PROMINENCE OF SUSTAINABLE CITY IN THE PROGRESS OF INDIAN ECONOMY- A REVIEW

Abstract.

India is the land of agriculture combined with a wide variety of cultures and diversity. But, our country's economy is not decided only by farming activities and also by the growth of industries. During the period of industrialization, the migration of people was initiated largely and the movement from village to the city becomes higher. Due to this, the growth of the population in a particular area upsurges more than the rural area and that directly leads to an increase in the growth of the economy. To maintain the growth of this economy as steadily, the government was initiated various plans to fulfill the basic needs of peoples who exist in that industrial area. Among the basic needs, providing shelter in the means of providing a home to the people and industry set up for the workers becomes a major task. During this scenario, a large number of houses and industries were constructed throughout the country as reinforced high rise buildings and industries, development of roadways, etc., by continuous extraction of Mother Nature. In this current situation, due to the continuous exploitation of nature activities, the mother country becomes the worst place for living beings day by day and this brings us to live in a vulnerable future. To balance the race between economy and nature, many developed countries have understood this seriousness and change their attitude towards protecting nature by practicing the concept of sustainability in their construction for a very long period. But in our country, the term sustainability was in an emerging stage. Sustainability in construction means that make the habitant live combined with nature and positive amenities such as health, economy, social and environmental through implementing the limited usage, recycled, eco-friendly and low cost type of material in the construction. It is very important to protect the resource of nature in order to maintain the stability of the country's economy. In this paper,

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it was studied that the root factors, methods and materials which are essential for the successful implementation of sustainability in construction, especially in urban areas.

Keywords: Sustainability, Construction, Recycle, Greenhouse gas, Economy

I. INTRODUCTION

Ever since the beginning of industrial revolution, the Construction sector was accounted as an imperative measuring tool of country economy and it bound a major role with job contribution about 110 million employers as worldwide [1]. In this 21st century, the existence of human was paired usually with rapid civilization, over exploitation of earth resources such as forest, land, fossil fuels and minerals. Meanwhile the rapid growth of construction sector leads to climate change and environmental degradation as a large part, which cause unfavorable effects to human being by means of scarcity of fresh water, degradation of land and soil, loss of biodiversity and pollution [2]. The materials consumed in the construction sector were highlighted as a source of high $C0_2$ emission and various pollutants. From the recent study, it was evident that about 30 percentage of air pollution is responsible by the dusts which are generated from the construction sites and it was further frightened that it was weakening the components of whole ecosystem [3]. In past few decades, while many of the countries have involved themselves to make active efforts in the form of water and energy conservation, recycle and reuse of household waste items etc., In India, as recent times the government and private sector have jointly initiated various agendas for the modification of construction sector towards green construction [4,5]. In every annual budget of India, it was apportioned that Rs. 50,039 /- crore [Budget 2020-21] by the Ministry of Housing and Urban Development, for the growth of construction sector and their related fields and it was reflect the major part of the total expenditure budget. Presently our India have faced major problems as shown in fig.1 below, which are hounding the construction industry.

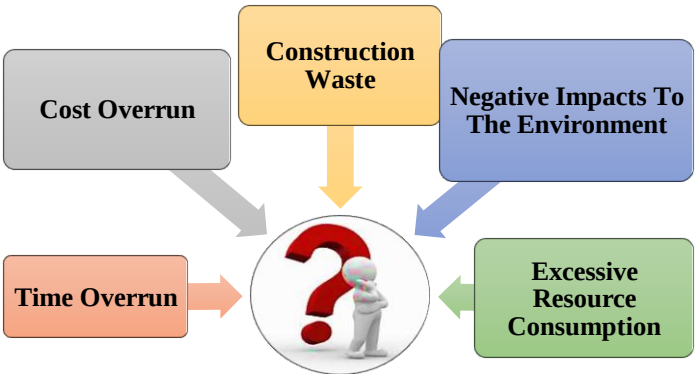

Figure 1: Major problems faced by construction sector in India

Among all these, now days the consumption of natural resources and Impact over environment have focused largely. The cities are consider as the contraptions of sustainable development and provides opportunities for urban people to become stable persons as economically and socially [6] . Over half of the world's total population was live in cities, and account for 70% of total CO_2 emission and 78% of energy consumption. However, there are endeavor efforts taken by the government for the generation of opportunities in employment, safe and affordable housing, creating green public spaces, building resilient societies, public transport and basic amenities such as supply of wholesome drinking water, sanitation and vital infrastructure facilities with good environmental condition [7]. The main objective of this study is about to develop a plan for enrich economic prosperity and

conservation of environment in the cities and to control the negative impact existent in the construction sector through implementing the concept of Sustainable development.

1. **Approaches to sustainable development:** In the latest report of Indian Ministry of Urban Development, approximately the 31 percentage of total population have lives in urban areas and they are contribute about up to 63 percentage of country's Gross domestic product [8]. Due to the rapid urbanization, it was estimated that at the year 2030, the urban areas are expected to accommodate with 40 percentage of Indian population and contribute to country GDP as 75 percentage. In India, the economic growth was largely decided by its urban growth especially with large cities [9]. The Government of India has launched the several schemes shown in fig 2 below, with an aim to offer a quality life to residents with clean and sustainable environment by adopting the smart solution.

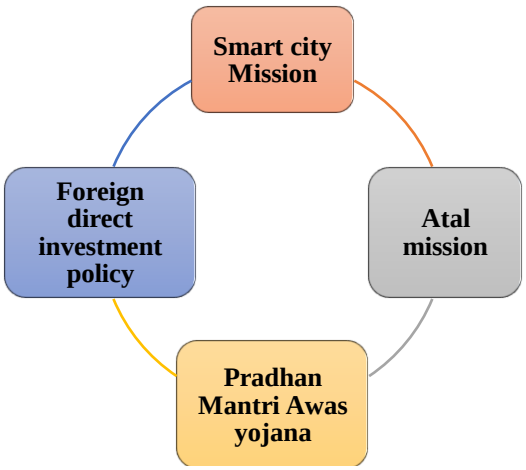

Figure 2: Indian urban Infrastructure Development Schemes

Strategies of sustainable Development for Indian cities: An unorganized development scheme of Indian cities might spoil the boundaries of its improvement schemes and goals for the sustainable development. Under the guidelines of United Nations organization, there are 17 important goals are planned and implement to attain the sustainability by the year 2030, in the new areas such as economic inequality, Climate change, Sustainable consumption, Innovation, peace and justice [10,11]. Out of which, through sustainable cities and communities, it was planned to make Indian cities as safe, resilient and sustainable. In the year 2030, it was assessed that the seven mega cities of India could accommodate more than 10 million people and the government of India was functioning towards address the challenges of extending the urban spaces, in order to ensure that meets the targets before the year 2030, set under SDG 11 have mentioned below.

- To Ensure affordable housing for all and basic amenities such as water and sanitation.
- To improve efficient transportation system through improving road safety and broaden the public transport
- To decrease the economic loss related to GDP through various disaster and counteract the number of death by protecting the people from vulnerable situation
- To reduce environment impact of cities through special attention given to problems such as air pollution and solid waste management

- To provide facilities to elder citizens, women, children and people with disabilities by provide universal access
- To create the Constructive Social, environmental and economic relations between the urban and rural areas by strengthening regional and national devolpment planning
- To provide support for least developing countries through financial and technical assistance and construct building with resilient and sustainable nature by using local resources.

2. **Concept of smart city and Indian economy:** The problem related to Indian cities such as efficient management and sustainable development due to slowdown of global economy and climate change are lead to discuss about the important context called "Smart city and Economy" [12]. The concept was framed based on international polices and finding the solutions for the problems such as Social deprivation, Poor environment management and poverty [13]. The implementation of concept of smart city depends upon the sustainable development that includes environment, equity and economic concern. Usually a smart city concept was segregated by six important building blocks which were shown in fig 3 below.

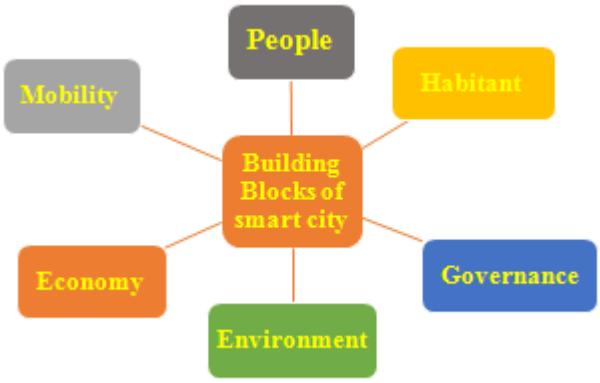

Figure 3: Major building blocks of Indian smart city

These six major building blocks are needed to function joint together to frame a good smart city system. It is quite possible to describe the conceptualization of smart city system to overcome the new possible challenges in future [14, 15]. In recent decades our Indian policy includes the urbanization as a major part of economy in the national development policies. From the year 2011, on wards there are 53 metropolitan cities in our country. Out of which, the larger metropolitan cities such as Mumbai and Delhi are having ability to generate more wealth to nation than smaller cities. In recent periods, the Delhi- Capital of India has grown as the second largest populated cities in the world next to Tokyo and possesses highest per capita income in the country [16, 17]. Through urban economy and size of population, the Mumbai city has generate vibrant economy through tax revenues for India.

During last two decades, the urban condition of India has been reached an exceptional rate. It was estimated that the India population was reached about 1.5 billion in the year 2030 out of which, the 40% of population was become urban settlement than rural area [18]. From the output of nation statistics, the GDP by the smart cities has been increasing progressively due to higher employment and generation of income in cities and towns. The factors such as

investment in skill training and availability of vast workers are provide a platform to start a business as ease with the wealth of urban areas [19]. Hence, the GDP of rural area get diminished when compare to urban cities and towns. By the contribution of urban area in GDP growth, the rate was expected to increase about 75% from 63% of current rate in the year 2030 [20, 21]. This increment of 12% GDP was achieved only by the investment of urban share in human resources for developing industrial skills and built a sustainable urban environment by constructing the efficient infrastructure [22]. By creating more plans of smart cities in urban areas, the annual growth rate GDP of 9% can become possible and it may act as "Engine of Indian economy".

When compared urbanization condition of different states of India, the Tamilnadu, Kerala, Gujarat, Maharashtra and Manipur are highly urbanized states [23]. But the Andhra and Karnataka are known as lower ratio of urban population. From, it was clearly understand that the share of National domestic Product [NDP] was highly contribute by the urban population of the state [24]. Hence the Government of India, initiate the Mission called "Smart cities" with the objective of "Sustainable and Comprehensive Growth" with the major smart city elements such as E-Governance, Water management, Waste Management, Energy management and Skilled people [25,26]. In the lack of studies for changing urban infrastructure and usage of land for smart cities, to propose the expected changes in the land use and city structure where there is Indian economy operating [27]. These changes allowed Indian economy to starts functioning in the smart city. We need to consider all additional activities, which are responsible for employment and wealth for the best suited Indian economy, and it can be based on as many land use types as possible [28,29]. Further, such changes could possible by expanding interaction between various sectors of governments, civil society organizations, private sector, and citizens .

3. **Summary:** Initiate the mission of Sustainable city would have multiple positive effects on Indian economy and they are discussed below:

- The sustainable construction may improving the quality of people life and give boost to field of infrastructure
- The sustainable cities can generate more employment facilities with the economic development of urban areas
- Achieving sustainability in Smart city construction were consider as a major factor by building policy makers, builders, designers and industry peoples who demand zero energy consumption in their constructions.
- While construct the building with zero energy consumption by considering the effect of greenhouse gas emission and effect of embodied energy.
- Environmental impacts related with mankind activities are reduced by optimize usage of resources and increase the usage of renewable products in construction.
- Further, it is necessary to develop the profile of materials which are interacting with environment to assess its detailed regarding impacts over environment.
- It is important to understand the selection of material to provide health and comforts to the occupants.
- Beyond that, it was suggested that the government and private agencies in charge of construction should take measure to initiate sustainable construction with relevant indicators, specifications, requirement, guidelines and practice for the growth of Indian Economy.

- Providing certification and creating awareness through higher education for sustainable Construction practice is an important parameter of environmental sustainability and its further development.

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