

Sustainable Strategies to Rehabilitate the Built Environment for Urban Communities

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ABSTRACT: Recently, many new concepts such as design, environmental planning, sustainable urban development and environmental management of resources have emerged, these concepts have become a national trend in most countries of the world because of their great importance and distinct economic returns, and therefore the study in the research deals with the concept of sustainable urbanization and the most important strategies and principles of urban development Sustainable, and dealt with an example of a sustainable city that applied the strategies and principles of sustainability (the city of Singapore) as an example of a distinct urban community and a sustainable city located on the ground by applying the principles and principles of sustainable environmental design and planning for cities.

KEY WORDS: built environment - sustainable urbanization - green economy - sustainable urban communities.

I. INTRODUCTION

Man's presence on Earth is linked to his rehabilitation and rebuilding of the Earth. The human being can be considered a component of the ecosystem and the environmental field because it occupies a special and distinct place in its relationship with the environment, as it is the most influential neighborhood in the environment. The relationship between man and the natural milieu is considered one of the most important determinants of the environment, as the natural milieu was created to extend aid to man and that the relationship between nature and man in the early stages of its history was a relationship of harmony, harmony and close association. After nature was a source of meditation, knowledge, harmony, love and benefit from good and giving, the perception changed. To nature with modern science, especially with the emergence of industry that made man interfere in nature as a subject of his activity and control as he sought to change and adapt it to meet his aspirations. This led to unjust exploitation of natural resources and excessive depletion of these resources without taking into account the side effects that hit the land and negative changes in its composition Which led to an imbalance in the environmental balance, so the research study deals with the concept of sustainable urbanization and the definition of sustainable urban planning and clarify that it is a tool and a technical, economic, engineering and scientific means to achieve the public interest of all sectors and groups of society through the development and drawing of visualizations and scientific and planning visions of future conditions by distributing services and multiple activities And land uses in the right place and at the right time in a way that achieves a balance between necessity The development needs of the present and the future, on the one hand, and the development needs of distant future generations, on the other hand.

II. RELATED WORK

Research problem:

The problem of the research is summarized by the incompatibility between urban design and planning in its current concept of cities with the requirements of urban sustainability in light of natural, urban, social, economic and environmental factors, the lack of a clear methodological quality for sustainable environmental planning in new Egyptian cities and the lack of a sustainable organization in dealing with natural resources and their management, so the study came in research To address an integrated environmental approach and a clear methodology for reaching a sustainable new urban approach without isolation from economic conditions and crises.

The aim of the research:

Reaching a scientific methodology that includes sustainable planning principles, criteria and foundations that achieve sustainable urban development in order to reach a new sustainable urban community.

III.SUSTAINABLE URBAN DEVELOPMENT

Intended for sustainable urban development: It is to improve the quality of life in the city. This includes, in addition to the urban aspect, the environmental, cultural, political, institutional, social and economic aspects without leaving burdens for future generations, and these burdens are the result of depleting the main resources. [1]

IV.SUSTAINABLE CITIES

Sustainable cities are defined as places and societies whose residents want to live and work in now and in the future and they are sustainable due to the fact that they contain the societal infrastructure, opportunities and capabilities that their residents need and make them feel a sense of belonging, commitment and work to the welfare of their community and these societies are sustainable because of their ability and economic efficiency that secures the population needs of the population According to their different groups and abilities[2] .

V.PRINCIPLES OF SUSTAINABLE CITY PLANNING

The association of sustainable development with all current branches of science has made thinkers renew their principles of science, and among these sciences is the science of planning and modern urban design, for which rules and principles have been established that are consistent with modern theories and ideas. Among these new principles and rules are the following:

1. Achieving compatibility with nature:

This is through the compatibility of the city with nature, as nature has an influential role in the urban formation and the preservation of the identity of the place and its resources. It is undoubtedly framing the variables of urbanization in line with the nature of the formation of the land through self-control in managing the inputs and outputs of the natural system with the least amount of negative impacts on the environment And power consumption.

2- Achieving coherence between the elements of the urban scale:

The urban scope is a group of elements and components, including building elements, site elements, and objective elements, as well as infrastructure elements in relation to the infrastructure and the dynamic of interdependence in the relationship between the elements that constitute the environmental vitality of the urban scope.

3- Stopping the economic waste of the possibilities of construction:

Through resorting to maximizing the benefit of buildings and voids and not relying as much as possible on the surrounding environment in order to attract the sources of life and that the formation and development processes take place with minimal effort and maximizing the benefits and return by investing the least amount of energies and efforts and exchanging benefits between the natural resources made for urban ranges .

4- Meeting human needs:

- The urban planner must make sure that the basic needs of the person are not hindered by environmental features, and many of the debate discussed the interpretation of human needs at the level of housing or emptiness as a general human content and some of them differed in the interpretation of those needs, but Maslow's model remained as the best vision for this topic and based on The Maslow model can be divided into two basic groups .
- physiological needs: such as the need to maintain the life and the need for health and the need for growth and the need to rest .
- Psychological and social needs: such as the need for security and safety, the need for a sense of belonging, self-esteem and knowledge, and the need for beauty . [3]

5-Planning sustainable hubs:

- Traffic and mobility networks in the urban sphere are of two importance: the first is the link and link between traffic system types (automatic and pedestrian), and the second is the determination of the locations of activities in the urban areas: [4] .
- reducing dependence on private cars in favor of the development of public transportation .

- Support the exploitation of pedestrian paths and connect them to each other to be a network connected and have a high degree of safety and provide opportunities to use other clean surface transportation such as bicycles and others .
- Taking into account the gradient in the levels of the movement paths, the lengths of the tracks and their widths, and distinguishing the tracks according to the different elements of the blanks of space, according to the distribution of the expected uses and traffic densities
- Strengthening access and choosing the appropriate means of transportation for each place depending on the scale of the scheme.
- Control pollution emission from automatic means of transportation whenever possible

6-Preserving the natural environment and urban heritage:

By preserving the natural elements and forming the earth Land form And follow the development and rehabilitation policy for the existing urban environment instead of total demolition and construction from scratch, as well as preserving historical buildings and urban heritage, respecting traditional customs, and maximizing benefit from them.

- The concept of heritage preservation has evolved to preserve the elements of conformity

7-Flexible planning for an integrated network of urban spaces:

- The sustainable urban design aims to deal with the urban space as an element in an integrated system of urban spaces and green and open spaces so that it works to serve a variety of purposes and integrated with each other and not deal with each urban space as a separate unit and the need to permeate the green areas within the construction in a continuous way to reduce pollution and noise [5]

VI.STRATEGIES AND MECHANISMS FOR SUSTAINABLE CITY PLANNING

Achieving sustainable urban development for urban development projects in cities requires finding a strategy and mechanism that can be taken as an effective tool for implementing and applying the principle of local sustainability and this strategy is the agenda that includes the most important sustainability criteria, which is as follows:

1- Planning Strategies:

- Integration of the creation of cities within the framework of urban, regional and national development to become a center for development and planning poles that help to organize the urban and rural urban network at all local, regional and national levels and to maintain a balance between the sectors of agricultural and industrial development, transport and communications on the one hand, and population, urban, social and urban development on the other hand through the following [6] :
- taking into account the selection of geographical location accurately in light of spatial potentials and environmental conditions of the state in anticipation of the conditions of natural disasters, which could face those cities.
- That planning for growth be more efficient and more flexible and allows to meet the requirements of the increasing population density in addition to a plan for growth and development
- Preserving natural resources through a balance of demand for available resources according to the privacy of local resources in a manner that guarantees the efficiency of their competitiveness over generations.
- Make the city more attractive by revitalizing cultural activities and expanding open spaces
- Creating limits for urban growth, to control population density, the consumption of land allocated for buildings, and the control of the cliff on agricultural lands.

2- Environmental management strategies:

Local government agreements allow the creation of a plan that includes planning and organizing the environment and providing public services and urban growth areas and is committed to implementing strategies to ensure the success of future planning taking into account the following [7] :

- Introducing the concepts of designing and managing modern cities, which are related to issuing legislations, systems and regulations regulating all planning and organizational aspects, while strengthening security and internal safety and external defense methods.
- The presence of an environmental management and control that monitors and develops the environmental performance of the city, including urbanization and institutions, and assesses the environmental impact, which is the primary tool for environmental planning.
- Raising the level of environmental awareness for workers in the local government.
- Adopting an effective and active environmental policy by:

- Improve and increase the effectiveness of existing environmental protection measures.
- Increase interest rates in environmental and environmental assessment of government activities.
- Reducing the environmental impact of local government activities

3- Housing Strategies:

To determine the population size and maintain the urban growth rates of the city until it reaches the economic size of its population that cannot be exceeded in order to maintain the economic level and high incomes for individuals and at the level of social, educational and cultural services, the following must be taken into account[8] :

- Attention to human resources is considered one of the most important ingredients as a real wealth and these resources include the efforts of the workforce, whether mental or physical and experience in management and organization
- Building various types of residential buildings to provide housing for all groups of the city's high-income, middle-income and low-income people.
- Providing housing requirements for residential units in urban areas.
- Failure to build housing groups on very far distances on the streets with large displays in the case of urban areas, and this leads to many huge problems and the provision of employment opportunities near residential areas with high, medium and limited income levels to reduce traffic to achieve security and safe interaction between all housing groups.
- The optimum distribution of space and economy in the area of land used for construction.
- Climate planning in terms of taking into account good ventilation, achieving thermal equilibrium of buildings, lighting and space needs for cooling and heating operations.

4- Community Participation Strategy:

Community participation is a key part of the sustainability targets in the city, and despite the fact that the city can be a leader in the progress towards sustainability, but that community participation is an inspiration to officials on to change the way in which activities are conducted and change their way of life through a wide range of programs offered in schools and parks community centers, the city can promote ethics efficient use of resources and supervision on the ground and to encourage actions that will improve the sustainability in the community.

Sustainable development sectors in the cities.[9]:

1. renewable energy.
2. Water Management.
- 3-sustainable transport .
4. air quality and emissions of co2
- 5-waste management.
6. Green Building.
7. Sewage Administration.
8. sustainable management of land use.
9. sustainability of the
10. environmental management and community participation.

VILAN EXAMPLE OF THE CITY OF SUSTAINABLE STRATEGIES AND APPLIED THE PRINCIPLES OF SUSTAINABILITY IN DIFFERENT SECTORS: THE CITY OF OSLO, "NORWAY"

Definition and location:

Is the official of the Kingdom of Norway's capital and largest city, where the general census of the population of 617 242 inhabitants, exceeded one million people in the surrounding urban agglomeration. The city of Oslo is the cultural and industrial main economic center, and the most important seaports of the Kingdom of Norway, located on the southeast coast at the head of large marine alley Oslo, about 130 km north of Skagerrak, a tongue from the North Sea extends inland as shown in Figure 1.[10]

Oslo City is also one of three cities a European won by being a sustainable city in 2003, and I've Oslo city government adopted the so-called paper white as a strategy for sustainable development and the strategy take into account the situation reached by urban development and sustainable environment in the world process, is also considering the current situation of the city and a group challenges faced and then develop a sustainable vision for the future, has been urban environmental program identifies areas for action and the goals to be achieved through the proposed strategy starting from 2003 until the end of 2014 as well as a program to be reviewed every four years setting..[11]



Figure1: describes the geographical location of the city of Oslo, Norway, source: <http://ar.wikipedia.org/wiki>

Among these works that have been made can be mentioned in the various sectors in the field of sustainability are as follows:

Analysis of the city during the evaluation of the elements of sustainability:

1. Energy sector:

Oslo City began in the use of renewable energy sources (alternative) and biofuels in 2012 fully in the city, which reduced the carbon dioxide emission of harmful carbon, Oslo and is considered one of the most cities in the world richer, where Oslo is considered in the first place in the energy consumption for the countries Northern Europe, because the city is mainly based on renewable energies and policies clean and efficient city and consume less than 1 MJ of energy for every euro of GDP, and the key factors in the success of Oslo is that 62% of energy consumption in the city comes from energy sources Hydroelectric From 2000 to 2006 the use of central heating increased by 36.2%, with the proportion of waste incineration 39% of the resources used for electricity and 34% oil and 11% only.

2. Water Management sector:

Measuring water sustainability indicators rather weak and Hmaaeks high consumption of water and the high dropout rate has, where the 24% that of the high water available rate has waters of rain and dependence on Lake Maridal as a major source of drinking water and Kdammelt Oslo to cut daily use per capita of 208 liters rate in 1997 to 172 liters in 2007.

3. The transport sector:

Although the city is working well to promote green transport and develop policies to reduce congestion where 2/3 of the population using electric railway or walking, because the rail system powered Alheidroalictronah. And 85% of students go to school on foot or using bicycles which is used relatively weak relative to the size of networks and the amount of cars and I've Oslo carried out tolls system on the roads and the imposition of parking for cars in the centers restrictions and planned to phase out the use of fossil fuel for public transport by the year 2020 and this fee income allocated 20% to promote public transport to rise to 45% by the year 2028.

State efforts and policies in the transport sector:

Replacement buses fossil-fueled buses operating bio biogas fuel and extract methane from wet organic waste in the city. And the replacement of the subway system in the city, a group of 63 trains with a light aluminum models the new weight, which consume less energy by 30% of the other Featuring The new trains brake system captures the energy of feeding the network again as shown in Figure 2



Figure2:describes the types of uses that operate BalocodalehioyinOslo, Source: <http://ar.wikipedia.org/wiki>

4. The waste management sector:

The streets in Oslo completely free of garbage and we find 94% of homes in Oslo you rotate the waste where it is the burning of household waste thing, which reduces ground emissions and then it is the use of environmental fuel and geothermal energy, Oslo is one of the superior cities in the field of waste to major cities as a city Copenhagen only that what Oslo is facing is the high amount of household waste where increased amounts of waste per person from 407 kg in 2004 to 467 kg in 2007 and in that year, re-use 27% of the waste.

5. air quality and emissions of Co2:

Characterized by the Oslo city atmosphere has a very minority percentage of gas emissions population is using electricity generated by hydropower in the heating system of the Oslo and is one of the best European cities to reduce carbon dioxide emissions as a result of reliance on renewable and alternative energy sources for public transport and reducing landfill emissions

The efforts and policies of the state of air quality in the sector:

Of 2009, instead of burning waste from the sewage plant and the issuance of 12,000 tons of co2 per year and is planning to harness the Oslo half of them and turn them into bio nethane to run 80% of the public buses in the city.

6. use of land and buildings:

- About 94 percent of Oslo's population lives close to the open green spaces, where the 19% of the proportion of built space.
- In the area of sustainable building State it has promoted the construction of energy-saving standards to reduce energy consumption in residential buildings.
- In 2007 it was determined using the maximum energy in buildings in the National Building Regulations and there is still room for improvement in terms of these Regulations shall not apply to old buildings, which occupy most of the buildings in Osloas shown inFigure3.



Figure3: describes theopen greenspacesinOslo.
Source: <http://ar.wikipedia.org/wiki>

7- sustainability of the site:

The city has a large number of green spaces and a great deal of infrastructure protection in Oslo, surrounded Plateau green forests where constitute a protected forest within the city limits 2/3 of the area as well as the presence of parks and lakes and eight rivers are applicable between the urban fabric populations enjoy communion with nature, which constitute a 2/3 of the environmental model in Norway as shown in Figure4.



Figure4: describes the entry into force of the rivers within the urban fabric Bmedinhaoslo, Source: <http://www.shkmbz.com/vb/showthread.php>

8-environmental management and community participation:

Oslo believes in the principle of branches has canceled the central task sections in the social, cultural and health city and distributed to 25 provinces, each with its own urban government committee is overseen by local Naibon.

VII. CONCLUSION

1. take into account the need to focus on the environmental aspect during the design, planning and implementation of buildings and a commitment to ideas and principles of sustainable urban development and to benefit from successful foreign experiences.
2. You must reduce dependence on traditional energy sources to provide an appropriate environment for the convenience of the environmental, economic and social rights through the positive employment to use the principles and foundations and sustainability criteria in sustainable urban design.
3. make use of scientific and technological development and modern techniques in the conservation of natural resources and the use of environmentally-friendly resources and economically efficient.
4. achieve the recycling and reuse of waste and protective ways of eco-systems.
5. the need to update laws and contain items cares about the environment and the application of the principles of sustainable urban development in order to protect the environment and prevent infringements.
6. the need to maintain awareness of the value of the surrounding environment and energy through community participation of the population and also the preservation of the environment is an urgent necessity, not a luxury.
7. the need to publish the decisions of the work of environmental thought and concepts of sustainability, green economy, machetes awareness for students and the development of a culture of preserving the environment

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