

Architectural impact of smart growth and sustainable development in Sadra new town in Shiraz with ecological approach

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ABSTRACT: In keeping with the common pattern of urban environmental systems – performance, climate interaction can always been some effect in shaping old city of Shiraz. Recently with population growth and urban sprawl has led to the creation of new settlements around the city is on sustainable development, while quality, human health and ecological sustainability in the long term and improve the start is. The purpose of this paper is to design a new town with a sustainable approach to the integration of ecological sustainability and smart growth urban development Environmental impact that it needs in order to reduce energy consumption and protect the climate for present and future generations. Original research based on the design pattern literature in ancient and modern city of Shiraz is related to sustainable development and sustainability and smart growth, urban design movements and theories that can affect the environment. This method is based on the review of documents related to the theory of research has been done.

Keywords: sustainable development, sustainability, smart growth, environmental, oldand new

INTERDUCTION

Population growth, migration of the rural - urban areas is the result of the industrial revolution. A phenomenon caused primarily to urban growth, Secondly, the conditions of life in these cities will be affected. Urbanization process in Iran in 1922 had a normal growth but after it, lost their normal routine. In this era, growing urban areas has grown rapidly in terms of quantity but quality and speed of development was slower. So after decades, urban problems such as urban sprawl, building forms, without considering climate has been established.

Analysis of the concept of new towns in the redevelopment of the city's as named "Sustainable Cities" will be presented following a review of literature related to the theory and concepts of sustainable development movements and basic design theories quarters of the twentieth century. The needs the pattern and model of smart growth and ecological idealism and unaffected by examining the effects of both the old and new town of Shiraz in providing solutions that meet the needs of present and future generations to maintain environmental sustainability in the design of new settlements is the subject of this article. Standards designed to provide a combination of design principles that are based on pieces of total, in other words, the solution to form a settlement to a city in order to affect sustainable architecture in smart growth city offers.

METHOD

This paper is a review of the literature related to sustainable development and sustainable architectural design and theory as well as the first quarter of the twentieth century. This method is based on the review of documents related to the theory of research has been done. During a librarian studies in the field of integration of the ideas presented in the course of review in smart growth in shiraz in order to compare of two type of traditional and modern have dealt with a proper strategy for energy conservation and climate.

By comparing the theoretical principles of sustainable development and sustainability measures affecting the movement patterns Urbanization smart growth approach and the redevelopment of the new town and tries to extract and analyze the ideals of proper and improper of life for future generations should be descriptive.

Sustainable Development

Sustainable development is a concept that is very vast term and has many different meanings, and the meanings of the frequency response of various experts dispose. The concept of sustainable development is an attempt to combine the concepts of the growing field of environmental issues, social issues - economic prosperity. In this regards sustainable development, environmental issues strong social and economic linked to each other (Peg. 2004: 38-39).

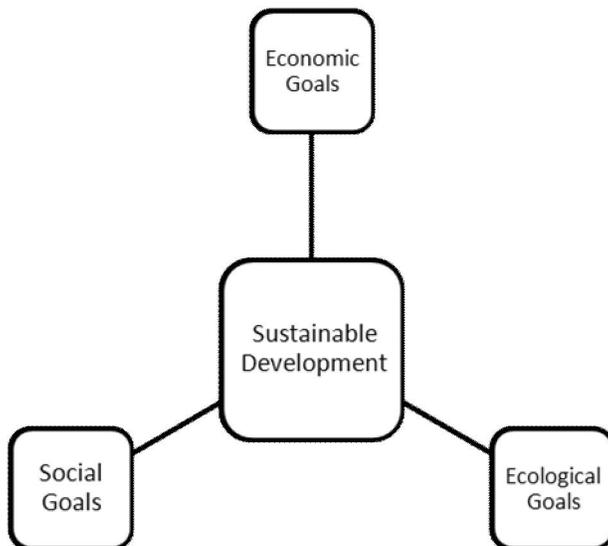


Figure 1 . The Goal of Sustainable Development

Since the United Nations Conference on Environment and Development, "Development" title was held in 1992 in Rio as one of the most sensitive and the most important words in the discussion of this relation (Adams, 2001). On the one hand, efforts to solve environmental problems, natural sciences and the ecological concerns about the protection of nature, and the other hand, the problems of Third World poverty (Adams, 2001).

Sustainable development, the Commission of the World Conservation Strategy of the International Union for Conservation of Nature (WCS3) It was formed in 1980, was compiled.in addition with, (WCS4) The World Committee on Environment and Development Our Common Future titles in 1987 and keeps the land in 1991, has also been started. In the year 1987, "Our Common Future", CE, Global Development and Environment Committee report (Which is also known as Bruntlnd report). The report provides a comprehensive definition of sustainable development. Therefore Bruntlnd report, Sustainability is the ability of humanity to ensure that the needs of the present without compromise the ability of future generations to meet their needs to provide.

Some, like Alan Frykr sustainable future as an attitude that is the route map on a set of moral and ethical values and principles are focused (Mofidi, 2005) on Human behavior helps control spread NRC since 1999 Book by group in six chapter, the fashion documentary and broad perspective to the phenomena and causes and events of the last human environment opens introduced. Since environmental problems, most of the mechanisms, structures and organisms have been hidden by the effects of the real, it is delayed. Identify an environmental problem, the dependence of scientific methods and tools, such as POS systems, social, cultural and political (Barton, 2004).

With the conclusion of what has been mentioned about the sustainable development can be sustainable development objectives in relation to the environment the three areas that are close to each other, of course, mean that the protection of nature in order to meet the needs of future generations are presented :

- 1- The changes between relation of human and nature
- 2- The route map on a set of design principles, methods and focus

3- The changes in production of mines

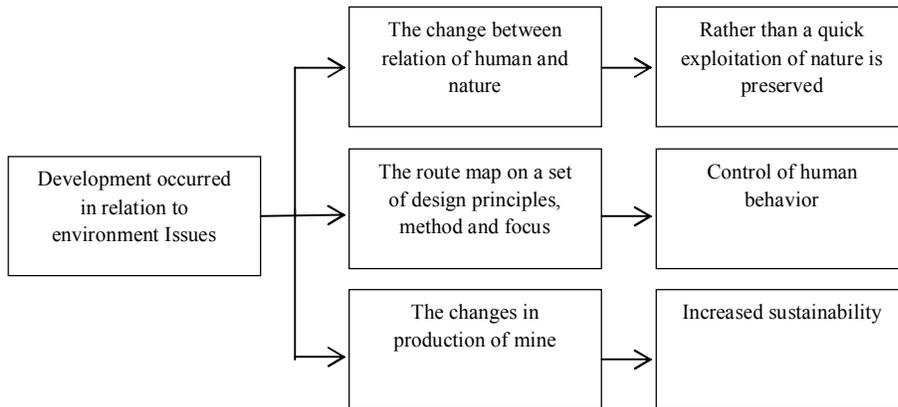


Figure 2 . Sustainable development goals with environmental issues

Sustainable architecture

Sustainable development activities related to construction and the built environment, sustainable building or structure is often called a stable. The building sector is one of the greatest social and economic sectors in Europe and with the built environment, significant changes in the natural environment, it is effective. Construction and the built environment, as two key areas of global sustainable development, are discussed (Singery, 2006). In conjunction with a comprehensive solution to the challenges of sustainable architecture and environmental considerations, however, to get the level of quality of life and cultural values, economic, social and welfare are. (Paply Yazdi, 2004)

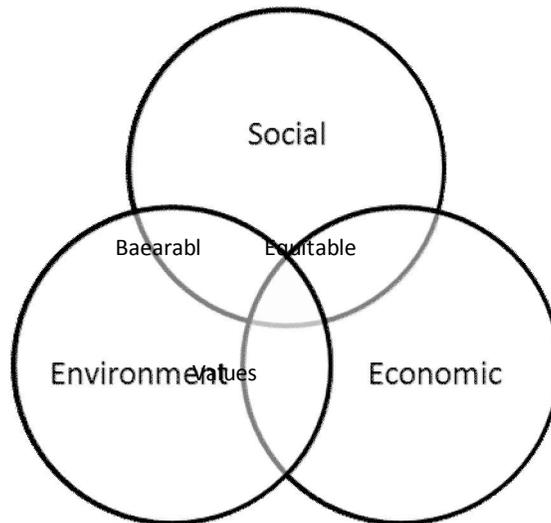


Figure 3. Aspects of Sustainable architecture

Falamaki (2003) of sustainable development as a major motivation for learning architecture provides new thinking "in the late twentieth century Architecture, ecology, architecture, and communication, and a foundation that shaped how life cycles and ecosystem research, and place the starting point and end point are designed to the come. On the one hand, the architecture with all the requirements to keep up and stay stable, it comes to the other side, all the knowledge that each one has its own way of dealing the natural world ' (Falamaki, 2003).He also continues to account for the mixed branches that have shaped the architectural vision, and in parallel with the side of advanced knowledge of cybernetics environmental base of activities cannot branches - Scientific experiments that more civil - international human dimensions are not significant. Where a relatively large number of different aspects of the environment and sustainable development are, with this negotiating it means that too extra setting is needed.

Thus Paul and Edward argue that "a large part of sustainable design, it is something that we do through energy saving" While we know that the design to create spaces that are safe, durable, economical and sensitive local needs are. They also point out that the definition of sustainable construction as "the creation and management of healthy buildings that are efficient sources of environmental criteria (Greenbelt, 1998).

Richard Rogers' view of sustainable design is going to be faced with future needs without natural resources for future generations to destroy the remains. The building, sustainable design, resource efficiency, minimum energy, flexibility and long life, suggests (Memarian, 2005)

According to Jung Jin Kim, is the three basic principles for sustainability in architecture: saving resources by reducing, re-using and recycling natural resources used in the building tends design based on life cycle, way to analyze the building process and its effects on the environment and end to human design, which focuses on the interaction between humans and the natural world. (Kim, 1998)

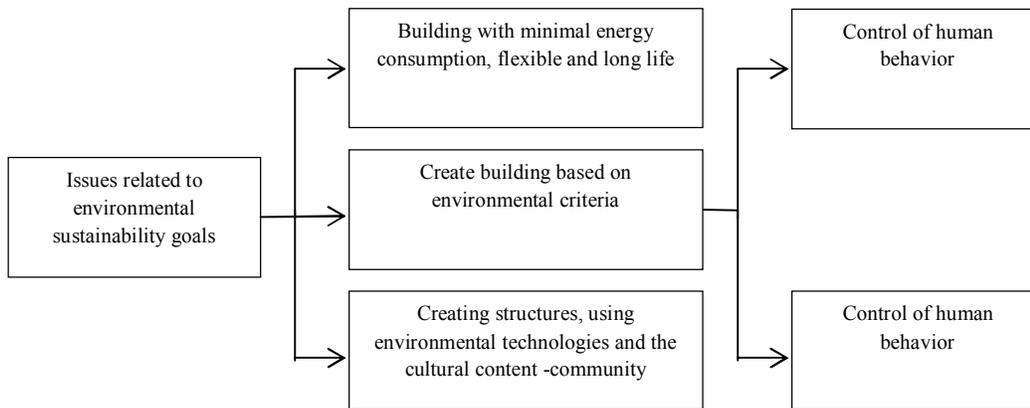


Figure 4. Sustainability objectives in relation to environmental issues (kim, 1998)

From what was said about sustainable architecture, sustainable architecture in relation to environmental goals can often be sought in relation to energy: creating buildings that are sensitive to local needs, less energy consumption....However, as noted above, consideration of cultural content - the local community, to implement environmental technologies is essential.

The sustainable architecture, the natural habitat of humans and other species to coexist in a relationship, physical systems (natural or artificial) can control the flow of energy and water, air and soil quality affect, are affected by climate. (Barton, 2004)

Smart growth

Theorizing about urban development in the late twentieth century with the advent of things like physical dispersion of cities, declined social structure and insecurity in neighborhoods, misuse of land, degrade the quality of the urban environment of urban problems in this range time. Organized movement in response to the loss of identity in urban environments, native habitat destruction, over-reliance and dependence on the Fossil fuels and increasing air pollution and environmental degradation have led to the creation of theories and models in the twentieth century has been.

With the advent of new technologies, the transportation and construction projects of Le Corbusier were noted, and the current theory such as smart growth, widely different perspectives on the city have noted. This movement aims to create and strengthen a sense of community and place-based development, transport, growth and economic development, neighborhood combines intensive applications, support for green building design, pedestrian-oriented neighborhoods with diverse housing patterns all segments of society, Protection of open space, farmland and critical environmental areas, fair share of the costs and benefits of development, preservation of cultural resources and the design of compact structures are formed (Duang, 2009).

Smart growth movement has many common features with the principles of sustainable development's Smart growth with the support of the city of new models and designers, green building, climate and urban design ideas to reduce energy offers. (Duany, 2009). Then according to energy conservation and smart energy use is supported. From what was said about sustainable architecture, sustainable architecture in relation to environmental goals can often be sought in relation to energy: creating buildings that are sensitive to local needs, less energy

consumption.... However, as noted above, consideration of cultural content - the local community, to implement environmental technologies is essential with the theory (Kim, 2007, Grant, 2006). The goal of smart growth and sustainable development based on sustainable architecture, with the relationship between society, economy, environment, and justice in the efficiency of resource needs and opportunities in the community, the four concepts of sustainable development lies in the following:

- 1- Anticipating the future: responsible for natural resources and support the needs of the next generation of scientific and cultural
- 2- Oriented Environment: responsible for the protection and management of environmental resources and biodiversity
- 3- Equity Oriented :responsible for the availability of resources at local and global scales of justice and opportunity for all
- 4- Participation Oriented responsible for the management, diagnosis and environmental issues based on public participation and access to free information (Grouter, 1997). Now in my statistical population I chose two place of Shiraz in two historical periods and with the view point of sustainable architecture environmental we approach smart growth review which follows is:

Part of the results of the comparison between old and new tissue examined in Shiraz

Methodology this study was conducted field studies of the regional council of cluster between 8 (old) Black Rock neighborhood and new tissue is Sadra New Town. Samples with the aim of building on the environment, climate and energy design elements used in the housing sector has done. In order to study the stability of the architecture, both old and new environmental review and the results are presented as the solution to the end of the season.

Analysis of the choice of the old situation

Shiraz on the plain of the same name founded in the range of old Shiraz The gradual organic growth and the talents and capabilities of their political, educational, geographic, economic, social and continued on the next stages. Sange Siah neighborhood near the city center is located within Shahcheragh with the old vision of smart growth, environmental Kim the next four oriented, environment-oriented, justice-oriented integration and participation has given the results we have achieved through observation and study:

- Houses along the canals and the nature of the form, which has been instrumental in preserving the environment.
- Most of the materials used in the neighborhood of adobe or brick materials that are ecologically low temperature coefficient is illuminated using energy in the preservation of the natural environment has been effective.
- The old neighborhood has many narrow alleys of the three is the appropriate environment:
- Cross over vehicles that are causing environmental pollution was reduced.
- Shadows in the streets and neighborhoods
- The two story buildings and finally low-density and mixed-use development along the flume has been it. Building materials and native Iranian architecture has been designed to keep the location of the climate has been predominantly summer and winter settlements to preserve the natural energy of the porch in front of the summer settlement that provides an air filter helps and stay in the winter without sun porch leads to deeper structures.
- The sunken garden and fountains in residential buildings to save energy and create a natural ventilation system

Analysis of the choice of the modern situation

Sadra of Shiraz city as the new context in which this study is situated in the northern city of Shiraz, the region in recent years due to high population growth, People chose to live away from the city noise and bustle of the city with the approach of this study have Smart Growth and Climate Appropriate

- Most of the materials used in the new era of non-native, non-traditional and sometimes not even that good climate Shiraz and unfortunately, there is simply just the visual appeal of such materials have been used in Sadra town of stone or glass facade on the building facade inappropriate. These conductivity and heat transfer for the climate without compromising on the energy conservation and the environment, affect.
- Buildings that form the Iranian state due to population growth and the urgent need for housing and apartments on several floors turned out occasional use of the yard as a parking lot and using herbs are relatively less.
- Due to limitations in perspective and not the perspective of light with large windows and large spaces for all uses, this leads to abnormal energy use and environmental damage
- Home of the northeast - southwest direction is climate.
- In terms of classification streets strewn streets of this town and vehicle traffic is easier and a lot more.
- Too little green space in neighborhoods and homes are rarely seen. But urban gardens in residential Sadri designed to help air circulation.

According to observations and investigations that are based on both context and perspective, and Kim Grant has been, In the old city the population is low due to lack of technology and natural materials and consumables easier

to environmental issues has been but today, due to population growth and urban sprawl and the use of technology in materials used in the environment, the environment is vulnerable, That provide appropriate solutions to protect the environment in the development of new settlements' smart.

Energy Saving Solutions

- Use of Renewable Energy (Energy Sun, wind, geothermal, biogas, tidal ...) is the best alternative fuel.
 - 1 - The energy is free and available to everyone.
 - 2 - are renewable and do not harm the environment.
 - 3 - The social ecology is an opportunity for growth and development.
 - 4 - Trash and debris will not cause a problem.
- The use of ecological materials made: the material is used in traditional buildings in each district shiraz is usually hot and dry climate due to its properties, brick high heat transfer coefficient can be the best choice for this climate.
- The use of greenhouses in the South or West sides of buildings is using solar energy or greenhouse effect can be eliminated.
- Use of recycled materials, use of materials and material remains of the old house, which can be economically effective.
- Planting tall trees: planting trees that provide shade and air movement in the trees, such as cypress or sycamore in Shiraz
- Thermal insulation of the building, which helps to save energy in buildings
- Use structures prevailing winds, which can help in building air circulation garage.
- The use of green roofs and gardens
- Use building lining the shell
- Development of the waterfront and fountain
- Use the dropdown views

CONCLUSION

This approach is in contrast to the past two centuries; the approach is based on the separation of economic, social and environmental issues. It can be said that sustainable development and sustainable architecture, the primary theme of their environment by changing the nature of the approach are the solutions offered and what is being manifested today in the built environment, a deal is separate from nature, but only to preserve it for the future generations to use.

Although the principles of sustainable architecture includes a wide range easiest way to employing the most sophisticated technology of the day, But the issue is appropriate and consistent with the way the social and cultural context and the environment of its users.

Stability begins at home where we learn to build a more secure future, should keep our biological systems. It should be consistent with the architecture as well as its geographical location and environment to cause the least damage to the environment should be flexible to change with time and location, the user can adapt the quality and the high stamina be, Vernacular architecture, and commemorate the experiences of local builders, community participation is seen as a positive potential ,recycled materials and renewable energy to apply and non-renewable materials, to be used wisely and consciously , Although these are general guidelines and each case has been proposed as a new research could be. But we hope to help these strategies; we can achieve an effective step to the principles of energy efficiency and climate protection and the life course, their environment and the environment for future generations to take leave.

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