A METHODOLOGY FOR DEVELOPING SUSTAINABILITY INDICATORS FOR HERITAGE PLACES IN EGYPT

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Abstract- Sustainable Development is now becoming the basic concept for solving problems of human settlements and improving living conditions. The concept of "Sustainability" has been expanded considerably after (Agenda 21) at the Rio Earth Summit to encompass social, cultural and community development factors, including tangible and intangible heritage. This expansion reflects an increasing interest in heritage across societies to include not only monuments, architectural masterpieces, or historic arte facts, but also include landscapes, industrial and engineering works, vernacular constructions, urban and rural settlements and intangible elements like temporary art forms and skills. Despite its crucial importance, heritage conservation has been absent from the sustainable development debates and action plans. However, many researches and studies emphasized the use of environmental assessment methods to improve the performance of heritage places. Yet, heritage places need its own tailor-made indicators to include environmental, social, and economic aspects. Fundamentally, Sustainability Indicators (SIs) are widely considered the way forward to operationalize sustainability. They are an essential mechanism to achieve the objective of sustainable development, and can be a useful and possibly vital element to move sustainability from theory into practice. But what are the appropriate sustainability indicators that fit for heritage places? And what measures are needed to promote the safeguarding of such places? To seek answers for these questions, the paper aims to provide a methodology to develop a set of indicators appropriate and adequate to the context of heritage places in Egypt. These indicators can be a guiding policy instrument that identify the ways forward for decision and policy makers, donors and concerned authorities in drawing policies, monitoring development and allocating resources on a solid basis.

Keywords- Heritage places, Sustainable indicators, Urban sustainability in Egypt.

I. HERITAGE CONSERVATION AND SUSTAINABLE DEVELOPMENT: A RATIONALE FOR ENGAGEMENT

The concept of sustainable development took root in the 1970s and it has been defined as "development that meets the need of the present generation without compromising the ability of the future generations to meet their own needs" [1]. By mid 1990s, more than 300 definitions were existed for sustainable development; and today, nothing is being done in the area of policy without the label of sustainable development [2].

A graphical representation using Venn diagrams are widely used to introduce the concept of sustainable development, Fig. 1. It contains three circles representing, economic, social, and environmental concerns, respectively [2].

On the other hand, heritage conservation is a professional field that seeks to preserve, conserve and protect buildings, objects, landscapes or other artifacts of historic significance.

In this respect, heritage is inherently relevant to the debate on sustainable development because it reflects and symbolizes the mutual adaptation over time between humans and their environments and symbolizes people's attitudes to and beliefs in what they value to sustain and improve their quality of life.

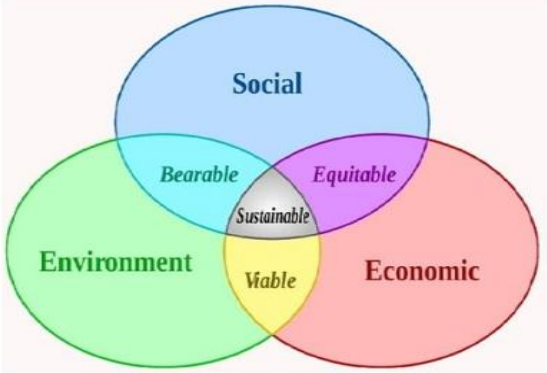


Fig. (1): Conceptualization of Sustainable Development

Moreover, during the past years, and as a result of major phenomena such as climate change, globalization, growing inequalities, and globally increasing urban populations, the linkages between heritage conservation and sustainable development have taken center stage within any effort aimed at protecting the environment and improving the social and economic wellbeing of communities.

However, in terms of environmental dimension, activities associated to heritage conservation processes are considered green 'by design' in that they embody an intrinsically more sustainable pattern of land use, consumption and production that has been developed over centuries [3].
Heritage conservation is also a powerful asset to achieve economic development, since it attracts investment and ensures green, locally-based, stable

and decent jobs relating to a wide range of sustainable activities and to all groups within society, including women and young people [3].

Finally, in terms of social dimension of sustainable development, heritage conservation activities enhance the feeling of place and belonging and may contribute directly to alleviating poverty and inequalities by providing security and promoting health, as well as by contributing to the provision of shelter, clean air, fresh water, land, food, and other key resources that provide the livelihood of communities specially in developing regions [3].

Thus, there is an increasingly need to a comprehensive approach, which consider the three fundamental dimensions of sustainability (environmental, economic and socio-cultural) in a holistic approach for conservation and development in heritage places.

II. HERITAGE CONSERVATION ACTIVITIES IN DOWNTOWN CAIRO- EGYPT

The Khedivial Cairo, located in downtown area, was founded by the Khedive Ismail pasha, ruler of Egypt in the second half of the nineteenth century and who had the idea of expanding the construction of Historic Cairo to arrive to the left bank of the Nile and even across the Nile. Yet, decades of neglect and decay left it to sporadic development, random commercial activities, little consideration to both aesthetic harmony and feeble preservation of its cultural heritage, Fig. 2 (a and b).



Fig. 2. (a): Soliman Pasha Square in Khedivial Cairo, 1900

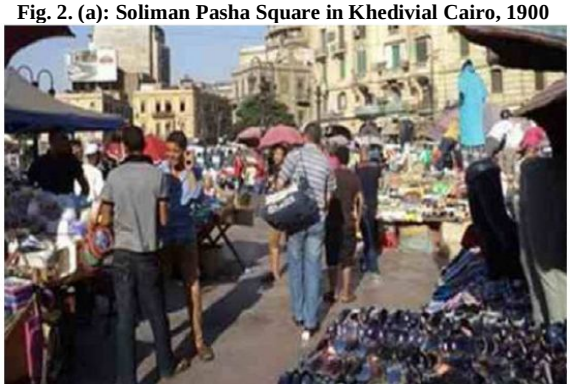


Fig. 2. (b): Soliman Pasha Square in Khedivial Cairo, 2011

The downtown area in Cairo witnessed numerous practices and developments, and also decay. It was a reflection to the Egyptian politics in different decades. Starting from 1990s, the Egyptian government started paying attention to the downtown with the introduction of several legislations and governmental decrees that prohibit the demolition of buildings of historic or architectural significance, which resulted in the conducting of inventories of buildings of historic/architectural significance. This was influenced by the numerous campaigns by intellectuals and the media to appropriate downtown as "national heritage" after decades of being condemned as a "symbol of colonial culture".

There are also efforts made by the National Organization for Urban Harmony (NOUH), whichdesignateKhedival Cairo as a protected area due to the extensive number of heritage buildings within its boundaries, Fig. 3. The NOUH also established a listing of buildings of historic/heritage significance, even if they do not reach the 100-year mark that constitutes a historic monument building protected by law. The buildings are selected if they are architecturally significant, housed a historical figure or event and are approved by the Prime Minister.

In 2008, another recognized effort in the upgrading and heritage conservation of downtown Cairo took place by establishing the Board of Trustees of Historic Cairo (BTHC) to be the guardian of downtown Khedival Cairo and revive the area as a whole and escape the bureaucratic administrative procedures that prohibit development. The only aspects that were implemented were the façade-repainting of several buildings in Tahrir and Ṭal`at Ḥarb Squares and Ramsis street, as well as the renovation of Emad El Dine street and some other iconic buildings.

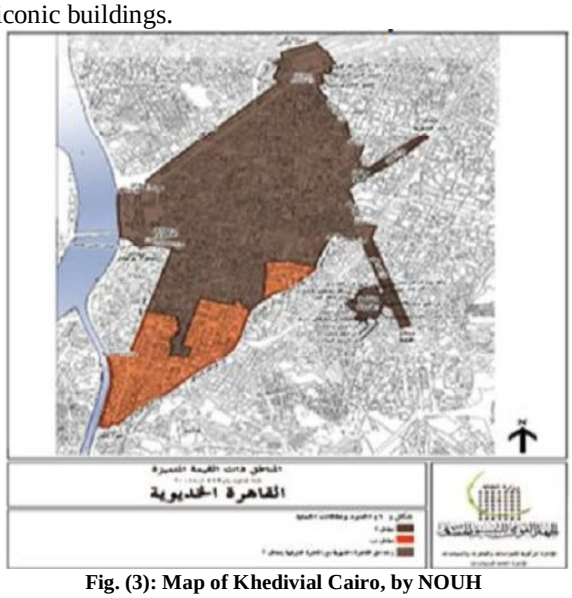


Fig. (3): Map of Khedivial Cairo, by NOUH

The optimistic plans for upgrading and renovating downtown Cairo area were halted by the unexpected revolution in 2011. However, the political struggles and instability during 2011 and 2012 resulted in damages and deteriorations to some historic buildings in downtown Cairo, Fig. 4 (a and b).



Fig. 4. (a): Damages of the historic French School (Lycée la Liberté de Bab El- Louqe) during the following events of 25th January Revolution



Fig. 4. (b): Damages of the historic Egyptian Science Institute during the following events of 25th January Revolution

National Organization for Urban Harmony (NOUH) was subsequently established in 2001by Presidential Decree No. (37/2001) as a subsidiary to the Ministry of culture with the mandate to ensure the implementation of aesthetic values in the design of public spaces and the exterior of buildings, particularly those of historic and heritage significance (Article 2).

Moreover, the absence of regulation and state control over the public spaces caused informal practices, especially by street vendors, who spread their businesses in the pavements and sidewalks, Fig. 5. The state also gradually introduced physical barriers and limiting access to certain areas where vital buildings exist, Fig. 6.



Fig. (5): Deterioration of public spaces in Downtown Cairo and informal practices by street vendors following events of 25th January Revolution



Fig. (6): Security barriers to limit access to downtown areas following events of 25th January Revolution

In 2013 a new Executive Committee for the Khedival Cairo Development Project is founded to undertake a comprehensive development project to revive the area. The project has two avenues of intervention; façade and public space renovation, and addressing traffic fluidity. Pilot projects are to be implemented in four areas. Tahrir Square was the first to be renovated withthe façade renovation of buildings surrounding the square, which include residential buildings, Al-Alfi project focuses on renovating al-Alfi pedestrian street and adjacent `Urabi Square, which includes façade renovation of surrounding buildings and the upgrading of infrastructure, street paving and lighting and adding green elements to the space. The third area includes the buildings along Ṭal`at Ḥarb Square and Qasr al-Nil street up to Mohamed Farīd Square. Finally, Tahrir street up to and including Abdin Square will be renovated. The results of development are shown in Fig.7.



Fig. (7): Façade upgrading in Ṭal`at Ḥarb Square (top), Al-Alfi street (bottom)

The second stream of intervention is increasing the capacity of streets and sidewalks along main traffic

corridors. This includes removing obstructions, such as relocating street vendors, the opening of Tahrir Garage and prohibiting parking on main traffic corridors, and upgrading sidewalks. Fig. 8 shows the new garage and pedestrian streets in downtown.



Fig. (8): Tahrir underground Garage (top), and pedestrian streets in downtown(bottom)

With all these recognized efforts to conserve historic Downtown Cairo, there is still a sustainability gap. However, looking at the different parties involved in designing or implementing urban upgrading projects and initiatives in downtown, one could perceive that "beautification" is the government's general urban upgrading ideology. The question is: Do these efforts in downtown area (or in other heritage places) take into consideration the three pillars of sustainability (economic,social, and environment)? or the cost or renovation should be repaid every few years?
Façade renovation is a positive initiative, it couldn't be the main focus of a sustainable development plan especially when little to no attention is paid to infrastructural issues and land use. In addition, the removal of all and any informal encroachments on public space, which manifested most visibly in the complete removal of all street vendors from downtown area without consideration of the socioeconomic implications is very critical, particularly when hundreds of youth depended on these informal jobs to make a living inthe absence of alternative occupations in the formal job market.

There is a need, however, to develop a clear comprehensive vision for the conservation of downtown that buy-in of all stakeholder groups, and whichtakes into account theeconomic, social, and environmental dimensions of sustainability by using certain indicators for each. The use of indicators of sustainability is a good starting point to achieve this, considering their flexibility and their ability to translate such complex concepts into measurable information.

III. URBAN HERITAGE CONSERVATION AND SUSTAINABILITY INDICATORS: BRIDGING THE GAP

Sustainability Indicators (SIs) are widely considered to be a useful and possibly vital element in furthering the concept of sustainable development.Indicators come to mean "pieces of information that highlight what is happening in a large system. They are small windows that provide a glimpse of the 'big picture' [4]. The main purposes of SIs are to simplify complex systems and reduce and organize the volume of information to a workable level for decision-makers.

The SIs developed in the past included Dashboard of Sustainability (DS), Ecological Footprint (EF) and Environmental Sustainability Index (ESI). Despite various indicators assembled, but none of these indicators sets has been widely implemented [5]. In terms of urban heritage conservation, indicators have been, traditionally, selected by conservation professionals or by national or international agencies. Stubbs [6] developed indicators for measuring the sustainability in historic environment. Yet, this methodology has not been generally implemented. Fraser et al. [7] and Nazarea et al. [8] proposed a different approach, whereby indicators are selected by the stakeholders as a means of promoting community empowerment and sustainable environmental management, as well as capturing an accurate picture of the values attached to the natural environment. This approach considered useful in assessing the performance of cultural heritage conservation, since evaluation parameters and criteria would reflect the values that stakeholders confer to cultural heritage.

Moreover, it is worth noticing that indicators for heritage conservation purposes should always be dictated by the aims of conservation and by the values linked to cultural heritage that needs to be protected. In this sense, the cultural significance of each place or site is constantly being reformulated due to the changing nature of value [9]. This, for example, implies that indicators need to be constantly reformulated and assessed against its applicability in order to account for the change in cultural significance and the consequent change in the aims of conservation.

But, like any other tools, indicators have its limitations and advantages in the heritage conservation process. For instance, they do not allow to account for the impact of a change in policy or the impact of the implementation of a specific project unless they are designed to assess activities and work

programs. Some literature argued that SIs attempt to encapsulate complex and diverse processes in a relatively few simple measures. Others responded that simplification is essential to deal with such multi-dimensional issue like sustainability. The debate around the use and characteristics of SIs for heritage conservation coupled with several questions, including how to select these indicators and how to develop key indicators that are able to encompass the broad dimensions of sustainability efficiently. The paper addresses these issues in the next section and present a methodology to develop SIs for heritage conservation in the Egyptian context.

IV. DEVELOPING SIS FOR HERITAGE PLACES IN EGYPT

Recent works of numerous authors and even international organizations have been focused on creating and formatting understandable and applicable method for measuring sustainability in all conservation practices. This part of the paper will provide a model or a methodology to develop SIs for heritage places in Egypt. The proposed methodology comprises the following steps:

1. Define the purpose of developing the SIs: The main purposes of developing SIs for heritage places in Egypt can be identified as follows:

- Help assessing either the urban conservation processes of Egyptian heritage places on the path of sustainable development,
- Monitor and report changes in development trends periodically, and
- Inform decision making, so that policy makers can draw policies and allocate resources on a solid basis.

2. Define sustainability goals: Sustainability goals within the context of heritage places in Egypt can be identified as follows:

- Conserving heritage resources and the built environment: the protection of heritage places from haphazard urban encroachment, as well as conservation of intrinsic value to the cultural heritage of historic towns and cities.
- Promoting economic growth: the stimulation of the local economic development, mobilization of resources and elaboration of new financial mechanisms to create more job opportunities, which are appropriate to the market demands.
- Social development: improvement of the quality of public services, showing respect to exceptional qualities, rights and beliefs of local cultures, and pay attention to the needs of local communities.

3. Identify the target audience: It is fundamental to decide who are the target audience of heritage conservation processes at the beginning phase of any project for developing SIs. In the Egypt case, it is recommended that the participant stakeholders are selected to represent the various groups, who have an important 'stake' in specifying the key issues of concern. This would include local governance sector: the local authority, administrative units, sectoral committees (health, education, transportation, etc.), educational institutions, utilities organizations, social fund organization, and the international fund institutions; private sector; non-governmental organizations NGOs; and representatives from the public.

Identifying the target audiences is important, however, to address their specific needs rather than to develop different sets of indicators for different groups [10].It is, therefore, recommended to have one core set of indicators to be shared by everyone.

4. Determining the appropriate number of indicators:Defining an appropriate set of SIs, especially for the conservation of heritage places is a difficult task. If too few indicators are monitored, crucially important conservation issues may escape attention. If a large number of indicators have to be examined, data acquisition and data analysis may become prohibitively expensive and time-consuming[11]. Obviously, practical schemes cannot include indicators for everything. It is therefore essential to define a set of representative indicators that provide a comprehensive description, or as many as are essential, but no more.

5. Choosing types of indicators: Types of indicators range from quantifiable, objective and standardized indicators, such as relative humidity ranges for preventive conservation standards, to those qualitative and subjective culturally defined indicators, such as the sense of place related to cultural heritage.

6. Select the core set of SIs for heritage places: Several authors, organizations, and scholarly papers tried to define numerous indicators for sustainability in heritage conservation. There is great number of usable sustainability indicators, some estimated it to around 768 different indicators [12]. With the consideration of the three dimensions of sustainability, the author used a computer-based research methodology to review available literature and findings of various surveys and studies to identify the core set of sustainability indicators for heritage conservation practices. Selecting this core set of SIs was based on their frequency of use, coverage of the three main dimensions of sustainability, relation to the core rationale of sustainable heritage conservation, and suitability for the Egyptian context. Based on these criteria, the following set of core indicators are selected as shown in Table 1.

This core set of SIs is selected from the comprehensive set of indicators, available in the literature, in order to highlight issues with crucial importance, which should be considered important in the conservation of heritage places. The resulting indicators have four main characteristics. First, they represent the commonly used indicators associated with the field of heritage conservation. Second, they

cover the dimensions of sustainable development. Third, they address the major rational behind the heritage conservation. Finally, the indicators used include both quantitative indicators and qualitative ones, which are necessary in the assessment of sustainable heritage conservation.

The success factors to adopt and apply such indicators include the following:
Availability of good data: without good data, based on monitoring, these indicators will not provide good information for assessment or development activities.
Identification of performance measures: for each indicator, there must be clear explanation related to sustainability targets and performance measure(s) that identify the context of targeted performance.
Flexibility and change: different people living in different places have different values. Indicators must therefore be able to take into account different locations, people, cultures and institutions. Moreover, the set of indicators itself evolve over time, it must be considered that it is dynamic and its role tends to reduce uncertainty, but does not eliminate it.

CONCLUSION

Sustainable Development is the most accepted approach to development nowadays. The concept of "Sustainable Development" itself has been expanded considerably to include cultural, heritage, and community development factors. Moreover, due to the fact that aims and activities of heritage conservation have widened during the last decades, there is a need to develop new approaches and methodologies for planning and/or assessing the performance and the efficacy of conservation activities. Thus, Sustainability Indicators (SIs) are much needed in order to capture the necessary data to monitor the conservation activities and processes and shift the attention to the sustainability of communities and people who value such heritage.

In this respect, the paper discussed current heritage conservation activities in Downtown Cairo- Egypt, where countless monuments exist and interest in developing this area has increased over the past two decades and particularly over the past ten years. The paper, therefore, introduced a methodology to develop (SIs) for heritage places in Egypt based on the following steps: Define the purpose of developing the SIs- Define sustainability goals- Identify the target audience- Determining the appropriate number of indicators- Choosing types of indicators- Identify suitable framework for organizing the indicators- Select the core set of SIs for heritage places.

In terms of identifying a core set of (SIs) for heritage places, the paper builds upon the existing literature on sustainability indicators to propose a set of 50 key indicators that covers the dimensions of sustainable development, reliable and recognized among academics and professionals, consistent with the diverse aspects of heritage conservation, and above that appropriate to the Egyptian context. The paper also discussed some success factors to use these indicators depending on availability of good data, identification of performance measures for each indicator, and finally flexibility and accepting change

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Table 1. Proposed core sustainablility indicatorsfor heritage places

Sustainability Dimension	Main Aspects	SIs for Heritage Places
Social	Socio-Cultural effects of conservation on community	– Locals interest and involvement to conservation – Capacity of transport services – Capacity of financial services – Tolerance of other cultures
	Local/ Public safety	– Visitors' satisfaction with safety in the place – Protected cultural heritage – Freedom of expression
	Conservation of cultural heritage	– Heritage use intensity – Protection of cultural traditions – Conservation of artistic, aesthetical and harmonious value – Authentic presentation of cultural heritage – Conservation of non-material cultural value – Participation in identity- building cultural activities
	Governance	– Civil society participation in cultural governance – Policy and institutional framework for culture – Compliance with regulations and building codes
	Education	– Increase in arts and culture education – Professional training in the cultural-related sector – Increase in multilingual education
	Quality of life	– Level of satisfaction with community life in general – Effects of conservation on available income – Improvement of living conditions
Economic	Contribution to local economy	– Volume of tourism demand on the heritage place – Length of stay – Visitors' expenditure on museums, entertainment and excursions – Employment generated by the service sector – Investment in service sector – Production of public/private benefit – Ability to generate resources for operating expenses – Ability to generate sufficient resources for future restoration
	Sustaining residents/ visitors satisfaction	– Satisfaction with price/quality relationship – Satisfaction with the visit to cultural sites
	Marketing	– Amount spent on marketing of heritage places
	Visitors related transport	– Access to the heritage place by different transportation modes – Transportation in the heritage destination
Environmental	Protection of natural resources	– Environmental awareness – Protection of valuable natural assets
	Energy management	– Insulation and ability to adapting – Presence of on-site renewable energy
	Water availability and management	– Water use – Water production – Water saving
	Waste treatment and management	– Treatment installations – Viability of recycling existing materials
	Atmospheric pollution	– Noise pollution – Measurement of pollutant emissions
	Impact assessment	– Impact of construction or conservation on the environment – Erosion – Landscape conservation – Impact of the road network.

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