

“Different Dimensions Contributing to Sustainable Urban Development in Metropolitan City of Bengaluru”

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Abstract: Urbanism and urbanization are the two buzz words that are highly diversified as part of any cultural, social, governance, planning, administration and religion-based approach. Urbanization is growing in length and breadth and has alarmingly affected the world leading to threatening social, environmental, institutional and economic activities. Sustainable development in urban cities tries to meet the requirements for the development of metropolitan cities like Bengaluru. Generation to generation developmental activities changes and impacts the dimensions contributing to sustainability. The author in the present paper has emphasized understanding different dimensions contributing to sustainable urban development in metropolitan city of Bengaluru.

Keywords: Urbanism, Urbanization, Dimensions, Metropolitan city, Bengaluru

1. Introduction

Urbanization is a way of life that explains the diffusion of different cultures into urban society. Urbanism also tries to bind social and economic phenomenon which creates social and technological relationships as a process and tries to imbibe these as characteristics of population, function, behaviour standards so on.

As per the World Bank, IBRD-IDA report “56% of the world’s population – 4.4 billion inhabitants live in cities”. This trend is expected to grow by 2050, when at least 8 out of 10 people will start living in cities. In this aspect, it becomes essential for the city municipal corporation or the ruling leaders to quickly plan for the growth by providing the basic services, infrastructure by having more of affordable housing by expanding the population needs in such metropolitan cities.

Sustainable development in urban cities tries to develop by meeting needs of a community without compromising the ability of the coming generations to meet their own needs and requirements by giving importance to economic, environmental and social sustainability. Sustainability demands the balanced and quality life between the social and environmental needs of the community in urban cities.

It is now important to check on the fast urbanization which leads to urban planning and the achievement of sustainable development goals which emphasizes on the importance of localizing these goals into a participatory planning cycle. The recognition of the role of cities in contributing to urbanization in sustainable development is a large consensus and is also a part of recent global agendas. As a part of this, sustainable development goals are aiming at

making cities and human settlements inclusive, safe, resilient and sustainable. Also, it is found that urbanization is also an accelerator of the sustainable development goals which promotes economic growth, innovation and social economic opportunities in abundance.

In this study an attempt is made to understand the different dimensions that contribute to sustainable development in urban Bengaluru. Bengaluru, being the hub of IT, education, business and many other activities that contribute to the economic development is increasing day-by-day. It is also the hub for many start-ups, MSMEs and small business entities. People are attracted to the investment avenues, has totally built a different ecosystem for the ongoing development in varieties. It also has a greater contributor towards the green economy by practicing a lot of initiatives.

Considering the developmental activities, it prompted the researcher to understand how different dimensions contributed to the sustainable urban development in a metro city like Bengaluru. Sustainable development goals are important for every city in order to contribute to the economic development of the urban cities. The researcher has tried to study these dimensional categories as contributing factors to sustainable urban development.

The dimensional categories are broadly divided into four: Environmental, Economic, Social and Institutional.

2. Literature Review

Anna Lea Eggert et al (2023) in their article on identifying barriers and potentials of integrated assessments of sustainable development focusses on protecting the existing infrastructure resulting in unsustainable adaptation pathways. The paper developed a framework for integrating sustainable urban development and coastal adaptation to climate change.

Mederly et al (2021) in their article has opined that sustainability has to be clearly measured and assessed. The article has studied the sustainability dimensions, thematic categories and categorized indicators. The study concluded that generally decision making is applicable for the creation of new urban sustainability indicator frameworks.

Bibri E (2021) says that the underlying components of data driven smart sustainable cities of the future are based on the framework of strategies. In their article they have identified that increased pressure on cities has led to a stronger need to build sustainable cities. It highlights urban design strategies, ecocity design strategies and technology solutions, data driven smart city technologies.

Elias S (2021) According to the author many models of ecocity are based mainly on the principles of urban ecology or combining the strategies for sustainable cities and smart cities. The paper also highlights and fills the gap between eco-urbanism and smart urbanism.

Bhargava et al (2020) their paper explains all the indicators that are contributing for the sustainable urban development. It also identifies urban problems and causal factors. The paper also left the scope open for integrated simulation models having included social, economic, environmental dimensions for planning strategy.

Zhang H et al (2020) the article studies how urban planning from multiple perspectives strives to create balanced environment. A comparative study is conducted in the article where analysis happens on the verge of development level. It also highlights more on the global climate problems.

V Watson (2016) the author opines on how to frame and implement the new urban goal according to what is called the new urban agenda. According to the plan the argument by the

government is that the planning should be more serious for the development of urban cities. It focusses on the different planning objectives and styles that form the planning policy.

Objectives of the study:

1. To discuss the conceptual framework of sustainable urban development for Bengaluru as a metropolitan city.
2. To identify and study the relevant studies addressing the aspects of sustainable urban development.

3. Discussion on Dimensions:

a. **Environmental Dimensions:** These dimensions are the ones that are the outcome of the environmental standards that became a part of sustainability. The dimensions indicate the dynamic environmental standards that are foreseen by the population of the city. How the changing landscape adds to the environmental issues is a matter of discussion.

Bengaluru is one of the growing urban centers, facing challenges related to sustainability towards pollution, waste management, green spaces. In this regard there are several activities and initiatives aimed at promoting developmental activities in the city. In a city like Bengaluru, green spaces are increasing because of result of awareness among the people in urban areas. Greenspaces involve preservation and conservation of green spaces for the ecological balance. Places like Cubbon Park, Lalbagh, diversity park of freedom park and many more which are a part of the green spaces. It also includes community gardens and promoting roof top gardens as a part of green space activity.

Infrastructure related to public transportation has to be given weightage to reduce reliance on private vehicles and also decrease congestion and emissions. Inside Bengaluru University campus cycling and pedestrian path is laid for friendly movement. A lot of programs are initiated for managing waste. Segregation of waste at the house level is a great initiative taken by municipal corporation as part of waste management strategy. The city experimented on conversion of organic waste into energy.

Rainwater harvesting is a significant concern, and it has gained importance in Bengaluru over a period of time. Both government and private has taken initiatives in encouraging the installation of rainwater in residential and commercial buildings. In addition, renewable energy sources such as solar power can reduce the usage of other energy and also by decreasing carbon emissions that are harmful. Bengaluru has seen the increasing usage of solar energy by installing rooftop panels in houses and office buildings. This initiative is supported by government subsidies and incentives.

b. Economic Sustainability:

Economic sustainability in Bengaluru generates wealth by creating a thriving that meets the needs of the present and future generations. Economic sustainability has become an integral part of fostering urban development in any metro city. There are several ways identified namely job creation, entrepreneurship, infrastructure development, growth, private-public partnerships and many others.

Creation of diverse job opportunities in IT and manufacturing sectors fosters economic sustainability. Such jobs create talent from various regions and cultures and alleviate the urban infrastructure. Secondly, Bengaluru is the hub for many startups. It encourages innovation and entrepreneurship driving towards cultural exchange and solving the new and emerging

problems. With entrepreneurship many technologies are practiced and add to economic sustainability.

In view of infrastructure development, quality of life for residents in Bengaluru is supported by infrastructure projects in terms of transportation networks, affordable housing, well connected railways, roadways, airways. All the above support the efficient functioning of enterprises. Bengaluru prioritizes inclusive growth and ensures the advantages to all segments of society. Inclusive growth is possible by promoting access to education, healthcare, financial services, enhancing social inclusion, mitigating social and economic disparities.

The metro city foresees economic sustainable initiatives in the form of collaborative projects between government and private sectors. The collaborations address complex challenges faced by the city with regards to poverty and pollution. Sustainable urban development in Bengaluru is possible due to competitiveness in the global arena. Global investments attract skills and talent from across the globe fueling economic growth and development.

c. Social Sustainability:

Community well-being, equality, affordable housing etc are the factors contributing to social sustainability in Bengaluru as a metropolitan city. First and foremost, investing in healthcare and education enhances human capital development and improves quality of life. Bengaluru is again the education hub which has many deemed to be universities, state universities for higher education, schools that disburse quality education for a competitive world, which continuously thrive for fast changing educational requirements.

Corporate hospitals and medical colleges with more robotic technology-based treatment cater to the needs of the people forward and this makes Bengaluru socially sustainable for the urban development. In addition, low-cost houses, affordable houses, redevelopment projects in and around Bengaluru create more inclusive social development. Employment opportunities are created for all segments of the society in Bengaluru reducing poverty and promoting social growth marginally.

d. Institutional Sustainability:

Institutional Sustainability in Bengaluru is possible due to effective governance structure, policies and framework, waste management, accountability and various other factors. Most of the institutions are transparent, accountable and participative. In Bengaluru, some of the institutions involve citizen participation for their better performance and contribution to Corporate Social Responsibility. Institutional Sustainability is driven by investments in green infrastructure, energy efficient buildings, and waste disposal mechanisms. The urban development projects are planned and managed by knowledge-based skill supported initiatives in Bengaluru. It is again a hub for more expos, global meet, training programs, knowledge sharing medium for different stakeholders in terms of capacity building. The most important is with financial mechanisms leveraging private sector investment to philanthropic funding, adds value to public invested, implemented and supported financing initiatives.

4. Conclusion

In conclusion, sustainable urban development in a metro city like Bengaluru is multifaceted. It is important to bring together environmental, social, institutional and economic dimensions for a better and more sustainable future for Bengaluru. There are certain factors that are to be prioritized for the well-being of a developing city by conserving natural resources by mitigating

the effect of climate changes due to pollution and waste management. In turn this will attract more investment.

By considering the dimensions holistically, it will pave way for the prosperity of Bengaluru. It helps the city overcome its present challenges and creates better opportunities by building sustainable and livable city for all residents. Bengaluru, a metropolitan city, must in the future emerge as a model city that balances economic, social, institutional and environmental dimensions and inspires other cities.

Now, it is in the hands of everyone directly or indirectly to make the metro city of Bengaluru a better place to live.

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