NOVATEUR PUBLICATIONS
International Journal Of Research Publications In Engineering And Technology [IJRPET]
ISSN: 2454-7875
VOLUME 2, ISSUE 12, Dec. -2016

OVERVIEW OFENVIRONMENT & ENERGY FOR SUSTAINABLE CONSTRUCTION

MR. SWAPNIL NILKANTH KALE
M. Tech Scholar, Department of Civil Engineering, Swami Vivekanand Subharti University/ Subharti Institute of Technology and Engineering, Meerut, India

PRIYANKA SHRINIVAS PATIL
M. Tech Scholar, Department of Civil Engineering, Swami Vivekanand Subharti University/ Subharti Institute of Technology and Engineering, Meerut, India

ABSTRACT:

The per capita income of an individual decides the growth rate of any country. In the light of fact that the construction industries plays vital role in growth of country with development of infrastructure, it has the responsibility to provide sustainable infrastructure. The infrastructure is rapidly developing in the countries like India still there is huge scope for improvement. Authors have tried spreading the light over various consequences related to the recent practices in construction industries by considering the various areas of improvement. The global resources have been extensively used by the construction process to meet the demand in the targeted time. It's the need of time to consider and promote various ways to reduce the pollution occurring during the construction and building functions. This paper justified the requirement of sustainable construction options available and proposed by various researchers during the recent times.

KEYWORDS: Sustainable housing, urban construction, construction resources, environmental effects.

INTRODUCTION:

Environmental stresses caused due to the conventional construction procedures. Implementation of technology in the construction and material industry may reduce the environmental stress to some extent [1]. The impact of the construction can also be reduced by the green building concept. The need of time is to strictly following the norms made by government as fur as the impact on environment is concerned. The need of time is to develop an environmental sustainable model for construction [2]. The various technical approaches and the suggestion from the expertise in the area of construction from developed countries are to be implemented for reducing global environmental effects [3]. Office and Domestic buildings require huge energy during the process of construction by various means. In the performance comparison the low energy buildings are found better [4]. The use of better quality construction material may change the situation of impact on environment. The building constructed with the green materials may cause less harm to the environment than the conventional materials [5]. The amount of waste generated from construction and the supporting industry i.e. materials production and processing is also to be analysed for reduction of impact on environment [6]. In this era, the developing countries are facing the problems due to impact of development on environment. The policy makers are in process of making the sturdy decisions on the sustainable environmental development. Globally it was proven than the developing countries are having severe affects of the environmental degradation than the developed countries. Authors have tried presenting the various views of the researchers on the issue of sustainable development. From the perspective of India, honourable Supreme Court has several times raised the questions on environmental issues and pollution control. We also have implemented the odd and even formula for vehicles in Delhi. Several policies implementations have been implemented by state and central government for controlling the pollution. One of the main causes for the pollution is continuous and extensive constructions going on. The impact of this on the environment is measurable and it has to be controlled by hook or crook in order to avoid severe health issues on Indian residents.

LITERATURE SURVEY:

Spence, Robin, and Helen Mulligan et.al have suggested various means of technologies and standard practices for sustainable construction. Natural resources available are consumed in huge amount in construction industries. The extensive used resources are the cause of concern for sustainable growth. In this paper authors have tried estimating the effect of conventional construction practices on the environment [1].

IJRPET

Ding, Grace KC et.al have discussed the model of sustainability for the construction industries. The building operations and construction both are the causes behind the environmental problems. Consuming the natural resources and producing the waste results in double impact on environment. The approaches suggested before are insufficient to guide this problem. In the conventional practice no importance is given to the sustainable design and reduction of energy consumption during pre-design or before stage. In this paper the role of various tools in environmental assessment of the buildings is discussed in detail [2].

Zhu, Yingxin, and Borong Lin et.al have enlightened China's urban sustainable development issues. In this paper, authors have discussed about the actual condition by considering the population of China. The need of developing the models for different regions, economy, policy issues and the other approaches are discussed. The paper mainly focuses on geomantic, economic, and environmental issues along with consideration of population from point of view of improvements in the present construction practices in China [3].

Ramesh, T., Ravi Prakash, and K. K. Shukla et.al have discussed the life cycle energy consumption of the buildings. The need of the time is to develop the ways to reduce the consumption. 73 cases from various countries have been studied and presented in this paper. Household buildings requires the energy of the order 150–400 kWh/m^2 per year while the office buildings needs around 250–550 kWh/m^2 per year. The comparative study carried out and the results are discussed in this paper. There is huge scope for reduction of per square meter requirement of energy [4].

Medineckiene, Milena, Zenonas Turskis, and Edmundas Kazimieras Zavadskas et.al have focused the study on the effects of construction on environment and human beings. Author's views on the control standards are also discussed. The different aspects of choosing the optimal projects are discussed. The social and economical impacts of construction are discussed. Multidimensional criteria is developed and implemented for studying the environmental sustainability. In the study it was observed that the wooden constructed houses are 7.5% superior to the brick houses [5].

Gambatese, J. and Rajendran, S et.al has suggested the optimal used of the artificial resources for roadways construction in order to reduce the impact on environment. The reduction in energy consumed in the construction is depended on the utilisation of available resources in efficient manner. The wastage of material will increase the consumption of energy and affects the environment as well. The study carried out over reinforced concrete pavement (CRCP) and asphalt pavement (AC) roadways is discussed in this paper. In the roadways construction optimal use resources plays a vital role from the point of view of the sustainable development [6].

The figure drawn below illustrates the effect of the environment degradation from developing stage to developed stage of the country. It was observed that the per capita income increase in developed countries with lower environmental degradation while for the developing countries it is a challenge to control the environment degradation.

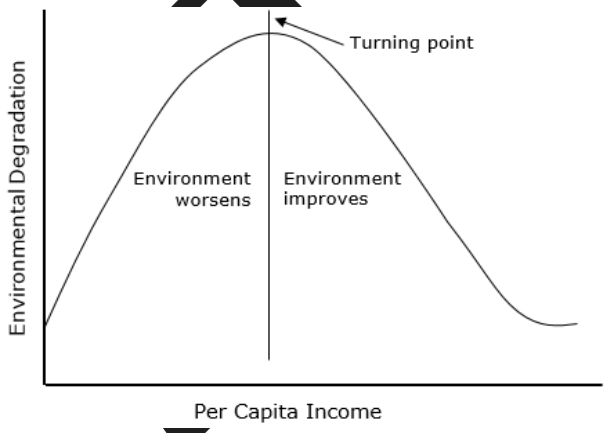

Figure1: Kuznets curve

CONCLUSION:

This paper presents the views of various researchers in the area of construction and sustainable development presented with the extensive study carried out during last decade. The construction and the material industries are supporting the development of any country while on the other hand it creates hazards to environment. The energy consumption by utilizing the natural resources available in huge amount without proper use of technology is another problem. The researchers have suggested the various remedies and topologies to support the sustainable construction while the implementation and monitoring is another challenge in the developing countries.

REFERENCES:

1) Spence, Robin, and Helen Mulligan. *"Sustainable development and the construction industry."*Habitat international 19.3 (1995): 279-292.
2) Ding, Grace KC. "*Sustainable construction—the role of environmental assessment tools*." Journal of environmental management 86. 3 (2008): 451-464.
3) Zhu, Yingxin, and Borong Lin. "*Sustainable housing and urban construction in China."*Energy and Buildings 36.12 (2004): 1287-1297.

4) Ramesh, T., Ravi Prakash, and K. K. Shukla. "*Life cycle energy analysis of buildings: An overview.*"Energy and Buildings 42.10 (2010): 1592-1600.
5) Medineckiene, Milena, Zenonas Turskis, and Edmundas Kazimieras Zavadskas. "*Sustainable construction taking into account the building impact on the environment.*"Journal of Environmental Engineering and Landscape Management 18.2 (2010): 118-127.
6) Gambatese, J. and Rajendran, S. (2005) Sustainable Roadway Construction: *Energy Consumption and Material Waste Generation of Roadways.* Construction Research Congress 2005: pp. 1-13. doi: 10.1061/40754(183)21
7) Zimmermann, M., H-J. Althaus, and A. Haas. "*Benchmarks for sustainable construction: A contribution to develop a standard.*"Energy and Buildings 37.11 (2005): 1147-1157.
8) Chwieduk, Dorota. "*Towards sustainable-energy buildings.*"Applied energy 76.1 (2003): 211-217.
9) Hall Jeremy. *Environmental supply chain dynamics.* Journal of Cleaner Production,2000,(8):12-18
10) Robin Spence, Helen Mulligan. *Sustainable development and the construction industry,* Habitant INT l, 2003, 25: 22 25
11) L. Y. Shen. *Implementation of environmental management in the Hong Kong construction industry.* International Journal of Project Management, 2005, 5: 122 125
12) Ofori George. *Greening the construction supply chain in Singapore*. European Journal of Purchasing & Supply Management, 2006, 2: 42 45
13) Zhu, Qinghua, Cote, Raymond P. *Integrating green supply chain management into an embryonic eco-industrial development: a case study of the Guitang Group.* Journal of Cleaner Production. 2007,7: 32 35

IJRPET