's properties Department or property tax, from electrical connections, and other items to gain as much paper legitimacy as possible. Although it is difficult to generalize, housing conditions are in general worse than those found in Type A. There are higher incidences of dilapidated structures and of whole families living on one room.

5.2.3. Type C: Deteriorated Historic Core

In the historic city, that is Cairo before the expansions which began after 1860, are found neighbourhoods with a high percentage of old, crowded, and deteriorated structures within the medieval urban fabric. Examples include Darb el Ahmar and El Gamalia (especially the eastern sections along the Fatamid walls). The deteriorated buildings found in these areas are the result of confused ownership (mostly inheritance quarrels) and/or owner neglect due to controlled rents.

5.3 Policies and actions taken to improve slums and alleviate poverty:

5.3.1. Geographical Targeting and the Government’s National Fund for Urban Upgrading

In 1992, after the problems of informal urban areas were highlighted by a serious earthquake and also due to security problems in some of these areas, the government launched a national Fund for Urban Upgrading. A survey of informal urban settlements was carried out nationally, and areas were classified as either in need of upgrading or removal and replacement. The main problems in these areas were identified and upgrading focused on 909 areas in six investment sectors: electricity, planning and organization, municipal cleanliness, water, sanitary drainage, and road paving.

In 2000 a review of this national program was carried out by the Institute of National Planning. It pointed up a number of problems and deficiencies, the most important of which were as follows:

A. accurate and systematic information on informal areas and their needs were lacking frequently funds were allocated for large infrastructure projects that only partly served needy informal areas, going instead to prestige roads, bridges, etc. in nearby formal urban areas.
B. It was often impossible to track what funds were actually spent on informal areas due to rigid accounting procedures.
C. There was a marked difference between projects planned, those approved, and actual executed investments.

5.3.2. Socio-Economic Targeting and the Rural Bias in Poverty Alleviation

Overall, the Egyptian Government's attempts to alleviate poverty have never been particularly well targeted. The formal social safety net includes a number of compensatory measures run by the Ministry of Insurance and Social Affairs and its affiliates which are aimed at the poor and vulnerable groups. There are two main types, social assistance programmes which provide cash transfers and subsidized credit to qualifying poor households, and social insurance programmes which provide payments to former workers and also some non-contributory schemes.

5.3.3. NGO Activities

Over the last 15 years Egypt has witnessed a rapid increase in the number and scope of NGOs aimed at social development and fighting poverty which specifically aims at the problems of urban slums and poverty.

They are supporting an Urban Upgrading Unit in each governorate with the following objectives:

A. Defining the framework for improving living conditions in informal settlements.
B. Preparing a participatory strategic plan for each area and setting priority interventions in coordination with other agencies.
C. Disseminating participatory development mechanisms for identifying problems, priorities, and upgrading interventions by local stakeholders (government, NGOs, and private sectors).
D. Coordinating the strategy and efforts of upgrading informal areas with other development issues.

This study uses SWOT-AHP (Strength, Weaknesses, Opportunities, and Threats Analytical Hierarchical Process) framework to identify differences among perceptions of four different urban development stakeholder groups (non-governmental organizations [NGOs], government, industry, and academia) regarding urban development in the in slum districts of Cairo. The scope of this study is on small district level, but the findings of the study may be applicable for other districts facing similar situations. Moreover, if required, the same methodology can be replicated in each district to assess perceptions of local stakeholder groups.

5.4 Study Area: Garbage City (Zabaleen):

In Cairo, an informal-sector group of garbage collectors, known as zabbaleen, and local contractors, known as wahis, The zabbaleen, many of whom might otherwise be homeless and without employment, collect and transport the waste. They live in an area known locally as Garbage City who are mostly descendants of poor farmers from Upper Egypt who settled in the city in the 1950s with an estimation of (60,000 - 70,000 in number). Many of them suffer from health problems such as hepatitis, due to the low-tech sorting methods used and general poverty. They have two major problems, among others: The health and sanitation issues associated with living off trash, and the prospect of losing income as the positions of competitors strengthen.

5.4.1. The Problem:

Living Conditions:

The settlement has no water supply, and very few of the homes are supplied with electricity (main lines have been strung in only a few streets). The sorting of the refuse inside the houses leaves them cluttered and often filthy. This situation is mirrored by the condition of the roads, which are heaped high with waste paper, piles of animal manure mixed with organic residues, tin cans, and often animal carcasses. Some streets cannot be seen at all due to layers of wastepaper or tin cans strewn, often a foot or more deep, across large areas. Others are divided down the middle by piles of organic residues up to 6 feet high. Millions of flies swarm about, and the air is usually filled with the smoke of fires which have either been set deliberately to dispose of unwanted paper or result from spontaneous combustion of organic residues.

Insecurity:

In the absence of any water supply on site, fires frequently get out of hand, and large sections of the community have been entirely destroyed on several occasions. Fortunately, loss of life has been limited, but many families have lost all of their material possessions several times in the past 10 years. Despite the installation of fire extinguishers at strategic locations in the community in 1980, the fear of fire never leaves the people of The Gabbal. This fear combines with the uncertain land tenure to create an atmosphere of general insecurity, and must surely do a great deal to dampen the interest of the Zabbaleen in cleaning up their settlement and improving their homes.

Population:

Zabaleen also suffered from increased overcrowding, in part because of the new trend of two story brick and stone dwellings. Families who used to live in one story houses now built two-story houses on half their land and sold the other half, raising the population of Moqattam and putting an even greater strain on the environment and the almost non-existent services.

Services:

The amenities of urban life in zabaleen are almost wholly lacking at The Gabbal. There is no government school, no consumers' cooperative, no health clinic or pharmacy. Four private doctors hold regular clinic hours at Zabaleen, but cannot begin to meet the health needs of a population of this size. While there is an abundance of grocery shops, greengrocers and butchers, prices are quite high for some essential goods such as meat and sugar, at least partly because of the absence of competition from a

cooperative. There is no sewerage system, not a single telephone, and no means of transporting emergency patients to the hospital.

5.4.2. The Zabbaleen Environmental and Development Project

Despite the general view of the Zabbaleen as an unproductive, backward community, a small minority of Egyptian and international environmentalists began to take a serious interest in their life and work. They were impressed by the industriousness of the Zabbaleen in rendering waste collection and disposal services to a city as large as Cairo and were particularly intrigued by their ingenuity in creating work from waste for tens of thousands of low-income residents. Environmental Quality International (EQI) received a grant from the Ford Foundation to assist in upgrading the living conditions of the Zabbaleen.

Another major participant in the Zabbaleen Environmental and Development program was the Zabbaleen Gameya. Members of the Gameya were the heads of the most prominent families in garbage collection and acted as its leaders. The Gameya was concerned with the interests of the garbage collectors, especially the very poor. The program consisted of a number of projects initiated over a span of five years and was based on an exploratory, experimental approach whereby project ideas and designs emanated from the learning experience acquired by EQI's team in the field and from their interaction with the environment and the community participation who was considered as the project greatest resources. Program was directed at both Zabaleen life and their work. More specifically, intervention activities were targeted at improving environmental and living conditions, promoting enterprise among community residents, increasing the service capacity of the Zabbaleen, and instituting low-cost technological innovations.

Program Components:

A. Area Upgrading and Infrastructure Extension Project:

The project was aimed for the construction of basic infrastructure and facilities to upgrade settlement. It provided basic infrastructure services and addressed the settlement's need for educational and health services. Piped water, electricity, and sewerage networks were installed. The streets were leveled and paved. A map of the settlement was drawn and names were given to the streets and numbers to the buildings. A primary school and a health center were established. This led to a dramatic rise in the value of land, and gave the residents a feeling of security. Thus, many of the Zabbaleen sold parts of the land they occupied at prices that were very profitable considering that the land theoretically belonged to the State. In addition to land tenure problems, the infrastructure project had other unforeseen consequences. The infrastructure which was appropriate at the beginning of the project is no longer able to withstand the increased demand placed on it, and breakdowns of the system abound.

B. The Internal Clean-up Project:

This project received funding from the ford foundation, oxam, and the soeur Emmanuelle fund. The aim of the project was to improve the level of cleanliness and sanitation in the settlement. Zabbaleen residents, under the direction of the Gameya, removed tons of accumulated waste and manure from their settlement. However, the project has faltered, and the settlement is once more home to piles of refuse. The main reason is that the project ceased to be economically viable. Once the installments on the trucks were paid, the owners had no incentive and were no longer as committed as

before to collecting the settlement's household waste. The project's problems were further compounded when the nearby municipal dump was closed, with the service becoming erratic; people started throwing their waste in the local dumping grounds established higher in the settlement or anywhere else in the streets.

C. The Small Industries Project:
This project was funded by Oxfam, and was designed to provide the Zabbaleen with new business opportunities related to their trade. The project concentrated on establishing small community-based recycling industries designed to maximize the resource value of waste, the Small Industries project enabled Zabbaleen families to buy plastic granulating machines to recycle plastic and rag pulling machines to recycle rags.

D. The Women-Headed Households Project:
This project was funded by the Ford Foundation, and was designed to provide income generating opportunities by extending credit to widows, divorcees, and women with unemployed or disabled husbands, who represent the poorest and most vulnerable group in the settlement. The key to the success of the project has been the role played by the extension workers, described as the lifeline of the Women Headed Household Project, and follow-up have made the project, which is still in operation, one of the most successful components of the Zabbaleen Environmental and Development Program.

E. Healthcare Projects:
There are a variety of healthcare projects serving the Zabbaleen in Moqattam and raising awareness of health issues, especially among women. The Maternal Health Care Program trains girls from the community as health visitors to promote general health awareness for pregnant mothers. The health visitors of the Health and Immunization Program, a project run by the Association for the Care of Garbage Collectors, also carry out similar services. Being chosen from the community, the health visitors have easier access into the homes of the community members than complete strangers.

5. SWOT-AHP framework

SWOT analysis is a strategic management tool that helps to identify internal strengths and weaknesses and external opportunities and threats for any organization, project, or individual (Houben et al., 1999; Dyson, 2004). Many applications of SWOT analysis exist in strategic management (Nair and Prasad, 2004). The combination of a brainstorming session and SWOT analysis with a heterogeneous group of stakeholders constitutes a useful strategy to rank different factors and identify relevant issues (Mollenhorst and de Boer, 2004). One of the main restrictions of SWOT analysis is that the significance of each factor in decision making cannot be measured quantitatively and therefore, it becomes complicated to judge the potential of a factor to influence strategic decisions. When SWOT analysis is combined with AHP (Analytical Hierarchical Process), importance of each factor present in the SWOT categories can be measured, and the effect of a single factor on the overall decision can be assessed (Saaty and Vargas, 2001). AHP enables the stakeholders to assign a relative priority to each factor through pairwise comparison. From these pairwise

comparisons, the relative priority value of each factor within each SWOT group is computed using the eigen value method. The SWOT-AHP analysis used in this paper is adapted from Dwivedi & Alavalapati (2009).

6. Method:

A contact list of professionals working on different aspects of urban development in the Zabbaleen District, Cairo was prepared. This list was based on personal contacts, publications, projects awarded by different government and private agencies, state government agencies with a focus on slum area urban development, feedback from previously identified stakeholders, and comprehensive internet search. To identify the factors in each SWOT category, an open- ended questionnaire was administered to all the identified stakeholders. Questionnaire was electronically sent, and responses from 37 experts were obtained. Responses were analyzed and suitable factors under each SWOT category were extracted (Table 3).

Table (3) Relevant factors identified in each SWOT category.

Strength	Weakness
S1: Using the industriousness of the Zabbaleen in rendering waste collection and disposal services to a city as large as Cairo to set a base for recycling and solid waste project creating job opportunities. **S2**: The Integration between the NGOS and the local community. **S3**: Taking the local community as one of the main stakeholder in decision making. **S4**: Directing the upgrading project mainly to the community life and work. **S5**: Increasing the service capacity of the garbage city. **S6**: Area upgrading and project infrastructure project. **S7**: improving the sanitation in the garbage city. **S8**: Participation between NGOS and the local community to promote general health awareness for pregnant mothers. **S9**: considering the women-headed household project as a base for the success of the project. **S10:** Creating job opportunities for the unemployment problem through the small industries project. **S11**: the equity in decision making between the local society and NGOS.	**W1:** Lacking for water supplies in zabbaleen and the total ignorance from the government. **W2:** The lost of trust between the local community, NGOS and the government. **W3:** the lack of the effective participation from the government with the local community and NGOS. **W4:** The absence of the government participation in solving the problem and considering it as a hopeless case. **W4:** The local community is lacking for awareness of the importance to participate in decision making with NGOS. **W5:** The government doesn't take any responsibility towards any upgrading actions in zabbaleen. **W6**: Lack of Coordination betwee n different Organizations in the community and their policies and managements which led to lack of awareness. **W7:** Uneven Distribution of benefit. **W8**: Poor Management and Leadership Skills, Lack of Human Resource Development.

Opportunities	Threats
O1: Community Participation. **O2**: The Ability to Coordinated and cooperative partnerships between funding, development, government, and community agencies. **O3**: Connecting Environmental Improvement to Enterprise Development. **O4**: Recognizing Alternatives to New, High-Tech, Externally Imposed Solutions. **O5:** Partnership involving Funding Organization to fund the projects.	**T1:** Poor Management and Leadership Skills **T2**: the unacceptable living conditions. **T3**: the lack of insecurity. **T4**: the overcrowded population with the bad living conditions. **T5**: the lack of services either educational, health, or commercial.

Based on the factors identified in each SWOT category, a second questionnaire was prepared. A brief explanation of each factor was included in the questionnaire to ensure a common understanding among the respondents. This questionnaire contained pairwise comparisons of each factor in a particular SWOT category against all other factors in the same category. Respondents were classified into five stakeholder groups namely population, NGOs, government, industry, and academia. Seven respondents representing each of the five stakeholders groups conducted this questionnaire. The respondents were asked to evaluate both the factors present in a pairwise comparison and then to mark order of importance of one factor over another based on their own understanding. While administrating the questionnaire, the numbers were replaced by more familiar scale of comparison (1 "Equal", 3 "Moderate", 5 "Strong", and 7 "Very Strong") to facilitate respondents. The questionnaire was administered on February 5, 2009 at the Zabbaleen district using structured interviews method.

7. Results

A summary of the factors and their overall priority scores is shown in Table 4. Factors with the highest priority score for each SWOT category in a particular stakeholder group are highlighted in bold, and the highest overall priority score is also highlighted in bold italic. For all comparisons, the CR was always less than 0.1. Following Masozera et al. (2006), the scores of strength and opportunity factors can be interpreted as positives while the scores of weakness and threat factors as negatives for the Zabbaleen urban development in Cairo. For example, the overall priority scores for strength and opportunities were 0.317 and 0.317 for population stakeholder group. The sum of priority scores was 0.634 implying that about 63% of the overall perception about the Zabbaleen urban development is positive for the population stakeholder group. The overall priority score of other stakeholder group can be interpreted in the same manner. The relative importance of each factor within each SWOT category provides valuable insights for decision-making.

Population:

The overall perception of Population stakeholder group regarding the development of el Zabbaleen district was equally determined by threats (31.7%), opportunities (31.7%) and strengths (31.7%). In particular, Population were concerned with one factors within the threats category, the lack of security. This factor explained 41.8%. of population perception regarding threats (Fig. 2). Opportunities were also significant in

determining overall perception (13.7 %). The factors which got highest priorities within opportunities category were the ability to coordinate funding from government and community agencies (28.3%). Strengths received 31.7% of population perception. Weakness was not given much importance by this stakeholder group as strengths explained only 11.8 % of the overall perception.

NGOs:

The overall perception of NGO stakeholder group regarding the development of el Zabbaleen district was equally determined by opportunities (13.20%), and threats (29.7%). In particular, NGOs preferred one factors within the opportunity category, Community Participation. This factor explained 37%. of NGO's perception regarding opportunities (Fig. 2). Threats were the second most significant in determining overall perception (13.6 %). The factors which got highest priorities within weakness category were the unacceptable living conditions (38.5%). Weakness was not given much importance by this stakeholder group as strengths explained only 6 % of the overall perception.

Table (4) Summary of the priority scores of all SWOT factors and categories.

Factor Priority						**Overall Priority**					
	Pop	**Gov**	**NGO**	**Indus**	**Acd**		**Pop**	**Gov**	**NGO**	**Indus**	**Acd**
T1	0.008	0.096	0.131	0.188	0.074	T1	0.003	0.027	0.017	0.038	0.005
T2	0.222	**0.320**	**0.385**	0.113	0.182	T2	0.070	0.089	0.051	0.023	0.013
T3	**0.418**	0.088	0.103	0.173	0.209	T3	0.133	0.024	0.014	0.036	0.015
T4	0.158	0.226	0.188	0.222	**0.286**	T4	0.050	0.063	0.025	0.046	0.020
T5	0.194	0.270	0.193	**0.304**	0.249	T5	0.062	0.075	0.025	0.062	0.017
							0.317	***0.277***	***0.132***	***0.205***	***0.070***

Opportunities

	Pop	**Gov**	**NGO**	**Indus**	**Acd**		**Pop**	**Gov**	**NGO**	**Indus**	**Acd**
O1	0.166	0.251	**0.297**	0.089	0.195	O1	0.053	0.070	0.039	0.018	0.014
O2	**0.283**	**0.325**	0.213	0.183	0.220	O2	0.090	0.090	0.028	0.038	0.015
O3	0.141	0.101	0.143	0.185	0.220	O3	0.045	0.028	0.019	0.038	0.015
O4	0.126	0.095	0.105	**0.296**	0.110	O4	0.040	0.026	0.014	0.061	0.008
O5	**0.283**	0.228	0.242	0.246	**0.256**	O5	0.090	0.063	0.032	0.051	0.018
							0.317	***0.277***	***0.132***	***0.205***	***0.070***

Weakness

	Pop	Gov	NGO	Indus	Acd		Pop	Gov	NGO	Indus	Acd
W1	**0.294**	0.219	0.131	**0.300**	0.135	W1	0.093	0.061	0.017	0.062	0.009
W2	0.045	0.092	0.125	0.078	0.079	W2	0.014	0.025	0.017	0.016	0.006
W3	0.138	0.112	**0.139**	0.108	0.108	W3	0.044	0.031	0.018	0.022	0.008
W4	0.151	0.087	0.131	0.128	0.126	W4	0.048	0.024	0.017	0.026	0.009
W5	0.043	**0.141**	0.083	0.051	0.084	W5	0.013	0.039	0.011	0.010	0.006
W6	0.155	0.098	0.128	0.098	**0.156**	W6	0.049	0.027	0.017	0.020	0.011
W7	0.080	0.111	0.102	0.091	0.132	W7	0.025	0.031	0.014	0.019	0.009
W9	0.034	0.047	0.078	0.041	0.089	W9	0.011	0.013	0.010	0.008	0.006
W10	0.059	0.093	0.083	0.105	0.091	W10	0.019	0.026	0.011	0.022	0.006
							0.118	***0.136***	***0.063***	***0.079***	***0.039***

Strengths

	Pop	Gov	NGO	Indus	Acd		Pop	Gov	NGO	Indus	Acd
S1	0.055	0.086	0.068	0.152	0.063	S1	0.018	0.024	0.009	0.031	0.004
S2	0.021	0.058	0.098	0.019	0.054	S2	0.007	0.016	0.013	0.004	0.004
S3	0.082	0.079	0.094	0.065	0.079	S3	0.026	0.022	0.012	0.013	0.006
S4	0.051	0.109	0.095	0.050	0.075	S4	0.016	0.030	0.013	0.010	0.005
S5	0.148	**0.198**	0.096	0.122	0.123	S5	0.047	0.055	0.013	0.025	0.009
S6	0.090	0.109	0.098	0.085	0.092	S6	0.029	0.030	0.013	0.018	0.006
S7	0.216	0.174	**0.112**	0.172	**0.179**	S7	0.069	0.048	0.015	0.035	0.013
S8	0.067	0.037	0.098	0.034	0.089	S8	0.021	0.010	0.013	0.007	0.006
S9	0.033	0.009	0.055	0.029	0.063	S9	0.010	0.003	0.007	0.006	0.004
S10	**0.164**	0.099	0.086	**0.215**	0.093	S10	0.052	0.027	0.011	0.044	0.007
S11	0.072	0.042	0.100	0.057	0.091	S11	0.023	0.012	0.013	0.012	0.006
							0.317	***0.277***	***0.132***	***0.205***	***0.070***

Government:

The overall perception of Government stakeholder group regarding the development of el Zabbaleen district was equally determined by threats (27.70%), opportunities (27.7%) and strengths (27.7%). In particular, Government stakeholders preferred one factors within the opportunity category, the ability to coordinate partnership between funding, development, government and community agencies. This factor explained 32.5%. of government perception regarding opportunities (Fig. 2). Threats were also

significant in determining overall perception (27.7 %). The factors which got highest priorities within weakness category were the unacceptable living conditions (32.0%). Weakness was not given much importance by this stakeholder group as strengths explained only 13.6 % of the overall perception.

Industrialists:
The overall perception of Industrialist stakeholder group regarding the development of el Zabbaleen district was equally determined by opportunities (20.5%), and threats (20.5%). In particular, Industrialists preferred one factors within the opportunity category, Recognizing Alternatives to New, High-tech Solutions. This factor explained 29.6%. of Industrialists perception regarding opportunities (Fig. 2). Threats were also significant in determining overall perception (20.5 %). The factors which got highest priorities within threats category were the lack of services (30.4%). Weakness was not given much importance by this stakeholder group as strengths explained only 7.9 % of the overall perception.

Academia:
The overall perception of Academia stakeholder group regarding the development of el Zabbaleen district was equally determined by opportunities (13.20%), and threats (29.7%). In particular, NGOs preferred one factors within the opportunity category, Community Participation. This factor explained 37%. of NGO's perception regarding opportunities (Fig. 2). Threats were the second most significant in determining overall perception (13.6 %). The factors which got highest priorities within weakness category were the unacceptable living conditions (38.5%). Weakness was not given much importance by this stakeholder group as strengths explained only 6 % of the overall perception.

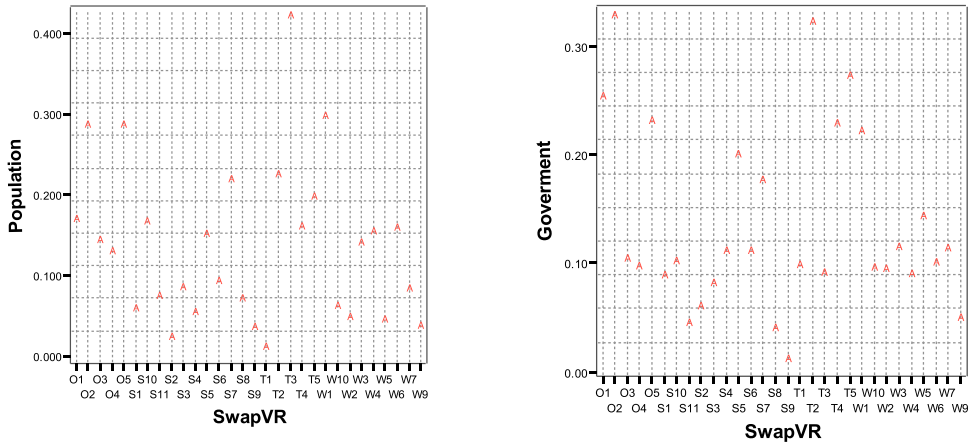

Figure (2) Perception of Population Group (left) and Government group (right)

8. Discussion and conclusions

The urban patterns in the Egyptian cities have been rapidly changing over the last three decades. This change was brought about by the dynamics of social and economic forces changing the face of cities and it is continuing to this day. The problem of

transformation of urban patterns in Egyptian cities stems from different reasons. In order to help upgrading the quality of life found in the urban district including informal settlement, governments should coordinate with other stakeholders, invest in, promote, monitor and evaluate the education and skill development of women and girls and the legal and economic rights of women. They should do the same with all aspects of reproductive health, including family planning.

This paper investigated stakeholders' perception of urban development of one of Cairo's slum districts. It uses SWOT-AHP approach to assess the perceptions of five stakeholder groups regarding sustainability of urban development. The district was selected due to the existence of significant poverty rate, the potential role that the district will be a prototype for future development of other slum areas within Cairo. On an average, the overall perception for all stakeholder groups was equally determined by strengths (20.1 %), opportunities (20.1%) and threats (22%). Perception of Weakness was less than other categories (8.7%). Two threat factors were given the highest concerns by all stakeholder groups: the unacceptable living conditions and the lack of services. It was noted that the factor lack of security was highly perceived by Population stakeholders only. Among opportunities, all four stakeholder groups gave their highest priority to the ability to coordinate fund, government and community agencies, and partnership involving organization to fund projects. All stakeholders groups recognized high priorities to two strength factors: increasing the services capacity, and improving the sanitation.

The results of this study indicate that all four stakeholder groups are in favor of promoting urban development in El-Zabbaleen district. All the stakeholder groups have recognized that the Zabbaleen district urban development project has a great potential slum area development. Therefore, there exists a need to craft a suitable policy which can promote such a development in other slum areas by incorporating issues deemed important by various stakeholder groups.

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