

Sustainability: The Five Core Principles

A New Framework

By Michael Ben-Eli



"If you wish to fly and want to successfully construct an aircraft in order to do so, you need to understand the basic principles of aerodynamics. Similarly, if we are serious about ensuring a sustainable future, we need to be guided by a set of principles which underlie sustainability as an enduring state."

— Michael Ben-Eli

Testing the Gossamer Albatross by Paul MacCready- NASA Photo Dryden Flight Research Center © 1980

Introduction

The concept of "sustainable development," as coined by the World Commission on Environment and Development and with it, the term "sustainability" itself, have been gaining increasing recognition in recent years all around the world. Wide-spread use, however, has been followed by growing ambiguity so that today both terms are employed within a very broad spectrum of meaning often, to the point of trivialization.

The set of five Sustainability Principles proposed below is offered in order to advance and restore some rigor to the underlying ideas. Its development was informed by a number of existing frameworks and was inspired, in particular, by the work of R. Buckminster Fuller.

The principles are articulated in a general fashion but can receive a specific operational meaning in relation to particular sectors of the economy, development issues, business strategies, investment guidelines, or initiatives taken by individuals. They are expressed in relation to five fundamental domains:

- **The Material Domain:** Constitutes the basis for regulating the flow of materials and energy that underlie existence.
- **The Economic Domain:** Provides a guiding framework for creating and managing wealth.
- **The Domain of Life:** Provides the basis for appropriate behavior in the biosphere.
- **The Social Domain:** Provides the basis for social interactions.
- **The Spiritual Domain:** Identifies the necessary attitudinal orientation and provides the basis for a universal code of ethics.

The result is a set of five core principles, each with its own derived policy and operational implications. The set is fundamentally systemic in nature, meaning, that each domain affects all the others and is affected by each in return.

This systemic aspect is fundamental. It reflects the interdependent nature of reality itself. It has far reaching implications for policy and for any competent attempt at strategy for change. It implies that in seeking a transition to sustainability as a predominant planetary state, no piece-meal approach -- emphasizing some aspects while neglecting others -- is likely to yield effective, lasting results.

Definition of Sustainability

Transforming society and the world's economy to a sustainable basis presents the most significant challenge to the 21st century. This challenge is unprecedented in scope. Its context is the planet as a whole. It requires a fundamental shift in consciousness as well as in action. It calls for a fresh vision, a new dream and new approaches for shaping an evolving new reality.

Earth is exquisitely configured to accommodate life abundantly. We have consistently compromised, however, every vital component of its intricate fabric. This trend must be reversed and a lasting balance restored.

The ultimate objective of establishing the concept of sustainability as an organizing principle is to foster a well-functioning alignment between individuals, society, the economy and the regenerative capacity of the planet's life-supporting ecosystems. This alignment represents a particular type of balance in the interaction between a population and the carrying capacity of its environment. It is this specific balance which must be the focus of a meaningful definition of sustainability.

The currently prevailing definition of sustainability emphasizes cross generational equity, clearly an important concept but one which poses difficulties since it is not always easy to determine future generations' needs. Anchoring an alternative definition to the relationship between a population and the carrying capacity of its environment offers superior operational leverage since it contains a number of key variables, all potentially measurable. For example: population numbers, rate of consumption of resources, impacts on absorption capacity of sinks, a measure of well-being, and the like.

Hence, in general, but more importantly in the specific context of human activity on the planet, the following is offered:

Sustainability:

A dynamic equilibrium in the processes of interaction between a population and the carrying capacity of an environment such, that the population develops to express its full potential without adversely and irreversibly affecting the carrying capacity of the environment upon which it depends.

The principles which follow are grounded in this definition, and the five domains in relation to which they are expressed represent key dimensions of the underlying interaction.

The Five Core Principles

I. The Material Domain

Underlying Premise:

All the physical processes which provide the basis for human existence are subject to the primary laws of thermodynamics -- the First Law, which addresses the fundamental conservation of energy in universe and the Second Law, which stipulates the direction of energy events. These laws prescribe the ultimate limits of possibilities in physical systems and, therefore, underlie the productive potential in the use of resources.

The Second Law underscores the ultimate increase of entropy and disorderliness in all physical systems. At the same time, even inorganic, but in particular life processes and consciousness, are able to create, maintain and increase order, seemingly, at least temporarily. Such order is manifest in both individual and complex networks of specific embodiments: molecules, organisms or eco-systems.

Consciously disciplined intelligence, applied to the design of universally advantageous configurations of energy and matter -- arranging and rearranging components of the physical domain -- provides the essential tool for creating the wealth infrastructure required to ensure lasting abundance. Contrary to the potential immanent in aware, superior design for creating order and delaying the proliferation of entropy, our current industrial infrastructure is wasteful, destructive, fragmented and grossly inefficient. With the appropriate intention, it could be reinvented, redesigned and reconfigured to deliver and enhance an enduring, regenerative advantage for all.

 **The First Principle:**
Contain entropy and ensure that the flow of resources, through and within the economy, is as nearly non-declining as is permitted by physical laws.

Policy and Operational Implications:

- Strive for highest resource productivity
- Amplify performance with each cycle of use
- Employ "income" rather than "capital" sources and continuously recycle non-regenerative resources
- Affect an unbroken, closed-loop flow of matter and energy in a planetary productive infrastructure conceived as a whole
- Control leakages and avoid stagnation, misplaced concentrations or random diffusion of chemical elements during cycles of use
- Establish a service, "performance leasing" orientation for managing durable goods

II. The Economic Domain

Underlying Premise:

Economies consist of markets where transactions occur and guiding frameworks by which transactions are evaluated and decisions about commitments are made. Often treated as though they reflect an independent, objective reality, such frameworks ultimately represent human constructs, rooted in values, biases and dominant interests and concerns. These latter factors determine adoption of the underlying economic perspective: short term, narrow, linear focus, or long term, comprehensive, eco-sensitive cycles of return.

The accounting framework used at present to guide our economy grossly distorts values. It systematically ignores important cost-components, for example, depletion and pollution. Economists are beginning to reflect on the inadequacies inherent in the narrow concept of growth that dominates measurement of national economies, and some even highlight the basic absurdity of counting consumption as if it were income, a common practice in the way we treat natural resources.

Inadequate measurements, with regulations and subsidies which often accompany them, drive markets and continue to fuel the destructive effects of the economy as a whole. The prevailing conventions of our accounting framework exacerbate such effects and limit the scope of individual initiatives seeking better practices. This self-reinforcing pattern is clearly one key dimension requiring radical change.



The Second Principle:

Adopt an appropriate accounting system, fully aligned with the planet's ecological processes and reflecting true, comprehensive biospheric pricing to guide the economy.

Policy and Operational Implications:

- Employ a comprehensive concept of wealth related to the simultaneous enhancement of five key forms of capital: Natural, Human, Social, Manufactured and Financial
- Align the world's economy with nature's regeneration capacity and incorporate critical "externalities" in all cost and benefit accounts
- Embody a measure of well-being and human development in economic calculations
- Design regulation and taxation policies to accentuate desirable and eliminate adverse outcomes, optimizing the whole
- Rely on transparent market mechanisms, calibrated to reflect "true" costs, for allocation of capital assets

III. The Domain of Life

Underlying Premise:

The adaptive success of the human species and its quick propagation almost everywhere on planet earth comes at the continuous expense of many other forms of life. The destruction of individual animals, species, habitats and whole ecosystems, a trend now reaching ominous proportions, is a deep cause for concern.

Complex, self-organizing, living systems: brains, societies, ecosystems -- rainforests, coral reef communities, and industrial economies alike --depend on their very complexity, their internal variety," for long term viability. Lasting stability in all such systems is in fact, science tells us, a direct function of complexity, of inherent redundancy which allows for emergence and re-emergence of different configurations in response to changing underlying events. Monocultures are brittle in principle, the antithesis, in this context, of vibrant life.

On this point contemporary science seems to be joining with many of the world's ancient traditions which insist on the uniqueness and fundamental sacredness of all forms of life.



The Third Principle:

Ensure that the essential diversity of all forms of life in the Biosphere is maintained.

Policy and Operational Implications:

- Assume a responsible stewardship for our planet's web of biological diversity
- Harvest species only to regeneration capacity
- Conserve the variety of existing gene pool
- Shape land use patterns to reduce human encroachment on other forms of life and enhance biological diversity in areas of human habitat

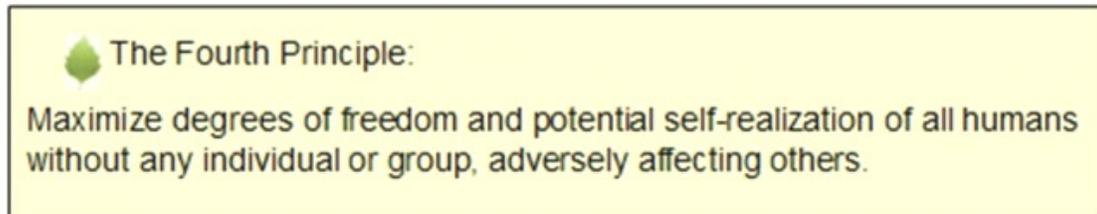
IV. The Social Domain

Underlying Premise:

Work of early 20th century scientists, mathematicians, and philosophers of science brought to the fore the fundamental fallibility of human knowledge. This suggests that, in a true ecological fashion, myriad expressions and species of truth should be allowed to coexist without any particular one seeking to aggressively dominate others.

Societies, like ecologies, depend on diversity and internal redundancy for robustness, long term viability and health. This alone underscores the importance of encouraging variety and plurality in social forms. At the same time, modern genetics and the sequencing of the human genome indicate that the underlying genetic differences between the many ethnic groups on the planet are insignificantly small, rendering arguments for an inherent superiority, of any group, baseless.

All these thoughts reinforce the still fragile idea that open processes, responsive structures, plurality of expression, and the equality of all individuals ought to constitute the corner-stones of social life. As we enter the twenty first century, however, society continues to operate predominantly by the worn-out assumptions, concepts and structures of yesterday.



Policy and Operational Implications:

- Foster Tolerance as a cornerstone of social interactions
- Enshrine Universal Rights within a framework of planetary citizenship
- Provide for Inclusion and effective Democracy in governance
- Ensure Equitable Access to life nurturing resources
- Establish Cooperation as a basis for managing global issues and planetary commons
- Outlaw War and Trade in weapon technologies
- Promote sustainability literacy through education at all levels
- Embody Sustainability Enhancing Concepts in an effective planetary framework of legislation

V. The Spiritual Domain

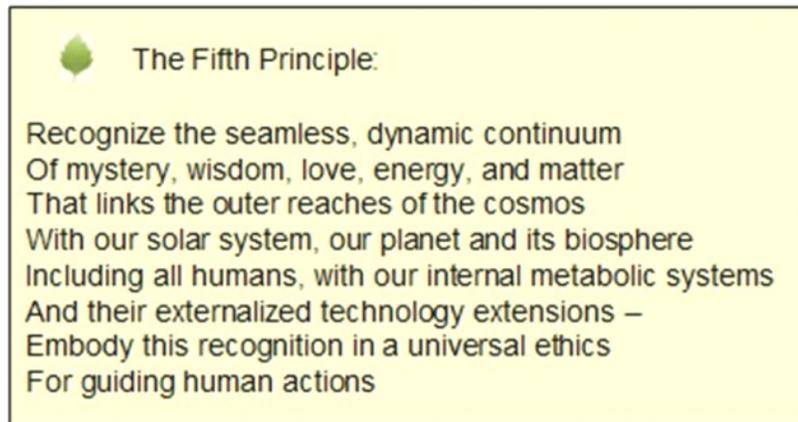
Underlying Premise:

The human spirit has consistently sought to transcend material, biological, physiological, psychological, and technology limitations. This constant drive for touching a "beyond," for taking progressively more into the field of vision and integrating an increasingly broader "reality" has a huge practical significance. With its intuitive reach for wholeness and completion, it fuels the development and evolution of individuals and societies alike.

The extent to which this deeply rooted drive is actually allowed to manifest in the daily affairs of society, affects the choices we make and the quality of our actions in the world. Ultimately, it underscores the difference between a greedy, ego-centric, predatory orientation and a nurturing, self-restrained, inclusive approach which honors the larger system of which we are a part and on which we depend for our very existence.

The essential quality of the spiritual domain, recognized, as it is, by all known wisdom traditions, is not easy to pin down. In the English language, the term spiritual carries opposing connotations: sacred, exalted, virtuous, divine, but also, insubstantial and occult.

It is meant here to evoke a sense of a deep, underlying essence -- a combination of inspiration, meaning, purpose, and a motivating, all encompassing value. The fundamental imprecision which is involved is manifest in the more elaborate way in which the fifth principle is expressed.



Policy and Operational Implications:

- Acknowledge the transcendent mystery that underlies existence
- Seek to understand and fulfill humanity's unique function in Universe
- Honor the Earth with its intricate ecology of which humans are an integral part
- Foster compassion and an inclusive, comprehensive perspective in the underlying intention, motivation and actual implementation of human endeavors
- Link inner transformation of individuals to transformations in the social collective, laying foundations for emergence of a new planetary consciousness

The Five Principles as an Integrated Whole

Deeper reflection on the concept of sustainability and the five core principles which together prescribe it reveals that the spiritual dimension, the spiritual principle, is fundamental to the quality and coherence of the whole. It is rarely incorporated, however, in the conventional calculus of practical affairs.

As a guiding principle, the spiritual dimension does not carry the connotation of conventional religion. Rather, it evokes the soul-focused integration of mind and heart in realization of the essential oneness at the center of being.

By anchoring the essence of human motivation and intention, the spiritual principle acts as the causal root which sets the tone for the whole. It drives the integration of the other four principles, those related to the material, economic, life, and social domains. If integrated in a balanced way, it can infuse a common purpose, provide a common foundation, and stimulate common resolve. Lacking the ethical commitment implied by the spiritual principle, considerations of questions related to the four other domains, no matter how elaborately expressed, are reduced to mere technicalities.

By their very nature language, logic and action force separation, discrimination and choice. A balanced and full integration of all five principles is essential, however, for conceptualizing and realizing sustainability as a state. The whole set has to be integrated into a single unity in which the five principles come together as one.

The five domains underlying the principles interact and co-define one another and, as in a holographic image, each embodies the whole general scheme in its own sphere. When the principles are thus integrated and seamlessly inform choices and actions, a state of sustainability, which otherwise appears as a difficult, distant goal, can be realized spontaneously and completely.

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