

# Chapter 17

## Sustainable Development Indicators: A Review of Paradigms

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### ABSTRACT

*Since the economic development ceased to represent by itself the main issue in achieving human well-being—at least for western societies—scientists have discovered that the sustainability may represent an even more significant threat for human civilisation in a fundamental sense, almost irrespective of material wealth. Sustainability assumes that the economic development is deployed in compliance with the other facets of human demand for well-being: preservation of biodiversity and climate, the human rights, the integrate approach of distributional justice, etc. Evaluation of development sustainability represents a real scientific challenge, proved by the wide variety of indicators in existing national and international sets. The Sustainable Development Indicators (SDIs) are the practical tool that address the balance between the development and sustainability, ensures evaluation and translation of knowledge into meaningful and manageable units of information to support analyses and research, and to inform planning and decision-making. There are pointed out the fundamentals of SDIs design and theoretic specific frameworks. As the majority of indicators are applicable straightforward, the main focus in presentation is upon the calculation algorithm of aggregate SDIs. In this respect, the chapter comprises the estimation algorithm of capital components of wealth; also, there are introduced the human life quality and environmental indicators, that can represent a suitable complement of wealth measurement, for a comprehensive development in agreement with the surrounding nature, society, and respect for future generations.*

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## INTRODUCTION

Sustainability has different meanings to people depending on education, lifestyle, and personal development. The paradigm of “sustainable development” has the roots in the Report of the World Commission on Environment and Development “Our Common Future” to the General Assembly of the United Nations. The sustainable development was defined as a development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987, p. 15). Though not precise, the underlying idea of the concept relies on the term of *sustain* that means “to maintain; keep in existence; keep going; prolong”<sup>1</sup>, that is, sustainable development is that type of development that can be continued into the indefinite future. During various stages of development of human society, there can be identified some states of development that easily could be considered as “sustainable.” Pearce and Warford (1993, p. 42) emphasize that the “development” during these stages is equivalent with less or even none intrinsic value for “sustainability” in itself; that is, the challenge of the concept resides not so much in the word “sustainable” but in “development”.

Generally, development presents a positive connotation, given by its immediate link with a better future. The most common indicator used to evaluate the development was income *per capita*, or Gross Domestic Product. Unfortunately, this approach is facing the distributional issue: if, in a situation of average income augmentation, the poor part of the population is getting poorer, the development is seriously questionable.

United Nations Development Programme (1994, p. iii) consider the development as the process that increases people’s opportunity of

choice. If the UNDP definition has the human as central element, the ecologists, may tend to consider as negative the processes that put in question environmental robustness, even if these processes are for benefit of the people.

Besides the economic development, United Nations (UN, 2008, p. 18) consider also, and other facets of development, such as the state of health, education, and governance, as important factors in meeting basic needs. Education represents the main source of knowledge, skills and capabilities that allows greater individual freedom via possibilities of choice and, as such, represents an important part of development. Governance and institutional arrangements present important connections with individual freedom and possibilities of choice, as essential parameters by which should be considered the level of development.

During a very long historical period, sustainability was considered as such and not as an explicit goal. But, implicitly, there were no human society that ever promoted consciously its own un-sustainability.

Generally, the sustainability of a system is threatened if the change rate of related entities or subsystems over-paces the adequately response capacities of the system. If the system’s response ability is overwhelmed by the changing rate, the system loses its viability and sustainability. The sustainability passes now in the foreground, due the humankind is threatening itself by both of these factors: the dynamics of its technology, economy and population, which accelerate the environmental and social rates of change, while growing structural inertia reduces the ability to respond in time. (Bossel, 1999, p. 1)

The chapter has as objective to present the frameworks in designing SDIs sets, theoretical controversies and practical issues, and the algorithms of their implementation.

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