ECONOMIC AND ECOLOGICAL ANALYSIS FOR SUSTAINABILITY: A CASE OF BOSNIA TRAVNIK HIGH BIKE WAYS

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Abstract: We must keep our historical cultural values, which are the common heritage of all the civilizations living on the earth from day to day, in accordance with their nature. Bosnia and Herzegovina also has unique structures for world cultural heritage. Everything is developing and changing in our globalizing world. Some of these changes can be defined as good, while others cause negative effects for both our world and cultures. Bosnia Herzegovina's historical and cultural heritage must be supported financially and legally by taking the protection process. The purpose of this study is; Bicycle routes will be alternatively placed on motor vehicles so that the damage to the motor vehicles can be minimized in the structure of historic bridges, houses, gates, medreses, churches located in harmony with the rivers in the country. The transportation principles appropriate for the nature of the country and the re-planning proposal will be designed. Together with the globalizing world, people have begun to step in and out of bounds as easily as ever in history. Preserving historical and cultural assets, cycling and intertwining with nature can also gain a different experience with fresh air away from motor vehicles. The country's economy will act positively on this issue.

Keywords:Urban Ecology, Energy, Economy.

1.INTRODUCTION

Today, sustainability and environmental problems come to the forefront according to researches conducted from global scale to local scale. Especially in rural areas, the lifetime of the structures with the development of the technology to meet the need for human settlement as well as the operations performed affects the ecosystem. For this reason, in the field of architecture, recyclable materials should be used to reduce the energy use to reduce environmental damage, to produce sustainable energy from renewable energy sources, and to reduce the natural resources spent the materials used should be friendly to the environment. Strategies and materials that are compatible with the environment should be selected in the design.

In this context sustainable architecture addresses green design, ecological buildings, environmentally compatible building. For a sustainable future, clean energies must be used for ecological enrichment of the environment, effective evaluation of climate, natural resources and building materials. According to this perspective, design parameters should be applied according to the criterion that is required during production and operation in building design.

One of the aims of sustainable work in rural areas is to adopt and develop sustainable architectural understanding. The importance level of sustainability criteria are different in rural areas. These criteria need to be considered according to the level of importance. To use an effective model is the most important requirement for determining the importance level of sustainability criteria. The objectives to be set forth in the model to be developed must be clearly defined and needs to be developed and a model that can be a solution to these requirements. A systematic design process should be established. Sustainable evaluation criteria should be defined by the design team. The purpose of this study is to

assess the parameters for sustainability by ensuring sustainability in rural areas, adapting to modern world requirements by using useful and efficient building materials in rural areas, and ensuring sustainability.

2.STRATEGIES FOR SUSTAINABLE BUILDINGS IN RURAL AREAS

Engineers often evaluate sustainability in terms of energy savings through innovations in electro-mechanical systems. But city planners and architects look from a broader perspective. Sustainability in environmental, cultural and socio-economic dimensions includes resource conservation, life cycle approach and design principles for man for architecture and urban planners. The main issues in sustainable design in rural areas are land, environmental texture, topographic features in the region, selection of building materials and insulation materials suitable for the climate of the region, water saving, waste management, energy conservation, utilization of renewable resources. Another important issue is; Is the lack of socio-cultural structures in rural areas. Multifaceted studies should be done in the rural area by eliminating the deficiencies of socio-cultural structures. Experts from different disciplines should come together and identify the deficiencies in that area and resolve them individually. As a result of the work to be done in this way, the desire to migrate from rural areas to cities will also be significantly reduced.

In addition to architecture, the sustainable rural life requires the rural areas to be covered in rural areas, as opposed to the past forms of energy, water and food. It must be thought that sustainability in rural areas will be an important approach in directing global policies today. For this reason, a multidimensional discussion on the concept of sustainability needs to be made. Design should be brought to a different perspective. The main purpose of the design should be to contribute to the process of environmental formation as a designer. Thus, ecological design has gained importance and recycling becomes a very important place in different areas of design. Especially in rural areas, it is necessary to start using recycled materials that are compatible with the environment. One of the most important parameters in the process of this process is that the social, economic and political forces must make the decisions they make by making a careful decision in production and recycling process. To ensure sustainability in rural areas; Technology, aesthetic values, environmental balance, climatic conditions, natural characteristics of the region, topographic structure should be considered as a whole. Ecology has been on the agenda for the 21st century and the organic architecture has come to fruition in order to ensure the sustainability of natural life, taking into account the harm that human nature and the negative effects of unnatural things have on humanity and the environment. To ensure the sustainability of rural areas, these organic forms should be included in the designs. In America and Europe, ecological design has given considerable importance in recent years. However, one of the most commonly used materials in organic and recycled ecological designs is wood building materials. The idea that wooden building materials will reduce the trees in nature has come to the forefront. In order not to experience this problem, it is important to prefer the technological building materials in order to use the recycled materials more efficiently.

3.PASSIVE SOLAR DESIGN

Geographically independent design in ecological rural area design and analogy to this form of box is an important debate. The design to be designed needs to be designed according to climate and geographical directions. The limitation imposed by the geometry of the arches to which the design is applied should be given importance. The design has more design freedom in terms of plan form and settlement for purposes such as directing towards the sun, utilizing natural light and, in part, providing natural ventilation. The building mass must be placed towards the sun. The building should benefit from natural light. Passive heating and cooling should be provided by natural means to save energy in

the building. Geographical and climatic data should be used to naturally ventilate and illuminate buildings. Natural shading should be done on the front of the building.

4.BENEFITING FROM SOLAR AND WIND ENERGY

It should be noted that rural areas are mass consumers of natural energy sources of designed buildings. Renewable energy sources such as solar and wind energy should be exploited in addition to reducing building energy requirements through passive design methods. These energies are used to generate electricity and heat energy in the buildings. When examined in this way, it is especially important to obtain electricity from the sun's rays. With the development of technology, it is expected that more electrical energy will be produced by using solar and wind energy in the buildings. Solar power collectors and photovoltaic (PV) panellas can be integrated into buildings to generate heat and electric energy. With this system, sustainability is ensured. It also provides economic sustainability for users living in the buildings. They will not pay for energy and warming.

5.BENEFITING FROM GEOTHERMAL ENERGY RESOURCES

Geothermal energy includes all kinds of benefits, directly or indirectly, from ground heat. Renewable energy is an energy-friendly and low-cost type of energy. Geothermal resources are short-term ground heat, water, steam and gases which contain the chemicals that heat build up on the lower layers of the earth's crust. These geothermal sources can be used as heat pump and heat source as energy source by means of technology.

6.ECONOMIC SUSTAINABILITY

It covers the costs related to building costs. The economy is very important in the stages of design, construction use, maintenance-repair, operation and demolition. The economics of the buildings depend on the material used, the energy, the workmanship. Although it may seem like an additional cost to the initial investment for sustainability of buildings, it will be economical to work on insulation and energy saving in long term. Non-economic buildings will be abandoned after a while due to user dissatisfaction. The design of the buildings oriented towards the sun will provide additional cost savings while providing heat location and natural lighting, but also reducing the heating-cooling-ventilation system and reducing the use of light energy will save electricity. The natural ventilation system used in the buildings provides considerable savings in the use of the building. Economic designs can be made thanks to the technological developments in building materials

7.ECOLOGICAL SUSTAINABILITY

Natural resources used include energy and environmental issues. It is also integrated with the natural environment. It is very important to integrate the buildings with the natural environment in the rural areas. The topography, vegetation, and traditional building materials of the land where the buildings are located should be considered in the rural areas. In rural areas, environmental impacts of buildings, natural resource consumption, energy-water-material consumption, pollution, waste management should all be considered as a whole. The use of natural resources should be designed to allow the reduction of the sources of nature. Natural ventilation, lighting, heating and cooling should be provided by using renewable resources such as sun, wind and water. Little use of energy resources is very important in terms of environmental pollution. Assessment of wastes derived from buildings will be provided for ecological sustainability through the use of landscape applications and recycled building materials. Ecological sustainability is an important parameter of economic sustainability.

Assessment of waste, reduction of environmental pollution, economical contribution of renewable energy resources.

8.SOCIAL AND CULTURAL SUSTAINABILITY

The social life and cultural values around the building must be carefully analyzed. The quality of life will be increased. Providing comfort for human health and comfort, natural ventilation, lighting, facilities for obstacles should be provided. In addition, cultural structures and historical textures must be preserved. Modern living conditions include parking, elevators, communication, socio-cultural sustainability. Buildings, shopping malls, restaurants, gyms, dance centers, swimming pools, walking tapes for horizontal communication are parts of socio-cultural sustainability. Wastewater should be designed so that it can be used in the garden water and toilets after it is collected and treated in underground storage. Energy saving can be achieved by using electric lamps with sensors. Water saving should be ensured by using sensor systems in usage waters. Use of grass in roofs and terraces must be protected from the harmful effects of summer sun. In design, natural light utilization should be maximum. For the comfort of the users, the lighting should be arranged on sun-fired facades. In socio-cultural context, street, street and neighborhood should be considered together with the area. The interaction with the environment in which the structures are built should be congruent.

9.ENVIRONMENTAL PLANNING AND GREEN AREAS

Environment; Covering all living things and inanimate things on earth. The roads and pavements are increasing day by day. Natural vegetation is decreasing from day to day. In urban areas air is warmer than rural areas. Rural areas have a climatic advantage. The reason for the warmer urban areas; The darkness of the roads and pavements create climatic heat differences due to the frequent and dense buildings, low landscaping and natural circulation. The rise of heat in urban areas also accelerates the formation of fog in urban areas. One of the most important elements in urban and environmental planning in the near future is, of course, designs on preventing the development of heat differences. In planning, attention will be given to green spaces and landscaping, and the air flow will be calculated taking into account the altitude differences between the buildings. In this way the wind will be roughened. It is also very important that the colors of the buildings and roads are chosen appropriately.

10.SUSTAINABLE ARCHITECTURE AND BUILDING MATERIALS IN RURAL AREAS

Architecture in rural areas is also very important for future generations to have a better environment. All problems that can be caused by the use of natural resources and the effects of these natural resources on people and the environment should be examined and evaluated on a universal scale. It is possible to appreciate the importance of sustainability by taking into consideration the buildings, houses and structures of the rural areas in the human life, as well as the effects on the universe. In order to provide sustainability; It is necessary to use recycled building materials that do not harm ecological balance. Sustainability in architectural structures while minimizing energy expenditure throughout life cycle The use, processing, use, maintenance and repair of building materials are materials which do not harm the environment and human health during waste formations.

11.DISCUSSION AND CONCLUSIONS

Uncontrolled industrialized natural resources on the earth are running out. Planners, architects, and local governments should work to correct this process for the changing world ecosystem. By using

natural resources efficiently, waste should be reduced and resources should be reused. In this way the needs of future generations will be met. The cycle of sustainability in the ecosystem will also be preserved. Effective use of energy, water and materials should be provided by economic, ecological socio-cultural design. Design should also be designed with maximum usefulness, comfort and sustainability on minimum land. In rural areas, sustainable buildings should be designed using positive interaction of sun, air, water, forest, landscape. The design of structures for sustainability plays a very important role in rural areas. The indispensable element of the economic and social development process is that the structures are integrated with the environment, topography and climate. Wrong designs that are not in harmony and those that are not planned correctly will be inadequate in the long stay and will be abandoned. It will not be economically sustainable due to these reasons. In order to achieve sustainability in rural areas, environmental performance must be evaluated at the maximum level. Secondly, new technologies should be applied along with the design approaches that come up from the past to the present day.

However, the sustainable approach has a large number of complex design factors compared to the conventional approach. Passive solar design, use of recycled materials, life cycle approach, environmental quality, energy performance will be provided. It is of utmost importance that a planner, architect, structural engineer, or even other professionals work together in a sustainable design in the rural area. Sustainable design decisions in rural areas are reflected in many different ways to the sub-systems that make up the building. The façade systems to be applied in the building design, the carrier system applications affect the natural lighting. Landscape studies, green roof applications will affect the building system, so design decisions should be made together. As a result, they should be able to take advantage of renewable, sustainable sources of energy as long as they provide social benefits with the answer to this question, "are buildings sustainable in rural areas?" The best systems should be applied to suit human health with environmental sensitivities. Sustainability principles and strategies should be integrated with modern and traditional design methods to ensure maximum utilization in national conditions

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