Towards Creating New Sustainable Cities in Egypt- Critical Perspective for Planning New Cities

Speaker:
Ellahham, Nisreen

Abstract: The objective of this paper is to form a future vision of Egyptian sustainable cities that integrates theories with international experiences. The paper highlights the pressing need to establish new areas for development in the Egyptian desert—through geo-economic restructuring of Egypt—that would contribute to reduction of population density in existing cities through attracting it from the narrow congested valley to new urban communities. This helps destabilize the existing urban density, which has become already experiencing severe environmental degradation.

The paper identifies the most important theories of sustainable cities and sets their establishment standards and planning criteria. It analyzes the pros and cons of the Egyptian experience in building new cities in the desert and the major pertinent impediments. The ultimate objective is to sketch strategic orientation, based on results reached and lessons learned, for the purpose of establishing new sustainable urban communities in the Egyptian desert.

Egypt - desert - sustainable – cities

Concept of sustainable cities

The concept of "sustainable cities" emerged concurrently with the adoption of sustainable development concept and the increasing concern about impacts of development on the physical, social and cultural environment. Related to the main philosophy of Sustainable development, the sustainable cities concept called for identifying a new type of cities that would achieve economic growth through an economic base that does not drain or pollute natural resources, adopt products recycling or restoring the invested energy. Also, sustainable cities achieve social equity for their residences in a manner that strengths the concepts of democracy, participatory decision making, and self reliance. Sustainability of the city is fulfilled by the self reliance of its community, meeting its basic needs, minimizing the poor – rich and different income levels gap, securing the minimum level of the acceptable life standard to all members of the community, ensuring participation and accountability along with using technical technologies compatible with the local circumstances.

In addition, sustainable cities are green, environment-friendly cities where the absorptive capacity of resources and local environmental systems are balanced. This balance would be achieved by upgrading the resources usage efficiency, and attaining the minimum level of polluted outputs in order to enable renewal of the ecological system, and preventing pollution by minimizing waste. The sustainable city should be zero or low carbon emissions, hence, contributing to decreasing the production of Carbon dioxide and other organic composite which amplify climate change. This entails decreasing the use of fossil fuel to the lowest level, while concurrently increasing the use of new and renewable energy.

1 Information & Decision Support Center, Cairo, Egypt
Basis of planning new sustainable cities

Through conducting literature review concerning planning sustainable cities and revising some successful international experiences in constructing sustainable cities, the basis of planning a new sustainable city are concluded as follows:

- Planning process of the new city is carried out according to certain criteria: 1. developing the new city according to an integrated master plan, 2. taking in consideration the principles of urban design while concurrently maintaining natural environment, 3. lending the new city an independent social, geographic identity and local administration, 4. achieving large scale self sufficiency to ensure meeting the needs of different residents categories.

- The adequate site for the new city that should be selected based on the competitive advantage in terms of: elements of economic development, accessibility to the site, its geography, type of earth, and cost of constructing the infrastructure.

- The optimal size of the new city should be identified before constructing the city to ensure adequacy for the purpose and planned job opportunities.

- The infrastructure and comfortable and adequate public transportation provided to all segments of the society stands as main element for attracting residents to the new cities.

- Depending on sources of alternative energy specially sources of competitive advantage which achieve economic and environmental sustainability of new cities.

- Administration of new cities applied in three formats: 1. central allowing coordination between the programs of constructing different new cities, and enforce strict control over investments, 2. decentralized whereby promoting competition among regions and municipalities, 3. central planning and decentralized implementation allowing the central government to control housing policies, expanding competences of the municipalities in a manner that allows them apply certain policies for attracting private sector and engaging the local community in planning and implementing the city, however, the process is carried out under the supervision and monitoring of the central government.

- Funding of the new city is processed through: 1. complete governmental funding policy which may cause an imbalance of different development areas, government incurs the burden of providing huge investments, and the government rather than individuals will secure the profits; 2. private sector policy which mitigates the government's burden, though, does not ensure achievement efficiency; 3. government – private sector funding participatory policy allowing to attract private investments, and settling the new city's loans taken from the government during the initial phases.

The Egyptian experience in creating new cities

During the seventies of the last century, interest grew in the idea of new urban communities in Egypt. In this regard, the State adopted creating a number of new cities aiming to decrease the
high population density, mitigate the burden off the existing areas and cities by means of stretching out to the desert and constructing urban communities which would absorb part of population accumulation in different cities within the national planning. For this purpose, New Urban Communities Authority had been established by virtue of Law 59/1979 to serve as the responsible body for creating, administering, selecting sites, and preparing master and detailed plans of new cities. A development and construction map had been prepared for Egypt covering till 2017 including assignment of 24 new cities reflecting new urban communities aiming to absorb 12 million people which is 50% of the expected annual increase till 2017.

The new cities in Egypt are broken down in terms of sites and functions as follows:

- Satellite cities: which are located around and close to Cairo with a short and middle term objective of minimizing population density, and benefiting of the available basic structures such as services, and labor in attracting population, activities, creating new job opportunities, and economic elements that are associated with the mother city, such as 15th May, 6th of October (first generation cities), Badr and Obour cities (second generation cities). The aforementioned cities do not have an economic base, but they rather fully depend on the mother city. Eventually, this makes them turn into additional burden.

- Twin cities: which reflect an urban expansion into desert land; they are usually constructed adjacent to the existing cities. In some cases, they are considered a natural extension to the existing cities; such as for example new Damietta, new Beni Suef, new Minia (second generation cities), new Asuit, new Akhmim, and new Aswan (third generation cities). The aforementioned cities have their own economic and service base; nevertheless, they are closely connected with the twin existing city.

- Independent cities: which are located distant from the existing cities enough to support their independence. These cities are characterized with high absorptive percentages, an economic base that would – on the long term – allow them create around them independent economic entities serving as economic growth poles, and compiling different socio-economic activities. The said cities may stretch deep into the desert away from the valley's strip including for example; 10th of Ramadan, Sadat, New Borg el A`rab and Salhia cities (first generation).

**Most important pros of the new cities in Egypt**

- Urban expansion and stopping creeping over agricultural areas: Informal growth trend had continued over the urban border of Egyptian cities, yet, the 750 Feddan total area of the new cities would have been deducted from the cultivated areas in the Valley and Delta for urban expansion, in case the cities were not built (New Urban Communities Authority 2010).

- Industrial expansion and providing new job opportunities: New cities allowed a chance to set up industrial facilities because they provide the necessary areas required for establishing factories and their future extensions, and accessibility to internal and external marketing centers. Therefore, private sector's investments flowed massively to the new cities creating
additional national product to Egypt's industrial map. The new cities host 21 industrial zones with total area of 37,113 Feddan, number of productive plants until 31 December 2011 came to 5449 with a total capital of L.E 158 billion and total production of L.E 287 billion (Industrial Development Authority 2011).

Until the aforementioned date, the said factories provided 511 thousand job opportunities and the number of under construction factories came to 2967 which would provide 97 thousand job opportunities. (New Urban Communities Authority 2011).

- Providing housing: In 2011, total number of population in new cities came to 5 million which is expected to reach 17 million when the cities are completely grown. In 1980-2011, 1.2 million housing units had been implemented broken down as 350 thousand by the Authority and 850 thousand by the private sector and other entities. Currently, implementation of the Social Housing Program is underway and expected to implement 100 thousand housing units for the limited income category in the new cities. 155 thousand residential land plots had been allocated including 86 thousand for low and middle level scoring 62%, and 59 thousand plots for upper middle forming 38% (New Urban Communities Authority 2011).

Most important cons of new cities:

- Unemployed capacities in the housing area: Percentage of population attraction failed to attain the targeted numbers as more than 40% of the housing units were reported vacant in 1996. Several reasons stand behind this failing trend including: high rent, inadequate payment installment, in addition to the vacancy and non use of more than 25% of the commercial areas because of difficulty to perform commercial and public services as efficiently as needed (Cairo Demographic Center 2003).

- Burnt energies: Burnt energies are reflected in two main elements, human being and machine. People who reside in the new cities, especially 6th of October and 15th of May, are obliged to commute for their work. Most of the labor working in the industrial projects operating in the new cities come from other places. Therefore, movement rates of the means of transportation increase concurrently with the rise in commuters' rates causing an excessive energy consumption, and burden on traffic especially in rush hours. The problems of means of transportation is among the main problems hindering population movement to the new cities because public transportation only runs buses which are not sufficiently available in regular schedules forcing most of the residents to own private cars if they wish to move to those cities (Essam Al – Din 2003).

- Continuous housing crisis and problems of the existing cities: Although minimizing population pressure off the existing cities especially Cairo is an essential objective of creating new cities, however, housing problems grew more complicated. In this regard, the new communities failed to limit the population density reflected in 1450 person per Km² in 1990 compared to 1100 person per Km² in 1976. In other words, population density rose in the Km²
by an average of 25 persons per year during the period of creating new urban communities for the purpose of redistributing the population. New cities also failed in absorbing the immigration trend towards Cairo and Alexandria although most of the new urban communities are located in close proximity to those cities (Nagwa Ibrahim 2007).

- Slow population growth: The overall achievement image of new cities confirm that population growth is lagging behind. In this context, it failed to attain the targeted population. In the first phase of creating new cities – ten years – percentage of permanent residents stopped at 19.6% of the target. As such, total residents in 10 of Ramadan, 6th of October, 15 of May, Sadat, and new Borg el A’rab came to 162 thousand whereas the target was 825 thousand. The ratio of resident population to the target in the first phase differs from one new city to another. For example, it reached 100% in 15th of May, but only 7% in Sadat, 35% in Borg el A’rab, and 20% in the 10th of Ramadan and 6th of October. The accelerated growth rate of the 15th of May city is attributed to its adjacent location to a major industrial center in Helwan, whereby it became an attraction to huge labor, relative cheap prices of housing, in addition to many facilities provided to the residents compared to other places (National Specialized Councils 1993).

Table (1) below shows the population growth of the main new cities in Egypt. As shown in this table, in 1996, 16 years after constructing the new cities, 15th of May continued achieving the targeted population by 100%, Salhia by 90%, however, the percentage was 60% in 10th of Ramadan and Sadat, 44% in 6th of October, and only 14% in Borg el A’rab. It is observed that 6th of October is the most attracting city for residents whereby it scored a growth rate of 15.86% in 1966-2006 due to population settlement and natural increase. It should be noted, though, that the existing industries in the 6th of October are less size than those in the 10th of Ramadan which scored a growth rate of 10.16% during the same timeframe. In this regard, population size in the 6th of October came to 35 thousand in 1996 which rose to 155 thousand in 2006. In other words, it grew by five fold in ten years which entailed increasing the targeted population by 2017 from half a million to million and to 2.5 million for the same year coupled with changing 6th of October from a city to a governorate. As for 15th of May, it attained the lowest growth during this timeframe whereby it attained 3.3% growth rate, Salhia 8.2%, Sadat 10.08% and Borg el A’rab 10.65%.
Table (1) The population growth of the main new cities in Egypt

<table>
<thead>
<tr>
<th>City</th>
<th>Date of construction</th>
<th>Expected years of development</th>
<th>Expected population (thousand person)</th>
<th>Actual population (thousand persons)</th>
<th>Targeted population (thousand persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10\textsuperscript{th} of Ramadan</td>
<td>1978</td>
<td>20</td>
<td>80</td>
<td>47.833</td>
<td>125.920</td>
</tr>
<tr>
<td>15\textsuperscript{th} of May</td>
<td>1978</td>
<td>20</td>
<td>65.90</td>
<td>65.560</td>
<td>90.740</td>
</tr>
<tr>
<td>Sadat</td>
<td>1980</td>
<td>25</td>
<td>30</td>
<td>18.619</td>
<td>48.666</td>
</tr>
<tr>
<td>6\textsuperscript{th} of October</td>
<td>1980</td>
<td>20</td>
<td>80.40</td>
<td>35.354</td>
<td>154.093</td>
</tr>
<tr>
<td>New Borg el A`rab</td>
<td>1980</td>
<td>20</td>
<td>27.50</td>
<td>4.000</td>
<td>11.320</td>
</tr>
<tr>
<td>Salhia</td>
<td>1982</td>
<td>20</td>
<td>9.60</td>
<td>8.619</td>
<td>18.957</td>
</tr>
</tbody>
</table>


- Lack of sufficient attraction elements: The industrial activity serves as main activity of the new cities except for the 6\textsuperscript{th} of October which includes as well tourism activity. Specialized studies criticized activities of the industrial sector which lacks a settlement plan for industrial projects or setting up an economic base aiming to provide job opportunities and multiplying the regional income. Studies criticized as well the high capital intensified projects which are concurrently of low labor intensity. (Nawgwa Ibrahim 2007).

Image (1): 6th of October city luxury compounds beside the industrial activities attracting targeted population

Image (2): New Borg el A`rab city achieving to attract only 14% of targeted population after 16 years
- Failure to implement the original plan: Major changes affected the master plans of new cities creating several activities and usages outside the plans for the interest of groups who influence the decision making. As a result, the proposed growth trend had changed in some cities such as the case in the 6th of October, Sadat and New Minia cities whereby some of the agricultural reform areas designated to agricultural associations turned to residential areas due to insufficient water sources such as in Borg el A’rab city (Specialized National Councils).

- New cities' targeted size is Large: The new cities' strategy adopted an approach towards creating large sized cities which in turn placed a huge burden on the State to provide sources for funding infrastructure, services, and housing projects, which according to Stewart (1996) require a long time until it secures full settlement elements and achieve their objective.

- Lack of comprehensive planning of new cities: The new cities had not been constructed based on a comprehensive planning addressing the interrelation between new cities, inter traffic courses on one hand and traffic courses with Cairo on the other as well as the possibility for the new cities to contribute into solving urban problems of the existing cities. In this context, the new cities' policy had been adopted without conducting analytical studies to its socio – economic, environmental and administrative aspects. For example, 2017 Cairo planning is extended north to the borders of the 10th of Ramadan city (which is an independent city) whereby it is turned into another suburb of a 16 million people city. This stands as best example for the absence of a comprehensive structural planning. (Specialized National Councils 1993).

**Policies and mechanisms for creating sustainable cities in Egypt**

- The new cities should be developed in small or medium size with a population of 100-150 thousand that may rise to 250 thousand in exceptional cases in order to avoid funding problems, and accomplish an accelerated settlement. In this regard, small cities are easier in terms of construction, development and management compared to large cities. Furthermore, the new city size should be defined relevant to its nature, function, objective, site, economic
base, relation with the region, and planned job opportunities. However, the anticipated city growth should be taken into account based on the attraction factors and observe diversification of city sizes.

- Ensuring the highest level of independence and self sufficiency to the new city that should be founded on an economic base including income generating activities, maintaining economic balance, achieving comparative advantage, and optimizing its residents' attraction ability such as a major university, industrial zone, tourism activity or others.

- Preparing a feasibility study for the city development project prior to allocating the required investment in addition to taking into account leaving sufficient distance between the new and existing cities in order to avoid construction amalgamation as the case in the new cities close to Cairo that turned into suburbs. It is preferable to develop new cities near middle or small cities that have hinterland in order to meet the services needs of the new cities in the initial phases.

- Developing Egypt's urban development policy on the national level so that to be connected with the socio-economic plans. In addition, it is necessary to observe the comprehensive economic development in the comprehensive national plan of urban development prepared by the Urban Planning Authority. This will allow making structural changes in the distribution of economic activities and housing, while giving priorities to the role of new cities in developing areas associated with national security such as Sinai, and marginalized areas such as Halyeb, Shalateen, Nuba, poor areas in Upper Egypt and developing the Egyptian rural areas.

- Supporting low income housing which would motivate this category to immigrate to new communities. It is expected to achieve community balance, expansion of the consumers' base, providing economic housing subsidized by the State in new cities, streamlining the necessary funding to purchase housing units via credit facilities provided by the State and soft loans.

- Using economic tools for boosting businesses, and economic activities outside Cairo and Alexandria such as imposing taxes on the activities in Greater Cairo, banning to new projects' licensing, and concurrently granting exemptions in the new cities.

- Establishing renewable energy infrastructure in the new cities, using solar energy for desalinating sea water, operationalizing the needed mechanisms, collecting and treating liquid waste, re use treated liquid waste in tree and green belts planting around new cities, rationalization and effective management of water resources, collecting flood and seasonal rain water in addition to improving the management of liquid and solid waste by means of the collecting, treating and re using processes.

- Providing services adequate to all categories, diversified job opportunities sufficient to all categories specially women as an attraction tool to new cities as well as securing socio-economic returns for both the region and State. In addition, creating seasonal cultural and leisure attractive activities.
- Observing the local identity of the new communities as social relations serve as the framework governing community members' interactions, positive situation, stability and adaption of new communities.

- Conducting structural changes in the local administration system aiming to decrease the centralized decision making in Cairo, expanding the competencies and powers of the new city body in order to become first responsible about land planning, preparing and approving new city plans for the central administration.

- Developing partnerships among governmental bodies on the central and local levels on one hand and among civil society organization, private sector companies and NGOs on the other during all phases of new cities planning, implementation and management. This will be done through setting up a board of trustees for the new city comprising representatives of the city residents, labor, investors and municipalities.

- Regular evaluation and monitoring of the new city's performance, revising and updating plans of the urban development according to the performance evaluation and other developments that may take place.

References


Nagwa Ibrahim, 2007, Program of Decentralization and Issues of Municipalities. Center for Public Administration Studies and Consultancies, Cairo University, Faculty of Economics and Political Sciences.