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Supply Chain Information Management of Nearly Zero Energy Buildings with Emerging Technologies

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Abstract - *The demand for energy in a building increases until the design of the building is able to produce compensation for the energy consumption of the building. With this, the Indian governments are promoting low-energy buildings, which build on the use of electricity. means that the total amount of energy used by a building each year is equal to the amount of energy generated locally or outside the site. The amount of greenhouse gases and the small impact on the climate are the main advantages of zero power generation. This paper aims to review some of the literature on power structures in India and suggests ways to improve the use of power by residents. to improve the zero energy project we must improve supply chain management through emerging technologies. Effective construction management practices increase the need for the NZEB building. Adaptation to new technologies is needed in today's fast-paced world with growing needs to share relevant information across all project participants safely and effectively through Information and Communication Technology (ICT) such as Building Information Modeling (BIM), Internet of Things. (IoT), Block chain. With the help of technology, project teams can work collaboratively, communication will be enhanced through better information management*

Key Words: **Green sustainable building construction, Nearly Zero Energy Building, construction project management, Supply chain management in construction industry, BIM, IoT, ICT, Block chain**

1.INTRODUCTION

Appearance the construction industry has a high rate of growth worldwide; up 67% by 2020. The total energy output comprises more than a third of the energy we use, the construction industry rethinks how buildings are designed to reduce the carbon footprint and adapt to it in order to have net zero energy being built. more energy as they use the average over the past decade, energy costs have been rising, fuel shortages, and global warming problems. India has only 2 years of gas storage, suspended use, and is currently being imported. In addition, there have been many other problems such as health, welfare, and pollution that can be reduced if gas emissions are reduced due to a better energy efficiency program.

1.1 Residential energy use

Citizens and Services are the largest sector accounting for 39 per cent expenditure by 2019. About 60% of the energy used by the industry for daily purposes such as heating and hot water, is some of the electricity divided between active electricity, household electricity and electricity. temperatures.

1.2 Energy an CO_2 emission savings with ICT

ICT has the potential to open the way for predicting low power consumption and greenhouse gas (GHG) emissions. According to a recent study, ICT could lead to a five-fold global gas emissions of the ICT industry, accounting for 15 percent of global total emissions in the 'business as usual' by 2020. a major role that ICT contributes to the development of automated engines and industries, to facilitate efficient transport and maintenance, to improve energy efficiency in energy transfer and distribution and to better design, management and flexibility of infrastructure. If these opportunities to reduce energy consumption and GHG emissions are to be realized, industry and government alike must find ways to maximize potential use.

2. LITERATURE REVIEW

Nazirah mat Russ et.al.,(2021)," Green cost premium of sustainable building construction" the author describes the premium of green costs as additional costs in relation to sustainable building materials. Explain the seven elements of a shortage of green cost-effective fixed equipment. It has been one of the reasons for the project delays and the poor implementation of sustainable construction, costs. In the construction industry sustainable materials are 3% to 4% more than traditional building materials and define sustainable construction followed by the difference between sustainable construction and sustainable construction. As this study focuses on costs in terms of sustainable construction, construction costs, construction costs, and sustainable construction costs are described and discussed.

A. Mavrigiannaki(2021),"Shape of future construction" literature in particular provides a green construction that focuses on caring for the environment and utilizing resources throughout the life cycle of a building in all the steps involved such as design, construction, operation,

maintenance, renovation and construction. Success is to conserve resources such as raw materials, energy and water, to fight global warming (emissions of greenhouse gases), to reduce waste and other pollutants, and to increase the efficiency of the lifetime cycle. It highlights the challenges of high design costs and construction costs, the lack of public awareness that it should be in developing countries with political support to develop sustainable cities.

Charles Lockwood(June 2016), 'Building the Green Way' This is explained by a case study of the 12-story LEED-Platinum headquarters in Cambridge, and they can do much faster than the traditional method of construction. use 42% less energy and 34% less water than conventional structures with comparable size. Green buildings can also improve the productivity of workers by about 15%, in part because they use other non-toxic building materials, such as formaldehyde, which are commonly found in common building materials and workplaces.

Bojan Milovanović et.al.,(2021),"education for zero energy building using building information modeling" This journal provides information on BIM improving the design, delivery and management of building materials, as it enhances efficiency in the construction industry, communication and communication. using appropriate BIM tools (software) that can be used to simulate and evaluate appropriate design options; and to help deliver a more efficient building while at the same time costing and under control, as well as reducing pollution, CO2 emissions and energy wasted during construction.

Dr. Deborah Morecroft,(2020),"Net Zero Energy Buildings (NZEBs): Building the Future Part of Emerging Technology for the Built Environment series" NZEB study A family of four (two adults and two children), reduced energy consumption in terms of electricity, heat and water by defining a daily schedule. The house even uses energy consumption for consumer electronics such as televisions and computer games. Allowing researchers to focus on how to reduce energy consumption. Recent test results have shown how to improve the building's air pressure to reduce heat / cooling charges.

By Maher Shehadi(2021), "Net-Zero Energy Buildings: Principles and Application"a new definition that is easier to understand than a powerless structure was defined as a structure that produces enough renewable energy to meet its annual energy use requirements. By design the structure is divided into zero-zero power building, zero-zero power buildings, net-zero energy costs, non-net-zero energy building Future buildings will focus more on renewable and sustainable energy sources. an efficient construction envelope and the use of energy-efficient and efficient resources that promote reduced energy efficiency. Future design will benefit from a variety of potential energy sources including solar, wind, tidal, biomass, and other resources. Future system design and selection will need to mimic a variety of shapes, variables, and conditions to determine the design of a structured structure such as exposure, shape, window and wall scale, shading, construction envelope, etc.

Elsevier B V (2021),"Examining the benefits and barriers for the implementation of net zero energy settlements" This paper introduces a comprehensive approach to the use of the NZE concept of payment, which includes dedicated processes, tools, agreements, and technologies. The purpose of this paper is to analyze the potential benefits and barriers to the implementation of the NZE concept in the payment scale, based on the lessons learned. The analysis is based on the results and information gained from the ZERO-PLUS project. The ZERO-PLUS approach offers significant benefits that may support the implementation of NZE residency in a range of weather, technology, and cultural settings. Roadmap to achieve low power billing while reducing start-up costs by 16% compared to conventional NZEB, as well as achieving controlled net power consumption of less than 20kWh / m2 / year.2.

V. Sumateja Reddy (2020), "Net Zero Energy Building Movement in India" The purpose of this study is to analyze the problems faced in India for the use of NZEB these are a major factor as a developing country. in real estate redevelopment. With the exception of the hot envelope prepared for integrated power, the heating and cooling capacity and utilization of resources are higher than required. Also explain i. Obstacle and legal challenges and lack of political will, Business case and funding, Lack of awareness and familiarity with design professionals, Difficulty in finding qualified contractors, Inadequate knowledge base, Lack of quality and competitive market for efficient products, Lack of awareness of design and lack of expertise. for quality.

Anuradha Mansinghka(2021),"A Detailed Guide to Construction Management Plans" It is a detailed study of the Construction Program. Provides Steps for Blocking Planning and Additional Notes When the scope of the project describes each role and responsibilities of the team member in detail. It also includes project time, finances, methods and methods to be used. Draw Out A Work Breakdown Structure (WBS) Can They Arrange The Right Work In The Right Tool Freely. Discussed about the benefits of design WBS is that it improves the efficiency of project management and helps managers ensure uniform job distribution.

Anders Segersted, et.al.,(2010), 'Supply chains in the construction industry' This paper discussed the construction industry and the management of its supply chain. Explain the specification process before customer order arrives showing different levels of specification: developer to order, adjust to order, prepare to order, select different. from the topic of the current study Understanding the principles of supply chain management and efficiency in the poultry industry series. Discussed by a combination of research and development of simulation models, the impact of various supply chain

management processes on project performance was measured.

Jamie D. Collins, et.al.,(2021)"Knowledge management, supply chain technologies, and firm performance" The purpose of this paper is to provide an overview of the relationship between information management, investment in supply chain technology, and the overall performance of the company. combines multiple functions and knowledge management technologies IT investments are based on overall performance and not on supply chain efficiency. supply chain managers looking for IT or other technological improvements should focus on multiple performance indicators.

xue le shen , et.al., (2021)"Enhance the integration on process in construction supply chain management" he suggested, in this context, that information and communication technology (ICT) could be used to achieve a better organizational approach for efficiency, customer loyalty and value. Various IT technologies have been used in the literature to improve the integration process in the procurement management of building materials In order to improve material efficiency.

Monica Colina, et.al., (2019)"Information and Communication Technology as a Key Strategy for Efficient Supply Chain Management in Manufacturing SMEs" Recommended knowledge and expertise in supply chain management At present, service delivery is influenced by a variety of factors. It is based on book reviews and evaluations of construction workers' opinions. Finding a better business relationship leads to the confidence to present data in order to have a reliable information management system that has chosen a way to allow supply chain management to better adopt ICT. With a special focus on adequate procurement and asset management, a good forecasting system and a better computer control system allow these types of businesses to have competitive advantages and better performance.

Sanjay prakash(2021) "The campus design demonstrates innovative design thinking to arrive at a blueprint for community scale net zero design" India should benefit from the development of Net Zero Energy in more than one building or home. An example of an upcoming project hosted by IIT jodhpour. The author calls this method to build and desert. The compass id is built with modern technology and a friendly environment.

Annakramers, et.al.,(2011),"ICT applications for energy efficiency in buildings" This paper examines network feasibility in the construction industry. Demonstrate an ICT application in the construction industry and the benefits related to the roles played in the business sector as a visual demonstration of real-time prices for user awareness and decision support. Smart grid is possible in construction. Integration technology is collaborating with stakeholders and sharing information across multiple forums in ICT tools.

3. CONCLUSION

Studies and interviews are conducted with supply chain management in zero energy-based journals being collected. The construction of Zero energy in India faces daunting challenges. Improvements in supply chain management should lead to the need for the electricity generation industry. The NZEB building project project management has identified a relevant problem in supply chain project information management. Subject-related data is collected and with the help of a questionnaire is involved. Different data technologies proposed by the developers are ICT, BIM, IoT, Block chain.

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BIOGRAPHIES

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