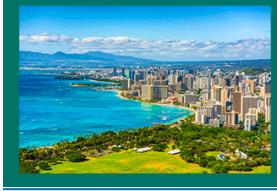
Managing of city transition toward sustainable Eco urbanism (Proposed paradigm)



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Managing of city transition toward sustainable Eco urbanism (Proposed paradigm).

Mohamad F . Fayad[1], Maged Elmahdy[2], Sherif Sabri [3], A. Alrahim Kasem [2]

[1] Doctoral Researcher, Urban planning Department, Engineering Faculty of Al-Azhar University, Cairo, Egypt.
[2] Professor, Urban planning Department, Engineering Faculty of Al-Azhar University, Cairo, Egypt
[3] Professor Emeritus, Urban planning Department, Engineering Faculty of Al-Azhar University, Cairo, Egypt.

Corresponding author: engmohamad.farag@gmail.com

Abstract: The research clarifies transition strategy towards sustainable Eco urbanism, and what spinoff the reliable Universal Criteria, in addition to concept the managing of sustainability transition in cities.

The aim of the research is to present and elaborate a proposed model for managing the sustainable transformation of Egyptian cities, so that they are suitable to deal with and apply to most existing and new urban communities, with a view to transforming them into sustainable environmental cities and communities, by working to develop a future vision for the sustainable image that the city will reach, dependent on Scientific foundations and an understanding of the problems these regions suffer from, to explain sustainability strategies in light of the general data for these areas and the current and future needs of the population and the available capabilities.

The proposed paradigm consists of ten consecutive stages of operations and is related to each other, where the subsequent stage is based on the data of the previous stage, and the success of the previous stage has a positive impact on the success of the subsequent stage and vice versa.

Keywords: transition, transformation, Eco urbanism, sustainable city,

1. Introduction

The transformations of cities are among the urban, social and economic phenomena that followed the first industrial revolution, and therefore the transformation is considered as one of the main features of the twenty-first century, and in Egypt the absence of the institutional dimension and the absence of a regulatory framework for urban transitions taking place in Egyptian cities led to a loss of the ability to manage and plan the transformation and control processes by directing them towards sustainability To achieve the requirements of sustainable eco urbanism and renewal towards sustainability.
Many countries of the world have started setting principles and standards for environmental city planning as an inevitable result of sustainable transformation, and thus the principles of sustainable eco urbanism came with ideas capable of overcoming the negatives of cities and working on compatibility between the environment and Urbanism in addition to improving environmental performance through a set of principles including (sustainable transport, water conservation, energy conservation, innovation and renewal, emissions reduction, pollution reduction, waste management, social and cultural progress, economic development).

2. Sustainable Eco urbanism

Many planners consider that environmental urbanism is the urbanism that is based on achieving the principles of living while taking into account the environmental impacts [1].while the planner Deng believes that environmental urbanism emphasizes the importance of the ecological and environmental aspects of urbanism, and is based on the complex interactive effects and relationships between different economic activities in those urban and rural societies, their ecosystem, and their local environment [2], then the urban environmental expansion aims to societal development to sustain urban and rural development, to efficiently consume resources, and to minimize environmental impacts in the context of a dynamic and interactive process.
Fiona Harvey has argued in his Green Vision that for Urbanism to be sustainable, it must have the following elements: [3]. (See Figure 1)

- An urban ecosystem which is ecologically sound
- Reduction of ecological footprint, waste management and its utilization

•Achieving environmental sustainability through reduced greenhouse gas emissions, and Maintaining high air and water quality standards.
•Actors whose drive the eco-Urbanism must be part of sustainable development management

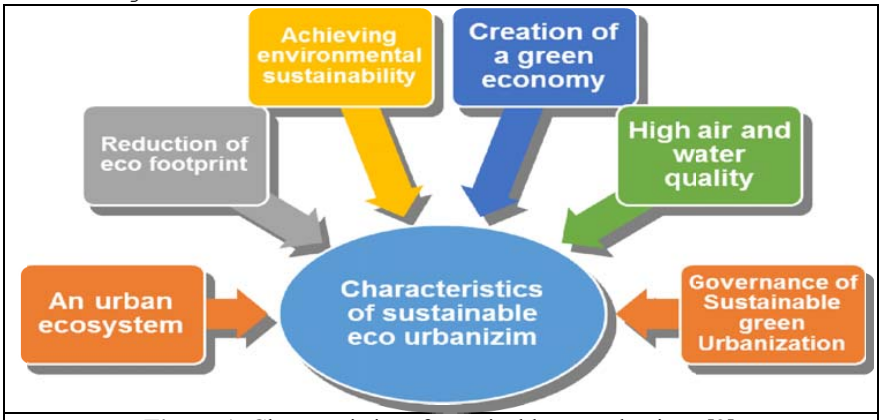

Figure 1. Characteristics of sustainable eco urbanism. [3]

2.1. Basics of the Sustainable Eco Urbanism

The principles of eco urbanism depend on the triple-zero systems. These are zero petroleum product vitality utilize, zero waste and zero discharges particularly went for low-to-no-carbon outflows. [4] (See Figure 2).
1) Climate and Context: Based on climatic condition prior to selected city, every sustainable design project needs to maintain a complexity within eco-system or neighborhood layout.
2) Renewable Energy for Zero CO2 Emissions: Transform city districts into local power stations of renewable energy sources.
3) Zero Waste City: Cities should adopt zero-waste urban planning in line with the manufacturing of metals, glass, plastics into new products.
4) Water: Cities can be used as a water catchment area by educating the inhabitants in water efficiency, promoting rainwater collection.
5) Landscape, Gardens and Biodiversity: Introduce inner-city gardens, urban agriculture and green roofs to maximize the resilience of the eco-system.
6) Sustainable Transport and Good Public Space: Compact and Poly-Centric Cities: An integration of non-motorized transport, such as, cycling or walking and bi-cycle or pedestrian-friendly environment
7) Local and Sustainable Materials with Less Embodied Energy: City construction by using regional, local materials with less embodied energy and applying pre-fabricated modular systems

8) Density and Retrofitting of Existing Districts: The city is with retrofitted districts, urban infill, and densification/intensification strategies for existing neighborhoods.
9) Green Buildings and Districts, Using Passive Design Principles: The city, here, applies deep green building design strategies and offers solar access for all new buildings.
10) Livability, Healthy Communities and Mixed-Use Programs: The prime concern of the city is for affordable housing, mixed-use programs and a healthy community.
11) Local Food and Short Supply Chains: High food security and urban agriculture by introducing 'eat local' and 'slow food' initiatives.
12) Cultural Heritage, Identity and Sense of Place: A sustainable city with high air quality.
13) Urban Governance, Leadership and Best Practices: The city applies best practice for good urban governance through combined management and approaches.
14) Education, Research and Knowledge: The city includes technical training and up-skilling, research, exchange of experiences and knowledge dissemination for all in sustainable urban development.
15) Strategies for cities in developing countries: Particular sustainability strategies are needed for cities in developing countries, such as train local people to empower communities, creating new jobs.

Figure 2. Basics of sustainable eco urbanism. [4]

3. Governance of urban sustainability transitions

The process of change during a transition is highly non-linear within which slow change is followed by rapid change when things reinforce each other which is again followed by further change in the new equilibrium [5].
The nature and speed of change differ in each of the transition stages [6]: predevelopment phase, take-off phase, acceleration phase and stabilization phase. Figures 3 show the Theory of sustainability transitions.

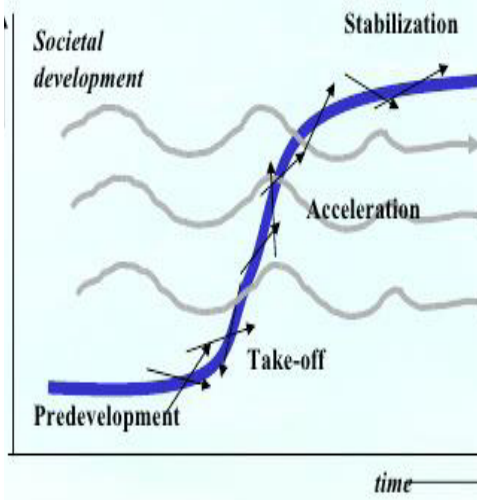

Figure 3. Theory of sustainability transitions. [6]

Figure 4. Principles of transformation management. [7]

3.1 Transformation management

Next to the aim of analyzing and understanding transitions, part of the field of transition studies is about how actors (can) influence transitions – their governance.
One of these governance approaches is Transition management, which is based on insights from complex systems, governance and sociological theories.
Transition management aims at influencing the direction and pace of societal change dynamics in the context of contributing to sustainability.
System innovation in incremental steps: Apart from system improvements and optimizations, aim for system innovation. This includes building

analytical capacity for transitions this includes building networking capacity for transitions.
The transition arena is a temporary setting that provides an informal and well-structured space to a small group of change agents from diverse backgrounds (businesses, government, and citizens).
The group engages in a series of meetings, jointly elaborates a transition challenge, drafts a long-term vision, and develops transition pathways to realize this vision.
Figures 4 clarifies the principles of transformation management which consists of these steps :(insight into the system - system innovation - diversity and flexibility -co-creation -creating opportunities- institutional learning). [7]

3.2 The experiment of applying Transformation management in Carnisse, Rotterdam, Netherlands

Transformation management was applied in Carnisse in the context of decreasing public service provisions, closing of public facilities, high unemployment and crumbling social cohesion to facilitate the self-organization of inhabitants to address persistent sustainability problems. While urban neighborhoods mark opportunities for self-organization – through for example emotional connectedness – the political playing field can provide support, or restrain it. It provided a new perspective for the development of that community, increased social capital, supported reflexivity on roles and own behaviors and revealed opportunities for self-organization. [8]
Therefore, the overall process design was partly done in a participatory and interactive meeting in November 2011 with five inhabitants and professionals in Carnisse who were motivated to think along about the future of the neighborhood. During this meeting, the participants and researchers defined the overall aim of the transformation management process as "supporting and stimulating inhabitants to shape and take ownership of the future of their neighborhood and formulate desired (government) activities" [9], [23]. The main focus however was on discussing the methodology developed as part of the In Context project and its contextualization for Carnisse. [23]
The former was open to invited participants only and focused on developing a shared problem description, futures images and possible pathways. The latter was open to everyone and focused on experimenting, mainly the re-opening of a closed-down community center. [10]
Figures 5 and 6 show the adapted process design of Transition management and adapted overview of community arena process in Carnisse.

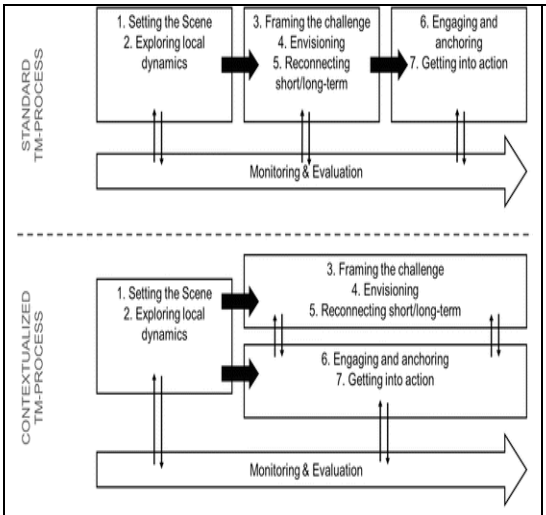

Figure 5. Adapted process design of Transition management In Carnisse. [8]

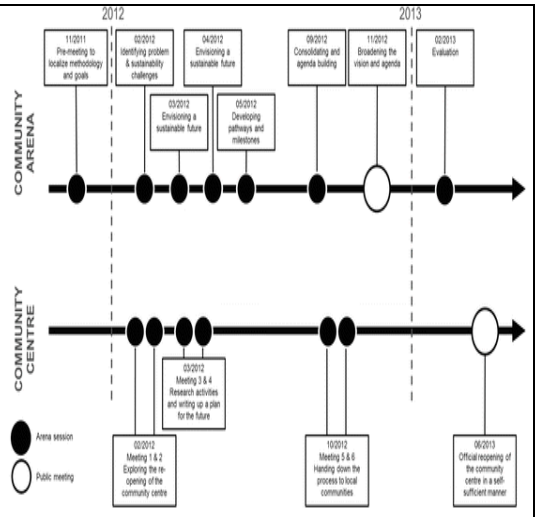

Figure 6. Adapted overview of community arena process in Carnisse. [9]

4. Egyptian cities and sustainability transitions challenges

The population of Egypt is currently estimated at about (100) million people, and the population growth rate of the population is (2.65%), and about (45%) of the population live in urban areas, where the rate of urbanization is (2.2%) and Egypt is classified among (16-20) A country experiencing the highest population growth in the world, and Egypt suffers from a delay in the application of the idea of sustainability at the urban and regional levels, as it suffers from many development problems and is subject to depletion of its natural resources and wealth without planning for future needs. In addition to that, cities in Egypt moved away from the local environmental trends that preceded it, which led to the creation of urbanization that is not suitable for the environment and does not meet the needs of its users.

The rapid change in Egyptian lifestyles has had a negative impact on Egyptian urbanization, and one of the manifestations of this is his exposure to many threats that have a negative impact on the standard of living of the population. Among these threats are the lack of drinking water, sanitation and energy facilities in addition to the spread of slums, and Egypt has witnessed during the last decades an increase It is steady in urban projects, through expansion in the construction of new cities and communities, and others, in order to provide urban services and bridge the accumulated deficit in the residential sectors. [11]

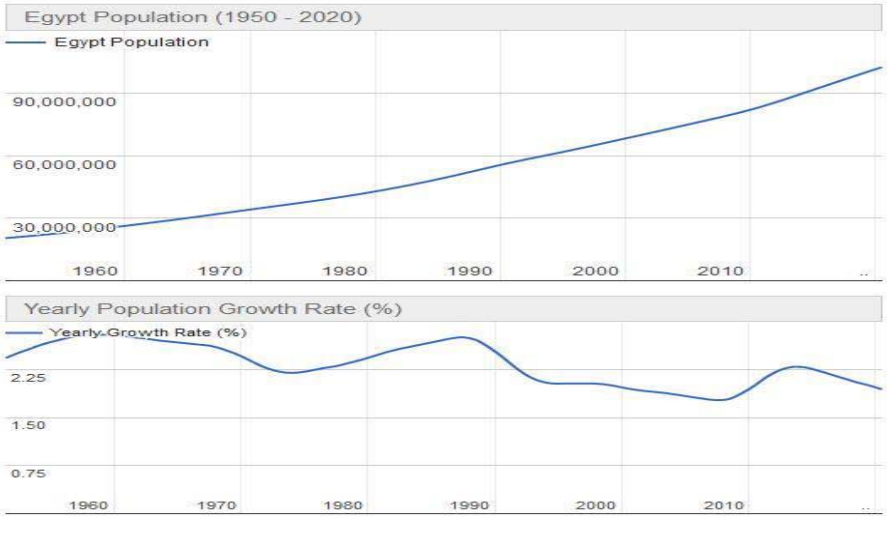

Figure 7: Egypt population (1950 - 2020) and yearly population growth rate [11].

4.1 Sustainability transitions challenges for Egyptian cities

The main challenges facing Egyptian cities transitions into sustainable eco. Urbanism can be grouped into four groups. [12] :(See Figure 8).

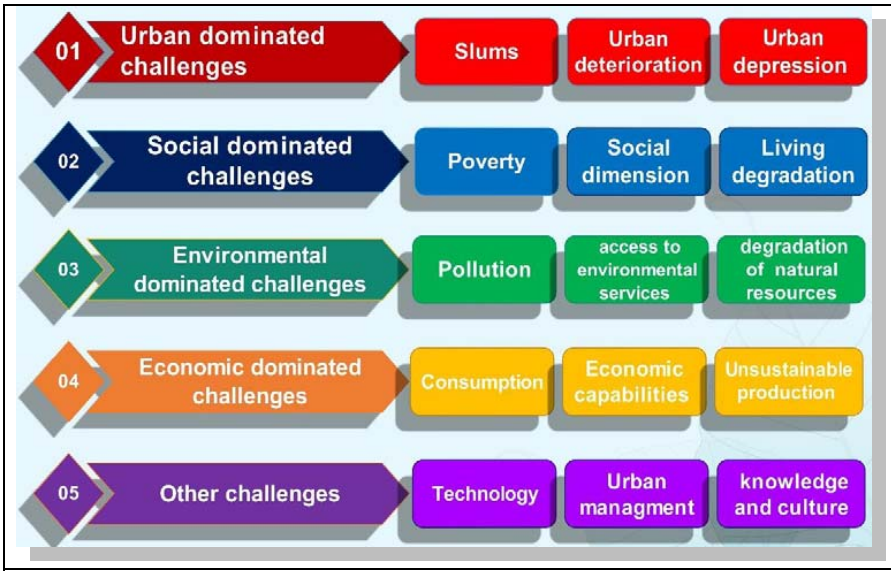

Figure 8: The sustainability transitions challenges of Egyptian cities [12].

A) Urban dominated challenges: It means risks and issues that threaten

the built environment such as:
• The spread of dangerous areas, slums, and encroachment on agricultural lands
• Urban deterioration of the old areas.
• Urban sprawl and unorganized expansion in suburban areas.
• Urban depression represented by the lack of cities in the distinct urban jobs and urban attractions.
• Poor state of infrastructure networks such as networks (roads, streets, water, sewage, etc.)

B) Social dominated challenges:
• Poverty, social conflicts, lack of social justice and increased crime rates population mobility and rural-to-urban migration that overwhelms the ability of cities to provide basic services.
• The absence of a social dimension in the development of cities.
• The deterioration of the standard of living of the population and lack of educational and health quality.

C) Environmental dominated challenges:
• Pollution from industrial production, urban waste and emissions with climate change.
• Lack of access to environmental services and infrastructure (water, waste collection, transportation)
• The degradation of various natural resources.

D) Economic dominated challenges:
• Excessive consumption of resources and energy (the high use of those renewable resources that can only be renewed within limited limits. Limits, and high use of non-renewable resources).
• Development needs constrain economic capabilities and local resources.
• Unsustainable production and consumption patterns.

E) Other challenges:
• Technology issues, this group has the following challenges (using outdated and inappropriate technologies - resettling technology polluting the environment in developing countries - difficulties in transferring modern and clean technology)
• Management and political issues, this group focuses on the following main issues (ineffective institutional and organizational frameworks - not possible legal and legislative frameworks - administrative centralization)
• Awareness issues, knowledge and culture, this group focuses on three prominent challenges: (challenges of lack of awareness and values - challenges of vision and change - challenging the lack of decision-making tools)

5. The proposed paradigm for city transition toward sustainable Eco urbanism.

Managing urban sustainability transitions requires integration with strategic urban planning processes in order to integrate diverse sources of knowledge and perspectives, while linking the links between local urban challenges and broader global, national and regional developments.

In this context, the researcher presents a proposed framework as a new way to deal with the ongoing problems and risks facing cities transitions, the basic argument is that these problems are strongly rooted in the structure of our community systems themselves, which means that marginal changes (i.e. improving procedures or temporary solutions) cannot be effective It will lead to suboptimal results. Therefore, managing sustainable transformation calls for fundamental change that is transformation, in order to address the root causes of persistent problems rather than their symptoms.

5.1 Framework of the proposed paradigm

Governance of urban sustainability transitions seeks to influence the interactions between these activities of different scales by creating soft structural processes, involving different types of actors at each level: (See Figure 9)

1. Strategic level activities

This group represents a vision of the desired future, the focus is on long-term aspirations and goals towards sustainable urban environments, the future vision is discussed collectively and imagined; for example: vision and formulation of long-term goals, including setting collective goals and setting standards.

2. Tactical level activities

The focus is on developing strategies, networks, and coalitions that draw attention to sustainability goals while gaining community support to achieve medium-term goals, and overcoming socio-institutional barriers to innovation / change, so these activities seek to target changes in existing structures.

3. Operational level activities

Governance activities at the operational level focus on short-term and concrete activities - they are part of the continuous flow of daily decisions and procedures, with an emphasis on experiences and application of work programs that can form new structures and procedures that can ultimately lead to system innovations

4. Reflexive level activities

The reflexive level relates, by its nature, to the identification of activities and thus their adaptation at various different levels. It includes activities related to monitoring and evaluating experiences, agenda, vision, policies and processes of change.

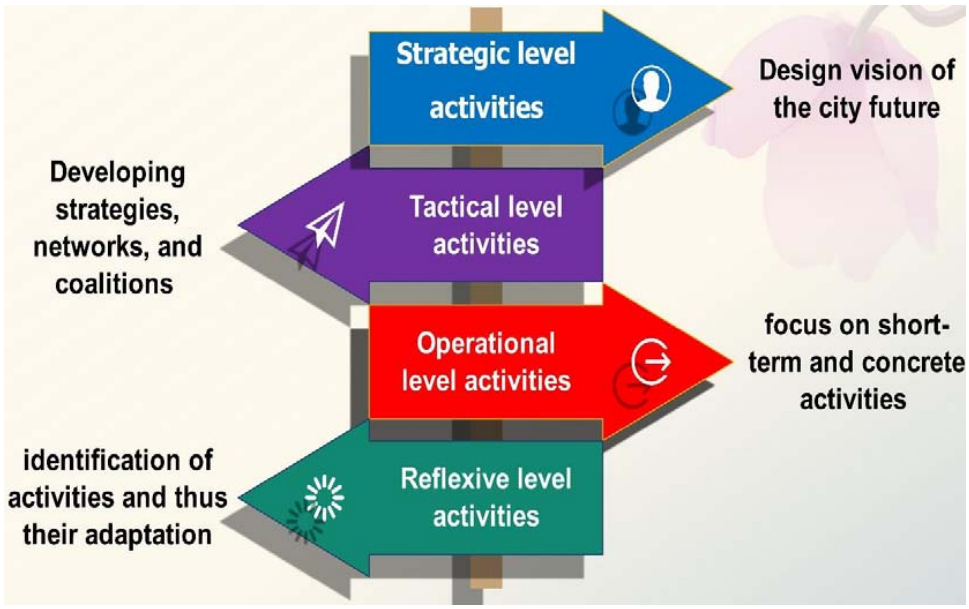

Figure 9: The levels of proposed paradigm [Researcher].

5.2 Process stages of the proposed paradigm

Governance The sustainability transitions management wheel", as shown below, is a simple periodic roadmap explaining the paths and tools available for managing transitions of city structures to more sustainable practices, with a comprehensive vision focused on the local situation, and it is expected that multiple courses will be completed, with a repetition of the set of activities Mentioned above again and again. The completion of each session is referred to here as one "cycle" of the wheel, and the first session of the wheel may be directed to overcoming urban, social or environmental risks, and the next cycle to confront the risks and other issues that impede sustainability

1) First stage. Preparation and identification of stakeholders

The main activities at this stage include identifying the organizational and coordination team (the transition team) and designing the process. The main results for this phase include the formation of the transformation team, process plan and support network .Scene identification is the important first stage of a transformation management process: it is the work that precedes a participatory process that develops in the following stages. As in any project, this is a critical stage, as it can largely determine the remainder of the process. Depending on how the transformation team is formed, the process tailored to a particular situation, and the support received from stakeholders (such as city management), the sustainable transformation

management process can take root or remain marginal.

2) Second stage. Diagnose the current situation of the city
The main activities at this stage include studies of the current state of the city (or system), analysis of representatives, identification and selection of prominent candidates to participate in this process. Key findings include analyzing the status quo and coming up with an insight into the key issues and tensions to focus on, identifying and categorizing actors and shaping the scene, once the transformation team is formed and equipped with space and resources, it is ready to start exploring local dynamics. In urban areas, this could mean a city or neighborhood. There are three main aspects to this stage of the transformation management process: analyzing the current situation and actors and bringing together a group of active individuals ("pioneers" or "agents of change") in the transformation arena.
3) Third stage. Analyzing problems and issues
The main activity of this stage is the general analysis of the city or urban area with the structuring of participatory problems and then an analysis of the problems, risks and issues facing the city's shift towards sustainability. Key outcomes for this phase include perceptions of common problems and topics of change. The first issue on the agenda is the formulation of the "problems" that the group and process will work on. Usually a common understanding of the challenges of transformation is initiated from the discussion of an analysis of the current conditions presented to the city as inputs to the process by the transformation team and based on research and interviews, this analysis will be reconfigured until the group reaches a common perception of problem-solving
4) Forth stage. Preparation of the city future vision
The main activity of this stage is building a participatory vision, the main result is a shared vision, the group begins to prepare a vision for sustainability - a sustainable contextual understanding of the city transformation, through which the basic principles of long-term development are clarified, and after intense discussions in which views on the transformation are exchanged For a sustainable city, the group accepts a number of guiding principles of sustainability - which can be based on the transformation challenges set. These principles will form the basis of the future vision of the group. Elements that will be used to create these visions include the following (exchanging views on the future - formulating guidelines for sustainability - creating an integrated vision)
5) Fifth stage. Building city strategic plans
The main activities for this phase include participatory backcasting, defining transformation pathways and formulating the transformation agenda and its specific actions. The main results of this stage include analysis of backward prediction and transformation paths, as well as agenda measures and formation of possible experiences. The challenge for this stage is to reconnect this long-term vision in the short term through more ideas on how to get there, including the method of backcasting, and then the tracks are merged into a transitional agenda, as the second result of this stage. It must be endorsed by all

participants in the field of transformation, because it aims to provide a common approach.

6) Sixth stage. Implementation of the city transition strategy

The main activity of this stage is the actual short-term operational practice and concrete activities. Instead of projects,

The management of transformation phases at this level focuses on creating a set of related transformation experiences that complement and strengthen each other, and contribute to the goal of ability to be scalable, potentially scalable, and important and measurable. The main activity at this stage involves the implementation of experiences, policies and transformation projects. Key outcomes for this phase include learning and implementing the transformations agenda.

7) Seventh stage. Involve additional parties and develop a marketing campaign

We should be aware of the benefits of engaging other parties (groups from civil society, academics, commercial and economic institutions, and the media), and who and at what stage of the process should be invited to join them. They can participate in multiple ways, such as participation in meetings, conferences and initiatives.

The main activities for this phase include disseminating the vision and paths, the transformations agenda, and expanding the network. Key outcomes for this phase include broader public awareness and expanded participation in the transformational agenda, the network of agents of change, spin-offs and new groups.

8) Eighth stage. Monitoring and documenting works and data

Process documents capture and track what happens during the change process and how it happened. Good process documents enable stakeholders to articulate the reason for the changes, analyze them, and organize and publish the results. Meeting minutes, photographs, audios, videos and other ways to capture information.

With regard to capacity building, training courses and workshops that enable middle management / clients / community, etc., will encourage change of non-sustainable thinking and ensure engagement with new sustainable technologies and solutions.

9) Ninth stage. Evaluation, learning and feedback

The transformation management aims to facilitate the process of research and community learning where continuous actions are taken by a group of actors as a starting point for building new collaborative transformation networks. As such, the Transformation Department opens up a method for introducing and experimenting with alternative social relationships, such as between local governments and citizens, or between citizens and companies.

Each stage of the sustainable transformation management cycle must be evaluated to see the strengths and weaknesses of the various activities and to measure the degree of progress of transformation practices.

10) Tenth stage. Modification and prepare for the second round of the transition path

The cycle of managing sustainability transitions is almost complete at this stage, but the final journey towards the desired future has not yet ended, and the first round may be directed to overcoming the risks and

issues prevailing in the city (urban - social - environmental) then the next round of transformation begins to overcome the other risks in the city (As previously explained), then the gaps will be identified and the vision adjusted if necessary. New insights may be needed, and new actors may need to be found willing to become pioneers of change in the future.

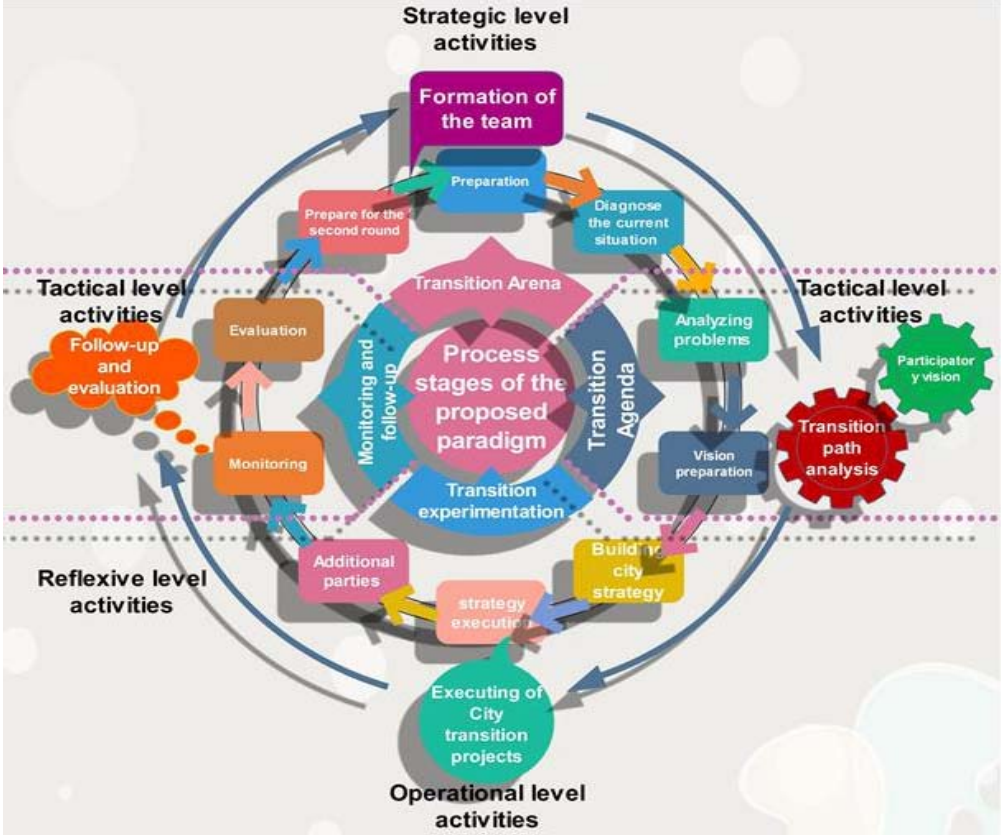

Figure 10: The cycle and stages of the proposed paradigm [Researcher].

6. Conclusion

1) Managing city transitions can be applied as an approach to transforming or moving the city and society, from the current state to the desired sustainable state. It is an organizational process that aims to assist actors, stakeholders, involved in the transformation of social technology systems with a view to managing balances between the human condition and its built and natural environment.
2) In the strict sense of the term, no city has yet reached high levels

of sustainability. Cities have played critical roles in the direction of rapid global transformation since the mid-1980s, especially those in middle- and high-income countries. Cities will follow traditional scenarios, which assume that current trends play non-stop significantly in the evolution of institutions, ecosystems, and human values. So that comprehensive and coordinated government actions are taken to achieve sustainability.

3) The Department of Sustainable Transformation seeks to influence the interactions between these activities of different domains by establishing facilitated structural processes, involving different types of actors at each level, which requires a range of diverse skills and competencies. They are all important and therefore the levels do not represent any hierarchy

4) The proposed framework for sustainability transition managing links a number of tools to each level of governance. The periodic nature of the model implies that activities at the strategic level are followed by tactical and operational tools and the course is closed with reflex tools. However, the cycle must be understood as iterative; activities can be initiated at every level of governance, and therefore at the operational level rather than the strategic level, for example, and may operate in parallel. Thus, activities and tools interact with each other.

5) The proposed "sustainable urban transformation management wheel" is a simple periodic roadmap that outlines the pathways and tools available for managing transitions of city structures to more sustainable practices, with a comprehensive vision focused on the local situation, and multiple courses are expected to be completed, with the set of activities repeatedly repeated Repeatedly. The completion of each session is referred to here as one "cycle" of the wheel, and the first session of the wheel may be directed to overcoming urban, social or environmental risks, and the next cycle to confront the risks and other issues that impede sustainability.

6) The researcher applied a holistic approach to define the processes of urban transformation through taking into account the urban, social, environmental and economic dimensions, and accordingly four groups of prevailing risks and issues (or threats or obstacles) were identified, which confront the urban transitions towards sustainability which are (urban issues - social issues - Environmental Issues - Economic Issues - Technology Issues - Institutional Frameworks

7) Sustainability challenges and issues may differ in many countries of the world. In developing countries, the economic recession is the most important constraint to sustainable development. In developed countries, cities suffer as a result of high overcapacity or mass consumption (of resources and energy), and comprehensive disposal that also depends on production. Huge, which increases the amount of inputs and outputs, usually far exceeding the environmental capacity of the city, and due to the exorbitant results or possible reduction of the quality of life, governments or individuals have local incentives to improve and introduce sustainable patterns of production and consumption

8) Requirements for preparing and implementing the management of Egyptian cities transformation into sustainable cities :include the flowing:

- Building an institutional framework to manage urban sustainability transitions at the national level
- Prepare a strategy for existing and new cities
- Provide the necessary financial resources for implementation
- Information integration and capacity support
- Institutional support and capacity building
- Support capabilities to implement multilateral environmental agreements technical and material support.

7. Conclusion

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