

Physical Quality of Life Benchmark for Unsafe Slums in Egypt

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Abstract

Enhancing the quality of life in urban settlements is one of the most significant challenges facing governments. In the case of unsafe-slums, the challenge is even more problematical, as slum dwellers not only suffer from substandard housing, devoid of basic necessities and unhealthy urban conditions, but they are exposed to danger. This paper focuses on extracting the most significant physical QoL indices in unsafe-slums in Egypt, taking into account the limited designated investments and the temporary situation of such slums. Interviews with central governments (ISDF, GOPP), local authorities (Cairo and Giza governorates), and urban planning experts were conducted, in addition to secondary data collected from reports and researches. The study reveals that the first priority to uplift the QoL, is to reserve the household health by providing adequate and low-cost water supply, sanitation and solid waste management. While enhancing services, housing condition and increasing economic activities is not prompt, as it probably will result in rooting the community to unsafe neighborhoods. Finally, the study proposed a paradigm that differentiates between the QoL benchmark for unsafe slums subjected to relocation strategies and other types of slums to be upgraded and developed.

Keywords

Quality of life in slums, unsafe slums, QoL benchmark, physical QoL

1. Introduction

The world is undergoing a tremendous wave of urban growth, in 2008, more than half of the world's population was living in cities. By 2030 this number will increase to almost 5 billion, principally in Africa and Asia (Jha & Tripathi, 2014). Nearly one billion people currently live in slums, and this number is expected to grow to nearly 500 million by 2020 (Patel, 2014). Slums are one of the most complicated challenges facing many cities all over the world (Amao, 2012) as the illegal informal housing development in slums pose a formidable pressure in many developing countries (Owoeye & Ogundiran, 2015). Robert McNamara, the former president of World Bank, declared that "If cities do not deal with the problems of the slums in a constructive way, they will deal with the cities in a

destructive way” (Sundari, 2013). Slums are associated with a variety of problems, including pollution, poor planning and housing conditions resulting in scattered developments, limited access to services such as schools, health centers, and market places. Additionally, infrastructure like water supply, sanitation, electricity, roads and drainage are below minimum levels (Owoeye & Ogundiran, 2015; UN-HABITAT, 2003). Unfortunately, the situation is worst in developing countries like Egypt, where the magnitude of slum population is rapidly increasing and has outstripped the capacity to maintain acceptable standards of physical infrastructure, environmental safety, and housing quality.

Although the term “unsafe slum area” is not internationally used as a definite type of slum areas (as used in the Egyptian context), yet it can be induced from the general definition adopted by the UN Habitat (2008). Slums are recognized as the manifestation of one or more of five shelter deprivations (poor access to water, poor access to sanitation, substantial dwellings, deficient living area, and insecurity of tenure). Accordingly, slums have been categorized into: moderately deprived (one shelter deprivation), severely deprived (two shelter deprivations), and finally, the extremely deprived (three or more shelter deprivations) which could generally refer to the Egyptian situation of the “unsafe slum areas” (Khalifa, 2011). Most of the unsafe slums in Egypt are subjected to relocation or clearance policies, resulting in abandon and lack of investments, fundamentally affecting the QoL of the marginalized dwellers. Another problem is the ambiguous definition of quality of life and the lack of appropriate indicators to determine the minimum standards accepted in temporary slums. From the preceding predicaments arises the research quest to determine the minimum physical QoL indicators that affect the quality of life of the dwellers directly, without jeopardizing attaching the community to unsafe places or depleting resources and investments.

2. Literature Review: Quality of Life in Unsafe-Slums

The term “Quality of life” (QoL) is used to evaluate the general well-being of individuals and societies, but it is very complex, very comprehensive, and it varies with time and the place (Bradburn, 1969). The World Health Organization (WHO) defined QoL as “the Individual’s perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns” (Moser, 2009). Quality of life is a comprehensive concept that includes consideration of economic development, social vitality, and environmental health (Hardi & Pinter, 2007). Studies on QoL emerged in the 1960s as a tool for measuring development, that had been prior the sixties linked exclusively to economic growth and GDP per capita (Darkey & Kariuki, 2013). Today it is realized that GDP cannot alone explain the broader quality of life (Jha & Tripathi, 2014). Indicators are set at global and national levels to measure and assess the effectiveness of recent policies and to design new ones as necessary. Regarding the evaluation of QoL, today it means not only satisfaction or the availability of resources but also easy access and the ability to make use of opportunities (Craglia et al., 2004).

2.1 Measuring Quality Life

There are a wide variety of indicators to measure Quality of Life. Nevertheless, the extensive indicators can be categorized into *subjective indicators*, where people express their satisfaction or dissatisfaction with the conditions surrounding them, as evaluating or ranking the perceived safety in a neighborhood. The other set of indicators is *objective indicators*, that can be fairly quantified and defined; these indicators offer a privileged of cross-section comparison, as energy use in kilowatt hours/year (Darkey & Kariuki, 2013; Hardi & Pinter, 2007). Combining both indices helps to understand and formulate a better perspective of QoL. For instance, some would be satisfied with the QoL though they are living under tough environmental conditions, while others would rate their QoL as poor even though the environmental conditions they live in are excellent (Westaway, 2006). As for QoL indexes, different models seek to measure the overall experience of life, for example, not limited to: Johnston's QoL Index; Miringoff's Index of Social Health; Calvert-Henderson Quality of Life index. Moreover, Netherlands Living Conditions Index; German System of Social Indicators and Economist Intelligence Unit's Quality of Life Index are used to assess QoL (Jha & Tripathi, 2014).

QoL indexes commonly cover social indicators as, shelter and infrastructure, health and nutrition, education and lifelong learning, access to services and resources, freedom from fear, human rights, cultural vitality and civic engagement, enrichment and innovation. Additionally, the QoL indexes cover environmental indicators such as, quality of air, quality of the water in natural bodies, and other natural resources, while the economic indicators measure the economic well-being, income distribution, employment rates, access to energy and economic prosperity (Amao, 2014; Diener & Suh, 1997; Flynn, Berry & Heintz, 2002). Further interesting paradigm is presented by (Doi, Kii, & Nakanishi, 2008), where QoL indicators are ranked based on Maslow's hierarchy of needs (Figure 1).

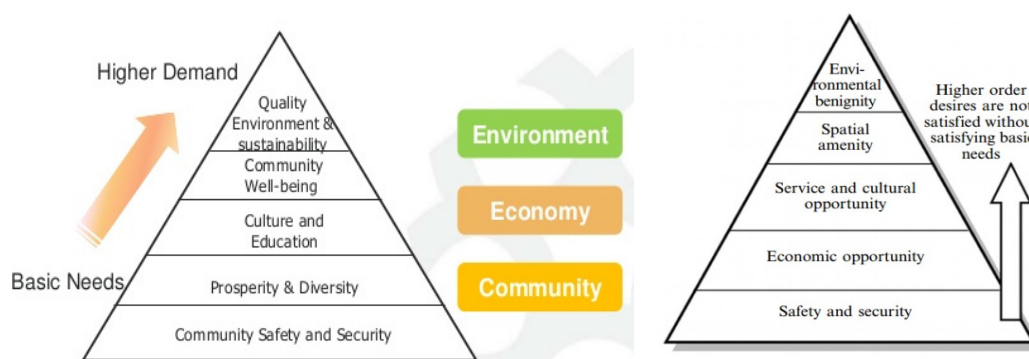


Figure 1. QoL Dimensions Ranked According to Maslow's Hierarchy of Needs

Source: Doi, Kii and Nakanishi, 2008.

The paradigm considers satisfying the most basic needs "Safety and Security" mandatory for accomplishing the satisfaction of higher needs. Economic Opportunity is the second basic need, service

and cultural opportunity follow. As for Spatial Amenity, and Environmental Benignity, they are the higher-order desires. Minimizing the rate of traffic accidents, vulnerability to natural disasters, access time to emergency care centers are indicators of the extent to which the community is safe and secured. Economic Opportunity indices comprise local employment rates, the number of domestic and international tourists. The Service and Cultural Opportunity are considered with the availability of large-scale retail stores, cultural services and the efficiency of public transportation. Spatial Amenity tackles housing conditions, open spaces, landscape and urban design. Finally, Environmental Benignity indices address air quality, and the mitigation of water pollution.

2.2 The Quality of the Physical Environment in Slums

In 2000, the UN developed eight goals “Millennium Development Goals” in order to improve the lives of the world’s poorest people. One of these goals is to ensure environmental sustainability in slum areas. This goal concentrates on enhancing the quality of life of people living in slums, as it targeted adopting sustainable development, providing sustainable access to safe drinking water and basic sanitation, and finally durable and less crowded housing (UN Organization, 2015). The link between the physical components of the residential environment and quality of life of its dwellers is undeniable, manifesting from the housing unit to the whole urban setting. Changing the urban form and the built environment are associated with lifestyle and behavioral change that affect the quality of life (Nakanishi, 2013). Consequently, it is possible to enhance the QoL of slum dwellers through upgrading their urban environment. The correlation analysis in a study by (Amao, 2014) reveals a significant relationship exists between the quality of life and some physical variables like ventilation, lighting, spaces, aesthetic, security, drainage, landscape, sanitation, type of construction materials and the external environment of the house. The study results infer that QoL tends to increase as the physical condition improves. The major challenge is to determine the appropriate indicators and benchmark that would able to upgrade the QoL in the slums. Table 1 illustrates the main physical attributes in the QoL.

Table 1. Physical Environment QoL Dimensions

Parameters	Goals	Physical Dimensions
Environmental	Safety	Land contamination
		Land stability
	Natural environment quality	Air quality
		Water bodies quality
	Biodiversity	Natural Landscapes and parks
	Health	Drinking water quality and access
		Drainage
		Sanitation
		Solid waste management

Social	Shelter	Density
		Ventilation
		Lighting
		Area, design and materials
		Privacy
	Mobility	Street quality
		Walkable Network
		Accessible public transportation
		Variety of Transportation Choices
	Education	Educational services
Economic	Heath	Health services
	Social interaction	Cultural and recreational services
		Commercial services
	Culture	Social services
	Income	Job opportunity
		Energy efficiency

Source: Researchers.

3. Slums within the Egyptian Context

Slums in Egypt are widely spreading inside the urban fabric; representing 37% of the country's urban population and 20% of the total population (ISDF, 2014). Being deprived of utilities and densely populated with limited social services, slums have become one of the main challenges within the Egyptian context (GOPP, 2012). However, the Egyptian government reaction towards slums was limited to few cases of ad-hoc clearance and resettlement, until the Doweika landslide disaster in 2008. The landslide tragedy resulted in the death of more than 100 person (Sims, 2010). Consequently, the government adopted a more institutional strategic approach, by establishing the Informal Settlements Development Facility (ISDF). The principal aim of the (ISDF) is to coordinate efforts and finance the development of a national strategy to tackle slums and ensure safe housing (ISDF, 2009a). In this context, ISDF has made a significant change in the ideology of dealing with slums by replacing the common terms: "Slums", "Informal Settlements" or "Ashwa' iyyat" by two distinctive terms: "Unsafe Areas" and "Unplanned areas" (Khalifa, 2011).

According to ISDF (2009b), unsafe areas are those which include 50% or more of residential buildings with unsafe standards, while unplanned areas are the safe areas which are not compliant with neither planning regulations nor building laws. Contextually, unplanned areas comprise 85-90% of slum areas, and 60% of total urban areas. Average density in slums reaches 500 person/acre, the building heights range from 4-10 floors, and need medium or long term upgrading approaches. Unsafe areas, on the

other hand, occupy 10-15% of slum areas, and 1% of total urban areas, with an average density of 200 person/acre. Building heights range from 1 to 2 floors and require deliberate intervention (El-Framawy & Algohary, 2011). Being exposed to life threats, or hosting inappropriate housing stock, or exposed to health threat or tenure risks, unsafe areas are categorized, by ISDF, into four types (grades) according to the degree of risk and, thus, the urgency of intervention (Table 2).

Table 2. Types of Unsafe Areas and Their Corresponding Interventions

Degree of Danger	Characteristics	Type of intervention
<p>First Degree</p>  <p>Cairo</p>	<p>Areas which threaten the human life:</p> <ul style="list-style-type: none"> • Located below or above sliding geological formations. • Located in floodplain areas. • The location is exposed to railway accidents. 	<ul style="list-style-type: none"> • Displacement is compulsory; where people should be relocated in safe housing provided by the government or get appropriate monetary compensation.
<p>Second Degree</p>  <p>Alexandria</p>	<p>Areas of unsuitable shelter conditions including:</p> <ul style="list-style-type: none"> • Buildings made of makeshift materials. • Sites unsuitable for building. 	<ul style="list-style-type: none"> • In-situ housing replacement with densification or displacement to nearby state-owned land. • Monetary compensation
<p>Third Degree</p>  <p>Baheira</p>	<p>Areas which threaten the public health:</p> <ul style="list-style-type: none"> • Lacking access to clean drinking water or improved sanitation. • Located in the vicinity of industrial pollution. • Located under electrical power lines. 	<ul style="list-style-type: none"> • Transfer or conversion of aerial power lines to land cable in cooperation with concerned Ministries and Governorates. • Regularization of polluting factories by the collaboration between the Ministry of Environment and the Ministry of Industry. • The implementation of safe water supply systems and sanitation facilities.

Fourth Degree



Fayoum

Areas with unsecured land tenure: • Legalizing tenure with charge.

• Located on the territory of state-owned land. • Provision of alternative housing.

• Areas on endowment lands (Awqaf).

Source: Researchers, after ISDF, 2010.

Finally, it is clear that the most dangerous type of slums in Egypt is the unsafe areas, where their residents face considerable dangers; whether by being subject to life hazard, or having unsuitable housing, or exposed to health threat or tenure risks. Accordingly, interventions towards unsafe areas are generally based on clearance and relocation in new housing projects either on the same site (but safe) or in one of the new cities.

4. Research Materials and Methods

4.1 Study Area

Being the beating heart of Egypt, with approximately 20% of the country's total population, the Greater Cairo Region (GCR) is considered to be the biggest and most influential urban area in the Middle East and the African continent. According to recent studies, the existence of slum areas (both unplanned and unsafe slums) is the largest challenge facing GCR: the unplanned slum areas cover about 40% of the GC area, with a total area of 22500 acres, which continue to grow at an annual rate of 2.5% mainly on agricultural lands. The unsafe slum areas, on the other hand, cover about 1058 acres, of total 100 areas, including more than 61,000 housing units (GOPP, 2012). As shown in (Figure 3), more than a quarter of the total unsafe areas all over Egypt ($n=422$) is detected in the GCR (ISDF, 2012 cited in AUC, 2014).

Based on a study conducted by Japan International Cooperation Agency JICA (2011), it has been found that there is an extreme deficiency in housing conditions, utilities, and services, shaping the main physical characteristics of unsafe areas in GCR (Figure 4).

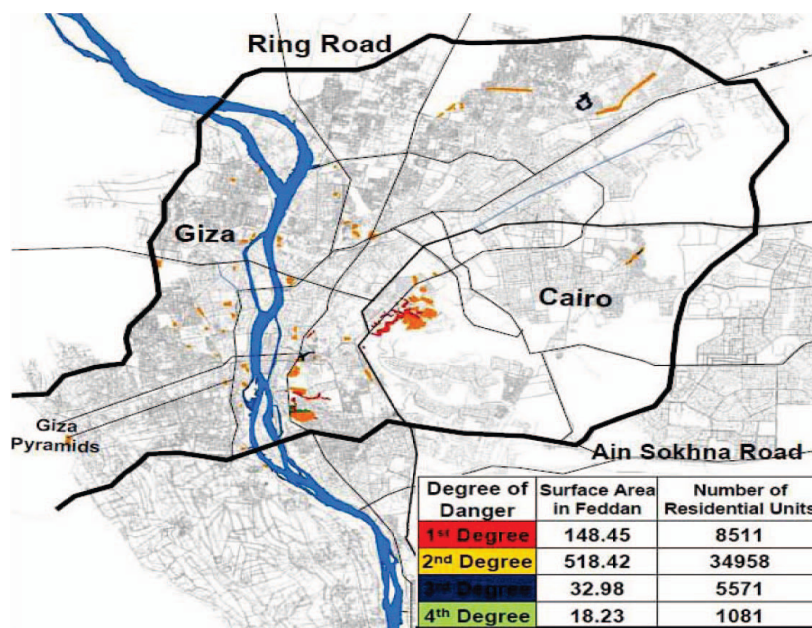


Figure 2. Types of Unsafe Slum Areas in GCR

Source: GOPP, 2012.

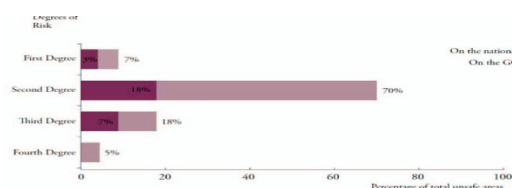


Figure 3. Classification of Unsafe Areas by Degree of Risk and Location

Source: ISDF, 2012 cited in GOPP, 2012.

-Housing buildings are mostly temporary; built using second-hand or lightweight construction materials, such as tin or used wood, depending on the nature of each site. Housing Occupies more than 90% of the total area. Therefore, open spaces are very rare, shaping a very compact fabric. Moreover, population density is extremely high; as mostly the whole family (five to eight people) lives in one room.

-Public utilities and roads are incompetent; basic infrastructure services such as drinking water supplies, sanitation services and electricity supplies are unavailable; poor unpaved, narrow roads (generally between three and six meters width) are detected, piled by garbage, solid wastes. However, most unsafe areas are located close to main streets or railway lines, allowing residents to walk to the nearest point of transportation.

-Public and social services (such as schools, clinics, hospitals and public gardens) are not found, and if exist, they are usually insufficient in number.

Consequently, most of the unsafe areas in GCR suffer from environmental deterioration and very low

standard of living conditions.



Figure 4. Signs of Deterioration of the Unsafe Areas

Source: Researchers.

4.2 Methods

The aim of this research is to identify benchmarks of the quality of the physical environment in unsafe slums in the GCR. It seeks to ensure the minimum QoL without rooting the community to unsafe neighbourhoods, in order to facilitate the transition process to safer environments. In this context, the unsafe areas of first degree, which deal with life threats, are excluded from this study as the immediate displacement is compulsory and, hence, the temporary state is not applied in this case. The rationale beyond focusing the study within the GCR is two-fold: first, it accommodates more than 50% of the Country's total slum areas (CAPMAS, 2008), and 25% of the country's total unsafe slum areas (ISDF, 2012 cited in AUC, 2014). Second, it is the most organized region (which includes both Cairo and Giza governates), with highly trained representatives compared to the rest governates in Egypt and, hence,

its representatives would be the most qualified local authority members in Egypt.

The study was undertaken with the following objectives:

- To determine substantial QoL indicators and bench mark in unsafe slum areas.
- To suggest an inclusive paradigm of QoL for slum areas with respect to the different types and interventions.

Data collection consolidate primary and secondary data: Primary data are obtained by means of semi-structured interviews, while secondary sources include previous publications, governmental official statistics, and reports. Face-to-face semi-structured interviews are conducted with twenty participants purposively selected from three different parties:

- The central government, represented in Informal Settlements Development Fund (ISDF) (n=4), and General Organization for Physical Planning (GOPP) (n=4), which are both responsible for setting the National Slums Strategies as well as identifying the national intervention priorities.
- The local authority, represented in Cairo governate (n=3), and Giza governate (n=3) which are responsible for implementing the National Slums Strategies as well as setting its local intervention priorities.
- Urban planning experts (n=6) who play a crucial role as the technical supporter for both the central and local authorities.

The QoL dimensions, evolved from literature review, were discussed in the interview so as to extract the most significant indicators representing the quality benchmark for unsafe slums, taking into account the limited designated investments and the temporary situation of such slums. Participants were asked to suggest the proper interventions required to meet those indicators and, hence, enhance the living conditions without jeopardizing rooting the community in unsafe places. Finally, data was analyzed in an integrative process using qualitative tools to fulfill the aim of the research.

5. Results

5.1 QoL Indicators and Benchmark for Unsafe Areas

As shown in Table 3, according to the interviews conducted to ISDF and GOPP representatives, it has been noted that there is a general belief that there is no need for enhancing the quality of life of the unsafe areas. Representatives explained that since the slums are to be relocated, hence, any intervention would be considered misallocation of the governate resources. This perspective could be interpreted by the very limited funds assigned to ISDF, creating a conservative attitude towards spending some of their resources on enhancing the existing settings. However, by the end of the interview, there was a slight agreement on marginal interventions tackling the environmental issues. Representatives stressed on that the environmental interventions would be temporary and financed by community-based involvement. On the other hand, both urban planning experts and local authorities representatives strongly agreed on minimal interventions, which could enhance the quality of life without risking attaching the community to unsafe settings. In this context, the utility provision was the highest priority

of all QoL categories. They agreed on the importance of maintaining people's health, which would be threatened by the lack of adequate access to safe drinking water and sanitation, along with the absence of solid waste management. However, instead of the traditional infrastructure networks, innovative sustainable alternatives, with the lowest possible cost, were strongly recommended:

- *Water tanks* delivery on regular basis, and *public taps* installment as alternative water sources.
- *Sewer trenches*, and *sewage septic tanks* as alternative sanitation disposal.

Nevertheless, electricity provision was debatable; some argued that the benchmark of the quality of life should be limited to maintaining people's health, excluding electric power, while others agreed as long as innovative cheap approaches are adopted. Moreover, maintaining these interventions was a great concern; for that, utility management was considered a priority; as the absence of maintenance and the poor management of solid waste and sanitation disposal could increase the environmental deterioration of those areas. Consequently, coordination and cooperation between local authorities and the community are required and participatory urban management of such interventions is needed to sustain the slight enhancement of the slums quality of life. While mobility, natural environment, and biodiversity goals were perceived as less needed and could be passed over, the rest goals (safety, shelter, social services) were perceived as risk issues; which could contribute to rooting the local community in the undesired areas.

Table 3. QoL Priorities for Unsafe Areas According to Interview Results

Quality of life			Interview Results		
Parameters	Goals	Physical Dimensions	Central Government	Local Authorities	Experts
Environmental	Safety	Land contamination	■	■	■
		Land stability			
	Natural environment quality	Air quality			
		Water bodies quality			
	Biodiversity	Natural Landscapes and parks			
Social	Health	Drinking water access	■	■	■
		Drainage			
		Sanitation			
		Solid waste management			
	Shelter	Lighting			

	Mobility	Density	
		Ventilation	
		Area, design and materials	
		Privacy	
		Street quality	
		Walkable Network	
		Accessible public transportation	
		Variety of Transportation Choices	
		Education	
		Health	
Economic	Income	Social interaction	
		Culture	
		Education	
		Health	
		Social interaction	
	Energy efficiency	Commercial services	
		Social services	
		Job opportunity	
	Less priority	Risk issues	

Source: Researches.

6. Discussion and Conclusion

The paper is an attempt to determine the quality of life indicators and benchmarks for unsafeslum areas to be relocated or subjected to clearance policies. The temporary status of those areas has widely affected the results of the study, leading to developing the “Slums Quality of Life Paradigm (SQoLP)”; where QoL indicators are ranked according to their effect on rooting the local community, as shown in Figure 5. Unlike the QoL paradigm (addressed in literature); the indicators in SQoL are totally reversed: the environmental issues are the basic/highest priority, followed by the economic issues, then the social community-related issues. In this context, the degree of attachment to land achieved from certain interventions can reflect the equivalent strategy required to a specific slum area. In the case of relocation or clearance strategy, the temporary interventions for the existing settings should not contribute to rooting the community and, hence, should be limited to the environmental issues, especially those related to people’s health. While in the case of in-situ upgrading strategy, the socio-economic issues should be tackled; especially those related to jobs generation and social networks enhancement. Accordingly, safety in this paradigm is not a one package; life threat is distinguished from social threat. The former is concerned with vulnerability to natural disasters, and as mentioned before, immediate displacement is compulsory and, hence, the minimal (or even temporary)

enhancements are not applicable in this case. While the latter is mainly concerned with the security of tenure which plays a crucial role in rooting the community and, hence, it is considered as one of the socio-economic issues.

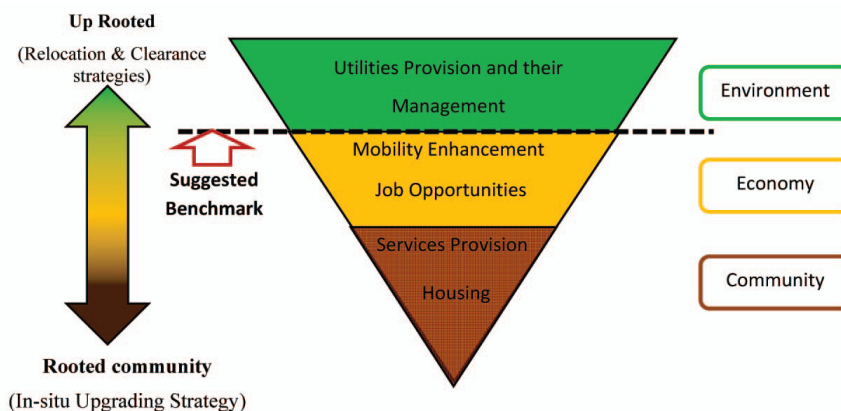


Figure 5. The Proposed Quality of Life Paradigm for Slum Areas

Source: Authors.

Within this paradigm, innovative sustainable alternatives for utility provision, along with managing and maintaining those interventions should be the benchmark of the substantial SQoL indicators for unsafe areas subject to clearance or relocation. However, to adopt this paradigm, social norms, attitudes and values of different parties (central, local authorities, experts and local communities) should be revisited, and a participatory people-centered approach should be implemented; where all stakeholders share the responsibility, and all community sectors can obtain a better quality of life.

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