Article

Rethinking Sustainable Development: Considering How Different Worldviews Envision "Development" and "Quality of Life"

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Abstract: The concept of sustainable development does not articulate what needs to be sustained, developed, or how, and is consequently intersubjective and intercultural. I therefore argue that it is essential to consider different worldviews when discussing sustainable development, and I offer broad, provisional suggestions as to how we can begin doing this. I first discuss how the notion of sustainable development at its heart is an attempt to unite conservation with growth. I then consider how different worldviews relate to this unitary ideal, by articulating how they envision "development" and "quality of life". I do this by drawing on the *Integrative Worldview Framework*, which distinguishes between multiple, ideal-typical worldviews. However, I argue that more important than any typology of worldviews is the reflexive attitude a worldview-perspective supports. I conclude with implications for more reflexive and inclusive forms of policy-making, also in light of the to-be-formulated *Sustainable Development Goals*.

Keywords: Sustainable Development Goals (SDG's); worldviews; the Integrative Worldview Framework (IWF); development; quality of life; beyond GDP; reflexivity; pluralism; integration

1. Introduction

One of the most important outcomes of the United Nations (UN) Conference on Sustainable Development in June 2012 (Rio+20) was the launch of a process to formulate *Sustainable Development Goals* (SDG's)*. These goals are expected to be integrated with the UN's post-2015

Development Agenda, following up the eight *Millennium Development Goals*, which were established in 2000 with 2015 as target date, and have galvanized unprecedented efforts to meet the needs of the world's poorest [1]. The formulation of the SDG's can be seen as a way to focus the world's efforts to accelerate global progress towards achieving sustainable development. This process of formulating SDG's is complex as UN member states have agreed that these goals need to meet a wide range of criteria, ranging from "incorporating in a balanced way all three dimensions of sustainable development and their interlinkages" to being "universally applicable to all countries while taking into account different national realities, capacities and levels of development and respecting national policies and priorities." At the same time, goals need to be, for example, "useful for pursuing focused and coherent action on sustainable development" as well as "easy to communicate," "limited in number," "aspirational," and "global in nature" [2]. As some have argued, this laudable ambition challenges the global community to define what sustainable progress means, as well as how to measure and achieve it [3]. In other words, it invites us to rethink the notion of sustainable development, as a navigation-principle and political and societal ideal of great importance in our 21st century global context.

Sustainable development is a complex, often used, and passionately debated concept. Although it can proudly claim to have gained "mainstream" status, it also runs the risk of being used inconsistently, frequently serving divergent, and even mutually exclusive, visions of what a sustainable world would (or should) look like. For example, while for certain groups the further industrialization of agriculture, often supported by genetic modification of crops, is the best solution to sustainably feed our growing world population, for others this pathway is itself a serious threat to the environment [4]. These latter groups tend to champion agro-ecological farming methods instead, thereby offering a substantially different—maybe even diametrically opposed—vision on the future of agriculture [5]. Or, to take another example, while some see nuclear energy as a sustainable form of energy-production, for others the waste products and risks associated with this technology are themselves considered an environmental hazard. We see similar conflicts around climate change, the use of biomass as a sustainable form of energy-production, the emergence of a bio-based economy, issues of biodiversity and endangered species, forest management, and air and water pollution [6,7]. Such polarized views on how sustainable development is achieved, and thus essentially on what its meaning is, may be one of the biggest barriers to designing and supporting potential pathways to more sustainable societies.

In these debates, different camps frequently use scientific data to argue for their own (presupposed) views, and discount those of others. However, instead of offering a conclusive answer to any contested issue, more science often tends to "make environmental controversies worse," to use Sarewitz' [6] frequently paraphrased words. Scientific uncertainty should, according to Sarewitz, not be understood as a lack of scientific understanding but as a lack of coherence among competing scientific understandings, amplified by the various disciplinary and paradigmatic, as well as political, cultural, and institutional contexts within which science is carried out. Political controversies with technical underpinnings are therefore not resolved by technical means. While science is crucial for sustainable development, it cannot resolve the basic question of what is sustainable and what is not [8]. Rather than understanding these debates as resulting from mere disagreements over the facts, they can be better understood as resulting from clashes in values and worldviews [6,9,10]. That is, from fundamentally different philosophies of life in conflict about what is real (ontology), how one can know (epistemology), what

is of value (axiology), what is the nature and role of human beings (anthropology), and how society should be organized (societal vision/social imaginary) [11,12].

This ambiguity in how to interpret and envision sustainable development is to some degree inherent in the concept itself. The Brundtland definition of sustainable development refers to "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [13]. Both the pitfall and the genius of this definition is that it does not articulate what needs to be sustained, or how, nor does it explicate what the nature of "development" is. While it is, therefore, hard to find agreement about our interpretations of sustainable development, this definition is simultaneously open to multiple understandings and different perspectives, thereby allowing a multitude of actors—possibly even the whole of society—to be involved [14]. According to some authors [8] "sustainable development was explicitly conceived as a 'bridging' concept that could draw together apparently distinct policy domains, and unite often opposed views and interests of society's stakeholders behind a common goal" (p. 1642). While the concept of sustainable development allows various views to co-exist, and in that sense offers great "interpretational flexibility", there are, of course, also "interpretational limits" to the concept, as certain principles are essential to the concept no matter which view is employed [6]. (According to Waas *et al.* [8] there is considerable consensus among sustainability scholars about the concept's fundamental principles. They summarize these as: (1) *the normativity principle*, "because ultimately what sustainability means depends entirely on our views regarding the kind of world we want to live in and want to leave as a legacy for future generations" (p. 1645); (2) *the equity principle*, because it involves issues of distributive and procedural justice, and has profound implications for future generations (intergenerational equity), the poor (interregional equity, intra-generational equity), and other species (interspecies equity) see also [15]; (3) *the integration principle,* as sustainable development should integrate various traditional (including socio-economic and institutional) development objectives with environmental ones, striving for a whole system's perspective and mutually supportive benefits; (4) *the dynamism principle*, because society, the environment, and their interaction are in a continuous flow of change, so sustainable development is not a "fixed state of harmony" but instead an ongoing evolutionary process (p. 1647).

Sustainable development, in the words of Kates and Parris [16], "has broad appeal and little specificity, but some combination of development and environment as well as equity is found in many attempts to describe it" (p. 559). According to others, sustainable development is essentially concerned with the quality of life and the possibilities to maintain that quality in the future—that is, "sustainability of quality of life" [17] or "sustainable well-being" [3]. The concept of sustainable development is thus intersubjective and intercultural, and in demand of a reflection on and exploration of the worldviews undergirding it, including one's notions of development and quality of life, see also [14,18]. Van Opstal and Hugé [19] therefore speak of worldviews as "constitutive elements of sustainable development." Next to environmental, social, and economic dimensions (the "three pillars of sustainable development"), the concept thus also has cultural dimensions, which shape how it is understood and envisioned, see also [20]. In this article, I therefore argue that it is essential to take into account different (cultural) worldviews when discussing sustainable development, and I offer some broad, tentative suggestions as to how we can begin doing this.

I start with discussing how the notion of sustainable development at its heart is an attempt to unite conservation with growth, and reflect on some of the highly divergent views that have emerged in response to this unitary ideal. I then consider how different worldviews tend to relate to sustainable development, by articulating how they envision "development" and "quality of life". I do this by drawing on the *Integrative Worldview Framework*, which is based on original empirical research [12,21,22], in combination with insights from multiple academic fields, including sociology, and developmental and environmental psychology, summarized in [23,24]. This framework distinguishes between multiple, ideal-typical worldviews, including traditional, modern, postmodern, and integrative ones. However, I also argue that more important than any—necessarily limited and potentially limiting—typology of worldviews is the reflexive attitude that a worldview-perspective supports and cultivates. I conclude with offering recommendations as how insights into worldviews can be used for more reflexive and inclusive forms of policy-making and communication in the field of sustainable development, including the formulation of the Sustainable Development Goals.

2. The Debate on Sustainable Development: Uniting Conservation with Growth?

The Brundtland Commission—the UN-sponsored World Commission on Environment and Development (WCED), led by Gro Harlem Brundtland—coined the notion of sustainable development in 1987 in "Our Common Future," a publication that marked a turning point in the thinking on environment, development, and governance. Their definition quickly became classic. Although this definition has been widely debated and criticized (e.g., as container concept, oxymoron, cover-up), and many alternatives have been proposed, it is still the most widely accepted starting point for scholars and practitioners concerned with environment and development dilemmas [25]. While introduced more than twenty-five years ago, sustainable development—as guiding institutional principle, concrete policy goal, and focus of political struggle—appears to remain salient in confronting the multiple challenges of our new global context.

The Brundtland definition of sustainable development is generally seen as an attempt to unite worlds that are frequently in conflict with each other, particularly the expanse and growth associated with (economic) development and the limitations associated with sustainability and ecological conservation. In the words of the report [13]:

"There has been a growing realization in national governments and multilateral institutions that it is impossible to separate economic development issues from environment issues; many forms of development erode the environmental resources upon which they must be based, and environmental degradation can undermine economic development. Poverty is a major cause and effect of global environmental problems. It is, therefore, futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality" (p. 11).

Our Common Future [13] explicitly argues for the necessity of a new era of economic growth "that is forceful and at the same time socially and environmentally sustainable" (chairman's foreword), in order to address global poverty and the population growth, environmental degradation, inequality, and suffering associated with it. At the same time, the report displays an acute awareness of the generally devastating impacts of economic development upon the environment, and calls for a new development path, one that sustains "human progress not just in a few pieces for a few years, but for the entire

planet into the distant future" [13]. The report can therefore be interpreted to argue for a different kind of economic development—one that is socially just and environmentally sustainable—as well as for an approach that recognizes the interdependent and interlocked nature of the different global crises.

The report had a monumental influence and provoked highly divergent responses. According to the critics, one of the concept's main problems is that it does not question the aim of economic growth, and the dominant, modern, rational-industrial paradigm associated with it. From this perspective, the concept appears to be profoundly embedded in, and hence inclined to reproduce and prioritize, the assumptions, structures, and power-relations of modern, Western societies, thereby excluding for example more traditional forms of knowledge as well as alternative or marginal views and values. Despite its claims to plurality, discourses of sustainable development are, according to some, frequently based on singular, monistic forms of knowledge, particularly modern, positivist science [26]. According to some authors, the notion of sustainable development, with its colonial, developmentalist roots, has predominantly been used to co-opt or marginalize eco-political movements and further the agenda of a Western, capitalist society, while selling a green story [26,27]. Others have argued that the expansionist, development-oriented attitude is principally irreconcilable with the ecological, conservation-oriented attitude, describing the concept as a *contradictio in terminus*. The critics have aimed to deconstruct such basic contradictions as well as the concept's power-laden, problematic assumptions, while generally advocating for more radical societal changes [28,29].

Despite the validity of many of these critiques, the critics have, in the words of other voices [25], "left little more than ashes in its place" (p. 260). Moreover, this critical understanding appears to, at least partially, depend on a specific understanding of what "development" means. Some authors argue that instead of narrowly identifying development with aggregate economic growth, the concept of development itself can, and should, evolve towards a more broadly defined understanding [25]. These voices, though equally critical of narrow (exclusively economical or materialist) interpretations of development and progress, have attempted to redefine, and frequently expand these notions, rather than reject and eschew them altogether. For example, there is a lively, global debate on how to measure and indicate development, progress, or welfare. Many economists and non-economists alike now agree that Gross Domestic Product (GDP), the most widely used indicator of welfare globally, is a misleading and inadequate measure of national success. (Since the end of the Second World War, promoting GDP growth has been a primary national policy goal in almost every country [3]. However, GDP is widely criticized for not being a good indicator for economic development as it mainly measures market transactions, thereby ignoring social costs, environmental impacts, and income equality: "If a business used GDP style accounting, it would aim to maximize gross revenue—even at the expense of profitability, efficiency, sustainability, or flexibility. That is hardly smart or sustainable" [3]. Beyond that, GDP is also criticized for not being a good measure for prosperity more generally, as subjective well-being can only partially (and up to a certain income) be explained by people's material and financial circumstances.) Many alternatives for GDP have been proposed and developed, such as the Happy Planet Index, the Genuine Progress Indicator, and the Human Development Index. Constanza and colleagues have argued that the process of formulating Sustainable Development Goals could, and should, speed up the process of creating a successor for GDP that is better able to guide societies and nations towards what they call "sustainable progress" [3]. At the very least, according to these authors, the process could challenge the global community to rethink and redefine its notions of development, progress, and quality of life.

Also according to for example UNESCO [30], development should be understood "not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence." Likewise, the economist Ulluwishewa [31] has argued that development in the conventional sense has failed, and that in order to reach its goals—to alleviate poverty and inequality, to achieve environmental sustainability, and to deliver happiness to all—"spirituality" needs to be incorporated into (sustainable) development. According to him [31], spirituality refers to an ultimate or immaterial reality that exists beyond the material realm of reality. Although spiritual reality cannot be experienced through our physical senses, it can be experienced in other ways, particularly through the cultivation of techniques like meditation, prayer, yoga, generosity, and service to others. This may lead to the transformation of the human mind, transcending one's small or egoic sense of I, leading to a spirit-guided life of deeper purpose, meaning, and fulfillment.

In addition, developmental psychologists and positive psychologists tend to conceptualize "development" in a wider sense, associating it with psychological health and maturation, overall well-being, and increasing levels of care and compassion for others [32–35]. Thus, the concept of development—though in the context of sustainable development generally construed as material or economic growth—can clearly also signify and invoke other human aspirations, including psychological, moral, spiritual, and intellectual development. In addition, as some authors have argued, the thinking around sustainable development has in fact initiated a move away from neoclassical economics to other forms of economics, such as ecological economics, thereby offering an attractive alternative to conventional, material growth-oriented development thinking [18,25].

Thus, how one envisions development—e.g., narrowly construed as economic growth, or in a more expanded sense, including humanity's intellectual, moral, psychological, and/or spiritual development—profoundly informs how one interprets the concept of sustainable development. As I will argue now, these different positions may be understood in terms of different underlying *worldviews*.

3. Considering How Different Worldviews Envision "Development" and "Quality of Life"

As argued in the introduction, how individuals understand and envision "development" and "quality of life" is significantly informed by the predominant cultural worldview they depart from. Worldviews have been defined as "inescapable, overarching systems of meaning and meaning-making that to a substantial extent inform how humans interpret, enact, and co-create reality" [10] (p. 156). Worldviews are complex constellations of ontological presuppositions, epistemic capacities, and ethical and aesthetic values that converge to dynamically organize a synthetic apprehension of the exterior world and one's interior experience. They consist of foundational assumptions and perceptions "regarding the underlying nature of reality, "proper" social relations or guidelines for living, or the existence or non-existence of important entities" [36]. As several authors have argued, worldviews profoundly inform how environmental issues are perceived, what are considered useful pathways towards solutions, and what is seen as role and responsibility of the individual [9,10,37–39].

In my own research, based on quantitative and qualitative methods, and extensive literature reviews [7,22,24], I refer to the *Integrative Worldview Framework* (IWF). The IWF is an interdisciplinary framework that synthesizes original empirical research with research from a number of fields, notably developmental-structural psychology and sociology (including the extensive, cross-cultural,

longitudinal database of the *World Values Survey*, which provides the most global perspective on values and worldviews, and the changes occurring in them over time, available to date [40]). The IWF operationalizes worldviews into five major aspects—*ontology*, *epistemology*, *axiology*, *anthropology*, and *societal vision*—and offers a synoptic overview of four major, ideal-typical worldviews in the West, referred to as *traditional, modern, postmodern*, and *integrative* [22,24]. These four "families" or categories of worldviews are concisely described in Table 1. This overview is neither exhaustive nor definitive, emphasizing the dynamic character of worldviews as well as the difficulty of completely and accurately describing them. Perhaps needless to say, understanding worldviews in terms of such a high-level framework is necessarily based in a sweeping generalization of the complexities and ambiguities of reality. Moreover, these worldviews are of an *ideal-typical* nature, meaning that they are logically constructed models that can help researchers analyze and examine the real world. That is, ideal-types represent "ideal" or "pure" types, which are as such not expected to be found in social reality; instead a combination of different ideal-types will often be found [41].

Moreover, while the succession from traditional to modern to postmodern is one that has been fairly consistently observed in the history of Western societies [42–44], the understanding of the integrative worldview is based on more limited (empirical) research and therefore currently more hypothetical [21,45,46]. In addition, we do not know if other, non-Western societies will follow a similar progression, and can therefore not make claims to the framework's cross-cultural validity. Inglehart and Welzel [44] present evidence to suggest that the progression is apparent in non-Western societies as well, even though cultural distinctiveness persists. That is, cultural traditions show a lasting imprint on, and thus *interact* with, the process of value change, rather than being immune to change or being completely overtaken by it. For example, a traditional ontology may be expressed through different surface contents depending on whether that worldview is situated within a Christian or Hindu religious-cultural context, but will likely share certain underlying commonalities. (When using the term "the West", I broadly refer to its contemporary cultural meaning, with the "Western world" including Europe, as well as countries of European colonial origin in the America's and Oceania, which have substantial European ancestral populations. The West as a distinct cultural lineage and entity has its roots in Greco-Roman civilization and the advent of Christianity. In the modern era, Western culture has been heavily influenced by the Renaissance, Protestant Reformation, the Scientific Revolution and Enlightenment, and shaped by the expansive colonialism of the 15th–20th centuries [47].)

In the context of perspectives on sustainable development, it is noteworthy that different worldviews appear to have diverging notions of both development and quality of life (see Table 2 for an overview). While for example modern worldviews tend to envision development primarily in terms of economic or material growth and individual rights, postmodern worldviews will more likely be critical of the whole notion of development, deconstructing it as a narrative that serves certain interests, while marginalizing and oppressing others. Instead, they may stress non-material or "post-material" development, emphasizing emancipation, self-expression, and imagination. Traditional worldviews tend to be more conservative in their nature and outlook and may thus be more critical of notions of development and change altogether, instead emphasizing values such as conservation, stability, conformity, and respect for tradition [48]. Integrative worldviews are likely to envision development in more philosophical, psychological, socio-cultural, and even spiritual terms, aspiring to integrate and

synthesize different forms of development in favor of grand notions such as the "evolution of consciousness", the "future of humanity" or "a planetary civilization", e.g., [21,45,46,49–53].

Table 1. A concise description of four major ideal-typical worldviews in the contemporary West, according to the Integrative Worldview Framework (IWF).

Traditional Worldviews
In traditional worldviews the religious sphere is generally not distinguished from the secular sphere, nor is metaphysics from science. Religious or metaphysical views on reality thus answer the big questions in life, and generally substantial faith is placed in religious authorities, such as scriptures, doctrines, and leaders. In this worldview, a transcendent God is usually seen as separate from the profane, earthly world, and man as fundamentally different from nature. The relationship with nature is frequently understood in terms of "dominion" or "stewardship". Traditional worldviews tend to emphasize the importance of family and community, as well as values such as sobriety, obedience, discipline, solidarity, conformity, service, dedication, respect for tradition, humility, sacrifice, and austerity.
Modern worldviews
Modern worldviews attempt to achieve liberation from imposed, oppressive, frequently religious authorities and understandings of the past, through on emphasis on rationality and critical thinking. The vision of reality tends to be secular and materialistic, as the existence of a higher power, divine reality, or intangible dimension is generally rejected. Science tends to be seen as the ultimate (frequently exclusive) source of reliable knowledge, providing access to objective reality. This 'objectification' of reality generates a dualism between object and subject, which has tended to lead to immense scientific, technological, and material/economic progress as well as to an instrumentalization of nature. Science and technology are generally seen as pathways to progress, and central means to address humanity's most pressing issues. The autonomous, "self-made" individual has a central position. Individualistic and hedonistic values—such as freedom, independence, success, performance, social recognition, comfort, and fun—are usually dominant.
Postmodern worldviews
Postmodern worldviews are characterized by a tendency to acknowledge and value multiple perspectives on reality, and are generally critical of science's claim to exclusively provide objective knowledge. This worldview instead emphasizes the relativity and contextuality of knowledge, as well as the value of moral, emotional, and artistic ways of knowing. Frequently a somewhat critical attitude towards the modern model of society (e.g., ideas of progress, modern science and technology, capitalism) is observed, and the emancipation of marginalized and oppressed groups is a central motivation. This is for example reflected in the rise of social movements since the 1960s, promoting peace, multiculturalism, gay rights, and the environment, among others. Generally, postmodern worldviews celebrate diversity, heterogeneity, relativism, and "post-materialistic" or "self-expression" values such as creativity, uniqueness, authenticity, imagination, feeling, and intuition.
Integrative worldviews
Integrative worldviews appear to be primarily characterized by a self-reflexive attempt to bring together and synthesize elements of other worldviews, or of domains that in other worldviews tend to be viewed as mutually exclusive, such as science (or rationality) and spirituality, imagination and logic, heart and mind, humanity and nature—perspectives that in the West have been in conflict for centuries. In this worldview, such opposing perspectives are frequently understood to be part of a greater whole or synthesis—on a "deeper level"—resulting in "and-and" rather than "either-or" thinking. Such a holistic or integrative perspective may to lead to a profound sense of connection with nature, and an understanding of earthly life itself as imbued with a larger consciousness or "Spirit". Universal, existential concerns—such as life and death, self-actualization, global awareness, and serving society, humanity, or even "life" at large—are often of central importance.

Table 2. A tentative overview of how different worldviews understand "development" and "quality of life", and inferring what this may mean for their understanding of the concept of sustainable development.

Potential Views of SD Worldviews	Notion of Development	Quality of Life	Implications for the Concept of Sustainable Development
Traditional	- Inclined to be critical of development and change; - Focus on conservation and preservation of the tradition; - Particularly critical of materialist/consumerist notions of development; - Potentially critical attitude towards science and technology; - Likely informed by how important traditional or religious leaders and authorities conceptualize development.	- Emphasis on family and local community; - Traditional values like sobriety, humility, conformity, sacrifice, security, obedience; service.	- Emphasis on conservation of "the commons" - Potential appeal to "preserving God's Creation" - Oriented to the local rather than the global environment - Potential willingness to make personal sacrifices for the well-being of family or community - Boutelier/Castells environmental types of "Defense of own space" and "Responsible commons harvester."
Modern	- Views development and progress positively, in an unproblematic way; - Development primarily understood as economic, material development; - Celebrates science and technology; sees it as ultimate path to development or progress	- Emphasis on independent individuality; - Rational-secular, materialist values, like power, achievement, hedonism, stimulation.	- Emphasis on development of science and technology for sustainable solutions; - Emphasis on market-based solutions, win-win solutions; - Potential appeal to economic motives for sustainability; - Potential willingness to invest in science, technology, and sustainable business; - Boutelier/Castells environmental type of "Conservation."
Postmodern	- Critical of development; tends to problematize and deconstruct it as an oppressive narrative; - Emphasizes what and who is excluded from or marginalized by "development"; - Often "anti-modern" sentiments; - Frequently emphasizes the shadow-sides of science and technology, and the way they serve vested interests; - Emphasizes ways of knowing beyond the rational-empirical methods of modern science.	- Emphasis on unique individuality; - Self-expression, postmaterialist values like creativity, imagination, emancipation, openness to change, self-direction.	- Emphasis on inclusion and emancipation of marginalized voices; - Emphasis on fundamental changes needed in society as a whole, in the entire "Western industrial complex"; - Oriented to the global rather than the local environment; - Potential willingness for change of lifestyle; - Boutelier/Castells environmental type of "Green politics" and "Save the planet."

Table 2. *Cont.*

Potential Views of SD Worldviews	Notion of Development	Quality of Life	Implications for the Concept of Sustainable Development
Integrative	- Endorses idea of development but emphasizes other forms of development, e.g., cultural, psychological, and spiritual; - Attempts to include achievements of modernity (*i.e.*, science and technology, economic and social progress), while overcoming its shadow-sides (*i.e.*, cultural oppression and marginalization, exploitation of nature); - Often holds to an evolutionary, spiritual-unitive notion of development ("consciousness evolution," "cultural evolution").	- Emphasis on embedded, relational individuality; - Self-expression and self-transcendence values, like universalism, benevolence, inner growth, self-actualization, interconnectedness, service.	- Emphasis on personal growth, change in consciousness or mentality, different ways of relating to nature; - Emphasis on integration and synthesis of different interests and perspectives; - Attempts to integrate local and global, by applying global ethic to local stewardship practices; - Potential willingness for change of lifestyle and of self; - Boutelier/Castells environmental type of "Counter-culture" and "Deep ecology."

These worldviews have different ways of relating to nature, and tend to underscore different solutions to our sustainability-issues [54]. For example, research has shown that while more modern worldviews emphasize technological solutions and the correcting role of markets, more postmodern and integrative worldviews tend to emphasize a different way of relating to nature and the role of both societal and individual behavioral changes [12,17,21,55]. For postmodern worldviews this may particularly come to expression in critical analyses and political activism with respect to "the (global) system as a whole" [56]. For more integrative worldviews it may translate in an emphasis on embodying (globally oriented) sustainable ways of life in one's local context, such as through changes in one's diet and consumption patterns, social and sustainable ways of business and leadership, or communal efforts such as the establishment of eco-villages [21,56,57]. Individuals endorsing traditional worldviews may be more likely to make personal sacrifices for common causes, and in certain contexts display lifestyles that are less burdensome to the environment, due to values such as community, stability, moderation, humility, and reflection. These values may encourage behavioral choices with a relatively low impact on the environment, even though there often is no explicit commitment to green values [48].

Several authors have analyzed positions vis-à-vis sustainable development in the academic debate, distinguishing between (1) a post-positivist perspective; (2) a social constructivist perspective; and (3) a more pragmatic, integrative perspective [19,25]. According to Sneddon *et al.* [25], proponents of a mainstream version of sustainable development tend to demonstrate tendencies towards (post)positivism, exemplified in "a great deal of faith in quantitative representations of complex human-environment relations" and "individualism, economism and technological optimism" (pp. 260–261). In contrast, critics of sustainable development appear to frequently be social constructivist in perspective, emphasizing the mediated nature of knowledge and the historical contingency of development processes, and use qualitative rather than quantitative research designs. These authors themselves argue for a "pragmatic and middle path," emphasizing an integrative pluralist approach, an evolving notion of development beyond its more narrow material-economic construction, and a more explicit emphasis on the normative aspects of research [25]. These three main positions resonate with, respectively, the (epistemologies of the) modern, postmodern, and integrative worldview as distinguished by the IWF.Boutilier [56] combined the insights from the traditional-modern-postmodern value change as observed in the data from the *World Values Surveys* with Castells' work of classifying environmental organizations, distinguishing between traditional ("defense of own space," "responsible commons harvester"), modern ("conservation"), and postmodern ("green politics", "save the planet") ways of relating to sustainable development. He also refers to neotribalization ("counter-culture," "deep ecology"), in which there is a "thrust towards constituting communities on the basis of collective identities rooted in postmodern critiques of modernism" (p. 30), aiming to apply the implications of global phenomena and perspectives to local stewardship practices. It frequently includes threads of contemporary, ecological and spiritual philosophies that revisit and renew traditional views of the humankind-nature relationship, see also [57]. This last worldview clearly has some resonance with the integrative or integral worldview as distinguished by myself and other authors.

I will now reflect on what the co-existence of these different worldviews means for policy-making in the field of sustainable development.

4. Policy-Implications: The Need for Reflexivity

Many authors underscore the need to honor the multiple dimensions, viewpoints, and stakeholders involved in the debate on sustainable development in general, and in any decision situation in particular. They argue for as much as possible respecting and including the multiple worldviews and their (sometimes) competing visions of development and quality of life, thus aspiring for a kind of "integrative pluralism", e.g., [18,19,25]. However, up to this day, the idea that there is a superior way of knowing—often based on modernist assumptions of rationality, objectivity, logic, and "hard" science—seems to remain widespread [58]. According to many critics, such openness and reflexivity is therefore still largely absent in the sustainability-debate [19]:

"Despite claims of a paradigm shift, scientists argue that the widely institutionalized [sustainable development] paradigm—as endorsed by many U.N. documents—remains based on a modern normal scientific and classical economic rationality, incorporating dominance of some worldviews instead of thorough integration of different views with variety serving as a basis for sustainability" (p. 679).

This dominance of a post-positivist, modern, scientific/scientistic worldview in our understanding of sustainable development increases the risk of ethnocentrism and the marginalization of alternative worldviews and may, according to these same authors, "have a devastating effect on [sustainable development] as a potentially universal and inclusive concept in general, and on generated knowledge for [sustainable development] in particular" (p. 699). These shortcomings have been widely recognized in the sustainability community, with many authors proposing a move away from (exclusively) positivist science to more participatory, constructivist, post-normal, and/or integrative approaches in order to be able to adequately address sustainability issues, e.g., [14,19,25,59–62]. Sustainability science is then defined as an *integrative science*, aiming at the integration of different disciplines, viewpoints, and knowledges. Although it is not yet clearly defined, its central elements have recently been clarified in the literature: "Inter- and intradisciplinary research; coproduction of knowledge, a systems perspective with attention to the co-evolution of complex systems and their environments; learning-by-doing (and learning-by-using) as an important basis of acquiring experience, besides learning-by-learning (learning through detached analysis); attention to system innovation and transitions" [14]. These new kinds of concepts of science integrate, validate, and require the involvement of different types of knowledge and epistemologies. Many authors therefore argue for more integrative approaches to science, entailing an explicit pluralization of knowledge for sustainable development. This call for integration—of the sciences with the arts and the humanities; of academia with policy and practice; and of different stakeholders, values, and worldviews—has in recent times become loud and clear in the sustainability community.

However, such integration—of disciplines, stakeholders, and viewpoints—is only possible when one is willing to be self-reflexive. Therefore, more important than any typology of worldviews is the reflexive attitude that a worldview-perspective supports and cultivates. (Although the integrative worldview appears to have an innate or spontaneous tendency to be reflexive and honor different perspectives (with the ambition of integrating them into a larger whole or deeper understanding), this does not mean that this quality could not be cultivated in other worldviews.) The awareness that the way one understands and relates to the world is imbedded in a *view* can be liberating and empowering, as well as humbling and relativizing. This is so because most individuals can see and experience for

themselves that a (world)view may change over time, and likely already has in one's own lifetime; that a (world)view is one among many, instead of the only valid one; that a (world)view correctly or colorfully captures certain aspects of life and the world, while necessarily overlooking others; and that a (world)view can be made more rich and complete in dialogue and interaction with others, for the simple truth that together we see more than alone. Becoming aware of one's embeddedness in a worldview therefore tends to stimulate and cultivate a (more) reflexive attitude. With a reflexive attitude I refer here to an ability to look at oneself rather than only from oneself, through reflection on, and analysis of, one's own assumptions, values, and orientation, thereby increasing one's self-knowledge and understanding. In everyday life, we tend to work within the framework of such assumptions, generally without problematizing or questioning them. By making them explicit and exploring them, we are much less likely to take our views for granted and assume that others view—or should view—the world as we do. This not only opens a space for looking at one's worldview more critically and freely, but also of considering and including other worldviews more fully, instead of negating or belittling them.

The IWF aspires to support such a reflexive and empathic disposition in one's relating to other worldviews. A basic premise is that every worldview has intrinsic value and can make important contributions to the larger whole, see e.g., [63]. Similarly, the IWF posits that no worldview is intrinsically "better" than another; rather, worldviews should be seen as deep structures that can come to expression in more and less healthy—and more and less ecologically sustainable—ways, see also [64]. This means, as several authors have pointed out, that every worldview at least has the potential for ecological expressions [56,65]. By being aware of the potential of each worldview—its healthy values and truths—one is empowered, in one's understanding of and communication with other worldviews, to orient towards supporting these potentials, rather than activating their less optimal expressions. Thus, worldviews offer different potentials (as well as pitfalls) for sustainable development, which are likely to be complimentary, as a great variety of solutions in addressing ecological issues is needed. Precisely because of the diverse range of solutions, strategies, and perspectives that different worldviews bring forth, cultural diversity potentially enhances our capacity for adaptation and transformation.

Such reflexivity around one's worldview is also important as underlying worldviews are likely to impact policy-making and communication processes in both profound and concrete ways. For example, if one's notion of development is limited to material, economic growth (with GDP as main indicator for "welfare"), the demands of sustainability will likely be perceived as constraints upon the pursuit of quality of life. Sustainability then tends to be seen as in conflict with progress. As Boersema [66] described this common perspective, "the associations that we have nowadays with the expression 'the good life' are everything but green, and the associations that we have with green are everything but good" (p. 16). However, other worldviews may envision development and quality of life as mutually interdependent with sustainability and concern for the environment and the wellbeing of others. A more sustainable society and lifestyle is then perceived as a contribution to, and in fact a prerequisite for, a high quality of life [17,66]. Although this latter perspective appears to be less common in the public debate, not including it into our understanding of sustainable development will likely result in excluding—and thereby discouraging—the satisfaction that people may gain from living a sustainable life. Significantly, according to psychological research, there are a host of psychological benefits associated with sustainable lifestyles, such as satisfaction, wellbeing, and happiness [67–69].

As multiple communication studies have demonstrated, this exclusion may be detrimental to public engagement with goals and issues of sustainable development [70–73].

As discussed elsewhere [23,24], the IWF has the potential to serve three major purposes in terms of policy and communication. First, the IWF can serve greater self-reflexivity vis-à-vis policy-makers and communicators' own worldviews. Such self-reflexivity appears to be essential for effective policy-making, communication, and cooperation in a broad sense. Secondly, the IWF can serve as an analytical tool to foster greater understanding of the worldview-dynamics at play in sustainability-debates and issues, as well as in societal dynamics at large. Such an understanding of the worldviews operating amongst stakeholders or segments of the population appears to be essential in order to generate effective policies and communications that are attuned to the *Zeitgeist*. Third, the IWF can serve as a kind of scaffolding for the process of crafting effective communications by tailoring them to resonate with the cognitive and motivational flows of the various worldviews.

5. Discussion and Conclusions

The intersubjective and intercultural nature of the concept of sustainable development highlights why taking into account worldviews in the context of our global environmental issues is essential. In fact, as long as the underlying worldviews—and particularly their notions of development and quality of life—are not explicated, it is ambiguous what sustainable development means or may mean. The concept thus by definition necessitates a reflection on and explication of worldviews [17,18]. In this article, insights are offered as to how we can start considering different worldviews in the context of debates about sustainable development. Herein I draw on the *Integrative Worldview Framework* (IWF), which currently distinguishes between four major, ideal-typical "worldview-families" in the contemporary West—namely traditional, modern, postmodern, and integrative worldviews—building forth on, among others, the insights as generated through the *World Values Surveys*. While Table 1 gives a concise overview of these worldviews, Table 2 gives a tentative overview of how these different worldviews understand "development" and "quality of life", inferring what this may mean for their understanding of the concept of sustainable development.

Of course, there are other ways to operationalize and categorize worldviews in the literature that are worth considering, see e.g., [36,74–76]. In addition, while the IWF currently distinguishes between four major worldviews in the contemporary West, more categories or "families" of worldviews are likely needed as we attempt to come to a truly global perspective on this topic. Including an ideal-typical understanding of indigenous worldviews [19,77] may be a first step towards a more comprehensive, global understanding of worldviews. This also underscores the need for more globally oriented research on worldviews in general, and their interface with debates about sustainable development in particular. Thus, as emphasized in section three, not only is the (geographical) span of the IWF limited, typologies in general also bring a range of limitations and concerns with them. However, as heuristics they can be highly illuminating, powerfully serve policy- and communication purposes, and enhance reflexivity, as argued in Section 4. In this context, I have also argued that more important than any typology of worldviews is the *reflexive* attitude that a worldview-perspective supports and cultivates.

This reflexivity is highly relevant in terms of environmental policy-making in the broadest sense, as notions of development and quality of life will inform which solutions to sustainability-issues are proposed as well as how sustainability-policies and initiatives are shaped, implemented, and communicated. In the complex and deliberative process of formulating Sustainable Development Goals (SDG's) it would be particularly useful and informative to reflect on the different worldviews, and their positions with respect to development and quality of life, in order to select, formulate, and communicate goals in a way that truly honors and includes the different worldviews, stakeholders, and perspectives as fully as possible. As said before, since the IWF cannot claim cross-cultural validity, special attention for non-Western worldviews, including indigenous ones, is required in this process. However, my hope is that when such a process is engaged with utmost care and inclusiveness, the SDG's will be formulated in such a way that they can truly support the world's efforts to accelerate global progress towards achieving more sustainable and life-enhancing forms of development—economic, ecological, social, and cultural—for all.

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Conflicts of Interest

The author declares no conflict of interest.

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