Smart Growth and Transit Oriented Development (TOD) Policies Approach towards Achieving Egypt's 2030 Vision of Sustainable Urban Development

[1]Dr. **Mohamed M. Youssef Ibrahim**

[1]Cairo University, Faculty of Urban and Regional Planning, Urban Planning Dept., Cairo, Egypt
E-mail[1]: drmmyoussef@icloud.com

Abstract

Egypt's Vision 2030 for sustainable urban development considers as the most two important government documents that are released in 2017, the represent the major urban challenges in the next 12 years as it draws clearly the future or urban development and how achieve balance between urban areas and natural and physical resources. The document which is released and announced in 2017 focused on a number of important sustainable issues such as; decentralization of social services to prevent internal immigration, expanding the execution of media awareness programs to encourage migration from the current inhabited areas to the new development areas and the economic incentives accompanying such migration (official website www.sdsegypt2030.com). This paper discusses and analyze the relevant concepts of smart growth that could be useful for executing the future vision of sustainable urban development in Egypt, the paper reviews the proposed 2030 sustainable urban development vision and the policies suggestions, and discusses how smart growth and transit-oriented development (TOD) policies could contribute to achieve such ambitious urban strategies.

Keywords: Egypt 2030 vision, sustainable urban development, smart growth, transit-oriented development (TOD).

1. Introduction

Smart Growth and transit Oriented Development (TOD) are became one of sustainable development main streams in the last two decades and proved to be effective and delivering sustainable communities. This paper suggests TOD policy as a suitable approach that meets the goals of Egypt's 2030 sustainable urban development vision by reviewing TOD policy perspectives and the nature of urban development corridors enlisted in Egypt Urban Policy 2030 and how it can be integrated to deliver the sustainable urban development vision in terms of urban program priorities and what are the pre-requisite to achieve sustainable communities in the next 12 years. The paper structure in two major parts. The first part analytical review of Egypt Vision 2030 goals to summarize the key issues related to smart growth and TOD. The second part is reviewing the theoretical framework of smart

growth and sustainable communities concepts in spatial planning and how it contribute to Egypt's 2030 sustainable urban development vision.

2. A review of Sustainable Development Strategy: Egypt's Vision 2030

The Sustainable Development Strategy: Egypt Vision 2030 represents a fundamental step in Egypt's extensive development, the strategy is particularly important in the circumstances prevailing in Egypt, which require revision of development goals in order to keep up with current and future needs and to develop better solutions to deal with them. This should enable Egyptian society to move into the ranks of developed countries and achieve the desired targets for the country. In this regard, the strategy has identified its vision as the following : *"By 2030, Egypt will be a country with a competitive, balanced, and diversified economy, depending on knowledge and creativity, and based on justice, social integration, and participation, with a balanced and varied ecosystem, a country that uses the genius of the place and the citizens in order to achieve sustainable development and improve the quality of the life for all. Moreover, the government looks forward to lifting Egypt, through this strategy, to a position among the top 30 countries in the world, in terms of economic development indicators, fighting corruption, human development, market competitiveness, and the quality of life."*(MPMAR, 2017).

2.1 Egypt's Urban Development Current Situation

Due to the increase in the rate of rural to urban migration, the current inhabited areas have reached its vital capacity and population saturation. The increase of population and urban densities, the lack of-provision of new areas to accommodate the population's growth has resulted in the deterioration of the urban environment quality due to environmental pollution, traffic congestion, decrease of green spaces, as well as the spread of random construction on the most fertile agricultural lands (MHUUC, 2014). The housing system in Egypt has suffered from poor distribution that resulted in an overflow in middle- and high-income housing and deficiency in low-income housing with an amount estimated at 2.5 million residential units. The State's efforts during the past years resulted in significant progress in covering drinking water services, in both urban and rural areas, in which the percentage of coverage has reached 90% of citizens. There is, however, a geographical misdistribution of such services, as coverage in rural areas is less than urban areas with approximately 10% (CAPMAS, 2014). Safe sanitation services still need development, as the percentage of sanitation service coverage did not exceed 50% of total population and there is a great gap between the coverage in urban areas, which reached approximately 79%, compared with the coverage in rural areas, which reached only 12%. The percentage of users of public transportation modes in Egypt decreased compared with those in more developed countries, which resulted in harmful environmental effects represented in air

pollution, increased carbon dioxide emissions, and traffic congestion in urban centers (MHUUC, 2014).

2.2 Egypt's sustainable development concept fundamentals

The strategy has adopted the Sustainable Development Concept as a general framework, meant for the improvement of the quality of life in a way that does not affect the right of following generations for a better life. Hence, the development concept adopted by the strategy is based on three main dimensions: economic, social and environmental dimensions. Furthermore, the strategy is based on the concepts of sustainable and inclusive growth and balanced regional development, ensuring the participation of everyone in the process of building and development for the benefit of all the Egyptians from the outcomes of this development. Three major dimensions of sustainable development, the strategy includes ten dimensions:

1. The Economic Dimension comprises the pillars of economic development, energy, innovation, scientific research, and transparency and efficiency of institutions.
2. The Social Dimension involves the pillars of social justice, education and training, health, and culture.
3. The Environmental Dimension includes the pillars of environment and urban development.

2.3 Strategic Objectives for Egypt Sustainable Urban Development 2030

Egypt's vision of sustainable development "A balanced spatial development management of land and resources to accommodate population and improve the quality of their lives". The strategic objectives for urban development are to approach the critical issues regarding how to accommodate the inhabited areas for future anticipated population growth, priority urban issues. The strategic vision of urban development can be summarized in figure 1.

Objective	Definition
Increase inhabited areas in a way that is suitable for the accessibility of resources, size, and distribution of population	This objective approaches on determining the scope of spatial development that can accommodate the anticipated population growth in the upcoming years. This objective is divided into TWO parts: First Part: achieve balance in population distribution in current and future inhabited areas; Second Part: maximize impact of development in new areas to ensure their capability of attracting and including population growth
Improve the quality of the urban environment	This objective focuses on improving the quality of current and future inhabited areas, in addition to the treatment of aggravating and critical housing issues
Maximize utilization of the strategic location of Egypt,	This objective focuses on achieving the optimal benefit from Egypt's distinguished geographical location, as compared with other countries worldwide, through increasing Egypt's

Figure 1: Egypt 2030 strategic vision of sustainable urban development (MPMAR, 2017)

2.4 Crucial challenges of sustainable urban development in Egypt strategy 2030

- Lack of motivating policies to encourage settlement of population in new development areas. Lack of adequate motivating policies, especially economic policies, to encourage population to move from current inhabited areas to new inhabited areas, especially at the first executive phases, which are known for low occupation rates.
- Lack of accuracy and conflict in data of urban communities. Lack of a unified mechanism and clear standards for measuring information related to urban communities from concerned bodies results in conflict in official numbers from different authorities, which makes decision making difficult.
- Lack of efficiency in planning housing projects for low-income classes. The State distributes social housing projects according to population distribution and not according to the actual gap in geographical demand, which results in inconsistency between implementation and real needs.
- Lack of a political interest or incentives for green or sustainable construction. This increases the spread of traditional and non-sustainable methods.
- Scarcity of green spaces in urban areas. Lack of designing and activating sustainable management systems for green spaces ensuring their existence in good condition.
- Unsuitability of urban planning of new urban communities for its special environment nature. The planning of new urban communities lacks consideration of the special environment nature, climate, spread of dust, and their distance from urban centers, which reduces population attraction.
- Non-integration of social, cultural, and economic services that aim at building an integrated and sustainable community.
- Quality deterioration in public transportation.
- Weak public transportation capacity.
- High cost of living in new urban communities. Increased prices of commodities, services, and transportation in new areas .
- Public culture is towards internal immigration to urban centers and not to new urban communities.

Key Elements:

- Adopting policies in order to make new development areas more attractive to population and economic investments to ensure achievement of the desired rates of settlement.
- Providing the necessary governmental services in new urban communities to achieve decentralization and support population settlement, inhabitants of new urban communities will not need to be connected with their original urban centers to obtain the governmental services that they need.
- Expanding the execution of media awareness programs to encourage migration from the current inhabited areas to the new development areas and the economic incentives accompanying such migration.
- Setting policies for connection of job opportunities in new urban communities to residence in such communities to ensure achieving the concept of settlement.
- Setting policies for making overpopulated urban centers less attractive to population and investments.

2.5 Egypt's 2030 Sustainable urban development programs concerning sustainable communities

There are four major programs define Egypt's concerns of how the state image sustainable communities outside the Nile valley. These programs identify the major pillars of how to achieve new sustainable communities, they can summarized as follow;

Key Elements:

- Execute a project for increasing numbers of means of mass transportation in cities while increasing dependence on the private and non-governmental sector in provision of such services
-- Support roads with modern technological tools to monitor roads and traffic flow in order to enable responsible authorities to raise planning efficiency and manage traffic congestion in a better way.
- Adjust regulations and laws for increasing the quality requirements of means of mass transportation for private and non-governmental sectors
- Develop a national database to calculate numbers of users of modes of public transportation

1. Encourage population settlement in the new development areas: This program addresses overpopulation in current residential areas through the provision of the necessary policies and mechanisms for encouraging settlement of population and investments in the new urban areas.

2. Encourage the spread of green and sustainable building methods: this program aims at merging preservation of the environment with urban development through following green building methods
3. Increase the capacity and quality of means of public transportation in cities: This program aims to improve the quality of the urban environment in governorates through increasing citizen dependence on modes of public transportation

2.6 Egypt 2030 vision sustainable urban development key performance indicators

The ambitious program prepared a group of key performance indicators to monitor the urban develop**m**ent programs , a major twelve key indicators which are as follow;

No.	Indicator	Measurement Authority	Liable Authority	Participant Authority
1	Rate of population settlement as compared to what is aimed at in new urban communities	• New Urban Communities Authority	• Ministry of Housing, Utilities and Urban Development	• Industrial Development Authority • General Authority for Reconstruction and land reclamation • Tourism Development Authority
2	Housing gap indicator	• Ministry of Housing, Utilities and Urban Development	• Ministry of Housing, Utilities and Urban Development	• Private sector • Municipalities
3	Increase the rate of those using modes public transportation	• Ministry of Transportation	• Ministry of Transportation	• Ministry of Planning, monitoring and administrative reform • Ministry of Finance
4	Individual's share in green landscapes in cities	• Ministry of Local Development, • Ministry of Housing, Utilities and Urban Development	• Ministry of Local Development • Ministry of Housing, Utilities and Urban Development	• Ministry of Environment • Municipalities

No.	Indicator	Measurement Authority	Liable Authority	Participant Authority
5	Rate of reducing encroachments on agricultural lands	• Central Agency for Public Mobilization and Statistics	• Ministry of Housing, Utilities and Urban Development	• Ministry of Agriculture and Land Reclamation
6	Egypt's rank in Global Connectedness Index Report (DHL)	• DHL	• Cabinet	• Ministry of Transportation • Ministry of Tourism • Ministry of Trade and Industry • Ministry of Communications and Information Technology • Ministry of Investment • Ministry of Housing, Utilities and Urban Development
7	Number of Egyptian citizens in Globalization and World Cities (GaWC) Index	• GaWC	• Cabinet	• Ministry of Transportation • Ministry of Tourism • Ministry of Trade and Industry • Ministry of Communications and Information Technology • Ministry of Investment • Ministry of Housing, Utilities and Urban Development
8	Urban area growth rate	• National Authority for planning to use states' territories	• Ministry of Housing, Utilities and Urban Development	• Municipalities
9	Area of lands added to Egyptian inhabited areas	• National Authority for planning the usage of states' territories	• Ministry of Housing, Utilities and Urban Development	• Industrial Development Authority • General Authority for Reconstruction and land reclamation • General Authority for Tourism Development
10	Rate of reduction in	• Fund of informal settlements	• Fund of informal settlements	• Ministry of Housing, Utilities and Urban

3. A critique of Egypt's 2030 sustainable urban development vision

The review of the 2030 vision revealed a number of advantages and disadvantages that could face the implementation of that ambitious vision. It lacks of major sustainable policies and instruments that could help achieving that vision. There are number of issues needed to be address in that vision which are;

1. Phasing: the vision lack a clear and neat phasing procedures and a tight schedule plan taking into consideration that vision only have 12 years span of time. In addition the vision is very ambitious notably the finance resources need to execute that vision.
2. The vision lacks the sort of incentives and initiatives that will encourage residents to move towards new communities, the housing market in the last 5 years has witnessed a booming in both meter square price and units area that lack affordability for more than 67 % of households.
3. No clear adaptation of sustainable urban development policies and instruments to face transportation problems in both existing cities and new proposed cities.
4. The vision lacks conceptual framework of the spatial configurations desirable for new communities in both total population densities and community spatial size.
5. The vision's fundamentals are based on big agglomeration new communities which is contradicts with sustainable communities theoretical urban form and efficient population size
6. The new capital' masterplan which is 60 kilometers away from Cairo indicates a number of features contradict with eco system such as the green river in a huge large area that need a tremendous amount of irrigation water, the urban design of cities neighborhoods is not based on urban planning regulations and optimization but is more piecemeal foreign urban design trends that not suitable for arid zone climate.
7. The clear focus on the new communities media propaganda and the obvious neglection of urban management policies of existing cities is a clear disadvantage of the 2030 vision.
8. The vision didn't identify the economic functions of new communities and the social target group that are needed, in addition the type of jobs and critical estimation of number of jobs will the vision provide by the year 2030
9. The 2030 vision is ambitious and has a good intentions of better urban development future but lacks integration with an overall systematic long term urban policy
10. The concept of public transit is introduced which is a further step for creating sustainable means of transportation in the near future which will help of targeting sustainability principles

The previous critique's purposes is an attempt to clarify how the 2030 vision can succeed to address sustainable urban development targets . the next part of the paper is discussing the fundamentals of sustainable urban development good practice which can help to integrate these theoretical ideas with the 2030 vision of sustainable urban development in Egypt

4. Sustainable urban development concepts that contribute ideas to better Egyptian future urban development vision

The general review of Egypt 2030 Urban Development Vision indicated a number of issues absent to policy makers but yet they are very crucial for a successful sustainable communities. The next part spotlights the major policies and interventions tools that could help the Egyptian policy makers to reformulate the vision according to the principles of smart growth and its related policies that can create a better new sustainable communities in Egypt 2030.

4.1 Smart growth and sustainable city theoretical framework

A city is an artefact environment, where aspects of the natural environment have already been sacrificed for the creation of urban agglomerations. This rupture of the natural environment by the city makes describing a "sustainable city" difficult. The more common interpretation of a sustainable city as a city in which aspects of the natural environment are given first priority in urban policy is a limited interpretation. Haughton and Hunter describe a sustainable city as "one in which its people and businesses continuously endeavor to improve their natural, built and cultural environments at neighborhood and regional levels" (Haughton and Hunter 1994, p: 68).

Nijkamp & Opschoor (1995) have defined a "sustainable city' as a city-region in which negative effects stemming from the interaction of the three different environments, i.e. physical, social and economic are kept within certain threshold conditions associated with the urban carrying capacity" (Camagni et al., 1998, p:106). Nijkamp and Opschoor (1998) define urban sustainability as "a development which ensures that the local population can attain and maintain an acceptable and non-declining level of welfare, without jeopardizing the opportunities of people in adjacent areas."

As noted above, the various definitions of sustainable cities suggest that three aspects lead to sustainable cities: the economic, the social or cultural and the physical environment. These aspects are the challenge for planners because they require careful policies to handle sustainability in a more integrated form. Consequently, sustainable city policy requires a multi-faceted strategy in which socio-economic interests are brought into harmony with environmental and cultural interests. Such ideas were already advocated more than two decades ago by Kevin Lynch in 1981, who claimed: " The good city is one in which the continuity of this complex ecology is maintained while progressive change is permitted." Lynch suggests five dimensions for judging such an urban quality: vitality,

sense, fit, access and control. The empirical application of such principles requires careful study to succeed.

4.2 What is Smart Growth

The urban form of a city is an important factor for achieving sustainability because the shape of the settlement pattern determines the patterns of private transport, fuel consumption and emission, and public transport. Breheny and Rookwood (1993) argued that the urban form might affect the rates of conversion of land from rural to urban. The urban form at all scales may be a significant determinant of sustainability. An environmentally desirable urban form may be seen as less desirable in economic and social terms, but Roger (1998 p: 17) argues that mixed land uses can be acceptable within the successful sustainable urban neighborhood. Adding to this, there is a conflict between high urban densities and the desire to green the city, therefore urban form and sustainability are linked in principle (Breheny and Rookwood, 1993). It is possible to argue that some types of urban form are more sustainable than others. It has already been debated that compact cites have a big advantage in terms of saving energy and reducing automobile dependence by Elkin et al. (1991) and Breheny and Rookwood (1993), however, others argue that compact cities have their own downfalls, such as the acute impacts of pollution and other hazards on neighboring activities (Ewing, 1997).

The compact city model represents a strategy to control urban growth , three characteristics of urban form that make many other dimensions of local sustainability more feasible. These three aspects are public transit, walkable places and energy efficiency. However, these three policies are focused on the urban core and new development (Meadows et al, 1992).

Smart growth policy is providing affordable housing through land-use designation policies. The smart growth aims to support compact and transit-oriented development. The land-use policies allow for mixed use spaces and no maximum residential densities, which help to achieve a compact city. In addition, the policy allows for increased densities in sites near transit stations which encourages the need for new housing and related services and supports public transportation.

4.3 What is transit oriented development TOD

During the past decades Transit-Oriented Development represented a fundamental rethinking of the consumer preferences and for the location of uses or transportation strategies. As a mean of promoting smart growth, TOD infuses vitality and lifestyle choices. In most of the cases Transit – Oriented Development emerged as a consequence of the important makeover of tram into the sophisticated and modern light rail system. This transportation system is designed to keep people away from their own cars in the favor of public transport use (Figure 2). Typically, the definition of TOD is following a straight descriptive line based upon the mix of uses, the densities and the vicinity of public transport

(Gilbert and Ginn, 2001). TOD emphasize high density and mixture of uses, while for others the alternative public transportation system weights more to the disadvantage of the mass diffusion of automobile. Most of them strive for a high quality sustainable environment and a livable, active community.

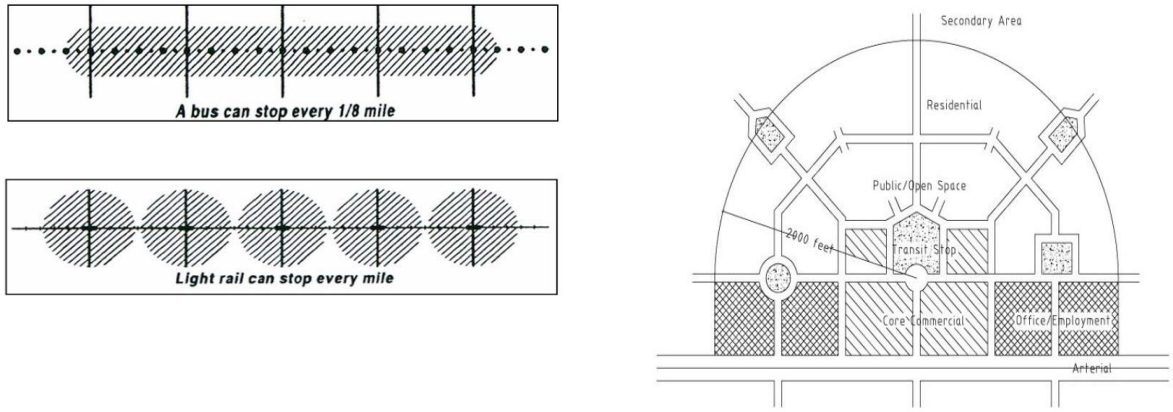

Figure 2: Land use distribution in a typical TOD node and theoretical planning of nodes along a transit line (Calthorpe, 1994)

4.4 Smart Growth and Transit Oriented Development policy interventions

To guide the city towards urban sustainability, the literature discusses two main fields of intervention policy – technology and territorial, of which the former is more common. A reduction in polluting technologies keeps environmental pollution under control through less polluting transport and heating systems, and through a generally more efficient use of energy. In this way, input substitution becomes the short-term aim of urban sustainability policy through a lower use of polluting and energy intensive technologies (Nijkamp, 1996). Technology is not the only field where urban sustainability policies are required. In the past few years, several attempts have been made to identify optimal structures of urban form that would minimize energy consumption and environmental pollution. The territorial form of an urban system, and the organization of its activities in space, is a second field of intervention that may lead towards urban sustainability. For example, the ‘compact city' idea promotes the reduction of trip length and thus energy use. Breheny (1992) suggests that sustainable development requires a systematic identification and analysis of alternative urban configurations and a critical judgement of such options, as excessive urban density is equally undesirable. In the long term, a change in urban form may become the goal of urban sustainability policy. In fact, mobility patterns change substantially only in the presence of a change in urban locations and land-use patterns. Urban planning researchers recognize that regional and urban development planners generally ignore environmental interests, especially in the cities of developing countries, and normative guidelines, such as carrying capacity and regenerative capacity norms (Nijkamp, 1996).

A third field of possible policy intervention is personal 'life-style'. In developed countries, the present lifestyle results from increased per-capita income and energy prices that do not include the full social costs of energy use. Private car ownership is on the rise, as well as the density of electrical appliances per family. Sustainable policies would influence these habits. For example, a differentiated price of electric energy at certain hours of the day would influence energy use for private needs in peak hours. If these are short-term policies, long-term ones should try to orient structural changes in social behavior, encouraging more environmentally oriented attitudes. However, in developing world cities, low per-capita income and high social-class disparities determine a different lifestyle that is oriented towards daily survival and influenced by less access to basic social services such as education, health and sanitary infrastructures. All these services allow people to change their habits, to raise their standard of living, and to avoid environmentally damaging social behavior (Button, 1992).

5. The Importance of Sustainable transportation planning in urban context

Transportation systems have been a powerful force in determining the form of cities. Automobiles have accelerated the urban growth trend, because they have allowed people to reach the city periphery in a short time. Consequently, new towns and satellite communities have existed in metropolitan areas as an answer to the high density in the core city coupled with the availability of a good transportation network. However, later, conflicts became apparent between transportation growth and land use and the environment in the urban context. The city faced problems such as traffic congestion, air pollution due to daily car usage, daily commuting, generation of noise pollution, roads and parking area shortages, severe limitation of walking and cycling, public safety, etc.

An example of this public transit policy is the Curitiba public transit experience (Box 1). The city pioneered the idea of an all-bus transit network with special bus-only avenues created along well-defined structural axes that were also used to channel the city's growth. The transit system is rapid and cheap, and is currently being integrated with the metropolitan region. Its efficiency encourages people to leave their cars at home. Curitiba has one of highest rates of car ownership in Brazil, and high population growth – yet auto traffic has dropped substantially. Curitiba has the highest public ridership of any Brazilian city (about 2.14 million passengers a day), and it registers the country's lowest rates of ambient pollution and per capita gas consumption. In addition, an inexpensive "social fare" promotes equality, benefiting poorer residents settled in the city's periphery. A standard fare is charged for all trips, meaning shorter rides subsidize longer ones. One fare can take a passenger 70 kilometers.

Box 1: Transportation planning in Curitiba (Rabinovitch and Leitman, 1996)

Sustainable Curitiba

To accommodate the growing population over the past 30 years, the system has grown to utilize varying types of bus services that cater to the needs of passengers within the metropolitan areas and surrounding municipalities. The Integrated Transport Network, is designed to allow the passenger to make travel arrangements to a certain destination without paying more than one passage within the metropolitan area. This integrated system connected by tube stations and terminals also incorporates an express bus system that serves as a surface subway for the city of Curitiba whose foresight in urban planning has demonstrated positive results. Brazil's first pedestrian network in the center of the city was commenced in 1971. However, the most significant changes in the transportation system were taken in 1974 with the creation of the road hierarchy and land control system (Rabinovitch and Hoehn, 1995). In coordination with the Master Plan, they began to construct the first two out of five arterial structural roads that would eventually form the structural growth corridors and dictate the growth pattern in the city. These structural corridors were composed of a triple road system with the central road having two restricted lanes dedicated to express buses. Parallel to the express bus lanes were two local roads running in opposite directions. They allowed local traffic to pass through the city. In 1982, all five structural corridors were completed with inter-district and feeder lines. In accordance with these structural roads, zoning laws were set in place to structure the growth of the city. Large buildings holding a high density of people were permitted to be built along these corridors, but as one moved away from these central corridors, the admissible densities declined from urban apartment buildings to residential neighborhoods (Rabinovitch and Leitman, 1996).

6. International best practice of smart growth and transit oriented development

In order to curb urban growth, planners seek policies such as compact urban growth as in the case of Portland Oregon and the Greater Vancouver Region. Greater Vancouver's strategy focuses on achieving a compact metropolitan region: the plan avoids wide dispersed spatial form and accommodates a significant proportion of population growth within the "growth concentration area" in the central part of the region. The urban growth policy is to curb urban growth by concentrating future growth around regional centers, while also providing mass transit to connect these regional

centers in order to provide accessibility and avoid private automobile dependence (Wheeler and Beatley, 2004). The polycentric urban structure is supported by Calthorpe in the Transit-Oriented Development (figure 3). He describes pedestrians as "the catalyst, which makes the essential qualities of communities meaningful" (2004, p: 76).

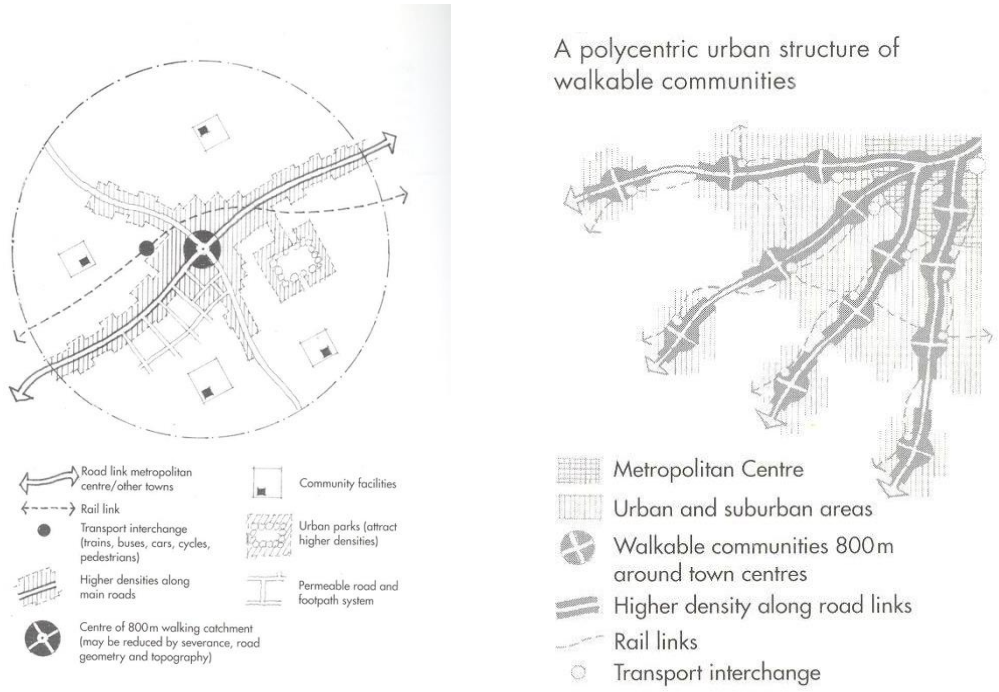

Figure 3: A polycentric urban structure of walkable communities and attributes of a walkable community (Clark, 2003)

In addition, urban growth should be planned in parallel with land uses. It is important to address land-use planning issues in relation to urban growth. The efficiency of allocating land use in the spatial context, such as industrial areas and commercial activities, are attracting poles to new housing development. Integration of transport and land use such as in the case of Curitiba, described earlier, where urban planners realized that transportation, land use and road systems can be used as integrative tools of development is in compliance with these guidelines. In the 1970s, zoning laws were set in place and Structural Avenues were designed to direct linear growth by attracting residential and commercial density along a mass transportation lane. In 1974, the main mass transit line began to operate along those avenues.

7. Major lessons to achieve Sustainable communities to implement Egypt's 2030 urban development vision

To adopt the very fundamentals of the sustainable urban development concept as the guidelines for defining sustainable communities:

- Conservation of biodiversity and ecological integrity (including halting the non-evolutionary loss of biodiversity)
- Smart growth is the key element to create more sustainable new communities, it should be coupled with land uses management
- Ensuring intra-generational (within generations) and intergenerational (across generations) equity
- Transportation planning is essential when managing urban growth, public transit and alternative solutions should be introduced as an incentive for population to move to new communities
- Egypt 2030 in need of a smart growth management and TOD such in the case of connecting Cairo with new capital but in the same time cautions should be taken of a big agglomeration, in that case transit oriented development could be one solution to avoid vast urban growth
- Managing water resources such as in New Capital Green River which can consume the water resources. In that case, negative impact could occur in the degree of sustainability of proposed settlements
- The objective of urban sustainability is not to win or lose and the intention is not to arrive at a particular point.
- Success is determined retrospectively, so the emphasis in planning should be on process and collectively considered, context-related progress rather than on achieving remote targets. A key measure of progress is the maintenance of a creative learning framework for planning.

Conclusions

Egypt 2030 strategy has adopted the Sustainable Development Concept as a general framework, meant for the improvement of the quality of life in a way that does not affect the right of following generations for a better life. There are number of issues needed to be address in that vision which are for example; phasing of strategy, lack of detailed incentives and initiatives to encourage residents to move towards new communities, No clear adaptation of sustainable urban development policies and instruments to face transportation problems in both existing cities and new proposed cities. The 2030 vision is ambitious and has a good intentions of better urban development future but lacks integration with an overall systematic long term urban policy. The concept of public transit is introduced which is a further step for creating sustainable means of transportation in the near future which will help of targeting sustainability principles. Smart growth and transit oriented development proved to be sound policies and instruments to achieve sustainable communities. providing these settlements with jobs

and activities can achieve the spread of urban population from the 10% concentration of land to the 90 % vacant land. The 2030 strategy is very ambitious and full of good intentions but reformulation of the strategy is essential in terms of settlements population size and urban planning spatial configuration. It should have a very realistic urban strategy that can achieve more sustainable new communities rather than big agglomeration media propaganda new communities. It should concentrate creating a small size new communities network and connected with the right public transit. It is necessary to envision Egypt 2030 sustainable urban vision as one integrated strategy that considers smart growth and transit oriented development as adoptive policy to create future Egyptian urbanism.

References

Breheny, M (1992) Sustainable Development and Urban Form, London: Pion Limited.

Breheny, M and Rookwood, R (1993) Planning the Sustainable Region, in Planning for a Sustainable Environment, Town and Country Planning Association, edited by Blowers, A, London: Earthscan, pp. 150–190.

Button, K J (1992) Transport Regulation and the Environment in Low Income Countries, Utility Policy, 25 (4): 248–257.

Calthorpe, P (2004) The Next American Metropolis, in Sustainable Urban Development Reader, edited by wheeler, M and Beatley, T London: Routledge, pp. 73–81.

Camagni, R Capello, R and Nijkamp, N (1998) Towards Sustainable City Policy: an Economy-Environment Technology Nexus, Ecological Economics, 24(1): 103–118.

Central Agency for Public Mobilization and Statistics (CAPMAS), 2014

Clarke, P (2003) Urban Planning and Design, in Sustainable Urban Design, An Environmental Approach, edited by Thomas, R, London: Spon Press, pp: 345-376.

Cullingworth, J B and Nadin, V (2002) Town and Country Planning in the UK, 13th edition, London: Routledge.

Elkin, T (1991) Reviving the city: Towards Sustainable Urban Development, London: Friends of the Earth.

Ewing, R (1997) Is Los Angeles-style Sprawl Desirable, Journal of the American Planning Association, 63(1): 107–127.

Gilbert, D. and S. Ginn. *Transit Oriented Sustainable Development.* Queensland Department of Public Works for: The National Taskforce on Promoting Best Practice in Transport and Land-Use Planning, August 2001

Haughton, G and Hunter, C (1994) Sustainable Cities, London: Jessica Kingsley Publishers.

Lynch, K (1981) A Theory of Good City Form, Cambridge: MIT Press.

Meadows, D H, Meadows, L D and Randers, J (1992) Beyond the Limits, Toronto: McClelland & Stewart

Ministry of Housing, Utilities and Urban Communities, The Current Situation of Water and Wastewater Sector, 2014

Ministry of Housing, Utilities and Urban Communities, The Current Situation of Water and Wastewater Sector, 2014

Ministry of Planning, Monitoring and Administrative Reform Cairo, MPMAR, Egypt 2017

Nijkamp, P (1996) Improving Urban Environmental Quality: Socioeconomic Possibilities and Limits: Urban Poverty in Asia, New York: Oxford University Press.

Nijkamp, P and Opschoor, H (1995) Urban Environmental Sustainability: Critical Issues and Policy Measures in a Third world Context, Urban Policies in Third World Countries, New York: MacMillan.

Rabinovitch, J and Leitman, J (1996) Urban Planning In Curitiba, in The Sustainable Urban Development Reader edited by Wheeler, M and Beatley, T, London: Routledge pp: 150-169.

Roger, R (1998) The Urban Task Force: Towards Urban Renaissance, www.urbantaskforce.org (last accessed in December 2019)

Wheeler, S and Beatley, T (2004) The Sustainable Urban Development Reader: Urban Reader series, London: Routledge.