



Study of Sustainable Development Bibliography and its Criticism

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Abstract

This paper examines sustainable development as presented in current literature. The distinction between weak and strong sustainable development is presented and analyzed and a critique of the scientific application of their rules is made. The research methodology is based on secondary sources and the application of a dialectical tool to extract reasonable conclusions about the most appropriate form of sustainable development. The conclusions support weak sustainable development as the most appropriate to address the issues of the triple bottom line, society economy-environment.

Keywords: Sustainability; Weak Vs Strong Sustainable Development; Critique of Sustainable Development

Introduction to Sustainable Development

With the onset of the Industrial Revolution, a rebuilding of Western societies began, based mainly on fossil fuels as the main form of energy and with the aim of increasing and better exploiting the planet's natural resources. During the course of the Industrial Revolution, the drivers of progress (economic and political actors with power to shape or otherwise affect policy) were unaware of the dangers of the increase in extraction, production, and the external costs that these processes introduced into the environment.

The environment at the time was defined as of infinite quantity and, hence, capacity, something we know today all too clearly that is patently untrue. The increased standard of living allowed the citizens to focus on the positive effects of industrialization and to postpone dealing with the negative outcomes of industrialization for the future. This type of industrialization exposed society to its first experience with pollution, soot, factory waste and urban waste, which were all increasingly in need of management.

Modern societies are inextricably linked to the current model of industrial development and are being held accountable for every negative outcome that is historically attributable to them over the past five hundred years. At the same time, the environmental burden has been accumulating for decades. It may now be beyond the capacity of the environment to absorb or the ability of the economies that have come out of this to reverse it.

The World Commission on Environment and Development (also known as the Brundtland Commission) (1987) [1] points out that "Humanity's inability to fit its activities into that pattern is changing planetary systems" (p. 18). In the face of this impasse between the need for growth and environmental degradation, countries and their corresponding economies and societies needs to strike a delicate balance.

Definitions of Sustainable Development

¹In his book, "Sylvicultura Oeconomica", Hans Carl von Carlowitz connects forestry with its economic implications for both the individual and the economy as a whole and defends the idea of "restrained exploitation" with the aim of continuous production of a fixed quantity. At the same time, he suggests standards for the operation of logging and trains lumberjacks under his supervision. (Kaiser & Hein, 2018)

²Also known as the Triple Bottom Line (Elkington, 1998), since it examines the achievement of three different order classes.

Below are some definitions and formulations around sustainable development. In the context of this work and after a critical review of the literature it was deemed appropriate to distinguish between those who suggest weak sustainability and those who seek solutions in strong sustainability.

The debate on weak sustainable development must begin with the definition of the World Committee on Environment and Development (1987) [1], which defined sustainable development as "(the development) ... that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 24). Central to this argument is that economic growth must coexist with environmental protection and respect in the rights of societies to exist in perpetuity, and this is exactly what is emphasized in most theories of weak sustainable development. However, a review of the literature did not reveal purely "environment-centered" or alternative theories of sustainable development. Every theory of strong sustainable development that develops is again focused on human society and the continuation of its existence. Nevertheless, the measures proposed and the emphasis on the need for radical change classify them into their own category, which is characterized by condemnation of the current social and economic model in favor of environmental sustainability.

Definitions of Weak Sustainable Development

Although the concept of sustainability has existed since antiquity, the term sustainability was first used in the modern forest literature¹ of the 17th century to describe the desired effect of forestry interventions to be for a forest to give its owner (and consequently to the economy and society) the same benefits in perpetuity.

The World Committee on Environment and Development (1987) [1] set the framework for sustainable development and a people-centered approach to sustainable development, defining the threefold objective² of society-economy-environment in this order of priority, as the focal principle in order to pursue sustainable development, but also by putting human society at the center of its definition.

Sustainable development is a megatrend³, since if proper care is not given and things are left to go on unchecked, the results will have serious consequences, such as species extinction and resource depletion. point out that until recently, humanity relied on the logic that societies evolve and develop largely independently of each other, the ecosystems that surrounded them, or with the earth system [2].

The interdisciplinary⁴ pursuit of sustainability is a new area from which to look for answers to the great challenge of how the world will move towards global sustainable development [3]. The goal in measuring sustainable development, is to identify critical and relevant points in the industry and then set goals for improvement [4].

Komiyama and Takeuchi [5] approach the problem of sustainable development at three levels of "system", Global, Social and Human. The global level summarizes all the components that make up the environment in which man survives. The Social includes the political, economic, industrial, and other dimensions that man has constructed for his survival. The Individual consists of all those factors that concern the survival of each individual and the provision of a complete way of life, and are inextricably linked to the Social system. In this Komiyama and Takeuchi echo Kilbourne, McDonagh, & Prothero [2,5] in that they recognize the personal level of experience as a distinct field of study from the threefold of society, economy and environment. At the intersection of these systems, suggest Komiyama and Takeuchi, arise the problems of the science of sustainable development, with the ultimate goal of achieving global sustainable development. The article also acknowledges that two of the biggest problems facing sustainable development science are the complexity of the problems it seeks to solve and the lack of expertise of the experts trying to solve it. Coline Ruwet's model (2007) classifies consumers into three categories:

1) The "committed and supportive consumer", who sees con-

sumption as a political act with social implications and who tries to channel his power towards the empowerment of the weak and, indirectly or directly, towards underdevelopment for the benefit sustainable development,⁵

2) The consumer who trusts the inherent logic of the market system (the tradimodern consumer), who sees the current model of economic growth as self-evident and acceptable, and

3) The intermediate consumer (the consumer borne by the wave), who is torn between the two extremes and sees sustainable development as an oxymoron, as sustainable development is possible only from the moment that growth stops.

In their article [6] argue that a systematic approach to waste should be divided into two types: 1. Managed waste, ie those that are attributable and managed, ie the internalized costs of industry, and 2. Ecosystem waste, ie channeled into nature and unmanaged, therefore constituting external costs that are pushed onto the environment and, hence, society. They suggest that "ecosystem waste" should be linked to the market economy, so that the management of this waste becomes part of any plan for sustainable development.

Definitions of Strong Sustainable Development

Weak and strong sustainable development is defined as:

Weak Sustainable Development is the replacement of spent or degraded environmental capital with (hypothetically) an equal amount of anthropogenic capital.

Strong Sustainable Development is compensating for the consumption of natural resources with a corresponding investment in natural resources of a comparable type (Goldblatt, 2007)

Based on the confirmation of the Jevons' Paradox⁶ [7] for

³Megatrends are global powers that influence the development of business, economy, society, cultures, but also personal life, influencing, in depth; the evolution of the world in which we live in and increase the pace of change. (Kilbourne, McDonagh, & Prothero, 2018)

⁴Lang et al. (2012, pp. 26-27) define transdisciplinary as "... (a) reflexive, integrative, method-driven scientific principle aiming at the solution or transition of societal problems and concurrently of related scientific problems by differentiating and integrating knowledge from various scientific and societal bodies of knowledge".

⁵Hence advocating for strong sustainability.

⁶Jevons' Paradox refers to William Stanley Jevons's work, "The Coal Question; An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal Mines." He predicted that continuous improvement in energy efficiency would not reduce energy consumption, but the motivation towards the reduction. Since consumers would find more value in small household appliances that could more economically replace existing goods (eg. electrical power vs whale oil).

many sectors of the economy, Herring and Sorrell (2009) believe that sustainable development is incompatible with the ongoing application of the current economic growth model of developed and developing countries. They indicate the increasing energy consumption in EU-25 during the period 1999-2004, despite the policies for increasing energy efficiency, and in the conclusion echoed in Ang and Liu (2006) that the trend of increasing energy consumption has been disconnected from GDP growth.

Willson and Wu (2017) talk about three dimensions, differentiated based on the intensity of sustainable development [9].

Weak Sustainability, as described by Hartwick (1977) and Solow (1986), is characterized by the authors' view that the three pillars or bottom lines, or chapters of sustainable development are society, the economy and the environment and that the resources concentrated in each may substitute the other two.

Strong Sustainability, as described by Page (1983), Daly and Cobb (1989, p. 534), Holland (1997) and Daly (1995). The basic premise of this group of theorists is how the first two types of capital economic and social) originate and depend on the third (environmental).

Absurdly Strong Sustainability, whose theorists disagree with the technical substitution of pillars amongst themselves, but who also promote the non-exploitation of nonrenewable (mineral and non-mineral) resources, the avoidance of actions that may threaten endangered species, etc., no matter how urgent the needs of humanity.

In their article Biely et al. (2016) suggest that Weak Sustainable Development is not sustainable for three reasons: 1. Arguments about reducing land use and using it for alternative uses imply heavy use of fertilizers and pesticides in lieu of land. 2. Mild sustainable development looks more like a series of quick patches, rather than a holistic approach to solving fundamental problems in the current development model. 3. The concept of the green economy follows the trend of the

unsustainable current economic model, which has led us to the current impasse and is therefore part of a solution that has already been tried.

Critique of the Theories of Sustainable Development

Seyfang (2009, p. 76) emphasizes that there are significant contradictions between different concepts and definitions of sustainability. For example, actions aimed at locality/self-sufficiency run counter to sustainable practices designed for poorer regions through the Fairtrade system.⁷ A blanket ban on unsustainable activities would endanger native communities in the developing world, locking them out of global trade and making them susceptible to exploitation, racism, marginalization and radicalization [18,19].

Lunde (2017), accepting the definition of sustainable development of the Bruntland Commission, conducted a qualitative study using a series of semi-structured interviews to establish the stakeholders' view of environmental sustainability in terms of stakeholder theory⁸ with the aim of establishing guidelines for CSR (Corporate Social Responsibility). The results showed that it was not always in the company's CSR interest to align with the views of stakeholders. Instead, according to Lunde it must always consider their motives, their political beliefs, but also the moral consequences of environmental and sustainability issues.

Adams et al. studied the application of sustainable practices in logistics. They concluded that in an industry that is extremely cost sensitive, sustainable practices have a negative impact on business profitability and competitiveness. The authors therefore suggest that before implementing sustainable practices one should make sure 1. that it is something that customers/buyers want and are able to benefit from, 2. that they are compatible (under conditions) with economies of scale that can be passed on to customers/buyers, and 3. that these practices be applied by the entire industry, or by industry sector depending on the industry they serve, or by implementing it through strategic vertical alliances, which will guarantee preferential treatment in purchasing matters.

⁷Fair trade is an initiative of Fairtrade Labeling Organizations International, a non-profit organization. Fair trade is defined as follows: "Fairtrade is an alternative approach to conventional trade and the most widely recognized ethical label globally. It is a strategy for poverty alleviation and sustainable development through ensuring the payment of a minimum price and of a defined additional (development) premium. Its purpose is to create opportunities for small scale farmers and workers who have been economically disadvantaged or marginalised by the conventional trading system" (Anderson, Booth, & Mohan, 2014).

⁸Stakeholder management is essential to establishing and building relationships with "customers, governments, communities, suppliers and the environment". Stakeholders may refer to Investors, Environment, Employees of the company, Customers, Suppliers, Communities, Governments. (Ambler & Wilson, 1995; Donaldson & Preston, 1995, σ. 67; Boston College, 2010)

Discussion

Following is a critical analysis of the definitions of weak and strong sustainable development.

Discussion on the Definitions of Weak Sustainable Development

Rockström and Bai and Pinna et al. have an anthropocentric view of sustainability, as they emphasize the need to find solutions to the impasses of sustainable development, with the understandable goal of continuing the current development model. Komiyama and Takeuchi (2006) reinforce Rockström's view, as they embrace his point of view and at the same time point out shortcomings in the structure of the scientific community.

Ruwet (2007) studying a logical hypothesis from a marketing perspective concludes that from a consumer behavior point of view sustainable development, based on the dipole of necessary development and necessary sustainability, will be the one that will find the balance between them.

Barbir and Ulgiati (2008) using a quantitative (almost fiscal) logic conclude on the urgency of the obligation to identify the external costs of development and integrate them into the current development model.

Discussion on the Definitions Strong Sustainable Development

Herring and Sorrell confirm that sustainability is not legislated, as efforts in the (almost) two decades (1987-2004) following the Brundtland Commission report have not yielded the desired results in terms of reducing energy consumption. With households taking the reins in energy consumption, the conclusion of Ang and Liu (2006) on the disentanglement between GDP and energy consumption is justified.

Biely et al., Goldblatt and Willson and Wu all agree that weak sustainability is not the answer and that we need to look at strong sustainability as the only viable solution for the future.

Seyfang and Lunde agree that there are inherent contradictions in the theoretical literature on sustainable development. It seems that the conclusions drawn by some authors and scholars may be shallow and rash, since without having an opinion or perception on the deeper issues of sustainable development, they use the term "sustainable development" as a key word or as a fashion to advertise a virtuous and moral attitude.

the term "sustainable development" as a key word or as a fashion to advertise a virtuous and moral attitude.

Adams et al. emphasize that the adoption of sustainable practices in industry must meet a number of criteria before they can be implemented, so as not to jeopardize the profitability of companies, but also to strengthen their competitive advantage. They underlines how difficult it is to reform an industry (the logistics industry) that is at the heart of global industrial development, market stability and international balances in a free market and fully

Conclusions

After the critical examination of the theories of sustainable development it is concluded that although sustainable development is legitimate and imperative, any interventions made with sustainability in mind should be made after a logical accounting and assessing of their potential disruptive impacts on the economy and society. Anyone who tries to implement sustainability without a good grasp of the above conclusion runs the risk of operating with prejudice.

Future Research Objectives

The case for sustainability in the energy market made by [8] needs to be examined further, given the fact that energy consumption is moving on to another stage, due to the emergence of new technologies and the mobility of economic forces from the field of physical systems to that of electronics and networks. However, recent disruptions in the logistics and energy markets seems to predict a subversion of the field to politics, at least for the near future.

Seyfang and Lunde observe that there is still a large deficit in understanding the deeper issues of sustainability. Emphasis should be placed on articulating and quantifying these issues within each discipline and disseminating these results.

Kilbourne, McDonagh and Prothero's and Komiyama and Takeuchi's suggestion that there is a distinct personal field that has yet to be studied sounds very promising when viewed from the perspective of evolutionary economics. When combined with Ruwet's point of view then we must conclude that there most certainly exists a place where a persons psychography and political, social, consumptive and environmental views play a role in shaping the person's character and their choices.

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