SLUM REHABILITATION PROJECTS: THEIR SUSTAINABILITY, AND BEYOND

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Abstract

Slums in many cities are no longer just marginalized areas, especially in developing countries. According to estimations of the UN-HABITAT in 2011; slum areas host 32% of these countries’ population. However, this rapid growth poses an alarming challenge to the slum dwellers in near future, as the total population living in slums around the world is expected to reach 2 billion by 2030⁴. Therefore, improving the people’s lives in these areas or achieving better levels of sustainability was raised as one of the Millennium Development Goals with high priority. The year 2020 was determined as the target year for this goal to be achieved⁵. In Egypt, the situation is not much better than the average proportion in Africa, as it recorded 13% of households in the capital cities are slums, and 21 % in small cities⁶. However national and international efforts have been made towards achieving this target, the practical experiences indicate existence of promising factors and mechanisms supporting sustainability in these areas. Although slums may lack several or many essential needs, they have not lacked all of the indicators of sustainability yet. However they are suffering from deteriorated physical environments, they may have the advantage of peoples’ sense of community which plays a vital role in the development process. Many ways of intervention were created to make slum areas overcome their problems. The research will focus on the Rehabilitation project. From here, the hypothesis of this research paper was formed in order to test to what extent the initial statuses of slums are sustainable and how the situation would change after rehabilitation project. An empirical research task is accomplished to extract the factors and mechanisms beyond the sustainability in slum areas as well as rehabilitated areas depending on a designed questionnaire with project stake holders and the residents.

Key words: Slums’ sustainability, Rehabilitation projects.

1 - Introduction

Slums around the world are facing huge amounts of problems in a multi-dimensional; social, economic, and environmental complex. Although socio-economic problems may be the reason behind the formation of the slum itself, most of development projects focus on physical and environmental related issues and ignore the other dimensions. Accordingly the new resettlement areas would suffer again and the physical environment gradually would be

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deteriorated. The situation could be more difficult and complicated in the developing countries, especially with the limited resources and technologies on the national levels. So the research was keen to evaluate the existing conditions for slums and evaluate environmental, social and economic factors in slums to determine residents’ characteristics and their needs, then the research move to evaluate rehabilitation projects and to which degree they took all the characteristics and needs for residents’ in their consideration.

2 - Study aims. Questions and Methodology:

The main aim of this research is exploring slums to determine the availability of sustainability elements in their status quo, and then evaluate the impact of Rehabilitation project on Sustainability. To achieve above aims research try to answer these questions:

1) Where are the slums from the indicators of sustainability?
2) Where are the rehabilitated areas from the indicators of sustainability?
3) What’s beyond the sustainability in both slum and rehabilitated areas?

To answer these questions and achieve the aims, a case study methodology, based on face to face interview and literature review were implemented. The research starts with exploration of the international experiences of the developing countries to highlight the critical points of slums and main changes after Rehabilitation Projects including rapid evaluation of these projects. Then, the main lines of the research methodology will be presented to determine to what extent are slums sustainable in their status quo? Then evaluate these areas after the implementation of rehabilitation projects would the rehabilitation projects including briefly justified, including the selection of case studies and data collection techniques. Also, the criteria of assessment “indicators of sustainability” will be introduced. The analyses and results are discusses case-by-case, then the final results and conclusion could be stated.

3 - Literature review

The Affordable Housing Institute ‘AHI’ highlighted that the concept of slums in the emerging world “Developing World” differ from the developed world, slums are informal self-built areas and organized by residents in the earlier, they are usually formal areas and operated by the government, in the latter. However slum areas in developing countries areas are characterized with their high density, low-rise standard buildings, and unhealthy environments. Thus this research will present some of international slum rehabilitation cases from developing countries (Indian experience) with the same Egyptian context, to determine advantages and concerns on these projects and the kind of transformation in previous situation of slums.

India is one of the fastest developing countries with many metropolitan cities (e.g. Mumbai, Pune, Bangalore, Hyderabad, Delhi and Chennai). Due to a continuous migration from villages and small town to these metropolitan areas this leads to degradation of urban environmental quality the appearance of slums. Pratap Nagar (one of Mumbai’s slums), and Nanapeth (one of Pune slums) contain a lot of Environmental & physical problems such as water supply, drainage system, garbage collection and poor urban environment. The slums social problems were also found because the lack of community services, however they are many advantages such as high level of social interactions and security because of dense areas

1 Cities Alliance, (2012).
that have mixed between uses (Residential, works, and commercials) which enriches local economy, mixing between people according to their religion and financial status\(^1\).

There were great projects to rehabilitate the residents of these two slums in another site of Pratap which called Durga Nagar and in the same site of Nanapeth. Although the projects affected positively on increasing amount of day light, ventilation and privacy for the buildings, increasing services provision, facilities such as water supply, drainage systems. it has negative affect on resident’s satisfaction about alternated houses, commercial units and of ownership type, residents asking for more empowerment in community development which characterized by absence of community participation in consultation and implements stages\(^2\).

To sum up, although slums are Very Poor Housing settlements with a lot of problems, they contained also some advantages in their initial status, such as relationship, interactions between residents and also it has opportunities for local business. On the other hand applied Rehabilitation projects have provided better physical, environment and access for services, in the absence of community consultations, Participation and satisfaction.

4 - Where are the Egyptian slums and the re-habitation projects from the sustainability?

4-1 Research Methodology

4-1-1 Overview the criteria of assessment

The First important discussion and documentation for Sustainability Concepts was Brundtland report in 1987 which defined sustainability as: “**Sustainability refers to the broader concept of balancing the environmental, social and economic concerns relating to any issue**”\(^3\).

According to previous definition sustainability comprises at least three dimensions (pillars), Environmental, Social, and Economic Pillar (Victorian Auditor-General’s Office). A lot of work has been done to determine the criteria related to each pillar, the most relevant references that took local communities in participation were both United Nations and Bristol City Council Sustainable Development, the criteria of sustainability in this research drawn from those reports\(^4\). It was very important for the purpose of this research to assess each dimension separately, as follows:

**Environmental criteria:** refers to the natural resources and ecosystem processes on which humankind depends (Victorian Auditor-General's Office)\(^5\), and how to take care about it by minimizing polluting emissions to water, air and soil, reduce noise and light pollution, this group also includes some criteria which relates to urban environment such as minimizing

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\(^1\)Victoria Cronin, (2013) and Amey Z., (2011).
\(^2\)Ibid.
\(^3\)Brundtland, (1987).
wastes and maximize recycling in construction and occupation stages and maximize efficient use of land and building.

Social Criteria: that relate to human society and its members’ awareness, mixing and relationship, stressing on their engagement in community development, and finally their access to community services “Education, Health, Leisure, Cultural…, etc.”

Economic Criteria: it generally concentrates on systems’ production and consumption in the area of urban environment it will be focused on maximizing opportunities for local business and local labour.

4-1-2 Overview of Case Studies

4-1-1-1 Case1: Zeinhom – Cairo

Zeinhom is located in the heart of old Cairo and occupies a large area of 50 acres, very well connected to the main medical and the educational services of the CBD (Central Business district) through major roads. The area originally was established, by Cairo governorate, as a temporary housing area (Iwa’a) for families who lost their homes as a result of any crisis. Rapidly and illegally, the area had attracted poor people from Cairo and surrounded governorates who built their own small dense unites (e.g. rooms, kiosks, shared houses), as the most of squatters; Zeinhom was suffering from enormous amount of problems until the rehabilitation project started in 1999, empowered by a political decision, led by ERC (The Egyptian Red Crescent). The rehabilitation was implemented through three phases and finished by 2002, 2004, and 2011; however the research focuses on the first and the second phases to allow enough time for the evaluation. The political support gave a special chance to this project to attract the financial support of the businessmen and to go straightforward according to its time schedule. During the clearance and construction of these phases; the inhabitants were moved to a temporary housing located in the periphery of the city for periods of 2 to 4 years.

4-1-1-2 Case2: Manshiyat Naser – Cairo:

Manshiyat Naser is considered as one of the biggest slum settlement in Cairo Governorate, it’s located at the base of “Mokattam hill” so it contains some dangerous areas because of collapsing in hill sides. Manshiyat Naser is famous for “Garbage Area” because its economy is based on collecting and recycling Cairo’s Garbage. Manshiyat Naser consists of almost seventh sub areas “Ezbet Bekheet, AlZarayeb- Aldeweka- Almahager, Almasaken” Iwa’a”, Alrazaz, alma’dasa, with a total area or around 850 acres, and about 262,050 thousands inhabitants, Manshiyat Nasr, as all slum areas, is suffering from many problems such as poor urban environment, lack of infrastructure, no running water, decreasing in hygiene level and also the threats which the resident’s face because of the land’s slides, these problems demand different ways of interventions to solve these problems and to make the

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1 Bristol city Council, (2004).
5 GTZ Egypt, (2009).
residents more safe, the research will concentrate on Rehabilitation, for dangerous areas, it’s depends on moving the residents from their original areas to new safe area “Suzan Mubarak Buildings”. The rehabilitation was implemented through five phases and finished by 2008.

4-2 Empirical Data Collection technique

Semi-structured interviews with two groups;

a) R-Interviewees: a sample of the households, as one interview has been made with one household for each 10 housing blocks.

b) M- Interviewees: an interview with the presenters of the organization which has taken the main role of management and following up.

A field visit to each area has made and some photos were recorded for the current physical and environmental conditions.

Timeframe: For each case, the interviewing process was accomplished in one day only by the same member of authors. On the other hand, the interviewees were randomly selected but within a pre-planned rule to ensure the spatial distribution of samples over the study areas, as it will be mentioned in the case study. However, the sampling process covered certain areas in each case study to exclude the very early phases of the project which have spent more than 10 years, to ensure that the interviewee remember the status before the project and give reliable information about the related parts in the interview. Also, the early recent phases of the project which have not spent more than 3 years, to ensure that the interviewees already have enough chance to evaluate the situation after the project.

4-3 Assessing sustainability of Case Studies

4-3-1 Case 1: Zeinhom the squatter, the project & the current stat.

4-3-1-1 Environmental Sustainability

Although most of the related literature have recorded the physical and environmental conditions in Zeinhom, after and before the project, it was very important to assess these conditions according to the indicators of sustainability with especial consideration of the residents’ views. As it will explained in this section; the results shows a significant positive impact of the project in this dimension. It also proved that Zeinhom squatter was not totally lack of indicators of environmental sustainability. The results of assessment of the environmental sustainability will be briefly discussed according to each indicator, as follows:

EN1- Contribute positively to a high quality urban environment: All the collected evidences indicate the problematic status of the environmental and physical conditions before the project. As it could be see Error! Reference source not found.a, the urban environment was very poor and lacked to most of the basic infrastructure, moreover the deteriorated unsafe housing units1. However types of problems and degree of deterioration were varied from subarea to another. Although the strong cooperation among the neighbours could solve several problems, vital problems were much bigger than the people’s capability. For instance, most of the residents especially the children were suffering from several diseases due to the

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1 ERC, 2000; Abouelmagd, 2008.
close distance to permanent pollution points. Interviewee8 mentioned that: “I or one of my neighbours was taking a child to the hospital, almost every day”.

The interviews with the ERC presenters and the residents have provided solid evidence that the most significant impact of the project was creating high quality of urban environment.

![1-a Before](image1-a.png)

![1-b Directly after](image1-b.png)

![1-c the urban environment now](image1-c.png)

**Figure 1 (b) shows the layout of the project and how it provides contributes to high quality of environment, including: green areas, stable and efficient infrastructure, well designed housing blocks and street network, etc. the ERC (2000) stated that the streets gardens were increased from 5.2% to 9.7% by the project, however the street lights were increased from 26.3 to 67.8%. As expressed by R-interviewee6: “When we came to the area after the project; we could not believe our eyes! It seemed like a touristic village in the north coast”.

However this quality has been affected over the years, especially after the revolution, the project lost political support and accordingly the governmental following up2. The field visit recorded a huge loss of the green areas, and several illegal extensions on the public spaces. 100% of the interviewees agreed that the area has witnessed a big negative change in the environment.

**EN2- Maximise efficient use of land and buildings:** Both the documentary and the empirical data collected by this research have demonstrated that the use of land and buildings was low in the vertical dimension due to the weak characteristics of the local affordable building materials (e.g. wood planks, tin sheets), which limited the building heights to one or two floors only3. On the other hand, the people could horizontally maximise the use of local spaces, paths, and even buildings by allocating different activities in the same place during the day. 67% of the interviewees mentioned that they could make some activities and a good use of spaces and paths in the past. A few examples of the multi-use and mixed activities were given by the interviewees, such as social meetings and minor economic activities.

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1 R-Interviewee, 2014.
2 M-Interviewee, 2014.
3 ERC, 2000; Khadr & Bulbul, 2011.
Interviewee3 expressed: “our streets were full of live and activities; we were spending most of the day time with our neighbours down in our street”. Although the project maximised the use of land and buildings through increasing both the building heights and the areas of public spaces, the later lost most of their live activities due to missing the social networks and ignoring the economic needs during and after the implementation of the project. Now, most of the green areas disappeared and some of them illegally fenced for private contaminated uses, such as animal and chicken farms.

EN3 Maximise sustainable energy supply and efficient use of energy and EN4-Conserve water resources: These two indicators are seen to be much linked to each other, especially within the Egyptian context, as the primary sources of water and electricity in urban areas are the national networks. Before the project; all the houses had continues reliable connections to the national networks; most of them legally while the rest could manage to get it through some illegal links. However the project established more sustainable water and electricity networks, the gas network was a great added facility to the area (M SC1- Community engagement: -Intreviewee, 2014).

EN5- Minimise waste and maximise recycling; & EN6- Minimise polluting emissions to (water, air and soil): Cleaning the local spaces and streets was the responsibility of the neighbours before the project. 70% of the interviewees agreed that; the strong social relation among neighbours could help them on the micro scale to create clean environment but several big hills of garbage could not be avoided in the district, while 30% were suffering from problems related to wastes on their local spaces, especially with the absence of the local government (R-Intreviewee, 2014). Since the start of the project; a great job in this regards has been achieved by a specialised private company (Field_visit, 2014; R-Intreviewee, 2014).

EN7- Maximise use of materials from local and sustainable sources: as the common case in slums, most of residents had no choice rather than using the available materials with no-cost; including some local materials, such as wood and rocks, but other precarious materials, such as tin sheets and other wastes (KHADR & BULBUL, 2011). As previously mentioned; the project totally cleared the area and constructed new sustainable housing blocks.

1 R-Interviewee, 2014
2 Field visit, 2014.
3 R-Intreviewee, 2014.
EN8- Protect and enhance biodiversity: Zeinhom has witnessed the highest level of biodiversity the few years directly finishing the project with the added wide green areas, nevertheless it declined with the continuous loss of the green after that. Before the project the biodiversity was very low and limited to few kinds of birds and animals, prohibited by the project because of its impact on health and environment in the past, the people recently returned to the same behaviour with the absence of local government’s role.

4-3-1-2 Social Sustainability

As it will be explained in this section; Zeinhom the squatter was more socially sustainable than the current Zeinhom and much more than it was, directly after the project. in the following a brief discussion of the assessment according to social indicators:

The chart (fig. 3) shows the results of interviews with residents exploring the level and reasons of community engagement in the development process. 100% of the interviewees agreed that all the neighbours were participating in the development before the project, however 40% of them mentioned that this was almost to solve problems and 60% said that it was continues cooperation. The project’s allocation criteria and resettlement totally ignored the social networks among neighbours. Accordingly, most of people did not know in the beginning of the project, so the only way was just to send complaints to project managers.

SC2- Maximise the mix of housing types and availability of affordable housing: Regardless all social and economic situations of the households; the project provided only one type of the housing for everyone and with the same simple rent (i.e. 50 LE/M). Although it considered a great change compared to their previous homes in the squatter, it was totally unfair in several cases. For instance; some families took 3 houses in the project and while others with same family number got only one.

SC3- Maximise access to community, cultural and leisure facilities: as mentioned in before Zeinhom’s location close to CBD has facilitated the access to most of community facilities. According to the interviews, situation has not changed before and after the project except of nursery, woman, and cultural services. ERC has provided efficient and effective services through the woman cultural centre, which was established with first phase of the project.

SC4- Reduce car use and providing high quality pedestrian and cycle routes; & SC5- Provide high quality inclusive design, which is fully accessible to disabled people: Although the new Zeinhom has high quality design, there is no evidence that it considered disabled people or cycling. On the other hand, Zeinhom squatter was too poor to consider that, moreover it’s limited suitable streets for care.

Figure (4): Security, Privacy, Relationship and feeling the community sense
Source: Authors

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1 R-Interviewee, 2014.
2 M-Interviewee, 2014.
3 Field_visit, 2014.
4 M-Interviewee, 2014.
SC5: Security, Privacy, Relationship and feeling the community sense: Figure (4) illustrates the results of the resident interview regarding the social sustainability. It clearly show that the sense of community and feeling of security has dramatically affected after the project\(^1\). Moreover both the rate and degree of social conflicts have increased. The interviewees most of the interviewees refer this change to the random resettlement and breaking the social networks among neighbours, which was built over very long period. Many touching words recording this negative change could be quoted from the interviews. Including: “we were members of one family, sharing happiness and sadness” interviewee1; “we were not closing our doors, most of the day” interviewee7; “I used to give keys of my house to my neighbour whenever I go out” interviewee12.

4-3-1-3 Economic Sustainability

Although only two indicators of sustainability could be liked to the economic dimension, they are complex and each of them could be measured differently.

EC1- Opportunities for local labour and training: Most of the household heads were working in the informal sector was (81.1\%) before the project\(^2\). This indicates the flexibility of the local labour and the chance, which lost by the project to train and employ this man power, especially the interviews showed low satisfaction regarding the provided opportunities for male. Most of the training programs and workshops, provided by ERC in the women cultural centre, are oriented to ladies\(^3\).

EC2- Opportunities for local and small business involvement: The ERC (2011) report shows that 63\% of households in Zenhom are located in the lowest income category\(^4\). This recommended the small business for this area, and the project provided a few small places for this purpose\(^5\). On the other hand the interviews showed unfairness and high degree of dissatisfaction, as 100\% of the interviewees think that most of the people who lost their workshops/business with the removal could not get any alternative in the project. Accordingly, some residents have made some illegal extensions and changes of their houses to make a place for their business, see figure 6.

4-3-1-4 How sustainable? & what is beyond Zeinhom experiences?

Results of the previous evaluation and discussion of the indicators of sustainability can be concluded in the following points:

- The squatter was more socially sustainable than the project area especially in terms of social relationships, feeling the community sense and security. Although the project provided the affordable housing, it did not provide any variety to meet the different social needs.
- Surprisingly, the squatter was more economic sustainable than it became after the project. ignoring the nature of local small business, which was exist as mixed uses with housing before the project totally in the first phase and partly the next phases, has badly

\(^1\) R-Intreviewee, 2014.  
\(^2\) Khadr & Bulbul, 2011.  
\(^3\) Field_visit, 2014  
\(^4\) Ibid.  
\(^5\) M-Intreviewee, 2014.
affected the economic evaluation and satisfaction of the people. Especially the latterly provided economic units were very insufficient and the old ownership of workshops was almost ignored as well.
- Although, the environmental dimension was the most problematic in the squatter, some indicators could be enhanced through the social cooperation before the project.
- As became very clear after this evaluation that, the environmental conditions were the major target and the focus of this project. So, the Environmental sustainability reached its highest level directly after the project then it has been affected with the absence of the governmental management.

A few factors and hidden mechanisms could be extracted from this experience:
- It is vital for the rehabilitation projects to understanding and conserving the social structure of neighbourhoods, which has been built and strengthen over generations. It was the main power beyond the achieved indicators of sustainability in Zeinhom the squatter, in all dimensions. On the other hand, when it was ignored or lost, it became the main reason of the degree of dissatisfaction of the residents. Accordingly, several social, economic, and environmental indicators have been affected.
- Training and building a new social leadership, was the key which has been used by the ERC to overcome some social conflicts BUT it takes long time to be effective.
- The illegal extensions and changes are the sound of the ignored economic needs of the residents, which could not be muted too long.
- Monitoring without rewarding and punishment cannot ensure quality of environment.

4-3-2 Where was Mansheyat Naser from the indicators of sustainability “before and after” the rehabilitation project “Suzan Mubarak’s Building”?

4-3-2-1 Environmentally

As well as all Slum areas, documented literature and collected Data recorded that there are very severe environmental Problems in Manshiyat Naser. The results of assessment the environmental situation according to sustainability criteria are as follows:

**EN1-Contribute positively to a high quality urban environment:** When asking interviewees about status quo of streets and building in slum area they are all found that streets had a lot of problems, although types of problems and degree of deterioration were varied from subarea to another but they are all suffering from narrow streets no platforms, and garbage everywhere. After moving to the new project residents were very happy by street networks and buildings as in figure5. By time satisfaction decreased as there is no garbage collection system, platforms become place for irregularities as Kiosks, some craft, no caring with green areas, residents express “We see now piles of garbage here and there”1.

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1 R-Interviewees, 2014
EN2- Maximise efficient use of land and buildings: buildings was low in the vertical dimension due to the weak characteristics of the local affordable building materials (e.g. wood planks, tin sheets), which limited the building heights to one or two floors only\(^1\), but the people could horizontally maximise the use of street, paths, and even buildings by allocating different activities and uses in the same place during the day such as allocating extensions for the workshops in the streets, some kiosks and markets in paths and spaces\(^2\).

Project maximised the use of land and buildings through increasing both the building heights and the areas of public spaces, later on most of the spaces, green areas and even ground have turned to illegal uses which serve residents’ demand such as commercial units and chicken farms as shown in Figure6\(^3\).

EN3 Maximise sustainable energy supply and efficient use of energy and EN4- Conserve water resources: There were difference between subareas in water and electricity supplying so there’re some areas where suffering from lack of water and electricity where others are not, all the provision were through national networks\(^4\). The project established more sustainable water and electricity networks.

EN5- Minimise waste and maximise recycling; & EN6- Minimise polluting emissions to (water, air and soil): There is no system for garbage collection in the slum areas, residents threw their rubbish along street paths, in central baskets if founded, or in nearby the hill. Around 60\% of the interviewees suffering from dirty streets, after project about all the interviewees where satisfied by level of cleaning in their local areas. By time around 50\% are suffering from problems that relates to wastes in streets and they mentions that “cleaners do not come regularly”\(^5\).

EN7- Maximise use of materials from local and sustainable sources: as the common case in slums, most of residents had no choice rather than using the available materials with no-cost; including some local materials, such as wood and rocks, but other precarious materials, such as tin sheets and other wastes\(^6\). As previously mentioned; project totally cleared the area and constructed new sustainable housing blocks.

EN8- Protect and enhance biodiversity: Before the project the biodiversity was available by a kinds of birds and animals that the residents grown up in their homes, and Pigs which related to garbage areas. After the project it was prohibited by district authority to build any birds towers or farms, now in the absence of the government role these tower and animals farms have returned partially again.

Socially:

However some literature have presented residents’ opinions about social conditions in Manshiyat Naser before the project, it was important to assess these conditions before and after the rehabilitation project according to the indicators of sustainability.

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\(^1\) Lyla Nawar& Hoda Ragaa, 2008
\(^2\) R-Intreviewee, 2014.
\(^3\) Field_visit, 2014.
\(^4\) Nawar& Ragaa, 2008.
\(^5\) R-Intreviewee, 2014.
\(^6\) Khadr & Bulbul, 2011.
SC1: Maximise Provision of education, health, community, cultural and leisure facilities: Both Documented and collected data by this research, mentioned that there was accepting for services provision specially commercial “shops and markets”, education (primary, preparatory schools), there were also health clinics and health centre “with absent of some needed equipment”, about 60% of the interviewees were satisfied by commercial, educational and health services, and around 25% were satisfied by services generally. There were also some other services but these services distributed unequally between Mansheyat Nasers’ seven areas, these services were post office, illiteracy classes, bank, cultural centres. After the rehabilitation project the Percentage of satisfaction by education and health services which rise to 85% because number of new schools and preschools, Medical Centre, one bakery “Which not enough”, then the percentage of satisfied interviewees about the services decreased again to 70% because some troubles in the operation Process and lack in some leisure facilities such as youth centres which is crucial needed.

SC2: Ensure there are opportunities and facilities for community engagement during development and following occupation: Although the residents cooperated to overcome their problems in the original areas under the leadership of one of them Known as “Kebeer Elmanteaa”, could be the oldest or strongest or most Wiseman. There were almost no Community engagement during development or occupation stages because there were not any initiatives from civil society or Private sectors to engage them in any of development processes. After rehabilitation project the situation got worse because some of the residents do not know their neighbours so if they are facing any problems they complain to responsible (10% of the interviewees), others cooperating to solve the problem (70% of the interviewees) if they do not have any answer from responsible authority, they are working individually not under any leadership, Except one elected committee appears through the mosque “SOUT ALDOUEKA” Committee which are willing to participate solving community problems.

SC3: Security, Privacy, Relationship and feeling the community sense: According to data collected by this research only 35% of the interviewees were more secure in the old areas that was because their cooperation to protect themselves and their neighbours specially girls and children, some lighting which offered by them. Resettlements provides more security feeling, almost 65% feel that the rehabilitated area is more secured Because of Provided building type with iron gates instead of poor rural houses, also because street lightings, and no longer existence of drug taker.

About Privacy almost all residents say that there is no Privacy in the original areas (Slum areas), that was because attached houses and very near Balconies “we hear every things about our neighbours, the same they are”, also lack of privacy was resulted from houses design which consists sometimes with only one bed room the matter that led to that mother, father, children, and adults sleep in one room and some times in one bed. Rehabilitated area provided building types with spaces between flats and buildings, and also provided two or three bed rooms in flat which causes more privacy. That matter is different when we asked about the Relationship between residents, all the interviewees found that the relationship between their neighbours in the original areas were stronger and better than in the

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1 R- interview, 2014.
2 Lyla Nawar& Hoda Ragaa, 2008.
3 M& R- interview, 2014.
4 R- interview, 2014.
rehabilitated area, that’s because they were relatives, and also the interviewees said that’s building types which consists of many flats make it difficult to know all the neighbours.

SC4: Provide high quality inclusive design, which is fully accessible to the residents and specially disabled people: About the street and building design in the slum areas, it had a lot of problems as narrow streets, using poor materials in constructions, but existing of work and commercial mixed with residential areas were very useful because it causes no need for vehicle use, encourage walkability and meet the residents’ commercial and work needs.

In the rehabilitated project, although there is provision with Good Street routes and good buildings, developers separate working areas and commercial units from residential buildings, the matter which causes irregularities which shifting flats in new ground of the building to commercials to meet residents need and provide labour opportunities.

SC5: Reduce car use and the need to travel by linking development to public transport and providing high quality pedestrian and cycle routes and facilities: In Manshiyat Naser the compactness of building with existing of commercial. Units and work spaces without wide vehicular traffic routes, are causes for walkability and less dependent on vehicles, In the rehabilitated area they separate commercials away from buildings and put the work spaces outside the areas so reliance on vehicles are increased.¹

4-3-2-3 Economically (Local Economy & Employment)

EC1- Maximise opportunities for local businesses, local labour and training: As mentioned, Manshiyat Naser has its local economy which based on collecting and recycling Cairo’s Garbage, it had also many markets and shops which meet residents’ need and provide many opportunities for local employment that reflects also home- work approximate.² But rehabilitated area appears only for residence with separate commercial centre which led to regularities no working areas. About the training courses to increase labour skills 70% of the interviewees answered that there isn’t any training courses and the others said there were courses in earlier project stages the stopped.³

EC2- Maximise opportunities for local and small business involvement: In rehabilitated area, land allocated for residence with basic service centres and no space for small business.

4-3-2-4 What is beyond this experience?

Although slums were very poor areas with a lot of environmental, physical, social and, economic Problems, they are achieving some of sustainability indicators in their status Quo “before development”

- In terms of social criteria:
  a) Manshiyat Nasr are not bad in all indicators, it has Shops and Markets which make the residents almost self-sufficient in a daily commercial needs.
  b) It has a power to solve some of their problem by cooperation under one leadership or keys persons, they are respecting who’s called “Kebeer Elmanteaa”, there is a clear

¹ R- Interview 2014.
² GTZ Egypt, 2009.
³ R- Interview 2014.
⁴ Ibid.
participation and coordination in the original area for street cleaning, Garbage collection, street lighting which performed quite successfully
e) Relationship between residents and neighbours were very strong which considered as a power to develop the community and overcome their problems, so when the developers move them to rehabilitated area they have to put those neighbours together.

- **In terms of Economic criteria:**
a) Strong Local economy is considered as General Character for the Manshiyat Nasr that gives them very good sense of sustainability, and meets the Residents’ needs.
b) Opportunities to offer local labour (employment) is making slums economically sustainable and also shortening the trip between housing and work which saving energy, money, and time.

### 5 - Conclusion

The research is guided to answer three Questions: (1) Where are the slums from the indicators of sustainability? (2) Where are the rehabilitated areas from the indicators of sustainability? (3) What’s beyond sustainability in both slum and rehabilitated areas? However literature are very rich in terms of the recording the environmental conditions of slums after and before the rehabilitation projects, which has helped this research in the evaluation of the environmental indicators of sustainability, the main adding point and the target of the research was analysis and evaluating the tree dimensions of sustainability in order to uncover what is beyond the practical experiences, to enhance and guide the future experiences. Accordingly, the research has accomplished tasks of empirical data collection to fill the gaps of information and to evaluate the both of the economic and social dimensions of sustainability. From here, the questions 1& 2 could be answered, and a full image of the 3 dimensions of sustainability could be drawn, as illustrated in Table (1). It shows that great improvement in environmental dimension has been achieved but the lack of understanding the socio-cultural context of the slum before the project has caused a significant decrease of sustainability in the social dimension during and after the project. The sense of community, local engagement in development, and social relationships were the most affected indicators according to this, (significantly appeared in Zeinhom case). However lack of understanding the relationship between slum area and its surrounding wider area has affected several social and economic interactions, such as work and education trips (significantly appeared in Manshaya case). The projects also could not achieve better levels of sustainability in economic dimension, as small business, mixed use, work-home relations either were not well designed or absent. Moreover, missing key of local participation caused missing understanding the past and missing a great power in building coherent future.

![Table 1: Results of the evaluation of sustainability indicators](image)

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From here, we can say full understanding of socio-cultural structure and mechanisms should be beyond any rehabilitation experience to achieve three dimensions of sustainability all together.

6 - References:

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