

Reinterpreting the Definition of Sustainable Development for a More Ecocentric Reorientation

Sophia Imran,^{1,2*} Khorshed Alam^{1,2} and Narelle Beaumont^{2,3}

¹*School of Accounting Economics and Finance, Faculty of Business, University of Southern Queensland, Australia*

²*Australian Centre for Sustainable Business and Development, University of Southern Queensland, Australia*

³*School of Management and Marketing, Faculty of Business, University of Southern Queensland, Australia*

ABSTRACT

While environmental and social research have generated a large amount of information and data on how values and environmental ethics relate to sustainable development, there are no studies that examine the missing links reflected in the terminology of the sustainable development definition that alienates it from its ecological ethos. This paper reviews the concept of sustainable development that continues to remain vague even two decades after the Brundtland Commission report. It then examines the limitations in the contemporary anthropocentric conceptualization of sustainable development with a utilitarian ethic and argues for a more ecocentric reinterpretation of its definition that is more inclusive and incorporates recognition of the socio-ecological values. The paper concludes with a call for a revised global resolution and a framework for sustainable development based on its reinterpretation that recognizes the interdependence of humans with the rest of the ecosphere. Copyright © 2011 John Wiley & Sons, Ltd and ERP Environment

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Introduction

IT IS GENERALLY ACKNOWLEDGED THAT ENVIRONMENTAL CONCERN IS A PREREQUISITE FOR SUSTAINABLE DEVELOPMENT (Beckmann *et al.*, 1997). With the coining of the definition of sustainable development by the World Commission on the Environment and Development (WCED, 1987), which placed the concept at global centre stage, this concern has increased over the last three decades. Conversely, it has distinctly divided the world view of sustainable development into the controversial anthropocentric and ecocentric debate. The differences and potential conflicts between the two approaches are now well documented and are viewed as an important characteristic of the sustainable development literature (Beckmann *et al.*, 1997; Brouckerhoff, 2008; Buchdahl and Raper, 1998; Gough *et al.*, 2000; Hoffman and Sandelands, 2005; Horsthemke, 2009; Ingwe *et al.*, 2010; Katz and Oechsli, 1993; Sarvestani and Shahvali, 2008; Thrower and Martinez, 2000).

*Correspondence to: Dr. Sophia Imran, University of Southern Queensland, School of Accounting Economics and Finance, Faculty of Business, Toowoomba, Queensland 4350 Australia. E-mail: Sophia.Imran@usq.edu.au

One factor that has generated this debate and so provided the justification for the exploitation of the Earth and its resources is evidently linked to the interpretation of the term sustainable development that was put forward in the WCED's Brundtland report in 1987 as, '...development that meets the needs of present generations without compromising the ability of future generations to meet their own needs' (p. 43). It is argued by some that sustainable development in the Brundtland Report was a political maneuver and was left as an ambiguous definition to gain widespread acceptance and agreement with it, whatever the interpretation of individual countries (Giddings *et al.*, 2002; Middleton *et al.*, 1993; Pearce *et al.*, 1989; Wackernagel and Rees, 1996). It has been suggested that the vagueness of the term allows for a focus on economic development while pretending to assure sustainability (Cordero *et al.*, 2005; Gibson, 1991; Lambacher, 2007). It does not address environmental and ecological consequences (Murphy and Price, 2005; Sumudu, 2002) and its anthropocentric approach fails to adequately acknowledge the relationship of environmental crises to environmental ethics and values (Buchdahl and Raper, 1998; Sarvestani and Shahvali, 2008; Seghezze, 2009; Vucetich and Nelson, 2010). It does not recognize the ecological limits of natural capital—i.e. the boundary beyond which exploitation of a natural resource will have significant irreversible impacts. Therefore the issue of sustainable development needs to be addressed at both scientific and ethical levels if sustainability is to meet human needs without depriving ecosystems of their health (Vucetich and Nelson, 2010).

This paper specifically picks up the Brundtland definition because it has set the standard and become the point of reference for every debate about and subsequent definition of sustainable development, and has shaped much of the literature on the subject, particularly in this journal (e.g. Barkemeyer *et al.*, 2011; Carvalho, 2001; Harlow *et al.*, 2011; Holden and Linnerud, 2007; Hopwood *et al.*, 2005; Redclift, 2005). This paper questions the meaning given to sustainable development in contemporary global society and calls for a critical reconsideration of its key terms 'sustainable', 'development', 'generations' and 'needs' and reinterpretation of the terminology in today's rapidly changing global environment. The paper argues for a reinterpretation that provides a new perspective to sustainable development that endorses the inclusion of socio-ecological ethics in defining its valuation parameters. The objective of the paper is therefore to provide a more holistic and ecocentric perspective and a 'logically coherent ethical foundation' (Buchdahl and Raper, 1998, p. 98) to the term sustainable development which, if recognized and adopted, could influence how environmental issues are perceived, policy and management decisions are taken, and actions are proposed.

The remainder of the paper is organized in six sections. The first section reviews the controversial nature of the definition of sustainable development. The second section expounds the ethical inadequacies in the sustainable development definition and alludes to its linear rather than holistic systems perspective towards development. The third section juxtaposes economic development with sustainable development and provides an argument that sustainable economic development at the expense of unsustainable resource use cannot be considered sustainable development. The fourth and fifth sections propose a paradigm shift in how the concept of sustainable development is perceived and attempt to provide a reinterpretation of the definition's terminology from ethical, needs and systems perspectives. The sixth section, the conclusion, recapitulates the need for a paradigm shift in global conceptualization of sustainable development and endorses a move towards a more holistic and integrated approach to sustainable development.

Sustainable Development: A Contested Concept

Although newer definitions of sustainable development have surfaced that emphasize the social, environmental and economic dimensions of sustainability (Theobald, 2005), it has remained a contested concept (Barkemeyer *et al.*, 2011; Giddings *et al.*, 2002; Hopwood *et al.*, 2005). Indeed, Barkemeyer *et al.* (2011, p. 2) note that some of these definitions are 'mutually exclusive'. Similarly, Hopwood *et al.* (2005) and Redclift (2005) indicate that a number of different meanings and discourses have emerged since the term was first conceptualized in 1987. Within this ongoing debate about whether sustainability is more about economics, ecology or social science (Adams, 2006; Ott, 2003; Vucetich and Nelson, 2010), it is still considered very anthropocentric in nature because it revolves round the economic and social needs of humans at the expense of the natural resource base that includes other living beings. Moreover, the root of the controversies and issues related to sustainable development lies in the way it is presently interpreted. Bond and Saunders (2009) argue that sustainable development has been disenfranchised

through the different interpretations of sustainability. Most of the sustainability appraisals lead to a focus on socio-economic outputs at the expense of the environment and therefore serve to promote dominant economic perspectives over broader sustainability and environmental concerns (Bond and Saunders, 2009). For example, gross domestic product, cost–benefit analysis and human development index, the key indicators to measure sustainable development, have a strong economic and social orientation. A concept presented in such lopsided terms is probably of little help in guiding policy making (Holden and Linnerud, 2007). Although attempts have been made to incorporate ecological limits into some sustainable development indicators, such as the ecological footprint, they have not yet been integrated into policy making, either at the local level or at the national level.

Achieving sustainability, therefore, has become a contentious issue. One manifestation of this contention is the differing manner in which different interest groups portray the nature of sustainable development (Vucetich and Nelson, 2010). For ecocentrics it is primarily protecting the ecosystem's health; for anthropocentrics it is meeting the needs of humans more efficiently; and for economists it means maintaining a steady-state economy. Bourdieu (1990) asserts that words, to a great extent, make things and by changing words we can change things. Universal terms such as sustainable development structure the perceptions of the world as well as actions in the world (Bourdieu, 1998). Therefore, the ill-defined term sustainable development is now being used (abused) to refocus economic prosperity and social well-being in a corporate material culture of more efficient but still unsustainable consumption (Luke, 2005).

Luke (2005) remarks that the definition needs to reconsider much more critically 'sustainability' and 'development' as goals for guiding the creation of a truly environmentally sound political economy. Overall, the word 'development' in sustainable development distinctively indicates economic and business development, which heavily relies on technology and industry (Carvalho, 2001; Gasparatos *et al.* 2009). Seghezze (2009) argues that WCED's definition overestimates the explanatory power of economic reasoning at the expense of other fundamental aspects of development. Likewise, according to Robinson (2004), a particular concern is the way in which the development side of the sustainable development argument is being equated with economic growth. The term 'sustainable', on the other hand, has its origin in ecological science. It expresses the conditions that ecosystems require to sustain themselves over the long term (Holden and Linnerud, 2007). Buchdahl and Raper (1998) argue that the real meaning of sustainability underscores the importance of 'nature's economy' as primarily social and market economies created by humans, which are dependent on nature, as secondary.

Although there are several references pointing to the necessity of ecological sustainability, the word 'sustainable' in the sustainable development definition markedly characterizes satisfaction of basic human needs. Therefore, social and economic interests are considered primary because it implies economic development that not only meets the present human needs but also provides opportunities for the future generations to meet their own needs. As these economic needs are only socially constructed in the contemporary interpretation of the sustainable development definition because of its emphasis on human generations, the concept of sustainable development marginalizes nature and environment over economic growth and human development.

The concept of sustainable development in the Brundtland Report is, as a result, explicitly rooted in a utilitarian and social philosophy that reflects a form of enlightened self-interest, conserving land and resources for later human use (Robinson, 2004). It also takes a more incremental approach oriented towards efficiency gains and improvement in technology (Gasparatos *et al.*, 2009; Robinson, 2004). Although it shows linkages between environment and development and argues for integrating the complex issue of environmental deterioration with the equally complex issue of human development, it predominantly emphasizes promoting more human development to meet their needs as the terms 'current' and 'future generations' allude only to human generations excluding all the other species that share the earth with humans. This lack of definitional precision can add confusion to the political and academic debates around the term (Robinson, 2004).

It is argued that sustainable development as interpreted and practiced in contemporary society is as Luke (2005) states neither sustainable nor developmental. The vision of sustainable development as portrayed by the WCED needs to be retranslated from a 'singularly human perspective' to 'an intrinsic and relational perspective' (Luke, 2005, p. 230) of a 'socio-ecological system' that makes up the wider world. Such a discourse calls for an interpretation that deconstructs the concept of sustainability and development from a contemporary techno-science and civic discourse that serves the systemic requirements of politics and material/economic gains to one that views economic development and environmental protection as mutually reinforcing (Sumudu, 2002)

Ethical and Systemic Flaws in the Interpretation of Sustainable Development

There is now general agreement among scientists and environmental specialists that environmental conservation is an important ethical issue for sustainability and our orientation towards nature needs to take a more comprehensive and holistic ethical stance (De Paula and Cavalcanti, 2000; Ehrlich, 2002). Such a holistic stance is more evident in the ethics manifested in the ecocentric approach that gives intrinsic and moral values to nature in which all living beings, including humans, have needs for survival and well-being and it adopts a systems-based approach that views the universe as an interconnected and interdependent web of sub-systems.

The classic definition of sustainable development by implicitly putting emphasis on meeting the (social, economic and environmental) needs of the present 'human' generations without compromising the ability of the future 'human' generations to meet their own needs (WCED, 1987) ignores the present needs of nature and the environment. It therefore compromises the ability of nature with all its animate and inanimate components to meet their future needs. In doing so it marginalizes not only the needs but rights of nature that are as intrinsically important as those of humans. Horsthemke (2009) argues that the metaphysical and ethical questions are being raised whether our policies should be informed by a concern for nature for human purposes or for the natural environment for itself. Moreover, the sustainable development definition in its present form places more emphasis on conserving resources for fulfilling social and economic needs and nowhere are the ecological needs of other species mentioned. Therefore, it is predisposed to adopt human-centered and instrumental values systems. If the sustainable development concept is to succeed it is crucial to re-examine its definition more critically, from which varying concepts can be constructed and reconstructed.

Furthermore, the anthropocentrism of sustainable development is reflected in the WCED's Brundtland Report in its statement that 'species and ecosystems must be preserved because they have an "economic value" that is deemed crucial for development and important to human welfare' (WCED, 1987, p. 147). Such a definition, as a result, gives room to consider nature with instrumental values and provides a strong reason to exploit it to satisfy human material needs in a race for power and supremacy. Substitutability between natural and human-made capitals cannot ensure a constant stock of natural capital over time. Accordingly, its ambiguous nature with emphasis on the human race as the top priority has given the license to humans to dominate and subdue nature for their own instrumental purposes through scientific and technological development. That is why deep ecologists with a strong environmental ethics stance reject the very concept of sustainable development as it prioritizes the needs of humans over the rest of life (Giddings *et al.*, 2002).

In its existing form, therefore, ecological ethics do not form part of the sustainable development definition as the emphasis is on human welfare and development with pronounced emphasis on social ethics. Vucetich and Nelson (2010, p. 2) argue that 'without developing the ethical dimension of sustainability we will never even know what sustainability means'. Such a limited ethical stance is clearly reflected in the Triple Bottom Line Approach, which is based on 'social' corporate responsibility. Nowhere does it mention 'ecological/environmental' corporate responsibility. The reason is quite evident: the ethos of the Triple Bottom Line Approach is rooted in how sustainable development elements are portrayed in the Brundtland Report and have been carried forward in its subsequent definitions, which rely heavily on social ethics and human-centered morality.

Moreover, within the development scenario, the social, economic, political and technological dimensions take precedence over the ecological/environmental dimension. Ecological externalities such as pollution, damage to biodiversity and loss of genetic gene pool, which are the outcomes of so-called sustainable economic growth, are not accounted for in sustainable economic development (Giddings *et al.*, 2002). That is why, in spite of the adoption of sustainable development agendas by the corporate sector, governments, international agencies and social and environmental reformers and the rhetoric of sustainable development in political, economic and technological circles, advances in environmental degradation and resource depletion continue at a relatively high pace. Klein *et al.* (2005, p. 584) state that 'climate change (one of the major environmental global challenges of today) is largely the result of greenhouse gas emissions that are driven by socio-economic development patterns characterized by economic growth, technology, population and governance'.

Sustainability has to move beyond the anthropocentric origins of sustainable development to arrive at an ecocentric theory not dissimilar to the stewardship ethic (Sarvestani and Shahvali, 2008). Sustainable development has to be reviewed as a holistic approach in the light of the ethical codes that attach moral values to both humans and non-humans. Such an ethically responsible attitude will not ignore possible consequences for other living beings in

a sustainable development process. Sustainable development, according to Sarvestani and Shahvali (2008, p. 614), requires 'a non-anthropocentric form of post-modernism not by dissolving the dualistic barriers that separate humanity from nature, but by dissolving humanity and nature in order to rediscover the unity of humanity and all creations'. Once the concept of sustainable development is reinterpreted, the human–nature relationship should be redefined to establish a more well intentioned and harmonious one (Sarvestani and Shahvali, 2008).

Positive progress towards sustainability goes beyond economic efficiency to include equity considerations. Recent awareness of economies, societies and ecosystems as a complex adaptive system cannot be fully captured through a single perspective. Therefore failure to describe these systems in a holistic manner in their legitimate perspective is unlikely to produce a framework for assessing the progress towards sustainable development. Ecosystems, economies and societies are increasingly being considered as 'social-ecological systems' that are both complex and adaptive (Gasparatos *et al.*, 2009).

Progress towards sustainable development, therefore, will not be possible without understanding the interrelationships between these systems. The importance of understanding these interrelationships has been highlighted in the sustainability literature (Gibson *et al.*, 2005; Pope *et al.*, 2004). For example, human societies are complex socio-economic adaptive systems, which in turn are embedded in more complex adaptive ecosystems. Human society that claims to be part of the global environment needs to view the socio-economic system as a sub-set of nature (Buchdahl and Raper, 1998). On the contrary, sustainable development that is tilted towards a human-centered socio-economic system disregards the interaction across scales (Folke *et al.*, 2005). Social and economic interests are considered primary, whereas the idea of nature's economy is reduced to resource consumption and conservation (Buchdahl and Raper, 1998). Sustainable development, therefore, needs to incorporate the ecological perspective in economic policy and decision making.

Is Sustainable Development Just Economic Development or is it Economic Development Fostering Socio-ecological Sustainability?

According to the World Business Council for Sustainable Development (WBCSD, 2010), the greatest challenge facing development is that the existing economic models cannot be sustained, as economic development has already endangered ecosystem services, such as the natural cycling of freshwater, carbon and nitrogen, on which prosperity and survival of ecosystems depends. A classic example of the 'misplaced value' position (Lambacher, 2007) in the present interpretation of sustainable development is the politicized agenda of carbon trading that pays the less developed countries for protecting forests in a bid to reverse climate change but gives license to the developed countries to continue expanding their economic interests, absolving them from their ecological responsibility. Emerging economies, therefore, will not succeed unless innovative business models are designed that not only develop a better understanding of but address socio-economic and environmental concerns (WBCSD, 2010). Although the WBCSD (2010) mentions poverty as multidimensional, it restricts its meaning to reduction of human poverty. Poverty in the sustainable development context must be perceived as being of a multidimensional nature, which spans both human poverty and impoverished ecosystems.

The misconception that environmental regulations tend to inhibit economic growth and therefore economic growth is opposed to environmental protection has polarized and reduced the sustainability debate. Ingwe *et al.* (2010) argue that climate change and the global financial crisis represent the failure of the goals of ecocentrics and failure of the anthropocentrics to achieve the objectives of sustainable development. Based on a simple model of emissions data, Cordero *et al.* (2005) conclude that environmental protection and economic growth are not incompatible but to meet them both is not easy. The adoption of policies to limit pollutant emissions¹ and adopt alternative pollution-free technologies and to limit resource consumption requires incentives and regulations that

¹Some progress can be noted as governments are imposing overall environmental limits, by issuing a set number of permits, via either an emissions trading scheme or a carbon tax, to achieve a low emissions path. As one of the reviewers of this journal points out '... international policy commitments in Europe and the UK are actually driven by absolute CO₂ concentrations in the atmosphere. This even led the UK Climate Change Committee (2009) to suggest that UK aviation growth should be limited to only 60% by 2050 if national CO₂ targets are not to be compromised. This suggests the idea of critical ecological thresholds, that are species independent, may be beginning to penetrate policy decisions.'

promote the use of renewable technologies. Although a huge challenge, sustainable development is possible and there is a tremendous business opportunity to be found in a sustainable pathway (WBCSD, 2010). However, more than just technological change is required to charter a course towards new and more effective paths of sustainable development. Re-evaluation and innovation are also needed in governance institutions and at global forums. It is the absence of international rules in the global economic market that inhibits assuring adequate margins of pollutant emissions and resource consumption in the developed, as well as the developing, world (Cordero *et al.*, 2005).

It can, therefore, be argued that sustainable economic development at the expense of unsustainable resource use cannot be considered sustainable, as development that promotes unsustainable ecological/environmental practices will not be sustained for long. The catastrophic consequences of economic crises across the developed and developing world are in response to such unsustainable development. Therefore, an alternate version of sustainable economic development that is the root cause of all sustainability issues is much more promising for both social and ecological/environmental well-being. The environmental crisis in the form of ozone depletion, climate change and loss of biodiversity reflects the way global policy on sustainable development and global and national financial and economic systems have ignored ecocentric principles, disregarding the interrelatedness of human and non-human natural systems. In such circumstances there is all the more need for the reinterpretation of sustainable development that, according to Ingwe *et al.* (2010, p. 005), advocates for the 'practice of "biospherical egalitarianism", a philosophy that promotes equality of the intrinsic value for both components of the ecosystem: human and non human'.

Pederson (2009) refers to the concept of an 'ecological growth economy'. He suggests that the world will have to shift from a mass market consumerism economy towards the ecological growth economy because it is an emerging new reality and a precondition for the continuation of human progress and the survival of millions of other species on the Earth. Likewise, the concept of sustainable development will also have to be reviewed and reinterpreted to embrace the concept of the ecological growth economy that promotes economic growth based on sound ecological principles. According to Pedersen (2009), such an ecological growth economy will require restructuring of rules and incentives built into national as well international economic systems and more concerted and forceful actions from international leaders in forums such as the G-8, G-20 and the United Nations. Increasing pressures on the world's finite resources and environmental capacity requires a deliberate restatement of the philosophy of sustainable development along with evolving guidelines to put it into practice. Rees and Roseland (1988) and Stanley (1991) maintain that there is a need for a re-evaluation of international agreements and business-government partnerships to direct international and national actions towards corporate environmental policy. A proactive mode of policy and management leading to complete integration of the environmental dimension into corporate strategic planning is required.

Reinterpreting the Definition of Sustainable Development

Just as the other social concepts, for example, climate change, human rights and others on the international agenda, the concept of sustainable development is also varied, indefinite and evolving. Similarly, just as these other social concepts are reviewed and re-evaluated at regular intervals at international forums for viable strategies for achieving more meaningful global results with the changing times and perspectives, the concept of sustainable development requires to be reviewed and reinterpreted to achieve sustainability across all levels of society.

This paper does not want to impose any definitional rigor on sustainable development. However, it endeavors to suggest that the lack of definitional precision has polarized its meaning towards a more utilitarian-oriented focus. Robinson (2004) argues that if sustainability is to mean anything it must integrate social dimensions of sustainability with ecological dimensions. This requires trans-disciplinary thinking 'that involves the development of new concepts, methods and tools that are integrative and synthetic, not disciplinary and analytic, and that actively create synergy not just summation' (Robinson, 2004, p. 378). The reinterpretation will provide a whole new meaning to sustainable development that fosters a new set of ethics, a new set of values and new ways of relating to the natural world.

This new perspective with a strong ecological ethic could make a significant positive contribution to life and natural processes that guide life on Earth. Without changing the wordings of the WCED definition of sustainable development, it seeks to reinterpret the meanings attached to its terminology based on ecocentric values. Such a reinterpretation, if accepted and internalized at all levels of society, would, apart from enlarging its scope, incorporate

a reasonably coherent set of ecologically ethical principles that are excluded in its present social-values-laden interpretation. The intention is to bring a positive change in the implicit meaning of sustainable development. This is only possible if sustainable development, apart from human-centered values, incorporates the widely neglected ecological ethics in the fullest and deepest sense and reflects them in its interpretation. By enfolding nature and non-human species along with humans as an integral part of the 'generations' it refers to, it can shift from its very human stance towards a more balanced socio-ecological stance. By doing so, it can perceive nature, including humanity, as the ultimate source of all values. In this reinterpreted view of sustainable development, as Curry (2006, p. 1) states, ethical questions can no longer be restricted to 'how to treat human beings or even animals but must embrace the entire natural world'. According to Curry (2006, p. 1) 'such an idea is not new but the idea of taking it seriously is new'.

Presently the ecosystems and the environment are treated as objects for fulfilling present and future needs of the subjects, that is, the human beings. Therefore, as Vucetich and Nelson (2010) state, sustainability could mean anything from 'exploit nature without infringing on future ability to exploit' to 'exploit as little as necessary to maintain a meaningful life'. Although these attitudes represent wildly different views, either could be considered sustainable depending upon the meaning one ascribes to the normative concepts that define sustainable development (Vucetich and Nelson, 2010). The reinterpretation of sustainable development, therefore, must incorporate nature and the environment as subjects and not view these as objects, which it does in its present interpretation. This all-inclusive definition will be one in which the concept of present and future generations does not only point to fulfilling the needs of humans but the needs of all species without compromising not only the ability of future human generations but the future ability of all the ecological and environmental processes to fulfill their own needs, explicitly linking ecology, economics and social science. Such a reorientation of thinking is bound to give a more ecocentric perspective and room for an equally ecologically ethical stance to sustainable development (Curry, 2006). This holistic ethical stance can therefore become an inherent part of the concept of sustainable development. Therefore the policies and actions required to achieve sustainability will have to be based on these socio-ecological ethics leading to profoundly different consequences motivated by ecocentrism.

The WCED not only needs to take up this task of reinterpreting the definition and revisiting and evaluating and redefining the concepts of the 1987 report in the light of the more inclusive and holistic definition, it needs to outline a framework for policy and management practices that can cope with resource and ecosystems changes and determine social and ecological linkages. It should be a framework that provides important information on essential social responses to changes in ecological systems and assists in designing more sustainable resource management systems (Berkes *et al.*, 2000). In Berkes *et al.*'s (2000) view, these socio-ecological linkages could provide a reservoir of active adaptations which may be of universal importance in designing for sustainability. Adaptiveness and flexibility can be built in institutions so that they are capable of responding to processes that contribute to resilience of ecosystems. Such a mind frame requires interdisciplinary collaborative research and policy that can improve management and build resilience in interdependent socio-ecological systems.

The reinterpreted version of sustainable development must address the ecosphere as a whole. As Morrison-Saunders (2008) states, it must therefore make a transition from a purely industrial civilization towards a more ecological one. In other words, it must acknowledge and internalize a shift that responds to the articulation and application of ecological ethics. Sustainable development that encompasses the needs and abilities of inter-species and intra-species equity can be a crucial tool for helping us understand and build a socio-ecological civilization based on the 'ecological growth economy'. The more ecocentric interpretation of sustainable development should reconstruct a set of environmental ethics that are embedded in the concept and implementation of sustainable development (Buchdahl and Raper, 1998). Such a definition can give a referential framework to determine corporate, individual and social behavior and interaction with the environment.

Incorporating Socio-ecological Ethics into the Concept of Sustainable Development

Holden and Linnerud (2007) mention the three legitimate goals derived from sustainable development as (i) safeguarding long-term ecological sustainability, (ii) satisfying basic human needs, and (iii) promoting inter-generational and intra-generational equity. Although the last two goals are clearly reflected in the definition the first goal tends to be

completely ignored in the way it is presently interpreted. The inter-generational and intra-generational equity in sustainable development demands that present and future human populations should have an equal share of the Earth's total biological capacity (Holden and Linnerud, 2007). What about the share of other species? By making such a presumption we tend to completely disregard the other species that are equally important within the global system and overlook the fact that 'ecological sustainability is an indispensable prerequisite for sustainable development and our failure to do so will not be forgiven by future (human and non-human) generations' (WCED, 1987, p. 166). Reinterpreting the definition of sustainable development from ethical, needs and systems perspectives can, therefore, provide a referential framework to determine our behavioral choices and interaction with the environment and to shape the fields of actions and decisions that are integrated into the vision of a shared habitat.

Hence, including the other species in the definition and satisfying the basic needs of all species should constitute the necessary precondition for sustainable development. If non-human animate and inanimate species, along with humans, are included in the term 'generations', then the definition will equally represent the needs of all ecological systems and the environment that will necessitate promoting inter-generational and intra-generational equity for all existing life processes on the earth and not just for human beings. Such an interpretation will then be based on a holistic systems approach that realizes the significance of the interdependence of socio-economic systems with ecological and environmental systems. Bringing out these equally important characteristics of sustainable development can make the concept more meaningful in guiding policy and research.

The present definition of sustainable development is largely unable to effectively motivate sustainable development or bring a change in the attitudes of people and institutions towards sustainability (Jamieson, 1998; Thompson, 2007). Characterizing and identifying this new version of sustainability will effectively motivate sustainable actions. As Vucetich and Nelson (2010) remark, once appropriate 'end goals' of sustainable development are determined and activated (at the global level) these will drive the motivations to seek the means by which to achieve sustainable development. This revised version of sustainable development would be facilitated if the revised regulations guidelines and laws are equitably balanced in terms of the three dimensions of sustainability.

To actually put the reinterpreted concept of sustainable development into practice would require international interventions such as the WCED and WBCSD revisiting and revising the sustainable development concept and reformulating development strategies, framework laws, and guidelines based on 'socio-ecological ethics' and 'socio ecological corporate responsibility' that effectively incorporate proper environmental values, costs, and laws in economic decision making. It must enfold within it the 'ecological growth economy' (Pedersen, 2009). The definition must conceive environment and nature as living vibrant systems rather than as just stocks of natural capital (Mebratu, 1998). As already mentioned, in its existing form ecological ethics do not form part of the definition as the emphasis is on economic and technological growth for human welfare and development (needs and ability of present and future human generations). Such an international agenda will allow for innovative research and practice, which is urgently required to move towards economic development that is ecologically and environmentally sustainable.

This new vision of sustainable development that endorses 'strong sustainability' can play a crucial role in solving environmental and resource challenges. The revised policy frameworks amended in the light of the new vision can allow for the development of new technologies and business models that integrate both social and ecological systems to meet human needs and ecosystem health. The reinterpreted version of sustainable development based on socio-ecological ethics, socio-ecological corporate responsibility and an integrated systems perspective is fundamental to securing financial, ecological and social stability and a sustainable future not just for countries at a political level but for the entire ecosphere.

Conclusion

The paper endorses a need to review the basic components of the sustainable development definition in today's rapidly changing global environment and reinterpret its terminology to give it a more holistic and ecocentric flavor. It, therefore, attempts to provide a more comprehensive perspective to the term sustainable development which, if recognized and adopted, could influence how environmental issues are perceived, policy and management decisions are taken and actions proposed.

On the basis of the emergent and increasing need for a rapid transition in global policy on sustainable development, the paper recommends the international forums on sustainable development to shift the stance of sustainable development from an anthropocentric to an ecocentric stance in global policy making and refer to a nature-centered system of values and ethics for embedding public policy. A resolution on sustainable development in which ecological welfare is not considered to be secondary but equal to human welfare is the basis on which sustainable development principles need to be reformulated. In other words, the new global protocol on sustainable development should provide a universally accepted role that mobilizes greater political, legal and corporate support to transform the protocol into enforceable laws for ecological considerations in policy making.

This paper has argued for a radical rethinking and more concerted and forceful action on the part of global sustainable development forums and therefore recommends that a new global resolution needs to be passed on sustainable development on the basis of its reinterpretation, which changes the connotation of 'needs of generations' from just needs of human generations to include needs of generations of other life forms and the realization that 'nature matters in and for itself' (Horsthemke, 2009, p. 22). Such a holistic sustainable development definition that includes the concepts of socio-ecological ethics and ecological responsibility, as Lambacher (2007) remarks, can grant political legitimacy to biodiversity conservation and a political context in which ecological and social justice can coexist. Sustainable development will then be seen as a process or approach that contributes to the well-being of ecological systems which in turn offer a better life for all living beings. It will have to address profound issues related to socio-ecological responsibility, inter-generational and intra-generational equity for all life on earth, maintaining an aggregate natural capital stock at a constant level over time, biophysical limits of the life-support system of the earth and eco-economies. This holistic and integrated approach will form the key characterization of an ecocentric dimension to sustainable development.

Trade-offs between social, economic and environmental objectives are complex; therefore decisions at national and local levels should reflect the implications and trade-offs and understanding of the ecological thresholds and consequences of exceeding them. Environmental standards, targets and indicators need to be set, both at national and at local levels, to keep human activities within safe ecological limits. Therefore, the change requires re-examining the public policy arena in which trade, industry and other economic policies are pursued to bring greater accountability and focus on socio-ecological justice. Inclusive action-oriented public policies, both locally and internationally, which set out a comprehensive array of measures that incorporate corporate governance, business conduct and institutional reforms are called for.

Finally, the new global stance on sustainable development will only grow in political importance and environmental relevance when it is endorsed and accepted at international level and is extended at national and local levels. The paradigm shift from moral valuation of only humans towards an inter-species moral values system is essential to achieving socio-ecological justice. There is an overriding need to develop linkages between public policies and corporate sector strategies that integrate consideration of corporate socio-ecological responsibility into their codes of ethics. It underscores the importance of creating action-oriented management practices and formulating regulatory frameworks that allow businesses to work with governments as part of their commitment to business ethics, values and principles, i.e. their codes of conduct (Petkoski and Twose, 2003). Such a shift can help encourage political negotiation forums through which local communities, states and global networks can foster alternative socio-ecological and economic discourses capable of effectively defending themselves from the large-scale short-term economic growth (capitalism) that is unbalancing the ecological equilibrium and is impeding sustainable development in its real essence. On the other hand, this will help to prevent the depletion of renewable natural capital below a critical level and make ecological limits central to any decision making.

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