

The Social Dimension of Sustainability: Towards Some Definitions and Analysis

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Abstract

The lifestyle of industrialized countries and economic growth in the decades of the 1960s and 1970s caused a serious weakness in the balance between ecology, economic stability and natural security of planet (Blewitt, 2008). The concept of sustainability emerged in response to these weaknesses that resulted from poor resource management, and was universally accepted (McKenzie, 2004). The term, 'sustainable development' was defined in 1987 by The World Commission on Environment and Development as, known as the Brundtland definition, "development that meets the need of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). The concept of sustainable development has been interpreted in various ways with a wide range of meanings. Within the first decade of its emergence "sustainable development has been interpreted as an ecological vision" (Åhman, 2013). However, in recent decades it has become more of a multi-focal agenda that strongly links environmental, social and economic notions, and reconciles the conflicts between them. In the first decade after the emergence of the notion of sustainable development in 1987, the concept of social sustainability had been neglected in comparison to environmental and economic aspects of sustainability. It was in the late 1990s that social sustainability was considered a fundamental aspect within the sustainability agenda. Thereafter it gained significant recognition. Despite the enormous amount of work which has been done in this regard in the last decades, there has been no agreement about a comprehensive definition of social sustainability to date, and this notion remains under-theorized to some extent (Åhman, 2013; Jaeger, Tåbara, & Jaeger, 2011; Littig & Griebler, 2005; Weingaertner & Moberg, 2014). Hence this paper aims to provide an understanding of the meaning of social sustainability, and the influential factors associated with it.

Sustainability

The lifestyle of industrialized countries and economic growth in the decades of the 1960s and 1970s caused a serious weakness in the balance between ecology, economic stability and natural security of planet (Blewitt, 2008). The concept of sustainability emerged in response to these weaknesses that resulted from poor resource management, and was universally accepted (McKenzie, 2004). There was a gradual awakening and awareness of the significance of environmental degradation and the impact of humans on the environment. Several seminal events were held in order to impose some limitations in this regard (see Figure 1). These included the publication of *Silent Spring* by Rachel Carson in 1962, in which it was strongly demonstrated that while humans assumed natural resources were infinite, human activity could cause serious and long lasting damage to the environment (Hardisty, 2010). One of the most significant reports of environmental degradation was by the World Commission on Environment and Development (WCED). In 1987, the General Assembly of the United Nation requested the WCED to formulate a global agenda for change based on strategies for sustainable development (WCED, 1987). The result was the report known as *Our Common Future*. Five years later, a number of agreements were reached at the United Nation's Conference on Human Environment in Rio in 1992, known as Earth Summit. These agreements included a Framework Convention on Climate Change, the Rio Declaration on Environment and Development, and Agenda 21, a non-binding Statement on Forest Principles (Grubb, Koch, Thomson, Munson, & Sullivan, 1993).

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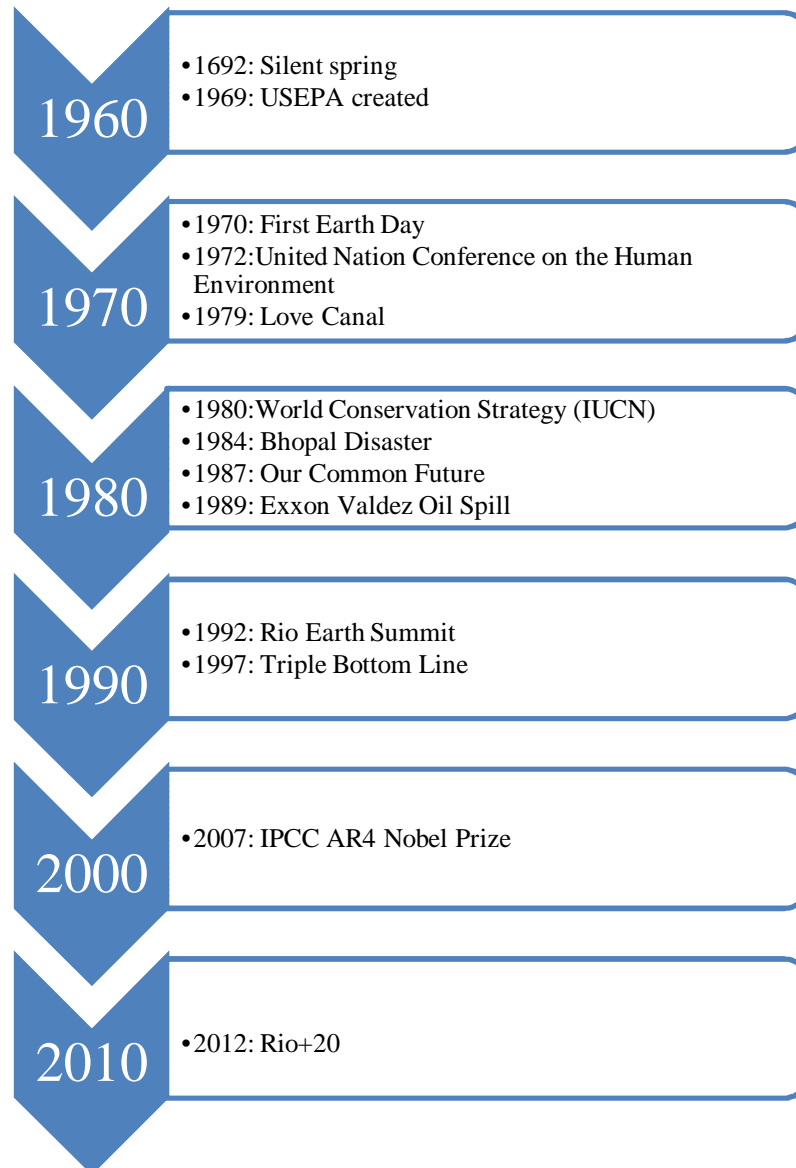


Figure 1, A timeline of global environmental and social awakening. Adapted from Hardisty, P. E. (2010). *Environmental and economic sustainability*. Boca Raton: CRC Press/Taylor & Francis. p. 18, and Bartelmus, (2013). *The future we want: Green growth or sustainable development* *Environmental Development*, 7, 165-170., and Hopwood, B., Mellor, M., & O'Brien, G. (2005). *Sustainable development: mapping different approaches*. *Sustainable development*, 13(1), 38-52.

The term, 'sustainable development' was defined in 1987 by The World Commission on Environment and Development as, known as the Brundtland definition, "development that meets the need of the present without compromising the ability of future generations to meet their own needs"(WCED, 1987, p. 43). The notion of needs in this definition has been significantly highlighted, and the basic need of the world's poor has been prioritized. In addition, the enforcement of limitations on environmental resources by the state of technology and social organizations has been emphasized so that the needs of present and future generations can be addressed.

The understanding of the concept of sustainable development, according to Brundtland Report requires the following: citizens should effectively participate in decision-making and it should be guaranteed by the political system. Economic system should provide a sustained basis surplus. Social system should be able to solve the problems and tensions that arise from "disharmonious development". The production system should guarantee to preserve the ecological basis, new solutions should be provided continuously by technological system.

International trade should be planned based on a sustainable pattern by an international system, and the administration system should have the capacity to correct itself and be flexible (WCED, 1987, p. 65). Sustainable development has been interpreted by Atkinson, Dietz, and Neumayer (2007) as an on-going process in which equity, ethical considerations, economy, and ecology have been combined in a way to address the needs of present and future generations of all living beings. This definition can be interpreted as an anthropocentric concept, because of the focus given to human needs. Another definition of sustainable development focuses on conserving and protecting all natural resources. This definition proposes that social equity should be upgraded and promoted, and the economic capital should be distributed equally within a nation and at the international level as well (Blewitt, 2008).

The relation between three pillars of Sustainable Development

The concept of sustainable development, a widely used term, has been interpreted in various ways with a wide range of meanings. Within the first decade of its emergence “sustainable development has been interpreted as an ecological vision” (Åhman, 2013, p. 1154). However, in recent decades it has become more of a multi-focal agenda that strongly links environmental, social and economic notions, and reconciles the conflicts between them. Thus, various terms such as the triple bottom line, and sustainable development have been utilized interchangeably in order to explain sustainable development (McKenzie, 2004). The triple bottom line, defined by the economist and environmentalist, Elkington (1999, p. 75), emphasizes that “a desired level of ecological, social, and economic sustainability cannot be achieved separately without at least achieving a basic level in these areas simultaneously”.

The three commonly agreed models for representing the interrelationship between environmental, social, and economic aspects of sustainability are the Venn diagram, consist of three concentric circles, and the planning hexagon. In all of these models, the different pillars of sustainability are conceived as separate but connected to each other independently (Giddings, Hopwood, & O'Brien, 2002). The Venn diagram, also known as the overlapping circles model, consists of three inter-connected circle, and sustainable development corresponds to the area where all three circles overlap (McKenzie, 2004) (see Figure 2). In the three concentric circles model, the outer and main circles are the environmental and economic spheres, and social circle is characterized as dependent on them (McKenzie, 2004) (see Figure 3). The planning hexagon, which is a lesser known model when compared to the other two models of Venn diagram and three concentric circles. This graphical model shows the relationships between more varieties and systems such as economy, environment, the individual, group norms, technical skills, and legal and planning systems (Lozano, 2008) (see Figure 4).

However, a totally different model for sustainable development, has been suggested by Giddings, et al. (2002) in which they believe that, economy is directly affected by human activity, so it is considered as a part of human activity. As a result, the separation between human activity and wellbeing (cultural and material) should be removed. It is believed that “the boundary between the environment and human activity is itself not neat and, but, fuzzy. There is a constant flow of materials and energy between human activities and the environment and both constantly interact with each other” (Giddings, et al., 2002, p. 193) (see Figure 5). This interpretation is similar to the model and framework of social sustainability suggested by Cuthill (2010), which will be discussed in the next sections, to some extent. They both consider human activity as the most influential factor, which affects other aspects of sustainability.

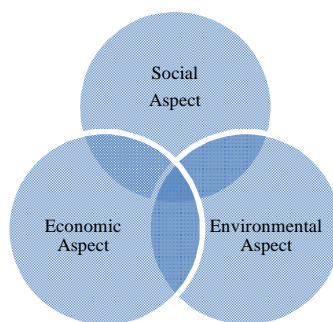


Figure 2. Venn diagram. Adapted from McKenzie, S. (2004). Social sustainability: towards some definitions: Hawke Research Institute, University of South Australia Magill, p.5

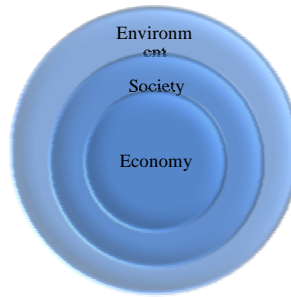


Figure 3. Venn diagram. Adapted from McKenzie, S. (2004). Social sustainability: towards some definitions: Hawke Research Institute, University of South Australia Magill, p.4

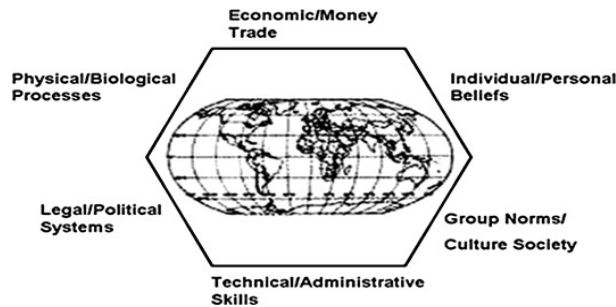


Figure 4. The Planning Hexagon: relations among economic/money trade, individual/personal beliefs, group norms/culture society, technical/administrative skills, legal/political systems, and physical/biological

Sources: Adapted from Lozano, R. (2008). Envisioning sustainability three-dimensionally. *Journal of Cleaner Production*, 16(17), 1838-1846. z, p.1840

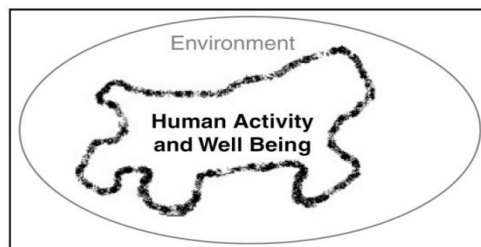


Figure 5: Breaking down boundaries: merging society and economy and opening up to the environment.

Adapted from Giddings, B., Hopwood, B., & O'Brien, G. (2002). Environment, economy and society: Fitting them together into sustainable development. *Sustainable development*, 10(4), 187-196, p. 19 this section provided general information about the definition of sustainable development, how the term originated, its different aspects and how these interact. The next section describes and evaluates the key concepts and definitions of the three pillars of sustainable development: environmental, economic, and social sustainability.

Economic Sustainability

This section offers a brief overview of the definition of sustainable economy and economic development. In response to the environmental destruction and overuse of natural resources the concept and theory of environmental economy emerged in developed countries in the 1970s to constructively change the ways of life by combining theories of the economy and ecology (Braat & van Lierop, 1987). However, it took a further decade (1980) for this notion to spread through the developing world. Sustainable development has been significantly influenced by the notion of economy because of the “application and extension of the notion of ‘capital’ beyond the spheres of economics, business and finance” (Blewitt, 2008). Economic aspect plays a crucial role in facilitating sustainable development by identifying options and alternatives for more effective natural resource management (Munasinghe, 1993). There are various and ongoing debates of the main concept and the definition of sustainable economy. Barbier (1987) claimed that poverty reduction from world’s poor is the main concern of sustainable economic development.

He believed that it is possible through the provision of safe, secure, and perennial livelihood; On the other hand, the main aim of economy in sustainable development, according to Rutland Report is to evaluate or estimate environmental and ecological destruction, while designing a proper solution for minimizing such degradations in the developing world(WCED, 1987). Providing a commonly agreed definition for the notion of sustainable economy is considered difficult, as this notion cannot be defined autonomously from the two other pillars of sustainability. Some authors emphasize the importance and the necessity of providing an independent definition of sustainable economic. For instance, Goldin and Winters (1995, p. 1)claimed that “it is necessary to narrow the definition of sustainable development to refer to an economy in which future growth is not compromised by that of the present”.

Environmental scientists and ecological economists have written extensively about the dependence of the human economy on the planet’s natural systems. Daly (1990)was considerably influential in this debate. He stated that the natural capital should be maintained and conserved as a top priority, because critical natural capital is not interchangeable with human-made capital. He believed that environmental degradation, unemployment, and inequality cannot be solved by economic growth. Hence, he coined the term 'uneconomic growth', to refer to the stage when economic growth exceeds a particular size and it starts to use up the valuable and mainly nonrenewable resources. As a consequence, the disadvantages of this growth become greater than the benefits. Similarly, Goldin and Winters (1995) believed that the linkage between sustainable resource use and growth is the pivotal and significant economic question. In the same manner Bartelmus (2012) highlighted the equality between nature and the economy, and defined economic sustainability as the preservation and conservation of both human-made and natural capital. The United Nations Department of Economic and Social Affairs (2011) recognized the green economy as an economic arrangement that improves the ecological stewardship, growth, and social progress.

As it has been discussed, some scholars assume that the key theme in defining economic sustainability is the relation between economic growth and the use of natural resources. However, others believe that the core concept is based on the long-term performance of capital. For example, development economist, Gerald (1976, p. 6)defined economic development as a “process whereby the real per capita income of a country increase over a long period of time—subject to the stipulations that the number below an absolute poverty line does not increase, and that the distribution of income does not become more unequal”. Barbier (1987) highlighted the importance of all three pillars of sustainability in achieving a sustainable economic condition. He believed that real improvement in sustainable economic development will happen only if all formulated and accomplished strategies are ecologically sustainable over a long period of time. However, the definition which seems to be the most applicable to this study, with regard to the economic sustainability of Kandovan and Goreme is provided by Atkinson, et al. (2007, p. 45) who stated that “if sustainability means leaving future generations with at least as many opportunities as we have today, then the way to achieve this is by passing on to future generations a level of capital that is at least as high as ours today”.

Environmental Sustainability

The aim of this section is to provide a basic understanding of the concept of environmental sustainability by reviewing the main concepts, and key themes and concerns that have been identified in relation to this concept to date. Prior to the emergence of the concept of the three pillars, sustainable development had been recognized as social and economic development that is environmentally sustainable. Moldan, Janoušková, and Hák (2012) stated that it was not until the emergence of this notion that social and economic sustainability had been accepted as separate, autonomous pillars of sustainable development. Hence, it has been generally recognized that all three concepts of sustainability should be defined and clarified separately. They also emphasized the importance of providing a clear and specific definition of environmental sustainability that is independent from the economic and social aspects of sustainability. Morelli (2013) believed that instead of an interrelationship between these three aspects of sustainability, a hierarchical model should be provided because of the high dependence of economic and social sustainability on the environment, and that without having a sustainable environment it is difficult, if not impossible, to consider a sustainable society or economy. He also determined that environmental sustainability was a “condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity”(Morelli, 2013, p. 5).

In regard to the core concept of environmental sustainability in Australia, Sutton (2004), the Commissioner of Environmental Sustainability of the Australian State of Victoria, emphasized the maintenance of natural support systems. Similarly, Moldan, et al. (2012) stated that the maintenance of natural resources and nature's services at a 'suitable level' may be defined as environmental sustainability. This definition is similar to the general definition provided by Goodland (1995, p. 10) of the "maintenance of natural capital". He explained further that this notion and definition is based on the input-output rules. In the next year Goodland and Daly (1996) suggested a fundamental definition for this notion based on input-output rules.

“Output Rule:

Waste emissions from a project should be within the assimilative capacity of the local environment to absorb without unacceptable degradation of its future waste-absorptive capacity or other important services.

Input Rule:

Renewable: harvest rates of renew-able-resource inputs should be within the regenerative capacity of the natural system that generates them.

Non-renewable: depletion rates of non-renewable-re-source inputs should be equal to the rate at which renewable substitutes are developed by human invention and investment” (Goodland & Daly, 1996, p. 1008). In this definition, Goodland and Daly (1996) emphasized the impact of human on environment. They believed that to achieve sustainable development, it is necessary to change the current policies and human values. To do so, the environmental costs and benefits from human activity should be calculated, and the difference between renewable and non-renewable resources should be clearly understood. The OECD (2001) has provided four criteria that define environmental sustainability:

Regeneration: the usage of renewable resources should not exceed the rate of their regeneration, and these resources should be used carefully and efficiently.

Substitutability: non-renewable resources should be utilized efficiently, and their usage should be limited to the levels that it can be interchangeable and replaceable by renewable resources of other sorts of capital.

Assimilation: The polluting substances should not be released into the environment more than its assimilative capacity.

Irreversibility: should be prevented and avoided.

Therefore, it can be concluded from the aforementioned definitions of environmental sustainability that this notion can be considered to be the maintenance and improvement of all natural support systems and services for the current and future generations of human and all other living creatures at the inter-intra generation levels.

Social Sustainability

This section aims to provide an understanding of the meaning of social sustainability, and the influential factors associated with it. In the first decade after the emergence of the notion of sustainable development in 1987, the concept of social sustainability had been neglected in comparison to environmental and economic aspects of sustainability. Environmental and economic issues appeared to be the main focus of the debate, and social aspects played a minor role in the discussions on sustainability. It was in the late 1990s that social sustainability was considered a fundamental aspect within the sustainability agenda. Thereafter it gained significant recognition. Despite the enormous amount of work which has been done in this regard in the last decades, there has been no agreement about a comprehensive definition of social sustainability to date, and this notion remains under-theorized to some extent (Åhman, et al., 2013; al., 2011; Jaeger, et al., 2011; Littig & Griebler, 2005; Weingaertner & Moberg, 2014).

It has been argued that it is unclear whether social sustainability refers to a need to sustain particular structures in societies and communities, or, is considered a precondition for sustainable development (Sachs, 1999). This section reviews and evaluates the most recent key definitions and concepts of social sustainability. Based on these, a definition and visual representation of the key concepts of social sustainability, which will be used as the basis of this study will be provided. Some scholars believe that the notion of sustainable development is primarily based on the social aspect.

Such as Cuthill (2010), as previously discussed, he argues that economic, and environment aspect of sustainability are highly reflected in the framework of social sustainability. He claims that, the environmental problem are in fact social problem, as ecological sustainability will be managed by the impact of people on the natural environment not the environment itself. He states further that people are served by economics, not economics by people, and this is relevant particularly for to the equitable distribution of resources, particularly (see Figure 6).

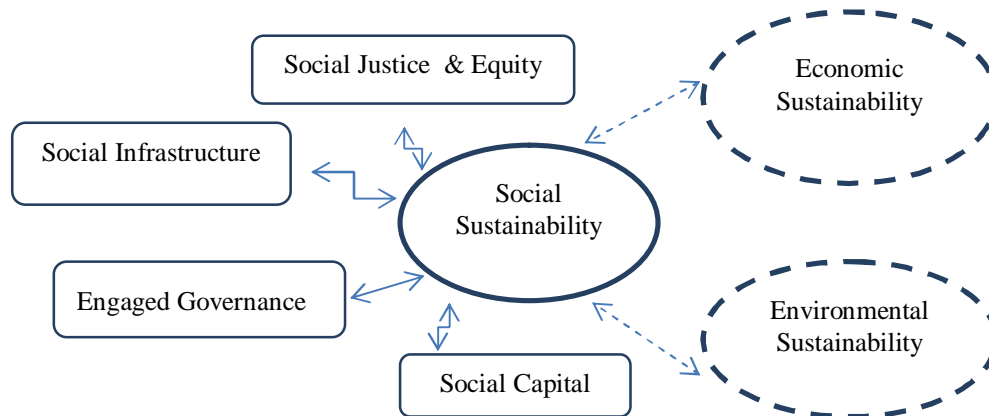


Figure 6. Conceptual framework for social sustainability. Adapted from Cuthill, M. (2010). Strengthening the ‘social’ in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in Australia. *Sustainable Development*, 18(6), 362-373. P. 366

In order to define the concept of social sustainability, Vallance, Perkins, and Dixon (2011) suggested a framework that identified three sub-categories of this notion (see Figure 7). Development sustainability addresses basic needs, and includes equity (inter and intra-generational), employment, education, justice, freedom, access to influential decision-making and general ‘capacity-building’, the distribution of power and resources, and access to basic infrastructure and services. Bridge sustainability emphasizes behavioral change in order to achieving bio-physical environmental goals. Maintenance sustainability refers to the maintenance of socio-cultural features in the face of change and also the ways that people react to these changes, that is, whether they embrace or resist them (Vallance, et al., 2011).

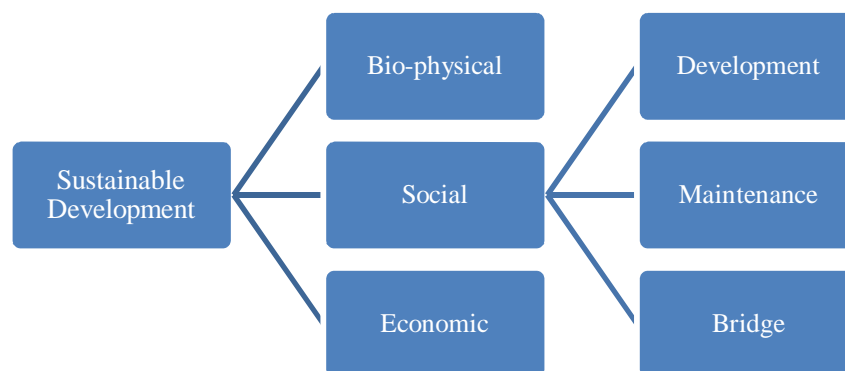


Figure 7: Three strands of ‘social sustainability. Adapted from Vallance, S., Perkins, H. C., & Dixon, J. E. (2011). What is social sustainability. A clarification of concepts. *Geoforum*, 42(3), 342-348. P. 345

Polèse and Stren (2000) defined social sustainability as a development which is able to occur by balancing the evolution of civic society, and this development will result in a more prosperous environment. They also emphasized the crucial role played by social integration, cultural diversity, and equity in their concept of social sustainability. This definition applies mainly to the urban environment, and the importance of social aspects that contain social integration, civic society, cultural diversity, the economic dimension, and physical environment. More specific definitions of social sustainability have been provided for built environment and housing. The Caistor-Arendar (2011) put forward the following definition of social sustainability as a process of creating a prosperous society by close and thorough understanding of people’s needs.

This includes “a process for creating sustainable, successful places that promote wellbeing, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world– infrastructure to support social and cultural life, social amenities, systems for citizen engagement and space for people and places to evolve”(Woodcraft, Hackett , & Caistor-Arendar, 2011, p. 16). Chiu (2003), instead of providing a definition, identified three interpretations to describe the notion of social sustainability in the context of built environment and housing. In the first interpretation, she considered that social sustainability is affected by social norms and values. She applied the term 'environment-oriented' to the second interpretation that assumes that ecological and environmental sustainability should be supported by social sustainability. This means that the social structure, values and norms must be changed in a way that is favorable to environmental and ecological sustainability so that ecological sustainability can be achieved. The third interpretation is more people-oriented, and contrasts with the second interpretation that is more environmentally-oriented. This third interpretation refers to maintaining or improving the well-being of people in this and future generations. The first interpretation highlights the ecological concept of sustainability rather than social dimension. Hence, argued that demonstrating a comprehensive concept of social sustainability requires a combination of the second and third interpretations that must be based on the environment and people.

The definition of social sustainability developed at Hawke Research, headed by Stephen McKenzie Institute, stated that “a positive condition within communities and a process within communities that can achieve that condition”(McKenzie, 2004, p. 23). Thus, social sustainability is interpreted as a condition and process, rather than a goal to be reached in the future. They also identified different principles that lead to this condition. The situation and condition will be indicated by various principles that can be summarized in five main themes: equity, diversity, quality of life, interconnectedness and eventually democracy and government (McKenzie, 2004). Some authors and scholars believe that the concept of social sustainability should be identified autonomously, while others argue that it should be defined in relation to other pillars of sustainability, mainly the notion of environmental sustainability. In this regard, Becker and Jahn (1999) defined social sustainability as long-term relationships among nature and society which lead to the viability of society.

In like manner, Littig and Griebler (2005) stated that work, relationships and interactions within societies mediate social sustainability, and it implicates the relationship between nature and society. Generally, social quality is called social sustainability by Littig and Griebler (2005). Murphy (2012) also claims that understanding the notion of sustainable development highly depends on a clear understanding of the interplay of the linkages, especially between social and environmental dimensions. According to Littig and Griebler (2005), social sustainability can be achieved when the work of community, society, and other institutional arrangements meets human needs and preserves natural resources. They claim that the work and policy of community and institutions should: “satisfy an extended set of human need be shaped in a way that nature and its reproductive capabilities are preserved over a long period of time and the normative claims of social justice, human dignity and participation are fulfilled.” (p. 72). Other researchers have emphasized the importance of the long-term sustainability of societies and communities. The definition of social sustainability provided by Biart (2002) includes the significance of minimal and critical social requirements for the long-term sustainability of communities and societies. He claimed that, to achieve social sustainability the challenges involve in the long-term survival of society should be clearly identified.

Key Elements of Social Sustainability

Jaeger, et al. (2011) argued that some authors have provided keys components of social sustainability instead of providing a general and comprehensive definition of it. Figure 8, illustrates some of the key elements of social sustainability identified by key authors. It can be concluded that equity and basic needs have been considered concepts at the core of this notion. Spangenberg (2004) assumed that the distribution of income and assets can be considered basic human needs, while education, training, income, social contacts, communication and participation, social security can be classified at the micro level of social sustainability.

Similarly, Colantonio (2008) suggested two substantial components for this concept: basic needs which focus on physical aspects of society and human life, such as health, housing, and food; and equity, which refers to social disparities, and contains a broad range of concepts, such as equal access to key services and education (McKenzie, 2004), and inter- and intra-generational redistribution of wealth (Partridge, 2005).

Åhman, et al. (2013) recognized equity as the key concept of social sustainability and categorized different applications for equity namely: education, quality of life, social capital, social cohesion, integration and diversity, sense of place.

Equitable incomes, social homogeneity, and access to goods, services and employment are some key themes, provided by Sachs (1999) as the key components of social sustainability. He considered the basic values of equity and democracy as fundamental requirements for a valid definition of this concept. He also highly emphasized the attribution of all human rights by all people, such as social, cultural, civic, economic, and political (Sachs, 1999). “A strong definition of social sustainability must rest on the basic values of equity and democracy, the latter meant as the effective appropriation of all human rights – political, civil, economic, social and cultural – by all people” (Sachs, 1999, p. 27). Murphy (2012) developed a conceptual framework to provide a clear understanding of social sustainability. This is based on a four-principle division of social sustainability, namely: equity, participation, social cohesion, and public awareness. Another framework was identified by Cuthill (2010) which suggested that social capital, social infrastructure, social justice and equity, and eventually engaged governance are the key concepts of social sustainability.

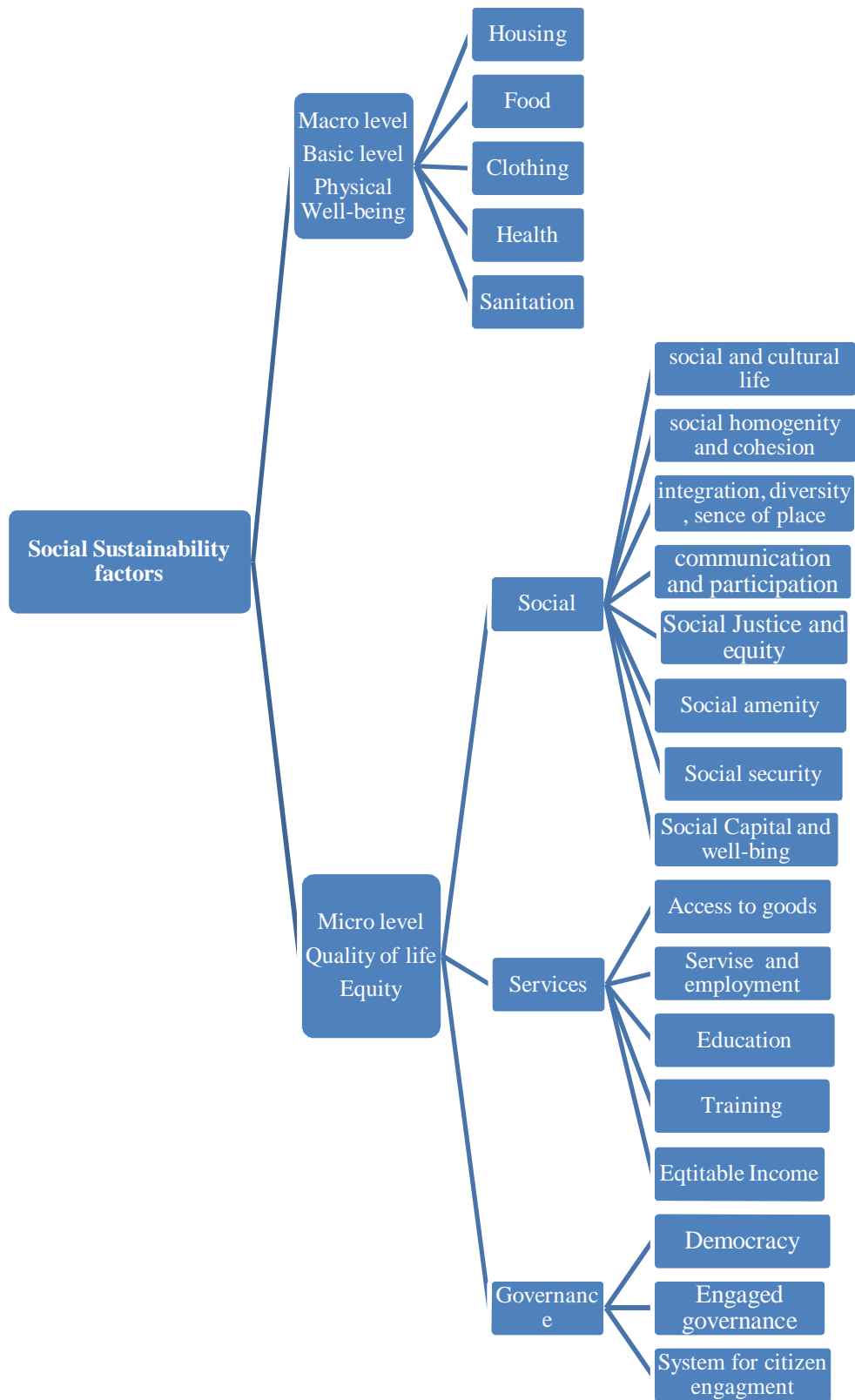
Conclusion

It can be concluded from the aforementioned definitions that the key concepts of social sustainability have been mainly divided into the macro and micro levels. The macro level refers to physical well-being and basic needs of humans, such as housing, food, and clothing, while the micro level includes the quality of life and equity, for example, social and cultural life, integration, diversity, sense of place, communication and participation, social amenity, and security. Figure 9 illustrates this classification. Social sustainability can be interpreted as a condition and process within the community that fulfills the basic human needs in addition to the principles of social justice and equity, homogeneity and cohesion, integration, diversity, sense of place, social amenity, and social security for the present generation, while guaranteeing them for the future generations. Natural resources should be preserved and environmental sustainability should be supported by this process.

Figure 8: The key theme of social sustainability

McKenzie (2004)	equity, diversity, quality of life, interconnectedness democracy government
Spangenberg (2004)	Marco level: distribution of income and assets Micro level: Education, training, income, social contacts, communication and participation, social security
Littig and Griebler (2005)	social quality
Colantonio (2008)	Basic needs: physical aspects of society and human life such as health, housing, and food Equity: social disparities
Cuthill (2010)	social capital, social infrastructure, social justice and equity and engaged governance
Vallance, et al. (2011)	Equity
Caistor-Arendar (2011)	social and cultural life, social amenities, systems for citizen engagement space for people and places to evolve
Åhman, et al. (2013)	Equity: education, quality of life, social capital, social cohesion, integration and diversity, sense of place
(Weingaertner & Moberg, 2014)	human capital, social capital, and well-being

Figure 9: Classification of the key themes of social sustainability



References

- Åhman, e. a. (2013). Social sustainability - society at the intersection of development and maintenance. *Local Environment*, 18(10), 1153-1166. doi:10.1080/13549839.2013.788480
- Atkinson, G., Dietz, S., & Neumayer, E. (2007). *Handbook of sustainable development*. Northampton, MA; Cheltenham, UK: Edward Elgar.
- Barbier, E. B. (1987). The concept of sustainable economic development. *Environmental conservation*, 14(02), 101-110.
- Bartelmus, P. (2012). *Sustainability Economics : An Introduction*. Hoboken: Routledge.
- Becker, E., & Jahn, T. (1999). *Sustainability and the social sciences*: Zed Books New York.
- Biart, M. (2002). Social sustainability as part of the social agenda of the European Community. *Soziale Nachhaltigkeit: Von der Umweltpolitik zur Nachhaltigkeit*, 5-10.
- Blewitt, J. (2008). *Understanding sustainable development*. Sterling, VA; London: Earthscan.
- Braat, L. C., & van Lierop, W. F. (1987). *Economic-ecological modeling*: North-Holland Amsterdam.
- Chiu, R. L. (2003). 12 Social sustainability, sustainable development and housing development. *Housing and social change: East-west perspectives*, 221.
- Cuthill, M. (2010). Strengthening the 'social' in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in Australia. *Sustainable Development*, 18(6), 362-373.
- Daly, H. E. (1990). Toward some operational principles of sustainable development. *Ecological economics*, 2(1), 1-6.
- Elkington, J. (1999). Triple bottom line revolution: reporting for the third millennium. *Australian CPA*, 69(11), 75-76.
- Gerald, M. M. (1976). *Leading Issues in Economic Development*.
- Giddings, B., Hopwood, B., & O'Brien, G. (2002). Environment, economy and society: fitting them together into sustainable development. *Sustainable development*, 10(4), 187-196.
- Goldin, I., & Winters, L. A. (1995). *The economics of sustainable development*: Cambridge University Press.
- Goodland, R. (1995). The concept of environmental sustainability. *Annual review of ecology and systematics*, 1-24.
- Grubb, M., Koch, M., Thomson, K., Munson, A., & Sullivan, F. (1993). *The earth summit agreements: a guide to assessment. An analysis of the Rio'92 UN Conference on Environment and Development*.
- Hardisty, P. E. (2010). *Environmental and economic sustainability*. Boca Raton: CRC Press/Taylor & Francis.
- Jaeger, C., Tàbara, J. D., & Jaeger, J. (2011). *European Research on Sustainable Development: Volume 1: Transformative Science Approaches for Sustainability (Vol. 1)*: Springer Science & Business Media.
- Littig, B., & Griebler, E. (2005). Social sustainability: A catchword between political pragmatism and social theory. *International Journal of Sustainable Development*, 8(1-2), 65-79. Retrieved from Scopus.
- Lozano, R. (2008). Envisioning sustainability three-dimensionally. *Journal of Cleaner Production*, 16(17), 1838-1846.
- McKenzie, S. (2004). *Social sustainability: towards some definitions*: Hawke Research Institute, University of South Australia Magill.
- Moldan, B., Janoušková, S., & Hák, T. (2012). How to understand and measure environmental sustainability: Indicators and targets. *Ecological Indicators*, 17, 4-13.
- Morelli, J. (2013). Environmental sustainability: A definition for environmental professionals. *Journal of Environmental Sustainability*, 1(1), 2.
- Munasinghe, M. (1993). *Environmental economics and sustainable development (Vol. 3)*: World Bank Publications.
- Murphy, K. (2012). The social pillar of sustainable development: a literature review and framework for policy analysis. *Sustainability: Science, Practice, & Policy*, 8(1), 15-29.
- OECD. (2001). *OECD Environmental Strategy for the First Decade of the 21st Century*.
- Partridge, E. (2005). Social sustainability': a useful theoretical framework. In *Australasian political science association annual conference* (pp. 28-30).
- Polèse, M., & Stren, R. E. (2000). *The social sustainability of cities: Diversity and the management of change*: University of Toronto Press.
- Sachs, I. (Singer-songwriter). (1999). *Social sustainability and whole development: exploring the dimensions of sustainable development*. On: Zed Books, London.
- Spangenberg, J. H. (2004). Reconciling sustainability and growth: criteria, indicators, policies. *Sustainable development*, 12(2), 74-86.

- Sutton, P. (2004). A perspective on environmental sustainability. Paper on the Victorian Commissioner for Environmental Sustainability.
- Vallance, S., Perkins, H. C., & Dixon, J. E. (2011). What is social sustainability? A clarification of concepts. *Geoforum*, 42(3), 342-348.
- WCED (Singer-songwriter). (1987). *Our common future*. World commission on environment and development. On: Oxford University Press, Oxford, New York, 383p.
- Weingaertner, C., & Moberg, Å. (2014). Exploring social sustainability: learning from perspectives on urban development and companies and products. *Sustainable Development*, 22(2), 122-133.
- Woodcraft, S., Hackett, T., & Caistor-Arendar, L. (2011). *DESIGN FOR SOCIAL SUSTAINABILITY : A framework for creating thriving new communities*. London: The Young Foundation.