

## SUSTAINABLE DEVELOPMENT: COMPLEXITY AND MULTI-DIMENSIONALITY

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**Abstract.** When 193 countries adopted the 2030 Agenda for Sustainable Development, the concept of sustainable development received a new wave of attention. The present article argues that divergent views on the concept actually come together to make a system of common values shared by different actors across different intellectual disciplines. This, in turn, provides space for experimentation and practical efforts in the area of sustainable development.

**Key words:** sustainable development, environmental degradation, resource use, urban development, 2030 Agenda for Sustainable Development.

### 1. Introduction

Centuries before the “Limits to Growth” report detailed the predicament of mankind and called for “ecological and economic stability that is sustainable far into the future”, Plato (already in the 5<sup>th</sup> century BC), and later Pliny the Elder (in the 1<sup>st</sup> century AD), discussed what we now refer to as *sustainability problems* resulting from human activities (deforestation, land degradation, etc.) and called for what we identify as *sustainable solutions*, i.e. the need to preserve the environment and the planet at large [1, 2]. There were other important writings – mostly in the Western world (Malthus, Jevons, Mill and others) – that put on the scene the problems of inappropriate resource use, population growth, environmental degradation and limits to growth [2]. Ultimately, they preceded the late 19<sup>th</sup> and early 20<sup>th</sup> century conservation movement, which, in its turn, paved the way for the end of the century debates on a new model of development that would combine socio-economic and environmental concerns. There have been many attempts to define this

new model of *sustainable development* and have been many more analyses claiming that, as Bromley put it, “it is at once a fine idea and a hopeless concept” [3]. The present article argues that the lack of a commonly accepted definition of sustainable development, which results from different perspectives brought into a sustainability debate by a multitude of actors, actually creates a common framework where different actors can take actions at different levels and of unequal scale. To achieve this objective, the article will first examine the debates on the concept of sustainable development. It will then look into the “urban” aspect of sustainable development with the intent of showing that “policies for sustainable development gain their greatest leverage in cities” [4]. The argument will be supported by a brief overview of sustainable urban development efforts in different countries followed by an analysis of the attempts to operationalize a system of indicators to measure progress towards sustainability. The article will conclude with a re-examination of findings against Bromley’s thesis that sustainability as a concept is hopeless.

Before the arguments are presented, it is important to mention that the terms *sustainability* and *sustainable development* will be used interchangeably in this article.

### 2. Literature review

Modern understanding of sustainable development emerged only in the 1970–1980s. Spurred by the abovementioned report by Meadows et al., as well as reports of the Worldwatch Institute, International Union for the Conservation of Nature and others, discussions on the existing development model were pointing at the need for departure from business-as-usual scenario to a new path of sustainable development [5]. This new

sustainable development path was defined by the Brundtland Commission as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [6]. This definition has been both criticized for being too anthropocentric and ambiguous and praised for its universality that makes it “so good everyone can agree with whatever their own interpretation” [7].

There are many other definitions of sustainable development, including by the International Union for the Conservation of Nature, World Conservation Union and others. Differences in approaches to defining sustainability are conditioned by models, beliefs and assumptions of different actors [1]. For example, neoclassical economists (Solow, Ekins, Neumayer, Beckerman) believe that the market will lead to conservation and sustainability, in which manufactured and natural capital can be almost equal substitutes; the so-called environmental economists (Daly, Pearce, Constanza, including the Brundtland Commission) believe that economic growth should incorporate environmental concerns; while pure environmentalists (Holling; Naess) insist on the health of the Earth and its ecosystems a primary concern [4, 5, 8]. On the other side, one can differentiate between the debates that sustainable development should focus on the present-day needs and values or aim to ensure intergenerational equity and provide some form of social bequest [3, 9]. In other words, while there seems to be a consensus over the concern for the future and a search for a new development model, the very attempt to define it generated a storm of criticism of the concept for being “poorly defined and perhaps inoperational”, embodying “deep conceptual ambiguities” and “frustratingly vague” [10, 11, 12]. Pezzey even called an attempt to define sustainability “an alchemist’s dream, no more likely to be found than an elixir to prolong life indefinitely” [12].

This debate over the definition of the concept of sustainable development has reaped fruitful yields. Despite the lack of consensus, or rather due to a variety of approaches to defining sustainability, a number of common points, values and themes can be distilled [13]. These include: concern for long-term development of the planet; agreement that current global trends are unsustainable; a need to balance between economy, society and environment; understanding that the Planet is a “small” but highly interconnected system; a need for “interdisciplinary approach to decision making” [11]. This is not to say that based on these common grounds one can design a formula or a checklist against which an assessment could be made whether we are moving towards achieving sustainability. There are a number of challenges on the way of operationalizing such a broad concept as sustainability: a global shift of the centre of

the world economy to Asia, high levels of urbanization, widening poverty gap in the midst of economic growth, unpredictable collapse of ecosystems, uncertainty of the future values, preferences, prices and technologies and others [10, 14]. However, the common points, values and themes in the midst of differences and in the face of challenges present “a coherent and meaningful philosophy that points in clear directions and has concrete applications” [5]. These common values and themes were put together into the Sustainable Development Goals (SDGs) adopted in September 2015 by a record number of states during the UN Summit on Post-2015 [15]. The SDGs embody the “fine idea” and aim to preserve the Planet for the future generations; whether the “operational content” of this framework is indeed hopeless is early to assess [3]. Sustainable development is a long-term process that will take many years to achieve tangible results [16]. Nevertheless, the SDGs strive to prove that it is “at least technically possible to conceive of an ecologically stable world characterized by economic sufficiency and true social development” [4].

### 3. Discussion

At the end of the 18<sup>th</sup> and beginning of the 19<sup>th</sup> century, alongside the concerns about the population growth and its pressure on food production as well as depletion of crucial resources (such as coal, oil, and wood), deterioration of urban environments became the focus of philosophers, industrialists, scientists and writers. Engels’s description of the *great towns* of England of the middle of the 19<sup>th</sup> century with a deep enquiry into the conditions of life of the working class produced a gloomy picture of the life in an industrial city [17]. The city became a synonym of a crowded poor-quality environment detached from the countryside and at the same time taking more and more resources to keep it growing. All later writings (including but not limited to Howard, Mumford, Daly and others) in different ways pointed out to the deterioration of natural systems, vast inequalities and poor quality of life of the working class, as well as *growthmania*, as a companion of the city growth [13].

This traditional perception of cities as *trouble-makers* for a transformation towards sustainable development has, however, been challenged many times after these early writings. Glaeser, Satterthwaite, and others claim that cities are not ultimate drivers of unsustainable resource use, high greenhouse gas emissions and waste generation. They are in fact centres of *good* growth, “places of social, economic and political innovation” and “the real friends of the environment”: cities usually have lower consumption

and waste generation levels, smaller ecological footprint, higher resilience and better health and safety services precisely due to higher densities of urban areas [18, 19]. This is not true for all cities though and – one could even argue – not always good. In some of the most densely populated areas of cities in low- and lower-middle income countries people are trapped in poverty with low or no access to energy, water and sanitation and other basic amenities and services. So, what is a sustainable city and sustainable urban development?

Similarly to a lack of consensus on what constitute sustainable development, there is no standard definition of a sustainable city and sustainable urban development. Definitions vary from broad descriptions of “a city that is working hard to promote some operational version of sustainability” to definitions that emphasize certain aspects of urban environments, such as innovative design of buildings, effective transportation planning policies, etc. [16, 20]. Wheeler suggested a definition that assigns equal importance to human and ecological systems emphasising a long-term perspective and improvement over time while recognizing uncertainties and dynamism of a city as a complex system [5]. However, most approaches to defining a sustainable city tend to focus on either human needs or a balance between the human and natural worlds while *ignoring* the aspects of the social justice and equity. One of the definitions that attempt to reconcile the so-called “three E’s” (economy, environment, and equity) is given by Benton-Short and Short:

There can be no sustainable city without social justice, political participation, economic vitality and ecological regeneration. We can also conclude that there can be no sustainable future without sustainable cities [21].

Lack of a definition and a unified approach to sustainable urban development has not prevented communities from undertaking various sustainability initiatives. Indeed, “[g]overnments, communities and businesses have all responded to the challenge of sustainability to some extent” [22]. These attempts have taken various forms, starting from the experiments to create garden cities following the classic publication of Howard (such as Letchworth and Welwyn Garden Cities built by Unwin, Parker and Howard), to City Beautiful Movement and smaller scale efforts of activist groups such as Eco-City Activists, Auto-Free Cities Groups and others [5]. These and other initiatives bring into life the “hopeless concept” of sustainable development at the city level and aim to prove that sustainability can combine not only the three E’s but also break the idea of *limitations*, i.e. that a city can embody “hedonistic sustainability” [23]. Review of literature on these

initiatives and ideas allows to identify key values of a sustainable city such as livability, diversity, health of the natural systems, identity, non-violence, vitality, etc., and key equity principles such as intergenerational, intra-generational, geographical, procedural and inter-species equity that can be used as a basis for assessing sustainability of cities [5, 24].

Assessment of any of the attempts to build or transform the city requires a system of indicators against which sustainability can be measured. There have been many attempts to construct such a system of indicators. One of the most well-known initiatives of this kind in the United States was undertaken by Portney. Although Portney himself recognized that he did not “attempt to determine whether cities are, or are becoming, sustainable” and analyzed 24 cities that had and were implementing some city policies and programmes, the value of his system of indicators lies in demonstrating that cities are taking sustainability “seriously” [16]. Jepson who followed in Portney’s steps went one step further and analyzed responses from 103 cities with a population of at least 50,000 people against 39 indicators. He concluded that there are “fairly high activity levels among communities of all sizes and in all parts of the country with respect to a wide range of policies and techniques that are consistent with and supportive of sustainable development” [25]. There have been many other attempts to measure sustainability of American cities, such as a survey of Conroy; Saha and Peterson; Pierce, Budd, and Lovrich [26, 27, 28]. Most recently, the Opp-Saunders Sustainability Practices Index aimed to assign equal value to each of the “three E’s” and used it for the assessment of some 1,340 cases [29]. Each of these indices of indicators tries to build on the previous research to integrate and balance all aspects of sustainable development and recognize the difficulties of such a large and comprehensive assessment even within one country. Nevertheless, these different approaches are unanimous in their conclusion that cities are trying to operationalize the concept of sustainable urban development to a various degree and within different levels of understanding of the complexities of this concept and that this process and its results can be measured, even if each researcher develops his or her own system of indicators.

Of significant challenge and interest will now be a system of indicators to measure progress under the targets of Sustainable Development Goal 11. The Goal together with its targets is criticized for being “likely to face both political and operational challenges” that will make the progress (and its monitoring and evaluation in particular) almost impossible [30]. Indicators developed by the Sustainable Development Solutions Network received a considerable amount of attention and

comments during the Public Consultations [31]. A consensus over the Global Monitoring Indicators has not been reached. And even if (and when) the new metrics are approved, the efforts and changes that will need to be taken and made to ensure planning, implementation, enforcement, monitoring, and evaluation will be so challenging due to inter-sectoral, multi-layer and multi-actor aspects of urban environments, that Bromley's words about "a fine idea and a hopeless concept" will inevitably gain more support among even the greatest supporters of sustainable urban development [3].

Nevertheless, the inclusion of the goal on cities into the SDGs adopted by a record number of states in the world's history speaks for itself and proves the "centrality of cities in the future realization of global development aspiration" [30]. And the very fact that the *world* (not individual community, business, city or research initiatives) has made this step towards operationalization of the concept of sustainable development and will try – as one can easily imagine, with varying degrees of commitment, success rate and challenge – to progress towards this "alchemist's dream" proves that Bromley was right that sustainable development is "a fine idea" and that "as a metaphor to guide some action it is probably quite adequate" [3, 12]. It may be premature to judge whether it is indeed "a hopeless concept," especially now, when the world has just turned a new page and made a collective first step into the era of Sustainable Development Goals, which may happen to represent that "constructed order" that Bromley considered necessary for operationalizing sustainability [3].

## Conclusion

Bromley was right by calling *sustainable development* "a fine idea" [3]. But it is *fine* not only because it reminds us about the fate of the future generations and our impact on it, but also because it generates a philosophy that can meaningfully unite individuals, institutions, and nations in its pursuit [32]. The present article by providing a brief overview of the various approaches to defining sustainable development strived to show that these divergent views on the concept actually come together to make a system of common values and themes shared by different actors across different intellectual disciplines. Complexity and multi-dimensionality of the concept became further evident during the analysis of the concept of a sustainable city. This has led Bromley and other critics of sustainable development call this paradigm hopeless and devoid of practical operational meaning, a statement which was challenged in the article by a short review of the practical efforts in the

area of sustainable urbanism and the attempts to design and apply a system of indicators to measure progress towards a sustainable city.

The article also argued that "[r]ather than striving for an unattainable certainty – in this case a guaranteed sustainable world – what is important instead is to make global systems [...] strong and robust... In the case of urban development, such an approach means constantly looking for ways that shape human and natural environments so that they improve both local and global well-being" [5]. The Sustainable Development Goals with Goal 11 addressing specifically cities and human settlements – although are and will continue to be criticized by the proponents of simple, linear and predictable development models – present an opportunity to operationalize and test global, national, and local commitment to sustainable development. They will be difficult to achieve and measure, but they will also generate new practical efforts and a wealth of research on these efforts around the world that will further define how sustainable development is conceptualized and operationalized. In any case, as Sergio Vieira de Mello put it, "Unless we aim for seemingly unattainable, we risk settling for mediocrity" [33].

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