The "Spiritual Handshake": Toward a Metaphysical Sustainability Metrics

Almut Beringer, University of Prince Edward Island, Canada

Abstract

Is it feasible and appropriate to develop a sustainability metrics which captures cosmological-spiritual dimensions of un/sustainability? Departing from the supposition that the crisis of unsustainability is a crisis of worldview and misguided cosmology which needs redirection on a cultural and global scale, this essay introduces the notion of a diagnostic instrument with which metaphysical aspects of un/sustainability may be assessed. Using the ecological footprint as a template, the essay proposes the "spiritual handshake" as a complementary analysis tool to ascertain the im/balance of personal self-interest versus goodwill and service to the common good. The paper outlines the conceptual foundations and metaphorical content of the spiritual handshake, suggests a set of assessment indicators, and applies the tool to a case study: that of the Terminator Gene.

Résumé

Est-ce faisable et approprié de mettre au point/établir/développer une mesure de durabilité qui englobe les dimensions cosmos-spirituelles de la durabilité et de la non-durabilité ? Cet article part de la présomption que la crise de la non-durabilité en est une de cosmologie mondiale mal orientée, laquelle nécessite une réorientation à l'échelle culturelle et mondiale, pour introduire la notion d'un instrument de diagnostic permettant d'évaluer les aspects métaphysiques de la durabilité et de la non-durabilité. En se fondant sur le modèle de l'empreinte écologique, cette dissertation propose la « poignée de main spirituelle » comme outil d'analyse complémentaire pour identifier l'équilibre et le déséquilibre des intérêts personnels par opposition au bon vouloir et au service envers le bien commun. Cet article décrit brièvement les fondations conceptuelles et le contenu métaphorique de la poignée de main spirituelle, propose une liste d'indicateurs d'évaluation et applique l'outil d'analyse à une étude de cas, le gêne terminateur.

Keywords: cosmology; metaphysics; spirituality; sustainable development; sustainability metrics

This paper picks up on an essay published in the *Canadian Journal of Environmental Education* volume 11 (Beringer, 2006a). The 2006 essay asserted that "[t]he lost sacredness of nature somehow needs to be recovered in the western worldview" (Beringer, 2006a, p. 37) to secure long-term planetary

sustainability. It maintained that environmental education in particular, and environmental studies more generally, hold key responsibility for this cultural transformation. These conclusions arose from the supposition that the crisis of unsustainability is a crisis of worldview and misguided cosmology that needs redirection on a global scale, in particular under the incentive of the United Nations Decade of Education for Sustainable Development.

This follow-up essay takes sustainability metaphysics further, encouraging environmental/sustainability educators and researchers to consider the notion of a spiritual sustainability metrics. Moreover, the essay summons spiritual teachers, philosophers, and religious studies scholars, in particular proponents of the perennial philosophy (cf. Huxley, 1945, n.d.) to influence more prominently the sustainability education discourse. While policy-makers and educators are principally responsible for shaping and implementing the Decade of Education for Sustainable Development, inter-, multi- and transdisciplinary metaphysicians' expertise is critically needed to enlighten and possibly redirect the Decade, which to date is noticeably weak on paradigm critique (cf. Sauvé & Brunelle, 2005). Departing from the assumption that unsustainability is systemic within modernity, as associated with a neglect of the sacred—however the sacred may be understood—this essay proposes the spiritual handshake as an ecological footprint-equivalent for sustainability metaphysics that captures in easily understood, graphic ways the to-date sidelined non-material, non-physical dimensions of sustainable living. The premise is that a catchy, figurative visualization of the metaphysical dimensions of individual and collective choices—lifestyles, organizational structures and management systems, planning proposals, science and technology innovations, and so forth—may assist in remembering the cosmological pillar of sustainability (Beringer, 2006a, 2006b). Additionally, such a diagnostic tool could alert sustainability authorities and civic society of worldview issues, including human-nature conceptions, which frame and underlie sustainable development discourse and practice (cf. Sherrard, 1992).

This essay, then, sketches the spiritual handshake: it outlines the conceptual foundations and metaphorical content, considers methodological challenges, suggests a set of assessment indicators, and applies the tool to a case study: that of the Terminator Gene science and technology innovation. Spiritual, as used throughout this essay, refers to and is used synonymously with metaphysical, and contrasts with the physical, material, worldly, sensual, or temporal (Figure 1).

It is not the purpose of this essay to make the case for and defend spirituality and religion as critical elements of and social forces for sustainable development (cf. Gottlieb, 2002; Raiser, 2003; Schmidt, 2005). Neither does this essay engage in the debate whether spirituality and religion are dangerous delusions that, at minimum, contribute to our current environmental situation (if not being its root causes), and that consequently the required change in worldview must include freeing ourselves from the illusion of a God or higher power (cf. Dawkins, 2006).

"Spiritual" denotes being concerned with more than the material world and material values, such as in the consumerist worldview. Concurrently and genuinely, "spiritual" implies concern with soul and spirit; for forgetting the sacred dimension of soul and spirit—as for instance in the notion of a secular spirituality—constitutes part of the loss of the sacred implicated in the unsustainability crisis (Beringer, 2000, 2006a). Spirituality is spiritualism only in the sense of a belief system that emphasizes the spiritual nature of existence. Notwithstanding, the ideology of materialism (consumerism) can be rejected on secular grounds (cf. humanism) or without belief in a soul (e.g., Buddhism); moreover, it is possible to strive toward sustainable living on moral, secular principles.

Figure 1. Spiritual and spirituality.

The Spiritual Dimensions of the Crisis of Unsustainability

At its deepest core, its root cause, the ecological crisis/crisis of unsustainability is a crisis of worldview, perception, consciousness, and/or cosmology (Berman, 1981; Berry, 1988, 1999; Davies, 2001; Foltz, 2003, Kinsley, 1995; Maxwell, 2003; McGrath, 2002; Nasr, 1966, 1981, 1996, 1997; Sherrard, 1992). This notion is supported by scientists (e.g., Maxwell, 2003), educators (e.g., Beringer, 2000), philosophers (e.g., Kidner, 1994; Sahtouris, n.d.), scholars of religion and spirituality (e.g., Berry, 1999; Nasr, 1996, 1997; Oldmeadow, 2003), and social critics. In short, deep thinkers from varied disciplines who have been touched by the state of the world and who have sought to grasp the anthropogenic causes of unsustainability converge on fundamental paradigm issues in their analysis.

A critical aspect of this crisis of worldview is the loss of a so-called "sacred cosmology" within the modern, Western paradigm (Nasr, 1993, 1996, 1997), the loss of an understanding—shared by the majority, if not all, "stakeholders" of this worldview—that life and the world is more than the physical-material-sensual. Critics of modernity, in particular in their appraisals of scientism (the belief that the assumptions and investigative methods of the physical-biological sciences are applicable or justifiable in all fields of inquiry), maintain that there is more to life and the world—and our experience of both—than the reductionist, materialist, rationalist science of the Enlightenment and the scientific revolution of the 16/17th centuries purport to teach us (cf. Oldmeadow, 2005). The crisis of unsustainability is first and foremost a crisis of modernity—a neglect of spiritual dimensions of life and the human condition, and a loss of collective wisdom that the material-physical plane of nature (which Western science has excelled in discerning) is merely an aspect of much larger repositories of experience and knowledge (cf. Dalai Lama, 2000; Moore, 1999; Nasr, 1993, 1996). This includes insights about non-material, spiritual worlds not captured by modern science, as well as insights which can teach about and govern human life—individually and

collectively—in balance with nature (cf. Nasr, 1981, 1993). As extrapolated in depth in my earlier essay (Beringer, 2006a), the traditionalist worldview or *sophia perennis* and the world's wisdom teachings contain realizations of life and worlds—in particular of knowledge systems and environmental ethics—which harbour seeds for sustainable living which Western society (i.e., global society) would do well to review and heed (cf. Keeble, 2001; Milojevic, 2005) (Figure 2). In contrast to the modern worldview—and therefore as an alternative worthy of discussion, especially in the context of declining ecosphere health and biodiversity (cf. Millennium Ecosystem Assessment, n.d.), plus in light of the emerging spiritual sustainability education—the *sophia perennis* contains well-developed understandings of metaphysical worlds and dimensions, as well as clearly developed avenues to investigate these (cf. Nasr, 1981).

The precepts of the Traditionalist School of thought—also known as perennialism, the perennial philosophy, or *sophia perennis*—are considered by its adherents to be timeless and to be found in all authentic traditions. Perennialists presuppose the evolution of consciousness; they reject scientific reductionism, materialism, and secularism, opposing an everlasting wisdom of divine origin, a "Primordial Tradition," transmitted from the spiritual realms and partially restored by each founder of a new religion. Perennialism includes a very specific definition of "tradition" which implies transmission (*tradere*) via supra-human revelation; spiritual teachings are issued from the Divine and bind humans to their divine origin. Beyond the diversity of religious forms, perennialists discern a single Tradition (with a capital letter) or a "transcendent unity." They claim that the historically separated traditions share not only the same divine origin, but are based on the same metaphysical principles, sometimes called *philosophia perennis*. Traditionalist metaphysics thus means a supra-rational knowledge of the Divine, a gnosis, and not a rationalist system or theological dogma. The term *philosophia perennis* first appeared in the Renaissance; it is widely associated with the German philosopher G.W. Leibniz. The ideal of such a philosophy is much older and can easily be recognized in the Golden Chain of Neoplatonism, in the patristic *lex primordialis*, in the Islamic Din al-Fitra or in the Hindu Sanathana Dharma (eternal Truth). Contemporary scholars include Fritjof Schuon, Ananda Coomaraswamy, Titus Burckhardt, and Seyyed Hossein Nasr.

Source: excerpted from Wikipedia (2006a); cf. Beringer (2006a); Lakhami (2002); Oldmeadow (2000); Shah-Kazemi (2001).

Figure 2. Traditionalism or the *philosophia perennis*.

In recent years, the movement to address the Earth crisis at its cosmological core has entered mainstream. Spirituality and religion are being recognized as social and economic forces which cannot be denied in sustainable development (cf. Gottlieb, 2002; Raiser, 2003; Schmidt, 2005; World Council

of Churches, 2003; Zohar & Marshall, 2000, 2004). In a speech to the World Council of Churches, Raiser (2003) alerted his listeners to the critical role of spirituality and religion on the pathway to global sustainability:

> What does spirituality have to do with wealth creation, with economic globalization or the commodification of public goods? [...] After four development decades, it becomes more and more obvious that the dominant policies were based on a one-sided understanding of how people act in society and therefore did not achieve the expected results. In many cultures, religion and spirituality continue to play a central role in shaping social interactions. The process of secularization which has led to the privatization of religion in many Western societies has not spread to other cultures in the same way as was expected. In fact, we are witnessing a resurgence of religion not only as a spiritual, but also as a political force, not least in the context of responding to the impact of globalization. What is more: we become increasingly aware that the functioning of the economy and of the financial system presupposes and relies on a social fabric which is maintained through internalized values, attitudes and motivations which in turn have their roots in religion and are being regenerated through spirituality. This "social capital" which is reflected in virtues like trust, faithfulness, mutuality and solidarity, has traditionally been taken for granted in economic analyses and thus not been accounted for. [...] Today we realize that the prevailing economic and financial policies which have been given global validity through the international financial institutions, have been using up the social capital which had been accumulated through generations and centuries without replenishing. In fact, the values promoted by these policies reflect a reductionist view of the human condition in terms of the homo oeconomicus and continue to undercut and erode the social fabric without which the economy itself gets caught in contradictions and dilemmas which it cannot solve with its own means. Thus we see among economic and political leaders, including those responsible in the international financial institutions, an increasing interest in questions of social and religious values. (Raiser, 2003, ¶ 1, 4-5)

These sentiments are echoed by Schmidt (2005), who also asserts that spirituality and religion are indispensable to advance global sustainability:

> Religions are among the cultural features at large that are most subversive of the ideology of consumptive materialism: They actually dare to hold on to the view that human beings are not islands unto themselves but intimately bound up with others, in and with the world; that happiness in life does not lie with how many products of what kind you can and do afford, and that there are other, deeper truths beyond the turmoil of daily life. (p. 156)

Both these are affirmed by Gottlieb (2003) and the World Social Forum (2003), who have called for a "spirituality of resistance" to oppose the negative consequences of a globalization interpreted as further economic growth and improved free trade to the detriment of local environments, including biodiversity and peoples. A spirituality of resistance is not only valuable for environmentalists and social activists to "finding a peaceful heart" (Gottlieb, 2003) amidst the deepening crisis, hypocrisy, and the conundrum of being

personally implicated in the Earth's demise (including global warming); it is also indispensable in uniting politics and spirituality/religion as a social movement toward protecting the Earth and sustainability (cf. Gottlieb, 2002).

The modern loss of the sacred is an abnormality in historical and cross-cultural analysis (Oldmeadow, 2003). Those peoples who have managed to live at least somewhat sustainably on the planet have all held collective frameworks with accountability to a higher authority. Be this karma and reincarnation in the Hindu and Buddhist traditions; the seven-generations forecasting of Native American cultures; a notion of responsibility to the Earth Mother, as in matriarchal cultures (cf. Göttner-Abendroth, 1999); the salvation of the individual soul against the judgment of a heavenly Father, as in the Christian tradition; and so forth—all these capture, quite vividly, the metaphysics of sustainability of which this essay speaks.

Measuring the Spiritual Dimensions of Un/Sustainability

Spelled out, then, this paper asks whether it is one, possible to measure and thus include metaphysical aspects in sustainability analysis and metrics (feasibility question), and two, whether this should be attempted (normative question). Predicated on a spiritual sustainability indicators concept passing these filter questions, conceptual-theoretical groundwork needs to be laid:

- What does the diagnostic tool propose to measure, and what is/are its unit/s of measurement?
- Are any templates available?
- Which necessary and/or sufficient criteria must such an analysis tool meet? What are its required characteristics?
- Can the tool meet standard criteria of scientific rigour? Can and does the tool meet criteria of spiritual rigour? What does this mean, theoretically and practically?

Measurement

A review of the spiritual literature suggests that selfishness and greed are considered vices in all wisdom traditions and spiritual paths. In contrast, goodwill and contributions to the common good—to the collective, the community—and selfless service—to others, humanity, and the Earth—are valued. In fact, service is a hallmark of most if not all spiritual paths and, as such, part of many a spiritual discipline (e.g., Bailey, 1987; Besant, 1991, 1999; Saraydarian, 1989). Selfishness and greed, in particular as expressed through conspicuous consumption, are also implicated in the ecological crisis; the Brundtland Commission, in its definition of sustainable development as "meeting needs," indirectly discounts them in sustainability as well (WCED, 1987). The spectrum of selfishness/greed vs. goodwill and contribution to the

common good/service might thus work as a foundational parameter for a spiritual sustainability metrics (cf. Daly, 1994).

Templates

The ecological footprint (Wackernagel & Rees, 1996) has been a significant factor in moving the issue of sustainability out of academia into the public realm: into community planning, international development, urban sustainability, NGOs (e.g., Redefining Progress), citizen groups, healing circles, and even elementary schools (cf. GPI Atlantic) (e.g., Aall & Norland, 2005; Hunter, Carmichael, & Pangbourne, 2006; Jorgenson, 2005; Moos, Whitfield, Johnson, & Andrey, 2006; Torras, 2003; Wood & Lenzen, 2003). Based on bibliometric analysis and in comparison with three other sustainability accounting tools—life-cycle costing, triple-bottom line accounting, and natural capital (Hawken, Lovins, & Lovins, 1999; Jansson, 1994)—the ecological footprint tool appears to have achieved more than any other instrument or method of analysis for advancing sustainability science and practice, not only in popularizing the concept of sustainability, but also in deploying sustainability from a predominantly qualitative notion into quantitative assessment. Its simple formula—area of ecologically productive land needed to sustain a particular lifestyle—and graphic illustration of un/sustainability has led to its unsurpassed worldwide success and application in such diverse fields as ecosystem science, planning, human population control, and others (e.g., Hammond, 2006; Jorgenson, 2005; Lawn, 2007) (Figure 3).

> The ecological footprint measures the human impact on the ecosphere. By determining the amount of ecologically productive land (including water: freshwater and sea) needed to sustain a particular—individual or collective—lifestyle, the ecological footprint gives a precise assessment of how many and what type of ecological functions and services are needed to provide an individual or group of people with the physical necessities of life (air, water, food, shelter) and to absorb its waste products (via assimilation). By providing the measure in global hectares per person, the candidate (individual, group, city, nation, region of the world) can easily determine whether the area of land available matches the area of land required. The ecological footprint, thus, not only indicates the un/sustainability of a chosen or aspired to lifestyle, it is also a stark reminder that the affluent lifestyles of the West/North are subsidized by the continuing poverty of peoples in the South. In its normative interpretation, the ecological footprint seeks to reduce the human impact on Earth (Wackernagel & Rees, 1996).

Figure 3. The ecological footprint.

The ecological footprint measures the physical-material, ecological dimensions of un/sustainability. While it may be evocative in this domain—conceptually simple; scientifically rigorous in measurement and applica-

tion; by all accounts, as accurate as estimates can be (cf. Aall & Norland, 2005); and convincing in its communicative potential—the ecological footprint falls short in terms of the spiritual root causes of unsustainability. The ecological footprint succeeds in translating the qualitative physical aspects of sustainability into quantitative terms but is silent—does not attempt—to address the non-physical, non-material dimensions. As such, and given that the cosmology/paradigm aspects of sustainability are at the heart of the necessary cultural transformation, sustainability analysis requires complementary instruments which can depict these metaphysical perspectives.

The Spiritual Handshake

This next section sketches spiritual sustainability indicators which may round out the ecological footprint. As spirituality informs both social mores and ethics, the spiritual dimensions of un/sustainability may well be tangent to, or overlap with, social and ethical sustainability parameters. To fully delineate these distinctions must be left unaddressed. It is beyond the scope of this essay to provide a conclusively developed, usable prototype of a diagnostic spiritual sustainability metrics instrument similar to, and comparable with, the ecofootprint questionnaire (Redefining Progress, 2002), and to explicate the path of spiritual development and the evolution of consciousness to outline its educational potential. The point here is to begin to think through some of the pertinent issues.

Conceptual Foundations

Any analysis tool that seeks to determine the spiritual dimensions of un/sustainability—be this a personal lifestyle, a proposed urban development, a scientific or technological innovation, a nation's global impact, etc.—would need to be similarly convincing and applicable as the ecological footprint. In short, criteria as per ecological footprint would need to be replicated in and applied to a spiritual analysis tool:

- usefulness, easy to use
- visual, graphic, illustrative
- widely applicable, universally acceptable—i.e., across spiritual traditions and religions; to individuals, cultures, nations, all sectors of society
- scientifically rigorous and accurate—if only in the broadest sense of science as systematic inquiry; rooted in the latest scientific research
- spiritually rigorous—what does this mean? theoretically? practically?
- adaptable, with potential to evolve and for revised editions

The tool cannot and must not replace the ecological footprint—i.e., analysis of the physical-material dimensions of un/sustainability—but must

be adjunct to and fortify it. Un/sustainability is expressed in ecological (biological) signs, symptoms, and phenomena; the ecosphere is the ground as well as the manifestation—local, (bio)regional, national—of cognitive, affective, conative-behavioural, and spiritual choices (individual and collective) that constitute the anthropogenic causes of environmental (including social) decline and poverty. The cosmological-spiritual root causes of (Western, modern) unsustainability are revealed in changes to and in the ecosphere, and the spiritual handshake analysis tool proposed here seeks to highlight and illustrate these as yet largely invisible dimensions to bring them into full awareness, to be transformed and healed in human collective consciousness.

Name

Fashioned after and honouring the footprint metaphor, the illustration tendered for spiritual sustainability metrics is the handshake: thus, "spiritual handshake" spiritual sustainability metrics tool. The handshake not only highlights the complementary nature of the two instruments, but also conveys copious symbolic meanings of this gesture (Figure 4).

- a greeting—in the sense of Namasté, recognizing the spiritual essence of the o/Other; greeting the s/Spirit in/of the Earth, honouring the Earth Mother
- reaching out or toward the Earth—in the sense of seeking to understand the ecological dimensions and know of the non-physical, spiritual aspects of un/sustainability, and to live accordingly
- a gesture of recognition—acknowledging that living on Earth is a give-and-take; that Western lifestyles highlight taking without due credit to giving; making a commitment to better balance give-and-take, in particular by committing to acts of selfless service to the Earth and humanity
- sealing a contract—in the sense of pledging to study spiritual principles and to live a spiritual life, to the best of one's understanding and abilities
- gratitude—a handshake as a sign of deep appreciation and respect for the gifts of the Earth

Figure 4. The metaphorical meaning of the spiritual handshake.

In sum, then, the spiritual handshake is an assessment tool that seeks to capture the metaphysical, non-material, non-biophysical dimensions of (human) life on Earth. It measures a candidate's (individual, group, organization, nation, etc.) spiritual input and output—the give-and-take of non-material, spiritual resources, and assets. Against an as yet unquantified, qualitative score of selfishness/greed vs. goodwill/service, the spiritual handshake strives to determine what a candidate extracts from life and what she/he/it/they contribute/s back to the common good and to the planet (Table 1).

	Ecological Footprint	Spiritual Handshake
measure of un/sustainability	area of ecologically productive land needed to supply resources and assimilate waste	commons (common good, public good) needed to serve self-interest and to accommodate personal aspirations (including greed)
measures the balance between	land available and land needed/used	self-interest (personal gain) and goodwill/contribution to the common good
unit of measurement	hectares per capita (or global hectares [gha] per person)	proposal: time (hours of selfless service) and money, after the basic necessities of life have been met; time can be quantified in monetary terms based on personal income (hourly wage)
indication of unsustainability	gha/capita > 1.78	proposal: apply the spiritual Law of Tithing: > 10% after the basic necessities of life have been met

Table 1. The ecological footprint and spiritual handshake.

Methodological Issues

A basic issue arises in seeking to evaluate spiritual contributions, especially when measurement involves quantifying spiritual practices. Apart from the ethical issue mentioned—should metaphysics be quantified, quantification being part of the reductionist-neoclassical economic paradigm at the root of the unsustainability crisis—this seems problematic methodologically. However, it seems plausible that scientific assessment of metaphysical phenomena would need to draw on the marginalized knowledge of sacred science (cf. Nasr, 1995).

Spiritual Handshake Indicators

Unresolved methodological issues notwithstanding, I now put forward a set of indicators to assess the metaphysical dimensions of un/sustainability. These parameters have been gleaned from the world's wisdom traditions and teachings of what constitutes a spiritual life (cf. Besant, 1991). In particular, the indicators are extracted and adapted from a text in the Theosophical tradition, *Living by the Heart* (Chenery, 2002). This text is used here as an example and pilot: to test whether it is possible to translate and amend spiritual teachings for purposes of developing sustainability metrics. From the many rich and varied precepts on offer—e.g., the Noble Eightfold Path (Buddhism), the Ten Commandments, Vedanta (Hinduism), Right Human Relations (Theosophy), etc.—this source of reference was chosen because it outlines the Way of the Heart, a spiritual path and teaching its originator, the

contemporary Theosophical teacher Ananda Tara Shan (Rev. Jeanne Dara DeMurashkin), claims is universal (Figure 5). As such, it fulfils one of the essential criteria of a valid, acceptable, and potentially successful sustainability metrics tool.

> Theosophy or Divine Wisdom regards itself as ageless and universal; it honours the truth in all religions and wisdom teachings. Of all contemporary expositions of Theosophy, Ananda Tara Shan's teachings emphasize practical application of spiritual principles for healing the Earth, and for the good of all. Right Human Relations is a term widespread in Theosophical teachings and texts; it refers to applying goodwill and good intention to all interpersonal interactions (e.g., Bailey, n.d.). For today's age and issues, in particular the global crisis of unsustainability, Right Human Relations can and need to be extended to include human- non-human nature relations—to then become Right Earth Relations, a set of principles and spiritual guidelines—in short, environmental ethics—which govern the human-nature relationship (Beringer, 2006b, 2003/2004).

Figure 5. Theosophy and Right Human Relations.

The following list of indicators is a first attempt to quantify the spiritual dimensions of un/sustainability (i.e., the spiritual life). The list is an invitation for input, feedback, and discussion, and is in no way meant to be absolute, exclusive, or exhaustive.

In *Living by the Heart,* Chenery (2002) dissects and explains the spiritual life as having:

- one task—to strive to live from the heart
- four areas of spiritual discipline—daily spiritual practices, Right Human Relations, contributions, and physical purity, and
- three areas that nurture spiritual development—a loving family life, respect for the work, and responsibility for one's growth (Chenery, 2002, p. 5-13).

Applying and extending Chenery's (2002) aspects of spiritual discipline to living sustainably, this includes but is not limited to

- living the spiritual principles of love and forgiveness
- practicing the spiritual disciplines of meditation and prayer, contemplation and attunement (sadhana), study of spiritual teachings, self-surrender, harmlessness, purity of heart and of motive, right livelihood, creating community, right thought, honesty, obedience to the physical law, tithing, service, eating healthy, wholesome, and preferably organic food, and creating a pure environment (cf. Chenery, 2002).

Applying the Spiritual Handshake Tool: A Case Study

This last section now applies the proposed spiritual sustainability indicators/analysis tool to ascertain the sustainability potential of a real-world scientific-technological innovation, taking into account the spiritual dimensions of sustainability. In doing so, the rudimentary set of indicators which speak to the personal life is extrapolated to the science and technology domain.

The case study used here is the Terminator Gene, currently being developed by the agricultural products company Monsanto, the world's biggest seed supplier. (The case description is taken from Wikipedia, 2006b.) Terminator Gene or Terminator Technology is a form of genetic use restriction technologies (GURT) and is "the colloquial name given to proposed methods for restricting the use of genetically modified plants by causing second generation seeds to be sterile" (Wikipedia, 2006b, ¶ 1). The technology is not yet commercially available; as stakeholders were concerned Terminator technology might result in dependence for poor smallholder farmers, Monsanto promised not to commercialize the technology even if and when it becomes commercially available. GURT technology is divided into two types: V-GURT produces sterile seeds, meaning a farmer who purchases seeds containing V-GURT technology cannot save the seed from this crop for future planting. Manufacturers of genetically enhanced crops would use this technology to protect their products from unauthorized use. T-GURT modifies a crop so that the "genetic enhancement engineered into the crop is not activated until the plants are treated with a chemical that is sold by the biotechnology company. Farmers can save seeds for use each year; … however, they do not get to use the enhanced trait in the crop unless they purchase the activator compound" (Wikipedia, 2006b, ¶ 5). Table 2 lists the possible advantages and disadvantages of GURT technology and subjects these to the spiritual sustainability indicators as per spiritual handshake analysis.

Even on the basis of this crude qualitative analysis, it becomes readily apparent that the Terminator technology does not withstand the ethical-spiritual scrutiny of the spiritual handshake. The principle of harmlessness is violated on several grounds; in the overall assessment, the breaches of principles or negative scoring on indicators clearly outweighs the positive contributions. Interpreting the tally, then, it appears corporate interests (selfishness) contained in the technology innovation far outweigh the inherent or anticipated goodwill (service to humanity and the Earth), as well as the assumed or predicted benefits to the common good/public, including future generations, human and non-human. In effect, the Terminator technology further disadvantages the planet's native crop systems and small farmers, as well as threatening the growing of organic produce that is associated with all genetically modified organisms (GMOs) (e.g., Ellstrand, 2003; Stewart, 2004).

In the final analysis, then, spiritual handshake analysis exposes Terminator technology as an insidious technology that violates normative-

Technology Aspect	Finding/s	Spiritual Principle/s = Indicator/s
technology might lead to dependence for poor smallholder farmers	harmful to individuals	harmlessness
sterile seeds mean that a farmer who purchased seeds containing V-GURT technology cannot save the seed from this crop for future planting	individual harm	harmlessness
the genetic enhancement engineered into the crop does not function until the crop plant is treated with a chemical that is sold by the biotechnology company	harmful to the ecosphere, harmful to farmers	harmlessness, healthy and wholesome food, creating a pure environment
Farmers can save seeds for use each year. However, they do not get to use the enhanced trait in the crop unless they purchase the activator compound (T-GURT).	harmful to individuals	harmlessness
an incentive to develop new plant varieties: where effective intellectual property protection systems don't exist or are not enforced, GURTs could be an alternative to stimulate plant developing activities by biotech firms	intellectual property rights for nature are disputed, rogue GMO genes may pollute native crops	regard for the physical law, pure environment
Improved farm management: non-viable seed produced on V-GURT plants will reduce the propagation of weeds. Weeds can become an economic problem for larger-scale mechanized farming systems that incorporate crop rotation.	harmful to biosphere	harmlessness
could prevent escape of transgenes into wild relatives and prevent any impact on biodiversity—preventing GMO escapes has proven unmanageable and uncontrollable	harmful to biodiversity and ecosphere	harmlessness, pure environment
transmission of the Terminator trait to wild plants or cultivated plants whose seeds are saved	harmful to biodiversity and natural systems	harmlessness
safety of food produced from GURT crops	harmful to humans	harmlessness, pure and wholesome food
inequitable distribution of means; the targeting of vulnerable classes	not supportive of the public good	creating community
presumption of entitlement: some believe that in making decisions regarding such products, considerations should extend beyond what is legally permissible	not in service of the public good	creating community, service
Monsanto pledged not to commercialize the technology, even if and when it becomes commercially available	theoretically in support of the public good, yet can the company be trusted, given its track record?	harmlessness, right thought, also: honesty
loss of knowledge in the farming community of how to reproduce seeds and crops by natural means, crop propagation	the method deliberately breeds dependence on the company	right livelihood, creating community, service

Table 2. Spiritual handshake analysis of the Terminator Gene technology.

spiritual principles as agreed upon by wisdom traditions: by appropriating human-made GMOs as intellectual property of a company, by accumulating wealth in the hands of a few corporations and individuals via exploiting many small farmers, by further weakening the biodiversity of the planet and thereby its ecological functions and services, and by compromising growing organic produce. In conclusion, then, not even the Precautionary Principle should be applied in this case; spiritual handshake analysis demonstrates that Terminator technology should itself be terminated as soon as possible.

In Conclusion

With the ecological footprint, Wackernagel and Rees gave the world an inspired analysis tool, a tool which captures the physical-material, ecological dimensions of un/sustainability. The world does not yet have a similar, complementary tool to ascertain and portray the spiritual aspects of the crisis of unsustainability, which are the hub of the global predicament. As long as the core issues of unsustainability are not addressed and solved—i.e., the cosmological, metaphysical dimensions (or lack thereof) of the Western modern paradigm and its resultant unsustainable lifestyles, including conceptually flawed economic theory and practices (cf. Daly, 1994, 1977)—the world and planet will wait for genuine progress toward long-term sustainability. The spiritual handshake—a diagnostic tool with implicit prescriptions—may be a leverage and step in that direction. It was put forward here in the spirit of an "open source" research and development project to garner the collective intelligence of environmental educators, sustainability scientists, philosophers, religious studies scholars, spiritual teachers, and others toward strengthening sustainability metaphysics and thus advancing sustainability science and practice.

Acknowledgments

Thanks are extended to colleagues in The Theosophical Fellowship and in the Institute for Environmental and Sustainability Communication at the University of Lüneburg, Germany, as well as to the *Canadian Journal of Environmental Education* reviewers and editor for their critical and constructive comments on an earlier version of this manuscript.

Notes on Contributor

Almut Beringer, PhD is Associate Professor/Director of Environmental Studies and Sustainability at the University of Prince Edward Island, Canada and a Senior Lecturer in the School of Outdoor Education and Environment

at La Trobe University, Victoria, Australia. **Contact:** Environmental Studies and Sustainability, Faculty of Arts, University of Prince Edward Island, 550 University Ave., Charlottetown, PEI, C1A 4P3, Canada; aberinger@upei.ca

References

Aall, C. & Norland, I. T. (2005). The use of the ecological footprint in local politics and administration: Results and implications from Norway. *Local Environment 10*(2), 159-172.

Bailey, A. A. (1987). *Serving humanity*. New York: Lucis Trust.

Bailey, A. A. (n.d.). *The law of right human relations*. Retrieved March 6, 2007, from www.souledout.org/newworldreligion/principleslaws/lawrhr.html

Beringer, A. (2000). In search of the sacred: A conceptual analysis of spirituality. *Journal of Experiential Education, 23*(3), 157-165.

Beringer, A. (2003, December/2004, January). *Practicing an ecology of the heart: Tools for sustainable living*. Lecture-essay for The Theosophical Fellowship Summer Forum, Daylesford, Victoria, Australia.

Beringer, A. (2006a). Reclaiming a sacred cosmology: Seyyed Hossein Nasr, the perennial philosophy, and sustainability education. *Canadian Journal of Environmental Education, 11*, 26-42.

Beringer, A. (2006b, December). *Practicing Right Earth Relations: Science and spirituality toward sustainable living*. Paper presented at Heart Flow Spiritual Forum, Daylesford, Victoria, Australia.

Berman, M. (1981). *The re-enchantment of the world*. Ithaca, NY: Cornell University Press.

Berry, T. (1988). *The dream of the earth*. San Francisco, CA: Sierra Club Books.

Berry, T. (1999). *The great work*. New York: Bell Tower.

Besant, A.W. (1991). *The spiritual life*. Wheaton, IL: Quest Books.

Besant, A.W. (1999). *The ancient wisdom: An outline of Theosophical teachings*. Whitefish, MT: Kessinger Publishing.

Chenery, M. F. (2002). *Living by the heart: An introduction to the guidelines for living the Way of the Heart*. Retrieved October 2006 from http://www.theosophical.net.au/livheart.htm

Dalai Lama, H H IVX. (2000). Reflections on modernity and tradition. *Sacred Web, 5*, 11-15.

Daly, H. E. (1977). *Beyond growth: The economics of sustainable development*. Boston, MA: Beacon Press.

Daly, H. E. (1994). *For the common good: Redirecting the economy toward community, the environment, and a sustainable future*. Boston, MA: Beacon Press.

Davies, P. (2001). Esoteric dimensions of deep ecology. *Sacred Web, 6*, 31-46.

Dawkins, R. (2006). *The God delusion*. Boston, MA: Houghton Mifflin.

Ellstrand, N. C. (2003). *Dangerous liaisons? When cultivated plants mate with their wild relatives*. Baltimore, MD: Johns Hopkins University Press.

Foltz, R. C. (Ed.). (2003). *Worldviews, religion, and the environment*. Belmont, CA: Wadworth/Thomson.

Gottlieb, R. S. (2002). *Joining hands: Politics and religion together for social change*. Cambridge, MA: Westview Perseus Press.

Gottlieb, R. S. (2003). *A spirituality of resistance*. Lanham, MD: Rowman & Littlefield.
Göttner-Abendroth, H. (1999). The structure of matriarchal societies. *ReVision, 21*(3), 31-35.
Hammond, G. (2006). 'People, planet and prosperity': The determinants of humanity's environmental footprint. *Natural Resources Forum, 30*(1), 27-36.
Hawken, P., Lovins A., & Lovins, L. H. (1999). *Natural capitalism.* Boston, MA: Little, Brown and Co.
Hunter, C., Carmichael, K., & Pangbourne, K. (2006). Household ecological footprinting using a new diary-based data-gathering approach. *Local Environment, 11*(3), 307-327.
Huxley, A. (1945). *The perennial philosophy*. New York: Harper and Row.
Huxley, A. (n.d.). *The perennial philosophy*. Retrieved October 2006 from http://members.tripod.com/~parvati/perennial.html
Jansson, A. M. (1994). *Investing in natural capital: The ecological economics approach to sustainability*. Washington, D.C.: Island Press.
Jorgenson, A. K. (2005). Unpacking international power and the ecological footprints of nations: A quantitative cross-national study. *Sociological Perspectives, 48*(3), 383-402.
Keeble, B.C. (2001). Tradition—the radical option? *Sacred Web, 6*, 15-22.
Kidner, D. W. (1994). Why psychology is mute about the environmental crisis. *Environmental Ethics, 16*(4), 359-366.
Kinsley, D. (1995). *Ecology and religion: Ecological spirituality in cross-cultural perspective*. Upper Saddle River, NJ: Prentice Hall.
Lakhami, M. A. (2002). Editorial: Understanding tradition. *Sacred Web, 9*, 7-10.
Lawn, P. (2007). A stock-take of green national accounting initiatives. *Social Indicators Research, 80*(2), 427-460.
Maxwell, T. P. (2003). Considering spirituality: Integrating spirituality, deep science, and ecological awareness. *Zygon, 38*(2), 257-276.
McGrath, A. (2002). *The reenchantment of nature*. New York: Doubleday/Galilee.
Millennium Ecosystem Assessment. (n.d.). *Millennium ecosystem assessment*. Retrieved March 6, 2007, from http://www.maweb.org/en/index.aspx
Milojevic, I. (2005). *Educational futures: Dominant and contesting visions*. New York: RoutledgeFalmer.
Moore, A. J. (1999). Nature, man and God. *Sacred Web, 2,* 51-64.
Moos, M., Whitfield, J., Johnson, L.C., & Andrey, J. (2006). Does design matter? The ecological footprint as a planning tool at the local level. *Journal of Urban Design, 11*(2), 195-224.
Nasr, S. H. (1966). *Man and nature*. Chicago, IL: KAZI Publications.
Nasr, S. H. (1981). *Knowledge and the sacred*. New York: Crossroad.
Nasr, S. H. (1993). The spiritual significance of nature. In S. H. Nasr, *The need for a sacred science* (pp. 119-125). Albany, NY: State University of New York Press.
Nasr, S. H. (1995). *The need for a sacred science*. Albany, NY: SUNY Series in Religious Studies.
Nasr, S. H. (1996). *Religion and the order of nature*. New York: Oxford University Press.
Nasr, S. H. (1997). The problem. In R. C. Foltz (Ed.), *Worldviews, religion, and the environment* (pp. 20-30). Belmont, CA: Wadworth/Thomson.
Oldmeadow, H. (2000). *Traditionalism: Religion in the light of perennial philosophy*. Colombo, Sri Lanka: Institute of Traditional Studies.
Oldmeadow, H. (2003). The firmament sheweth His handiwork: Re-awakening a religious sense of the natural order. In B. McDonald (Ed.), *Seeing God everywhere* (pp. 29-50). Bloomington, IN: World Wisdom.

Oldmeadow, H. (2005). Science, scientism and self-destruction. *Sacred Web, 14*, 87-92.

Raiser, K. (2003, September). *Spirituality of resistance*. Paper presented at the World Council of Churches Internal Encounter of Churches, Agencies and other Partners on the World Bank and IMF, Geneva, Switzerland. Also available electronically at http://www.oikoumene.org/en/resources/documents/wcc-programmes/public-witness-addressing-power-affirming-peace/economic-justice/neoliberal-paradigm/12-09-03-spirituality-of-resistance.html

Redefining Progress. (2002). *Ecological footprint quiz*. Retrieved October 31, 2006, from http://www.myfootprint.org/

Sahtouris, E. (n.d.). *Lifeweb*. Retrieved October 31, 2006, from http://www.sahtouris.com/

Saraydarian, T. (1989). *The sense of responsibility in society*. West Hills, CA: TSG Publishing Foundation.

Sauvé, L. & Brunelle, R. (2005, April). *Influence of the globalized and globalizing sustainable development framework on national policies related to environmental education*. Presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada. Also available electronically at http://www.bath.ac.uk/cree/eeesig/2005

Schmidt, G. (2005). *Positive ecology: sustainability and the 'good life.'* Burlington, VT: Ashgate Publishing Company.

Shah-Kazemi, R. (2001). Tradition as spiritual function: A perennialist perspective. *Sacred Web, 7*, 37-58.

Sherrard, P. (1992). *Human image: World image*. Ipswich, UK: Golgonooza Press.

Stewart, C. N. Jr. (2004). *Genetically modified planet: Environmental impacts of genetically engineered plants.* New York, NY: Oxford University Press.

Torras, M. (2003). An ecological footprint approach to external debt relief. *World Development, 31*(12), 2161-2171.

Wackernagel, M. & Rees, W. (1996). *Our ecological footprint: Reducing human impact on earth*. Gabriola Island, BC: New Society Publishers.

Wikipedia. (2006a). *Traditionalism*. Retrieved October 2006 from http://en.wikipedia.org/wiki/Traditionalist_School

Wikipedia. (2006b). *Terminator technology*. Retrieved October 2006, from http://en.wikipedia.org/wiki/Terminator_Technology

Wood, R. & Lenzen, M. (2003). An application of a modified ecological footprint method and structural path analysis in a comparative institutional study. *Local Environment, 8*(4), 365-386.

World Commission on Environment and Development (WCED). (1987). *Our common future*. Oxford, UK: Oxford University Press.

World Council of Churches. (2003). *Another world is possible: A spirituality of resistance.* Third World Social Forum 2003. Retrieved July 14, 2006, from http://www.wcc-coe.org/wcc/what/jpc/wsf-eval.html

World Social Forum. (2003). *Spirituality of resistance*. Retrieved July 14, 2006, from http://www.wcc-coe.org/wcc/what/jpc/wsf-e.html

Zohar, D. & Marshall, I. (2000). *SQ: Connecting with our spiritual intelligence*. New York: Bloomsbury.

Zohar, D. & Marshall, I. (2004). *Spiritual capital*. San Francisco, CA: Berrett-Koehler.