

Visions for Sustainability

The manifesto of our new scientific journal

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Fields: *Earth life support systems - Economy and technology - Social processes and structures*

Issues: *Bio-geological equilibrium and ecological decay - Globalised industrialisation and global products
- Art and sustainability*

1. Sustainability research and new visions for humanity's dialogue with itself and nature

New ideas are often like flowers struggling to bloom in adverse conditions. They need places in which to be conceived, discussed and shared, to gradually assert themselves through interaction with dominant existing ideas that tend to intimidate and suffocate creativity, to often wait for years before finally establishing themselves as full participants in humanity's dialogue with itself and nature.

2. Visions give rise to problems ... and solutions

Although there is a growing common recognition of the need to work towards a more sustainable modern society in many spheres, the approaches to tackling the problem are numerous and often very diverse. Many disciplines contribute to sustainability science – each one bringing its own methodologies, choices regarding dimensions and other variables, spatial and temporal scales – so that a multitude of scientific narratives and theoretical perspectives are used to study or promote sustainability in fields such as agriculture, bio-urban planning, eco-tourism, industrial ecology, environmental management, sustainability indicators, green chemistry, and many more.

Moreover, each field expresses its own, often implicit, vision of the world, thereby steering the search for solutions in the direction where it already hypothesizes them to be. In some cases, such solutions will lie in the use of innovative technology, whilst for others in rediscovering our contact with nature, a renewed spirituality or artistic creativity. Within the broad spectrum of sustainability research, facts, values, experience and perspectives are inextricably interwoven.

3. Language and visions are interdependent

We all start out from the fundamental vision of the discipline in which we have specialised and subsequently question and explore other disciplines about the concept of sustainability and its many ramifications. This interweaving of perspectives gives rise to an increased awareness of the role of language in shaping ideas, in directing research and in interpreting outcomes. An in-depth reflection on the inextricable and often implicit relationship between signifiers and signifieds in different forms of language (ranging from scientific metaphors to the various descriptions of the world expressed by different cultures) and the underlying representations of reality, can give rise to multiple perspectives and promote a dialogue between experience and knowledge. Often experimenting with contaminated and unconventional language and the free association of ideas, analogies and imagination enable the initial creative phase of each research study to develop. By bringing together different visions of the world new insights can be born (Gagliasso, 2010).

4. Interdisciplinary dialogue and visions in contact

We began working together by bringing into contact our different areas of competence in a multidisciplinary fashion. The ambiguities, misunderstandings and disagreements that accompanied this first phase prompted us to examine more deeply and question the epistemological and methodological assumptions underlying our respective fields of knowledge. Reflecting on our different ways of knowing has allowed us to express our reciprocal perplexities and doubts and allow value judgements to surface that had previously hampered communication. Sharing the different languages of our various disciplines has revealed a more complex reality than hitherto perceived.

By this we are referring to a critical and contemplative process employing methods involving the diverse forms of input by a wide range of people, an approach capable of spanning complex systems. Interdisciplinary research allows us to take note of the “short-sightedness” of the visions arising from individual disciplines; it prompts us to think the unthinkable and to ask questions that are usually neglected – and the importance of which is greatly undervalued as a result of our ignorance (Sardar, 2010).

Why and to what extent do some consider incompatible quantitative and qualitative forms of research? What makes it difficult to accept the idea that first-person research can also be a valid instrument for investigating the relationships between ourselves and natural systems? How can we incorporate into our thinking the idea that scientific knowledge may have lost the capacity to give certain answers and provide reliable predictions in a world increasingly characterised by complexity and contradiction?

As we debate about different ways of knowing and forms of knowledge, a number of significant and productive examples of interdisciplinary collaboration have developed. Different approaches to measuring the anthropic burden on different spatial scales have been compared and, and as far as possible, integrated (for example, the relationship between ecological, water and carbon footprints). Material flow analyses at regional level are now employed when working together to analyse environmental policies. In global terms these data are compared with those that show the correlation between international trade and the scale of human appropriation of the net primary production of global chlorophyllian photosynthesis.

The complexity that characterises our world requires that we also investigate the causes and the directions of material flows, together

with the ways of appropriation and distribution of net primary production. The role of every individual becomes evident and the responsibilities held by communities become ineluctable. Such a vision makes clear the ever-greater need for collaboration between natural and social and human sciences.

5. Beyond disciplines, a space in which to enact new visions

A pathway that we believe enables us to better address many of the questions posed and open up new horizons of study is that of transdisciplinary research. There is increasing awareness of the ingenuity gap that exists between our need for new solutions and our ability to invent and innovate (Westley et al., 2011). Bridging this gap requires new epistemologies capable of generating new knowledge, new methodologies for experimenting and building that knowledge, new languages that permit those epistemologies and methodologies to come into being. New visions derive from the interactions between what Bateson called different logical levels out of which emerge phenomena we are unable to see from the perspective of one single level (Bateson, 1979; Bateson, 2000).

Our research lies within various intersecting perspectives: the perspective of a post-normal science, based on “the insight ... that in the sorts of issue-driven science relating to environmental debates, typically facts are uncertain, values in dispute, stakes high, and decisions urgent. Some might say that such problems should not be called ‘science’; but the answer could be that such problems are everywhere, and when science is (as it must be) applied to them, the conditions are anything but “normal”(Funtowicz and Ravetz, 1999, 2013); the perspective of a hermeneutics that “sees the relations between various discourses as those of strands in a possible conversation (...) which presupposes no disciplinary matrix which

unites the speakers” (Rorty, 1976: 318); the perspective of an awareness that “new forms of knowledge integration and generation that support planetary stewardship are required, capable of integrating a much richer diversity of ideas and viewpoints and of bringing action and research into closer proximity” (Westley et al., 2011: 776).

Such perspectives require a shift from interdisciplinary to transdisciplinary visions. An interdisciplinary approach is based on a dialogue between the epistemologies, methodologies and languages of different disciplines that enriches the processes and products of each of them. In this sense, interdisciplinary approaches are collaborative, in that the disciplines and their practitioners offer each other mutual support in addressing particular questions and problems that arise. A transdisciplinary approach aims to build new epistemologies, methodologies and languages that go beyond those of the individual disciplines in order to address new and common problems. Transdisciplinary approaches are thus cooperative, in that the disciplines and their practitioners unite in order to generate the new constructs that are their very reason for being.

6. Opposing views of human approaches

The concept of sustainability in itself implies awareness of the acceleration of change occurring in our world and the relentless increase in the scale of anthropic transformations. However, the directions proposed to overcome the difficulties are numerous, often divergent, and sometimes contradictory. The prevailing vision concerning environmental issues is confidence that technoscientific innovation will lead human beings to solve current problems. This is based on the modern ideal of progress, which asserts that the expansion of scientific knowledge and the accelerating use of technological applications will bring

ever greater social well-being (Benessia and Funtowicz, 2013, p. 56). Such a vision has, however, repeatedly been questioned as a result of the increasing non-intentional consequences of the application of such technologies, both within the environmental and the ethical spheres. High potency models that feature technoscientific innovation propose the idea that problems are mono-causal and transitory (Ravetz, 2006), and consider uncertainty as a quantifiable risk that can be objectively managed. Problems are faceable by experts, responsible for manufacturing and shooting ‘silver bullets’ powered by huge, centrally-driven fluxes of energy and matter. By contrast, low potency models place particular emphasis on saving balances at local as well as global levels of biogeochemical patterns and cycles, and are based on decentralising and localising legislative and technological intervention. Low potency action acknowledges the complexity of each and every socio-environmental context and requires caution and humility in human approaches to natural systems (Jasanoff, 2003).

7. Democracy and nonviolence are prerequisites for defining visions of sustainability

Even the most accurate and rigorous scientific dialogue cannot give rise to transformations in behaviours and life-styles if it does not stimulate motivation and belief in the possibility of change (Langer 2012). And such motivation and belief can only flourish in a democratic and non-violent environment, in which we recognise the importance of careful decision-making processes that respect all legitimate perspectives in order to explore the sustainability of individual and group choices. In this respect, we should bear in mind two boundaries within which each human action must occur. One of these is the ceiling, which represents the limit of the planet’s biophysical renewability, and for which numerous thresholds have been identified

that, if exceeded, would trigger irreversible and uncontrollable transformations of global eco-social systems (Rockstrom et al., 2009). The second is the floor, which represents socio-economic equity, since the question of the limits of the availability of resources and natural services are recognised as inextricably linked to the issue of their distribution (Raworth, 2013).

Of equal importance is the need to give more attention to the question of military defence and war, the single most significant cause of the environmental and social unsustainability of modern society (AA.VV., 2013).

There is apparently little correlation between forms of government and environmental impact. Certainly governmental policies within so-called liberal democracies are no guarantee of a more limited ecological footprint. At the same time, there are kinds of democratic participation that question the high potency model and are capable of initiating new directions in dealing with environmental issues. Principals of ecological democracy emphasize the importance of local initiatives in sustainability practices, based on social interactions with the environment and on the rights of scientific citizenship built on access to information and the development of responsibility, participation and belief (Liberatore and Funtowicz, 2003).

8. Embodied experience in the world directs visions and actions

There is growing interest in the relationship between our physical selves (experienced, organic and mental), as explained by life sciences, and the set of values we assume as a result of our embodiment both within physical environment and the relationships we live in. Our mental lives are not encompassed solely within our brains, but rather extend throughout both our bodies and our technological prostheses and into the environment in which we live. A vital contribution to sustainability research comes

from the dialogue between experimental neurosciences and the phenomenological investigations of subjective experience. Awareness is a self-sustaining flow inexorably directed towards the future and driven by the affective valency we attribute to the world we inhabit (Thompson, 2007).

9. Educate to stimulate new visions

The issue of sustainability in education is of crucial importance. In many schools and universities, the dominant idea is still that of 'transmitting' knowledge, conveying concepts elaborated within disciplines and broken down into 'subjects' or 'courses'. Students are asked to learn without the opportunity to engage in discussion or bring personal experience to bear. Likewise in society, where the public is, at most, required to 'learn' about sustainable behaviour from scientific bulletins, television programmes and newspaper and magazine articles. Our epistemological and methodological premises are based on the belief that the educational process, which has the power to promote sustainability, requires the involvement of all members of society, including students during their educational experience. All students must have the opportunity to build knowledge, formulate ideas and express themselves as autonomous, aware and critical individuals about the topics that regard their own lives and, by the same token, those of all other living beings on our planet. Educators whose work takes them to the heart of the problems of equity and justice, of global citizenship and sustainability, can help young people to question the directions in which contemporary society is heading and propose alternatives for the future (Hicks, 2012).

10. One journal for a multitude of voices

In launching this journal we hope that our commitment and our enthusiasm will stimulate others to join us in an attempt to make a contribution to reducing the

'cosmological void' that has led us so close to unsustainability (Panikkar, 2008). We believe that without an underlying cosmology we will find no adequate 'space' within which we can place both our scientific and our subjective human knowledge. "Vision without action is useless. But action without vision is directionless and feeble. Vision is absolutely necessary to guide and motivate" (Meadows et al., 2004). Sustainability research is constantly seeking new visions. These visions may come from approaches that re-think traditional sciences in a post-normal, inter- or transdisciplinary framework or that re-discover the value of largely ignored existing knowledge (such as that of indigenous peoples), approaches that are normally excluded by science (such as art or meditation) or that are beginning to gradually emerge from their position as yet on the margins of the mainstream. Visions for Sustainability wishes to give space and voice to as many of them as possible.

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