

# URBAN SUSTAINABILITY INDICATORS CHALLENGES AND OPPORTUNITIES FOR URBAN DEVELOPMENT

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## **Abstract**

*Urbanization has become one of the most important problems characterising the relationships between human ecosystems. Quantification is required with the assistance of appropriate sustainability metrics to assess progress towards sustainable or unsustainable urban development. There is general ignorance about contextual significance and understanding the idea of sustainability that varies from one country to another and the economic strata of that business. The aim of this review is to mitigate this challenge by identifying key problems facing the production and implementation of sustainability initiatives in the urban context and by proposing remedial recommendations. This describes two broad categories of issues, according to their respective phases of growth and implementation, and three tentative requirements for the application of urban sustainability indicators. In 2015, the Sustainable Development Goals (SDGs) and targets for the next 15 years were adopted with the specific aim of introducing a comprehensive strategy for both developing and developed countries to sustainable development. These goals are assumed to be more incorporated into strategy than the Millennium Development Goals (MDGs) because, when dealing with globally agreed principles, nations will prioritise the goals and goals over national scales and local circumstances..*

**Keywords:** *Indicator application, Indicator evaluation, Indicator framework, Sustainability targets, urban sustainability*

## **I. INTRODUCTION**

The environmental footprint of cities stretches well beyond their institutional limits, with both energy and material flow being promoted by the ecosystem's efficient and assimilation services. The resource base used by the urban population is, in general, located away from

their consumption location. The biophysical effects of rapid and other unregulated urbanisation are therefore felt. A significant proportion of the people who live in the cities are urbanizers. According to the United Nations, there are three big patterns in the migration of people from rural to urban areas. Firstly, the concentration of 'metabolites' in developed countries, that is, municipalities of more than 20 million inhabitants.

Asia, Africa and Latin America; second, presence of more than half of the world's urban population in cities with less than 500,000 inhabitants; and 3rd, 95 per cent with urban population growth in developed country cities of approximately 4 billion. In particular, India and China are expected to see the rapid urbanization of about a third of the urban population in the coming decade[1]. Urban development is dynamically balanced between economies of size and scale and economies like habitat degradation and leakage, in line with the three patterns mentioned above. Cities face both positive and negative cultural, social and economic effects of urbanisation on trade. Anthropocentric assets accumulate as cities expand as they are common assets facing a related decline.

This accumulation of anthropocentric assets is the product of growth in economic and social standing. In addition to institutional addendums, sustainable development has historically been associated with three major environmental, economic, and social dimensions. Equitable, viable and sustainable growth must be sustainable. Sustainability is considered a weakness with a poorly developed conceptual structure, with lopsided performance in the different dimensions of sustainability, mainly environmental sustainability. Many scholars argue that the concept of sustainability is modified according to the goal field of the researchers[2]. According to some specialist, usually there is no universally agreed Sustainability concept. Sustainable development means achieving sustainable development which addresses human needs and improves the quality of life. At the same time, natural resources should be used to a frequency and degree that can be maintained by the ecosystem's regenerative capacity[3].

## II. IMPORTANCE OF SUSTAINABILITY INDICATOR

For the sustainability aspects of biophysical, social and economic aspects, the nested hierarchical method was endorsed. They argued that, in the triple bottom line context, social, economic and environmental factors should not be seen as comparisons. The functioning of the life support system, social structures, organizations and economies rely on each other to keep running. While they have explored this strategy to a limited extent, it is important to note that nested hierarchy approach takes into account the biophysical limitations of the earth as the final boundary which contains social and economic parameters and consists of them[4]. The concept of sustainable development gives rise to various definitions, with specific focus on "what to create, what to maintain," the relationship between climate and growth and their temporary size. This ensures that certain tools that can be used for growth should be defined with their limitations (carrying capacity), along with the natural components or limits that need to be preserved or maintained for the proper functioning of ecosystems respectively, in order to be sustainable. Sustainability is a concept described rather "loosely." Ideally, the wider definition involves the triple bottom line, but the principles are more oriented in practical terms and include more environmental sustainability. Sustainability is the most "challenging and divisive" topic in terms of its "interpretation and implementation" and, however, when the word "sustainable" combines with "growth," its emphasis shifts in economic development rather than overall sustainability[5].

The regenerative and carrying potential of the Planet eventually drains away as nations concentrate on economic growth as the primary element of sustainable development. With a

possible conflict of interests and stakeholder exploitation, social impact on the definition of sustainability makes its evaluation less objective, restricted to a given scope. Thus, social sustainability is the most critical component of sustainable growth, and yet it is not fully clear what it consists of. We are questioning whether it involves rising [6], or not declining, disparity between individuals or nations, good health or national institutions failing. It has identified the triple bottom line as an abstract notion of biophysical, economic, and social elements, as well as inter-generational equity as the fundamental notions of sustainability, and holds that the definition of sustainability is a normative choice rather than a definite concept.

Sustainable development, according to experts, provides a more general direction for assessing and streamlining policies towards urban function and structure. Instead of a precise definition. That very fact led to the development of the Sustainable Development Goals with 17 broad objectives and 169 connected national-priority goals. It was argued that the towns are democratic and economic effects on agriculture when exporting their externalizing climate to areas outside their borders. This notion is very critical in evaluating urban area sustainability because it stretches well beyond its administrative boundaries[7]. The Sustainable Development Goals (SDGs) and priorities for the next 15 years were implemented in 2015 with the clear intention of implementing a holistic approach to sustainable development for both developing and developed countries.

### III. ANALYSIS OF THE SUSTAINABILITY GOAL IN URBAN SUSTAINABILITY

These goals are believed to be more integrated into policy than the Millennium Development Goals (MDGs), as nations can prioritize the goals and objectives over national scales and local conditions while working with internationally accepted standards. SDGs are followed by specific metrics and other goals often include "means of implementation," including banking, trade, technology transfer, etc. For example, Goal 17 presents a cross-cutting target theme that includes finance, commerce, multi-national cooperation and capacity building to facilitate implementation of the other 16 SDGs [8]. Theoretically, these metrics and goals are universal but literally not applicable to every country. Goal 11 of the SDG, to make cities inclusive, safe, resilient and prosperous, discusses urban sustainability and covers the following cross-cutting issues: affordable housing, sustainable transport, human settlement planning and management, green and public spaces, promotes positive economic, social and environmental links between developed, disruptive and rural areas, and develops and implements.

The metrics proposed for these objectives include, but are not limited to, the proportion of the population living in slums, the ratio of land use to population growth, total and per capita expenditure on the conservation of natural and cultural heritage, solid waste collected, and the proportion of local governments implementing disaster risk management strategies under the Sendai Scheme. The goals of the SDG emerged from a lengthy period of international negotiation. Sustainable Development Services Network (2015) reports that it was found that only 49 targets out of 169 had a well-developed scientific history when these targets were tested for their scientific robustness. 54 Present of the targets needed to be more specific in terms of scope while significant improvements were needed by 17 per cent. The main flaws observed in the evaluation were lack of progress, inconsistency between priorities and targets, and between international agreements and political agendas, unavailability of data and non-quantifiable targets[9].

From Table 1 it is clear that all aspects of sustainability emerge from human actions, such as resource use, emissions, need to consider, among many others, the potential of a system, intergenerational equity and tipping points. Because these activities are concentrated in urban areas, urban sustainability works across environmental, social and economic sustainability as a cross-cutting problem. Here space is used to describe sustainability. Material and energy supply and waste generation should not exceed the capacity of the city for a sustainable environment.

**Table 1: Definition of Sustainability: Economic, Social and Environmental**

Theme	Urban Sustainability
Economic	Focus on manmade ,natural ,human and social capital resource utilization should not affect future income intergenerational equity for resources economic activity should consider basis intergenerational equity , distributional equity ,optimal growth
Social	Should address the perpetuity of social values ,identities ,relationship and institutions common goals and social cohesion health, education ,food, water ,housing should be sustained for each individual
Environment	Social and economic development should have sound environment foundation natural resource management should have high priority tipping points, threshold i.e. air ,water pollution level

There should be internal economic activity, population growth, infrastructure and services, pollution and waste restricted in the system to allow the urban structure to evolve in harmony, reducing the negative effects on the natural environment internally. Mention should be made here of the lack of concept of urban boundaries. Politically urban borders are defined as countries, states, towns, and other terms [10]. They have an edge in terms of policy execution and progress evaluation. For decision-makers and stakeholders, measuring sustainability based on those boundaries is easy to understand. Sustainability, because urban areas extend beyond their political or administrative limits measured for politically defined urban areas is meaningless, subjective and the ground reality is diminishing. However, the value of political and administrative boundaries persists, and cannot be questioned, as they provide the community with a clear mechanism to implement sustainable policies. For more information on sustainability models[9].

#### IV. CONCLUSION

There is comprehensive literature on the application of metrics in sustainable development. Owing to the overpopulation of the measures, the most significant and appropriate ones need to be taken out. Yet in order to pick such a simpler indicator method, the main technology and growth problems have to be tackled. This work represents a step in that direction. To define the difficulties associated with each step, we set out the steps involved in the indicator process. The major challenges and opportunities for each step in the process were then analyzed. As preliminary considerations for an indicator-based assessment of urban sustainability, we found that data quality, goal or thresholds and a conceptual framework are

required. While setting a benchmark and defining thresholds, assessing the after-implementation indicator system including sensitivity analysis and system adjustment..

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