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Sustainable Architecture and Environment

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ABSTRACT

The increasing development of the tourism industry and the need for modern day recreation in natural areas to achieve a healthy community, the necessity of research and development of residential communities as accommodation and recreation complexes with a suitable environment with the idea of environmental protection and development for accommodation and recreation for tourists. needed. On the other hand, the reduction of energy waste and environmental pollution in architecture has created a theme called sustainable architecture, in which the building not only adapts to the climate of the region but also interacts with it. Therefore, environmental protection in the formation of residences and recreation using sustainable architectural approach and utilization of technology is one of the main issues in this research. It is considered that the Kish Island ecosystem has always been in contact with the waters of the Persian Gulf and the Sun of Taban and this relationship has provided a favorable environment for tourists to enjoy and enjoy.

Keywords: Architecture, Sustainable Architecture, Environment, Ecosystem

1- INTRODUCTION

Although the vastness of cities, airports, ports, highways, and roads where civilized humans occupy only about 2 percent of the planet's surface to cover their livelihoods and meet their needs, the extent of human exploitation reaches all of the planet's surface, Another ninety eight percent of this level is due to the need and human need of the 2% who are undergoing a downward spiral (Makhdoom, 1370: 82). The benefits of contact with nature are increasingly at risk, with the presence of diverse urban environmental communities as land cover changes and intensification of land use. The key question that arises here is how can cities preserve their favorable habitat types and processes for their inhabitants? Addressing this question is challenging given the predominant role of humans in the complex spatial and temporal shaping of urban landscapes (Hale, 2015). The urban system is a multifunctional system, given the rapidly expanding urbanization and ecological system of vulnerability. Planning provides an

approach to understanding how social ecological systems are adapted to disruptions such as water or air pollution, and that planning-based management can be operationalized and guides to sustainable urban development (Naturalium, 2016)

Maintaining a balance between human actions and the ecosystem is a great way to reduce risk and help with planning and sustainability. One of the issues of resilience of urban environment is eco-management. Ecosystems serve as protective shields against natural hazards, enhancing community planning by enhancing livelihoods, availability, quality of drinking water, food and other natural resources. Through the process of urban expansion, cities reshape their surroundings and often create new hazards. Urbanization of water resources can alter watershed systems and lead to the destabilization of mountain slopes, resulting in increased risks such as flooding and landslides. Ecosystem-based management covers the whole ecosystem, including humans and the environment, this management relies on natural environmental units, including water resources, wetlands or coastal ecosystems (and the human communities within or dependent on them), This type of management respects community needs and excesses and seeks to promote land use patterns and resource utilization that do not undermine the vital environmental and service functions on which city dwellers depend (Resilience Cities Worldwide Campaign. (57: 2012 One of the tools in Atch Making environmentally sound decisions, evaluating environmental strategies and developing appropriate strategies to enhance urban ecological planning helps to adopt sustainable development strategies and, if done well, will be able to incorporate sustainability criteria throughout the planning process (Partidario and Clark, 2000)

The declining environmental quality of the city of Karaj in recent decades has made it one of the most polluted metropolises in the world. Rapid population growth, expansion of urbanization and consequently large land use changes and land cover have severely damaged the ecological foundations of the urban environment, reduced pollution absorption capacity and exacerbated pollution, scarcity of green spaces compared to urban built spaces, and ultimately reduced planning. Continued migration from small towns to Karaj metropolis on the one hand and non-compliance with the principle of sustainability in the use of urban resources and facilities, on the other hand, causes uneven population and urban area growth, expansion of suburbs, reduction of population density from 189 in 1345 to 117 in 2006, Inequalities between population and urban infrastructure, declining passage network performance and access to arteries, increased conversion and redundant use of in-and-around gardens and urban areas to residential and commercial and service uses, urban areas inequality in levels and per capita Urban public, suburbia and village conversion Karaj Kvyhay surrounding residential satellite towns and the city of Karaj formation of the solar system and space polarization of rich and poor fueled by the North and East (Pour Mohammadi, 2011: 8). In view of the above, it was felt necessary to conduct a fact-based assessment of the ecological conditions of Karaj within the scope of the study in the first place, and then provide strategies for enhancing urban environmental planning in view of the ecological conditions of this metropolis.

The hierarchical analysis process is one of the most comprehensive systems designed for decision making with multiple criteria, as this technique enables the formulation of the problem

in a hierarchical manner, as well as the ability to consider different quantitative and qualitative criteria in the problem. This process interferes with various options in decision-making and enables the analysis of sensitivity to the criteria and sub-criteria, in addition to the built-in pairwise comparison, which facilitates judgment and calculations. It also shows the degree of compatibility and incompatibility of decision making with the advantages of this technique in multi-criteria decision-making (Astani et al., 2011: 1: Multi-criteria decision-making influence on environmental management has been very high and on the other hand GIS. In addition to modifying the necessary maps, spatial planning is used to manage the interpretation of ecological data at different stages of the planning process (Ahmadi Sani et al., 2011, Baskets Kels 2005, Kangas et al. (2000), therefore the necessity of using this system in decision making). Quick and precise criteria for managing the site The mass of the region's data is specified.

2- BACKGROUND

The predominance of environmental and environmental perspectives in the literature on sustainable development has incorporated the concept of environmental architecture or ecological architecture into topics such as architectural planning and economic development, as well as social justice, and has been the theoretical basis of all concepts in related literature. . Although environmental architecture is a relatively new concept, it is based on concepts that have a long history. Richard 1975 and several friends in Berkeley and California founded architectural ecology as one of the nonprofit organizations to rebuild architectures in balance with nature. Architectural ecology began with the publication of the organization's journal Architectural Ecologist And Berkeley's Environmental Architecture Book of Reference (1987) began. When architectural ecology organized the first international conference on environmental architecture in 1990 in Berkeley, its activity accelerated. The conference brought together more than 700 people from around the world to discuss architectural issues and present proposals aimed at shaping architectures based on environmental principles. The application of environmental sustainability strategies in enhancing the environmental planning of architectural studies in the interior and exterior areas has not been worked out, but similar cases have been identified in the internal and external areas of importance.

Widman and Barrett (2010) review the topic, concept and methodology of environmental footprint by comprehensively examining the concept and methods of EF environmental impacts based on a survey of more than 50 international stakeholders and reviewing more than 150 original articles by EF method and programs. Practical over the past decade, these key issues have been highlighted by the review of methods as research results: None of the major identification methods can address all relevant issues b) The NPP NPP is a promising approach c) Progress In relation to bio-productivity or services The ecosystem and biodiversity have evolved with the dynamic concept of EF and the HANPP index d) compatible with the Extended Environmental Input Output Analysis (IOA), providing a number of benefits to improve EF calculations, and e) future changes such as a work-based concept or Contaminant

contamination is not considered a major converter of change for the benefit of EF to policymakers.

In another study by Dice Darglow (2013) in her doctoral dissertation, she examined the topic of micro level indexing model for evaluating sustainable architectural ecosystems. He uses a model (indexing model) based on a multidisciplinary research approach based on qualitative analysis (reviewing growing interpretive and critical literature to select a theoretical framework and index) and quantitative (statistical and spatial analysis in data collection, processing, and analysis). The program model) examines the factors affecting architectural sustainability in a local context, and in the light of the model's findings, it is concluded that: Developing regulatory regulations to achieve environmental sustainability through the formulation of development codes, constraint codes and evaluation criteria, guidance Provides the best practical development solutions Slow.

Marcus et al. (2013) Transitioned Planning and Sustainability in Architectural Societies by Emphasizing Planning as the Main Identification Method and Exploring Emerging and Stressful Areas, Geostatistics, Green Infrastructure Planning, New Design Using Partnership Responses, Climate Planning, Climate Planning And short-term economic approaches as appropriate forms of formulating and sustaining an architectural transition strategy have led to the following: emphasizing the need for an evolving synergy approach as a facility transfer exercise.

Abdul Rahim bin Abdul Hamid (2014) Architectural Environmental Research in Singapore and its Relation to the Architecture Ecological and Sustainable Development of Singapore Robin 1991 to 2012 and summarized a key guide of government agents on the architectural ecosystem and came to these conclusions and recommendations: More focus of studies On Environmental Biodiversity in Architecture, which points to a gap in Singapore's environmental architectural knowledge, in particular with regard to how studies on environmental environmental needs are linked to architectural environmental research in issues of architectural sustainability and paper suggestions: 3 Strategies Lady for Knowledge Advancement: Focusing on long-term environmental studies in Singapore as an example of a dense architectural tropical ecosystem, architectural environmental component health as a key component of architectural environmental leverage, and strong leverage of environmental benefits Experimental for Architectural Environmental Studies.

McPherson et al. (2015) emphasize that planning through architectural ecosystem services, emphasizing that architectural building planning through ecosystem services, both in research and in application of the need for distribution due to the dynamic nature of environmental-social architectural systems, They have reviewed and made the following recommendations: Architectural ecosystem services are a key link between planning, management and governance for dynamic transfer operations to further sustainability of architectures and play an important role in resilience in architectural systems. Emerging architectural goals for planning should clearly incorporate the architectural ES value into planning and governance, and architectures need to prioritize the protection of a resilient source of ecosystem services to

ensure the viability, sustainability of architectures, especially given the dynamic nature of the architecture. Architectural systems are constantly responding to global environmental change.

From a series of studies, Naqib et al. (2016) referred to environmental sustainability of architectures, TDR and application facilities on architectural areas that have applied one of the monitoring tools (TDR) to achieve sustainability in eco-architectural member states. And emphasizing the following goals: Using different tools through comparative analysis of different case studies to ensure their sustainability and community-based sustainability perspective helps to align and motivate communities, governments and others, and is the basis for developing a strategy for Achieving this perspective, they have concluded that (TDR Emerging Rights Transfer) as an alternative approach and as a promising new solution and its potential applications in future projects can be applied to maintain eco-sustainability in architectures.

Mahler et al. (2016) examined planning in the long-term environmental dataset based on 13 small descriptive case studies from Germany. They formulate research questions and emphasize the following research objectives: behavioral conditions of ecosystem planning, role of spatial temporal scale, difference between short and long term dynamics, basic needs of precise planning method, role of reference state and indicators, and appropriateness of planning as a concept. Management have concluded the article by emphasizing the demand for linkage planning with adaptation to support the long-term dynamics of ecosystem development.

Dr. Necralium (2016) in his doctoral dissertation describes a comprehensive method of evaluating social environmental planning and architectural planning management, planning thinking, developments and its implications for sustainable architectural development in Liangang, China, by combining various quantitative indicators to calculate and evaluate planning in Liangang architecture with indicators. Social and environmental based on two different theories: the wing model and social capacity using early warning models and the adaptive cycle, and has concluded the following: Positive planning process and consistent development in Liangang, China during the years 2000-2010 and His a point National and regional planning practices help manage ongoing planning changes in different countries, and finally, in this dissertation, Dr. Nechralum provides policy foundations for building and managing a resilient architectural system in a particular coastal architectural setting.

Patton, a retired professor of biosciences (2016) explores the role of environmental stewardship in the management of architectural and natural ecosystems by extending the concept of environmental stewardship from philosophical contexts to a practical context applicable to 21st century ecosystem management and demonstrating the role of environmental stewardship These results have been achieved: Regardless of the management of sustainable streamlined ecosystem management practices for supplying clean water as goods and services to architectural areas for architectural sustainability, the river ecosystem is unlikely to be fully functional. As a holistic management approach, the concept of environmental stewardship may be close to creating both a sustainable architectural ecosystem and a sustainable river ecosystem function.

Nunes et al. (2016) investigated the sustainable performance model for achieving absolute reductions in social environmental systems by introducing an integrated method for measuring the sustainability of social and economic systems based on interactions between two variables: consumption necessity and environmental impacts. They have concluded that the measurement of the characteristics of each system is a value adjustment, a value that indicates its ability to plan / maintain health by avoiding environmental, social and economic degradation as resources are consumed. This new measurement has been tested on an existing scarce resource system with four main types of consumption and emphasized: Theoretical concept analysis as well as the practical significance of its title can help countries, organizations or even individuals find better ways to measure sustainability Functional help.

Dr. Makhdoum (1991) has evaluated "Environmental Assessment of Guilan and Mazandaran Region for Architectural, Industrial, Rural and Tourism Development" as a part of environmental studies in the framework of regional physical design by systematic analysis method and has concluded: Out of the 399 macroeconomic environments in question, there are only 167 large ecosystems that are eliminated either due to natural conditions or due to human interference, and because of the vulnerability of existing ecosystems, the area is not well developed.

Dr. Hatami Nejad and Rajai (2006) have investigated "Architectural Development and its Environmental Impacts on the Coast: A Case Study of Tonekabon Architecture" through a questionnaire and documentary method from the perspective of the public and authorities. The results of their research indicate that architectural development has led to the occupation of the coast, the loss of coastline visibility, the shoreline change, and reduced access to the coast.

Studies in this area can be cited as Azmati et al (2009) article "Environmental sustainability in open architectural spaces: qualitative evaluation of residential neighborhoods in Karaj". In this paper, we select and evaluate the selected neighborhoods by field survey based on distance variable and comparatively by defining five key criteria and their sub-indices based on sustainable architectural design (mobility, energy, spatial shape, environment, design and development). Have been analyzed. The research concludes that most modern neighborhoods lack a sustainable architectural design and are not environmentally responsive to the needs and interests of residents. Therefor strategies of thermal comfort, light and radiation and visibility, shelter comfort, acoustic comfort and quality improvement of the environment and landscape of the neighborhood, through innovative solutions such as pedestrian and garden paths, green road and green bridge, pedestrian neighborhood, cycling and skating paths. , Public transportation, neighborhood and neighborhood gardens, health and environmental stations can all contribute to environmental sustainability in architectural communities.

(2009) have done another research entitled "Environmental Analysis of Landscape of Tehran Architectural Landscape for Developing Environmental Quality Improvement Strategies". The paper's research method has attempted to quantitatively identify the existing defective structure using clinical pathology and provide corrective measures to improve environmental processes,

particularly climate-related processes. The results show that the environmental structural elements in this architecture have been lost or are being destroyed.

Shokri and Khalaj (2011) analyze and compare environmental sustainability in central Iranian architectures by collecting the required data in both library and field formats on historical architectures of central and warm climates of central Iran. They have come and gone: The design and form of this land has been such as to reduce fossil fuel use and pollution-free air supply on the one hand by relying on the proper use of natural and environmental renewable energy. Emphasis on justice and equality and the use of opportunities and ovens Architectural Excursions environment, sense of place and participation in social and human needs, environmental sustainability ensures tissue architecture. Therefore, in addition to using these clever techniques to make the most of environmental opportunities and reduce environmental impacts through climate-friendly planning and design, they have emphasized the use of up-to-date technologies for today's sustainable architecture.

Salehi et al. (2011) define "Environmental planning using causal network model" by presenting definitions of vulnerability, planning and defining planning dimensions and components according to the studied frameworks and models, proposed dimensions and components for environmental planning. This paper proposes a proposed environmental planning model based on the causal network model and concludes that the dimensions in this model cover all physical and non-physical aspects of the community and the mentioned components represent important factors in each dimension. . To succeed in this model, change in national disaster policies, investment in architectural applications and principles, support for advanced training programs, and active collaboration between architectural planning, design and construction are needed and their suggestions for improving environmental processes that enhance environmental services. They become architectural, preserve and revitalize existing open and green spaces and propose using structural elements such as river valleys and hills to connect to the natural context around architecture.

Mir Katwali & Canaani (2011) Assessment of User Development Environment of Architectural Development with MCDM and GIS Multi Criteria Decision Making Model with Case Study: Sari Architecture, Mazandaran Province with the Purpose of Determining Appropriate Usage of Architectural Development, Based on Architectural, Rural and Environmental Assessment Model Indicators Iranian industrialists have studied the study area and concluded: At present, the spatial distribution of architectural population centers is more suitable and moderate use, the most important being low slope, good soil texture, adequate drainage and climatic conditions. Conveniently pointed out.

Shamsipour et al. (2012) "Assessment of Land Environmental Capacity in Determining Land Capacity in Yasuj Architectural Area" with Environmental Model with Big Goals to Preserve Environmental Capacity, Specify Settlement Expansion Rate, Facilities, Capabilities and Limitations of Territorial Resources of the Area as Appropriate Bed Any planning is based on Dr. Makhdoom's land preparation method. The results of the application of Dr. Makhdoom's

model in this study indicate that the large environmental and environmental potentials are under study, which are limiting factors for architectural development.

Dr. Poor Jafar et al. (2012) evaluated "Environmental Capacity Evaluation to Determine Suitable Areas of Development in Sahand New Architecture Scope" based on AHP Land Acquisition Principles, Systematic Approach and AHP Technique. Finally, Environmental Impact Assessment of the Study Area was investigated. Extracting and measuring environmental units based on environmental criteria have estimated potentials and potentials and have proposed appropriate areas for future development of the new Sahand architecture with an area of approximately 3200 hectares.

In a study entitled "Expanding Environmental Sustainability Strategies for Enhancing Architectural Environmental Planning" by Pryewar et al. (2013) on Tehran architecture, they selected the homogeneous area with the aim of understanding the relationship of structure, function, effects and responses based on concepts of architectural ecology and Based on the understanding gained from this area in the model, the types of strategic orientation have been expanded locally to reach the following conclusion: In Area 2, significant structural changes have occurred during the period under study, so that the green space over a period of time. 22 years old, 1412 acres reduced, outdoor d During the same period, 1023 hectares decreased and increased to 2435 hectares. Such developments affect the quality of air, water, resident satisfaction, biodiversity, and ecosystem services in this area, since the area is upstream of Tehran architecture and its environmental performance and processes must be both at and below the surface. (Other zones) flow, the effects of structural changes in the area in question will affect the whole architecture. Therefore, it is important to take advantage of the opportunities in this area with the proposed strategic orientations to maintain and enhance planning. Azizian et al. (2013), in a study entitled "Assessment of Karaj Architectural Environment Environmental Capacity for Sustainable Development of Architecture with" MCE "Approach Using Weighted Linear Combined Method and in GIS GIS Environment, Karaj Architectural Environmental Environment For physical development based on environmental observations (natural and human with 12 criteria), they have designed maps of areas suitable for physical development of architecture, and have concluded that GIS with the ability to apply various functions and the ability to modify and manipulate data and Extensive ability to combine informational layers The various T as well as the possibility of using satellite imagery and the results of interpretation of these images are unique tools in evaluation operations and without the use of GIS, it may be impossible to perform these studies with appropriate accuracy and speed, thus making GIS with its diverse capabilities, our In internal and external sources whose issues, goals, methods and conclusions have been examined, more will be assessed to assess the ability, sustainability and environmental planning of the areas for different architectural development goals, sustainable development. Architecture, maintenance and upgrading capabilities They have used different models and indices, and in a study carried out by Ms. Pryor similar to that for areas 1 and 3 of Tehran Architecture, evaluating and extending environmental sustainability criteria by secondary analysis technique (the researcher does not collect information in this way). , But also prepares a research plan to re-analyze the information already collected, but in this study, by carefully assessing the environmental

potential of the area, the environmental criteria of environmental sustainability of the area using a questionnaire (Average Architectural Views of a Metropolitan Area). Chorus (C) MCDM multi-criteria decision making models and fuzzy multivariate analysis have been evaluated, selected, and localized in the GIS environment and developed as environmental-oriented strategies in the area concerned.

3- ENVIRONMENT AND ARCHITECTURE

The degradation of the ozone layer, acid rain, destruction of ecosystems and many more are caused by environmental contamination under the influence of human intervention in nature, to which much of the building industry contributes. The most obvious aspect of this industry is in the realm of homebuilding. Statistics show that CO2 toxic gas production has increased dramatically in recent years (Figure 1) and human intervention in nature (14) (Figure 2). While today's technological innovations in the automotive, telecommunications, and computer industries surround human beings (Figure 3), the biggest purchase of people's lives is still home, as it was 80 years ago: a house that literally, It defines the whole of human life for at least the next 20, 30 or 40 years, not future-oriented, and basically its overall structure with the ever-expanding growth of science and technology and, consequently, the changing human needs in society more rapidly than ever. In the past, it became obsolete and out of fashion (15). Recent efforts by architects in the field of sustainable architecture have raised new issues today, and one of the principles emphasized in recent years is that "architecture looks to the future"; it is necessary for architecture to always be Be able to accommodate unpredictable and new patterns and technologies and withstand sudden climate and environmental changes. "A house built in Europe by the standards of that year in 1995 has been wiped out before it comes to an end ... How can it comfort and protect its inhabitants in 2025? ..? ”(17) The construction industry needs to enter the 21st century and be examined by a biologist, environmentalist, scientist, architect and engineer on a pre-fabricated white paper.

One of the goals of sustainable architecture is to "design and maintain the building for the future": long life while being updated. This is important both in maintaining the physical strength and survival of the building and in protecting the environment, nature, preserving primary energy sources and ultimately the entire planet. Today, the problems of building life in Iran have become more critical in the field of modern architecture than ever before. While in developed countries, ways of updating buildings are being explored and new standards are being set for future buildings, still obsolete standards of the 40s and 50s of the 20th century, in traditional Iranian architecture, apply to new buildings. comes. New materials are traditionally used in buildings, and the lack of planning and up-date makes projects such as Imam Khomeini International Airport more than 60 years in design not yet fully operational. 19 However, today's needs and conditions are completely different from design time, and it becomes increasingly difficult to recognize that sustainable development in the field of architecture occurred after the 1970s, and subsequently many international standards. Changed. On the other hand, such buildings built to the standards of their time have spent more than half of their

useful lives in operation. As such, they cannot be considered as new buildings after the work is completed. So today's modern buildings are becoming much more waste than ever before, and because their materials are often non-recyclable, their emissions are much higher than in the past. One of the principles of sustainability is "design and build for long and useful service". In Europe, the home design pattern has been around for 300 years, while in Iran the pattern has barely reached half a century, and as the housing market shows, most homes with more than 40 or 50 years of construction, It is considered to be lumpy or damaged (20). With little attention to the cycle of building materials in nature, the need for these is further illustrated.

4- THE BASICS OF MODERN TECHNOLOGY IN THE BUILDING INDUSTRY

The fundamental difference between architecture and engineering came about when engineers began using iron and its derivatives in the building industry. Over 50 years after introducing iron as a plant and fire-fighting material, engineers confidently applied the material to cover public halls, railway stations, and bridges over deep valleys and estuaries. No estimated and fingerprint calculations were allowed, unlike traditional architectural works. For such creative, new and technical work, it was necessary to have a modern knowledge of modern scientific information in the field of mechanics to analyze modern structures. Modern science thus strongly influenced traditional architecture, and it seemed necessary to construct, to know science and mathematics. With the advent of the steam age, engineers everywhere were ready to apply the new sciences so that they could give new forms to bridges crossing deep valleys. The very rapid release of reinforced concrete, which was reinforced with the discovery of reinforced concrete, strengthened the position of structural engineering in formal entry into the main branch of architecture after 1880 (22). At the same time, the extreme consumption of primary sources of material and energy production increased enormously, and the consequence was the production of environmental pollution from the building industry, which was several times higher than in the nineteenth century.

With a brief look at the history of technological and architectural evolution, one can get some interesting results: the Renaissance and the Baroque were the cornerstones of the modern era, and prominent scientific figures such as Galileo, Newton, Kepler, and so on were introduced to society. Were. The rapid advancement of technology, science and technology, and the new human interest in the development and forgetting of traditions, eventually led to the Industrial Revolution and the Steam Age, which completely changed the face of the nineteenth century and shaped the modern age and the emergence of modern man. It became a fast-paced, popular interest. Following the rapid development of technology and machinery, the field of mechanical and mechanical engineering was able to introduce itself to the international community. The consequence was the discovery of wrought iron and reinforced concrete, which in turn led to a larger revolution in nineteenth-century buildings, and especially the twentieth century, and the first formal and independent engineering presence in the field of architecture and forgetting many of the classical unscientific principles. It followed that he even isolated the architects to some extent (23).

What was the result? Did the staggering development of technology and machinery, in addition to its positive aspects, have negative effects? What happened in recent years? The international style of bringing all communities around the world together and encouraging people to develop faster and faster has had many consequences, including unintended consumption and lack of attention to the capacities of the planet. While breaking the bond of society with traditions, traditions and culture (24). It had many benefits, of course, but the disadvantages were that it defeated modernism. These disadvantages led to concerns that can be distinguished in the field of sustainable architecture:

Construction industry concerns in the nineteenth century: What mattered most in the nineteenth century was "great" returns and sufficient profits at all costs; effectiveness and efficiency were paramount. Speed of production, rapid progress, machine life and many other factors were issues of the day. New materials were introduced into the building industry and manufactured iron, steel and reinforced concrete. The building industry changed and accelerated the modern revolution. Along with these advances, the enormous consumption of energy and the wasteful wastage of materials, both in construction and in operation, which in large part led to the consumption of structures, suddenly made people think: The reason for the sudden developments and the deepening concerns about 'efficiency' should be taken into consideration. The main reason was the discovery of new materials that their production and consumption in the building industry had become a growing need. What mattered was only production and development at any cost. On the other hand, the excessive use of raw materials and energy, irrespective of the future, has brought irreparable damage to the face of the earth and the growth of urbanization, the destruction of ecosystems, the gradual destruction of the natural environment, primary resources and many more, pose a serious threat. The environment and the next generation were considered (25).

Twentieth Century Building Industry Concerns: What was considered important in the twentieth century was the problem of costly building maintenance. Buildings that were painstakingly designed and executed did not initially respond to future developments and, for example, faced user changes or capacity changes that were thus doomed to demolition or alteration in construction, secondly, increased urban development and expansion of science and technology. , Required the need for long-lived buildings that could work for years in urban design. Therefore, the original design is very important and it is necessary to plan throughout its life to preserve the building and especially its structure which carries the burden of building and architecture, as many modern buildings, after construction, They were demolished due to incompatibility with the new conditions or inadequate maintenance, and the main reason was their lack of proper planning and structural flexibility (26).

Concerns for the 21st Century Construction Industry: The End of Architectural Life or the Death of a Building is a big issue. What is very important here is the issue of returning these materials to environmental cycles or reusing them after death (Figure 4). In most cases, when designing building plans by engineers and designers of the building for the time of death and demolition of urban and non-urban buildings, designers plan to return the building materials to the environment or reuse them in other building materials. It is not prepared and inevitably,

materials from the demolition of buildings are treated as non-recyclable industrial and construction waste. While many of the primary sources of materials are non-renewable, their use in the building industry is such that they are difficult to return to nature (27). The following developments can be summarized as follows:

1. 19th Century Concerns: Effective Use of Resources
2. 20th Century Concerns: Keeping
3. 21st Century Concerns: End of life or death of the building

5- EXAMPLES OF HISTORICAL EXPERIENCES

Paul Williamsburg was the largest crater in the world in 1903 (Figure 6). The tensile theories of suspension bridges were incorporated into its design and were named the "most powerful" suspension bridge in the world at the time. The bridge was named one of the largest traffic carriers of the century in the 20th century. While keeping it, it had been ignored for decades and no plan had been formulated until it finally reached a critical point in 1988 (28):

1. The original cables were badly rotated, as they were not galvanized at the time of installation and did not feel its importance.

2. Coil connections were lost in the main trusses (failure to anticipate corrosion prevention measures).

3. The main beams rusted and in many cases provided the effects of corrosion causing the fracture.

The bridge was considered a major highway to Manhattan and would cause severe traffic congestion. So Paul could not be fired. The question was then how to replace it? On the other hand, owning new openings in the new place would be very expensive and would require a lot of expenses. So the engineers had to use the same main site to build another bridge. The result is that the bridge should last at least 100 years in addition to its useful life (29).

Reconstruction of the bridge took place between 1990 and 2005: new cables, new beams, new roads, new anchors, new paints, etc. The cost was estimated at almost a billion dollars more than the construction of a new bridge. , But because Paul Williamsburg, the most inefficient United States bridge that carries 50,000 cars a day, incurs irreparable losses if dismissed, so despite the many problems and costs, He was doomed to reconstruction. The technical issues involved were removing the original cables, replacing the deck while the traffic was flowing, and protecting the river and human traffic from the lead paint so that nature and people would be safe from toxic substances.

To replace the cables, each required a number of additional equipment, including additional formatting, cables, and temporary mounts, which had to be kept on deck when removing the cables. To replace the deck, a prefabricated lightweight steel deck was installed at night. Plastic

also covered a very large area of the river to prevent contamination. Finally, the bridge was rebuilt (31). It is therefore necessary to "design based on maintenance and demolition" and to maintain the following:

1. Develop a maintenance program for structures and architecture.
2. Design of interchangeable and accessible components.
3. Avoid the use of chemicals and toxic materials that are dangerous for future storage and the environment.

The next point is how to design a building for "end of life"? Destruction also needs to be inspired by history. Sustainable structures should also be studied in the "end of life" category. Research has shown that 24% of the dust and dust on the ground in the United States is produced by the construction industry. On the other hand, studies have shown that up to 95% of construction waste can also be recycled, many of which are clean and non-blended (32). Here are two sustainable approaches to architectural structures that have been experimentally tested throughout history:

1. Permanent structure: A very high quality structure with a long life that is made of materials that can be reused in future construction. Like the Thirty-three Isfahan Bridge or the Fabricius Bridge in Rome, built with local materials, heavy and masonry and very strong. Bridges such as the Khajou in Esfahan or the old Dezful Bridge in Iran are such that they are made with clean local materials and can be returned to nature and still stand after thousands of years (33).

2. Temporary Structures: These structures are used for cheaper, shorter lifespan buildings and their materials do not necessarily have the least environmental damage, such as Iranian tribal ropes or Inca tribes or bridges. Temporary wooden of Lorestan villagers. To build temporary rope bridges, ropes are first made from local forage, wool or plant tissue. In the second stage, the old bridge ropes are cut and new ones are installed. In the third stage the main road and rope fences are added and the bridge is completed. Such rope bridges have been in existence for 500 years in the Inca civilization (34), and their maintenance plan is tied to society. Materials are also available and look local and local.

What is visible and conclusive in both experiences is that they are both made with native materials in their area. In both modes of construction, foresight is considered and the materials used are easily recyclable to nature and do not cause any pollution to the environment. A comparison of the two structures is presented in Table 1.

Table 1. Comparison of masonry structures with heavy materials and Inca rope bridge structures with light materials

Masonry Bridge Structures (Iranian and Roman Heavy Bridges)	**Lightweight Inca Bridge constructions**

Low tension	High stress
Low maintenance	Keep it high
Long life span	Short life span
High initial cost	Cheap starting cost
Renewable and reusable materials	Renewable and reusable materials
High bearing capacity	Limited bearing capacity

6- CONCLUSION

Given the above, it follows that two principles must be observed in order for architecture to be oriented towards sustainable development goals and to minimize pollution to the building industry. The first is that the architecture is flexible and adaptable to the conditions of the environment and the needs of its inhabitants, and that it can accommodate future developments and make arrangements that can be updated at any time. Secondly, the materials used must be native and environmentally friendly. It can thus be inferred that the designer of such a structure must be its master planner, and as the historical documentation (permanent bridges and temporary bridges) may require, the designer must be fully familiar with the construction environment, in other words. Be native. It can be concluded that future buildings should:

1. Effective: Use recyclable materials, be reusable and consume minimal energy during the design and construction process.
2. Preservable: Components can be replaced, recycled or reused.
3. Adaptable: Able to respond to changing needs and changing loads at variable times throughout their lives.
4. Have a general plan for construction, maintenance and demolition.
5. Components shall be flexible, accessible and capable of updating.
6. Do not use as much toxic and environmentally destructive materials as possible in the materials used in construction, construction, maintenance and demolition and make them as local as possible.
7. Be economical as well.

The above principles are sustainable measures that can be minimized by adopting the design and construction of modern buildings to minimize environmental pollution from the building industry.

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