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Diversity, Civic Virtues and Ecological Austerity

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A single global culture and a unique set of world institutional arrangements, based on an ever-increasing consumption of natural resources and environmental pollution is not sustainable nor can be sustained. In this paper some key ideological and moral components of the urgently required changes towards a culture of sustainability are examined, together with the implications, difficulties and requirements for its embodiment both in individual practices and in social institutions. In particular, it is argued that the values and attitudes which promote the protection and integration of diversity—both cultural and biological—and restrain the current trends in natural resource consumption and environmental pollution are to be developed by the citizenry if global societies are to survive. In the domains of political participation, rational dialogue and civic virtue, sustainability is akin to the inherited republican ideals of liberty, equality and fraternity. Sustainability must now become an indispensable fourth moral pillar in the structuration of society and, in particular, in the coming world republican polity, which will necessarily take account of the diversity of cultures and institutions. It is shown that, otherwise, the now developing unsustainable global society would otherwise cease to exist.

Key words: cultural and biological diversity, ecological austerity, environmental sociology, global sustainability culture and institutions, republicanism, moral structure of society.

1. Introduction

Western dominant culture and state institutions have often regarded cultural and natural diversities as annoyance, even as a threat to progress. Instead of treating diversity as an indispensable source of options for future development, or as a global common heritage which needs to be preserved for the generations to come, it has often been understood as an element of conflict and instability. It has been seen as something to be disregarded, controlled or violently suppressed. To take but one example, the way 'minority' languages have been neglected, suppressed or left to die in many countries vividly illustrates the point (Crystal, 1999).

Similarly, many in the now incipient global society institutions look at diversity more as a 'problem' than anything else. They are thus ignorant of the possibility that diversity may entail a substantial part of the solution of several social, economic and environmental issues. They fail to understand that the

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final demise of cultural diversity would imply the loss of opportunities for reflexive learning towards sustainability. Such demise would carry with it that of much knowledge, as well as that of many values and cultural perspectives that teach us how to value nature in a manner essentially different from that prevailing in the global consumer society today.

Futhermore the gap between the current trends in global environmental degradation and the adaptation processes carried out by our present social institutions is growing at such pace that it might soon be too late to prevent even greater damage to vast human populations.[1] In order to make the transition to steady global sustainability feasible (National Research Council [NRC], 1999), both cultural and institutional changes will be necessary. Inevitably both will have to be integrated and interrelated in a very dynamic and creative manner. Indeed, the protection of the ethnodiversity and biodiversity heritage, together with the reduction of the current trends in the unnecessary consumption of natural resources and pollution emerge as two of the most urgent tasks of our time.

In this paper we focus our attention on some of the key ideological components which are central in the development of a new *sustainability culture*, as well as on their implications for the building of global sustainability institutions. First, we will examine attitudes and practices with regard to the way present human societies evaluate and respond to both natural and social *diversities* as well as to some social movements' claims for *ecological austerity*. We will then direct our analysis towards the current discussions on how and to what extent diversity and ecological austerity can be incorporated into global environmental institutions so that superfluous consumption of natural resources and pollution can be reduced.[2] Provided the conditions of liberal democratic societies, major changes in social structures cannot be imposed by force. They need first to be debated. This is why, in this respect, we will explore the possibilities of *dialogue*, as well as its limitations for cultural and institutional reform. The role of markets, nation-states and media and knowledge institutions will be analysed. Finally, we shall look at the possibilities as well as the limitations for participatory dialogue and reflexive learning between science, policy and the world citizenries, once again taking diversity and ecological austerity into account.

2. Sustainability Culture, Diversity and Ecological Austerity

2.1. Sustainability Culture

The term *sustainability culture* refers to the rise of a set of new ideological, moral and aesthetic preferences, as well as natural beliefs, which incorporate extended frames of time, space and moral considerations into the configuration of meanings which make sense of individual social action. Sustainability culture, as sustainability itself, is both descriptive and prescriptive. It refers to the ways personal and collective attitudes and modes of behaviour *are* closer to certain context-based defining qualities of sustainability. But it also refers to the extent they *ought* to fulfil this function. For those individuals and communities experiencing cultural changes in this direction the guiding motives stem from a broad perceptual, cognitive and ethical framework of action. In particular, one which is aware of the limits of global non-renewable natural resources, believes in the

need to preserve the world for future generations, understands natural resources as part of the global common heritage, and deems essential to include the rights of non-human species or some ecological communities into the moral judgements of human action (Tàbara, 2002).

This worldview is part of a new and self-conscious historical process which aims to balance and adapt personal and collective needs, desires and lifestyles to the new imperatives of the growing scarcity of natural resources as well as to the difficulties for global ecosystems to assimilate current environmental degradation. Sustainability culture is thus a new and distinctive historical development, resulting from a mutual reflexive learning process, and not simply from a different ordering of the current individual preference system. Furthermore, it is not the result of the supremacy of any particular culture. Some of the components of sustainability culture may exist or may be absent in some cultures—including Western culture—while others might still have to be developed. However, in the making of a global sustainability culture, the danger of Western 'sustainability imperialism' remains. (Perhaps as a compensation for the disastrous consequences of its former biological imperialism, to use Alfred Crosby's terms.) Such culture entails and can only advance by steady *sustainability learning*. By the same token, sustainability culture acknowledges the limits of each of our own specific cultures and the recognition of the value of others in helping ours to find out what we need to know in order to guarantee sustainable life for all the populations of the world for the generations to come.

It is obvious, however, that such a process of cultural change is still very limited. At present it is only being promoted by some social movements and institutions which are often still far away from the core in which the main global decisions on environmental resource appropriation and transformation are taken. Active and innovative participation channels will be indispensable for the acceptance, understanding and emergence of the less polluting and intensive non-renewable natural resource societies. For sustainability does not only entail that further reductions in energy consumption and pollution levels can be achieved at a given point in time but that they can be dynamically maintained. Regular civic intervention will be necessary for the creation of the least unfair social structure that can provide with the highest quality of life and freedom in a world of increasingly limited natural resources. Only by extending the participation in the production of knowledge for sustainability based on diversity criteria will it be possible to lessen the potential negative impact on social inequality derived by the conscious emergence of more resource-scarce social organizations.

2.2. Ethnodiversity as a Basis of Sustainability Learning

Our social world, today, is still diverse. Despite globalization, the homogeneous society once imagined by the mass society conception has not come to pass (Giner, 1976). Accordingly, there is no such thing as a single conception of either of nature or culture in the modern world, but many. Moreover, nature and culture define each other in an interactive way, so that new discovered objects of nature pose new questions to the different social worlds and vice versa. New perceptions, beliefs and values affect the ways of both the natural and the social worlds. However, this does not mean that all nature is socially

created or the opposite, since culture is not only the product of a set of biologically determined factors. Culture and nature maintain a certain degree of autonomy and distinctiveness although both define and affect each other in a relational and historical contextual manner. Simultaneously, both culture and nature contain a large number of indeterminacies which cannot be grasped either by science, popular knowledge or religion. Some parts of nature which affect culture escape human cognition and experience. Likewise, some parts of culture which affect the natural basis for the development of human societies still remain completely unknown (Tàbara, 2001, 2003).

This may help us to understand the meanings of sustainability as well as the importance of diversity in this respect. Inasmuch as a multitude of relations are constantly being established between particular subjects of culture and selected objects of nature in different societies, we cannot establish either one single qualification or meaning of sustainability but many. They depend both on the diversity of cultures and on the perspectives which arise within those cultures. Likewise, sustainability is both an objective *reality* and a *social construction*. Cultural and objective components of sustainability are closely interwoven and influence each other constantly.

Different cultures can also learn from others in this matter, that is, about ways to organize their respective societies so that eventually environmentally friendly attitudes and necessary ecological restraints are incorporated into their own institutions. Difficulties will obviously vary depending on each case—not every culture is equally open to the acquisition of good practices, nor in the same areas—but there is no evidence that the task is altogether impossible. Each culture holds what can be called *sustainability universals*, that is, basic universal lessons and more is learnt by the remaining distinctive cultures on how to adapt their respective social structures to the constraints of their environments. By protecting and integrating—instead of destroying, as it is now often the case—some of these 'sustainability universals' contained in cultural diversity, basic universal lessons learnt by the remaining distinctive cultures on how to adapt their respective social structures to the constraints of their environments, it may be possible to adapt the growing global consumer culture to the coming ecological predicament. In cultural diversity a large stock of knowledge and skills is accumulated with regard to the modes particular societies have overcome their environmental difficulties and have adapted, managed and valued the resources and other non-human forms of life upon which their own survival depended. Certain commonalities within cultural diversity can be identified in relation to specific practices, values and beliefs oriented towards their sustainability requirements. Such a common cultural pool of knowledge and beliefs constitutes a crucial heritage which may be the main source for the creation of the necessary human wisdom based in the morally imperative world transition to sustainability.

Affinities between the value of biodiversity and the value of cultural diversity are obvious in the case of sustainability. On the one hand, cultural diversity can stimulate the flourishing of new sources of criticism, creativity and reflexivity, thus contributing to the protection of future generations from the worst forms of instrumental rationality—as manifested by current economic globalization logic based on the depletion of the world's non-renewable resources. Even if we were to justify the preservation of cultural diversity only on the basis of instrumental justifications—that is, not by its intrinsic value but for the extrinsic

uses it can give us—we would find that learning new ways of organizing our lifestyles and even conceptions of happiness according to sustainability imperatives would necessarily lead to the protection of a pool of cultural diversity. Certainly the rising global consumer culture will be able to protect itself from the ecologically destructive forces it contains to the extent that it is also able to protect the basic sustainability elements embedded in the diversity of cultures.

However, not all the knowledge contained in a particular culture constitutes sustainability knowledge, although all cultures which have managed to survive until the present must contain some elements of knowledge and experience on how to deal with their environment and organize their own institutions accordingly. Sustainability knowledge is only a part of all the knowledge generated and transmitted by formal and non-formal means of communication with regards to the long-term management of natural resources and the natural world. A large part of this knowledge, often transmitted in non-written form, is lost as soon as cultural communities are dissolved or merged into the large, modern urban settings, when the conditions and the practices learnt for generations become irrelevant for the new situation. Take for instance the loss of traditional cultures and of 'incomplete' Third World modernization programmes as an acute expression of increasing unsustainability. Contrary to the common misunderstanding on how the dynamics of information and knowledge work—mainly in Western culture—knowledge is not only created and accumulated but very often also lost forever. In particular, the knowledge contained in many forms of the current world cultural diversity is constantly being eroded or even wiped out in the name of practical, utilitarian and modern forms of knowledge. Blatant failures in economic modernization programmes based on the displacement of rural communities, particularly in the so-called 'developing countries', have created vast amounts of impoverished semi-urban populations who have not only great difficulty in participating in the global knowledge-based, monetary and informational economy but who also have lost their traditional knowledge, which was often efficient in providing their own means of meaningful living and subsistence in their own previous socioenvironmental contexts. Such populations, which are neither fully urban nor rural, have now lost most of their sustainability knowledge and also the means to rebuild it as was held by their forebears until very recently. Furthermore, large sectors of such populations will hardly or never share in the global consumer society promises or will be able to fully overcome the endemic disadvantaged position in which they remain in order to participate in the highly competitive world markets.

Another reason for the fast ongoing process of *cultural erosion* can be found in the way particular information and knowledge systems with higher capacity to transmit powerful information and knowledge—e.g. in terms of control, appropriation and transformation of resources—expand all over the world to the detriment of others (Tàbara, 2003). Much of the sustainability knowledge contained in traditional cultures is still transmitted via oral stories and personal means of communication. It is a kind of knowledge which is increasingly difficult to integrate into dominant forms of knowledge, not to mention unable to compete with mainstream scientific developments. A huge number of local languages are now being significantly reduced and lost forever at a very fast pace, in spite of the fact that they constitute one of the most important remaining pools and expressions of cultural diversity.

Nevertheless, the plea for protecting and integrating diversity needs to be put into perspective. Cultural diversity is a source of reflexivity and innovation. It plays an indispensable role in the creation of the necessary knowledge and values to reorient human societies towards a more sustainable path. At the same time, however, it is also clear that not all elements of cultural diversity may be positive or creative for sustainability, in any of its social, economic or ecological components. In all cultures there are also some destructive forces or even pathological elements which may produce negative effects even for their own populations. The ambivalence of culture, and in particular with regard to the development of cultural forms which produce at the same time both intertwined destructive and creative elements, must also be taken into account when considering the value of cultural diversity for sustainability.

For example, local resistance movements to the cultural uniformization of the world and to the loss of one's own cultural distinctiveness can create new forms of negative 'postmodern' diversity, based more on the re-creation and idealization of certain existing identities, or disordered responses to globalization forces, than on the preservation of local knowledges, values and past experiences which gave meaning to collective lives and to their relatively long-term balanced relationships with their environments. Such new cultural reactive forms, which still may contain some valuable components for sustainability, in fact have become mainly part of the mainstream global culture and it is very doubtful that they constitute truly diverse cultures, able to become distinctive and relevant sources for sustainability, knowledge and criticism. Furthermore, such new cultural forms of 'post globalization diversity' may aim to increase the consumption of local and global environmental resources, and therefore of pollution, even further than any other previous culture has pursued to do so before. In other words, diversity on its own does not necessarily lead either to ecological austerity or to sustainability itself, unless it is also accompanied by an historical and educational learning process in which different cultures become aware of the dire implications of the present global resource consumption trends.

Last but not least, the recognition of the importance of preserving and integrating cultural diversity implies the acceptance of the existence of multiple rationalities, morals and aesthetics which can be equally valid and 'right' to improve sustainability in different contexts. From such a diversity of worldviews, of conceptions and approaches to the way humans can value the natural world—and have done so during the course of their socio-environmental evolution—it may be possible to draw some of the main lessons learnt about the most adequate cultural and institutional arrangements developed in order to cope with environmental scarcity and degradation.[3] Such recognition implies also the need to abstain from defending extreme universalistic positions where a unique sustainability rationality or set of moral principles are believed to work in all contexts and all situations. Sustainability as all rationalities and ethics, as all rationalities, are limited ones, and only make sense within the boundaries of a set of recognized problems, goals and means. Many still remain to be discovered both as ontological realities and as socially created preoccupations. A humble attitude thus arises from the recognition of diversity. In turn, such a new attitude may also derive from an increasing awareness of the limitations of

rational thinking and science while dealing with the complexities and uncertainties of global environmental problems and sustainability.

2.3. From Knowledge to Emotion: Rationality, and the Love for Non-human Species and Biodiversity

Modern scientific knowledge, that is, the knowledge obtained and communicated by the standardized and detached universal procedures of normal science,[4] appears to be completely insufficient to activate the necessary emotional and psychological mechanisms which would make biological diversity valuable to large sectors of modern populations. The strengthening and greater awareness of the connections between humans and the rest of the life forms—on which human societies depend—is tied to non-rational cultural components, on which social action also depends. Among such cultural components, there are ecological identities and natural and cosmic beliefs (Giner and Tàbara, 1999) as well as other more personal and internal processes and emotions, such as love. In Platonic terms, love is the supreme and most universal form of knowledge and reality recognition. In so far as this is so, love towards natural diversity entails an embedded rationality, and is inseparable and complementary to the more scientific expressions of knowledge which now dominate our thinking and technological development. Love and compassion towards biodiversity, not just curiosity, also implies a yearning for knowledge which could develop into advanced qualitative forms of sustainability identities, practices and lifestyles as well as a source of individual happiness.

From a sociobiological point of view, Edward Wilson (1984) suggested 'biophilia', as the emotional necessary affiliation with the rest of the biotic forms as a necessary, rational, and ultimately brain-development resulting from human evolution and the advances in biological knowledge. However, love—and not just the love for non-human species, but other types of love such as romantic love—is always a cultural and non-genetically determined development and thus constitutes a socially learnt experience which can be taught through education. Alternatively, the inclusion of other natural species as objects and subjects of love by particular cultures may be better understood as a result of a collective and social civilizatory process. In *Civilization and its Discontents*, Freud (1989 [1930]), assumed that there were two main 'eternal' forces which explain the expansion of civilizations (*Kultur*), that is, Eros or love, and the instinct of destruction or death, Thanatos. According to Freud, civilizations have only been able to thrive and extend their boundaries to the degree their members have been able to substitute the hate or drive for destruction for the other tribes or other cultures by love—with the concomitant development of the sense of guilt. In his words:

> Men have gained control over the forces of nature to such extent that with their help they would have no difficulty in exterminating one another to the last man. They know this, and hence comes a large part of their current unrest, their unhappiness and their mood of anxiety. And now it is to be expected that the other of the two Heavenly Powers, eternal Eros, will make an effort to assert himself in the struggle with

> his equally immortal adversary. But who can foresee with what success and with what result? (Freud, 1989 [1930], p. 112)

Without having to entirely agree with the apparent simplification inherent in the Freudian idea of the two forces, perhaps too Manichaean, it may well be the case that as a human species, we now face the possibility of a stage in the civilization process in which traditional harmful beliefs, values and feelings about non-human species, together with the sense of guilt for the destruction of the natural world, could be redefined by an Eros including love forms of non-human life in the circle of love.

In short, as much as biodiversity, ethnodiversity constitutes a global heritage which can be invaluable for future generations. There are many forms of embedded sustainability rationality and values in the diversity of cultures. Some of such forms, like some expressions of ecological austerity and the attachment or identification with non-human natural species—like those practised by some traditional and/or non-Western cultures like the Hindu—might look irrational under the Western 'modern' perspective and globalizing cultural race but are often far more rational in relation to the integration of ecological issues into individual practices and collective institutions. Thus, some kind of love for biodiversity may stimulate new forms of more sustainable and balanced relationships with the natural world which will be indispensable to deal with the current crossroads situation. New perspectives on how to define and understand happiness, mainly in a qualitative way, are needed and can be learnt from diversity. It may well be the case that the project of sustainability may only be possible to the extent that such sacred non-Western forms of sustainability and respect with diversity can be incorporated with the most informational and technified forms of modern civility or even in contemporary expressions of a civil religion (Giner, 2003, pp. 67–114).

3. The Precariousness of Institutionalized 'Sustainabilism'

Sustainability culture needs to be incorporated into the daily functioning of institutions in order to become a powerful structuring force in the process of global adaptation to the worsening ecological situation. However, the challenge of institutionalizing sustainability culture in the central components of the main economic, political and social structures is enormous. Occasionally, institutions—as sets of regulatory norms of collective conducts and a source of order and stability—develop as relatively short-term effective responses to the need to deal with new dynamics of complexity, the emergence of uncertainty, or the growth of the scale of social action and its unwanted and unexpected consequences. Nevertheless, institutions, once in motion and established for some time, and as a result of the dysfunctional consolidation of their own internal logic, often also evolve into inadequate ones, and create large problems in the long and global scales. In the wake of the current complexities and uncertainties associated with the loss and misuse of global common resources, as well as in taking into account the great potential destructiveness of the attendant decisions, a large degree of flexibility and the inclusion of diversity criteria in the making of contemporary institutions is necessary for the adequate adaptative management of the transition to sustainability (Becker

and Ostrom, 1995). Let us now turn, albeit very briefly, to the examination of some of the main difficulties and limitations which now face such overarching societal transformation, in particular, while taking into account the issues of diversity and ecological austerity.

3.1. Markets and Nation-States

According to Georg Simmel (1978 (1900)), the crucial institution affecting modern life is the monetary economy. Through the means of money, not only economic interactions are regulated but also a large part of the social ones as well. Calculation and measurement bear an intimate relationship to money in the contemporary world. With regard to sustainability issues, the current functioning of the global monetary economy has a vastly negative impact on the reduction of cultural and natural diversities. It does not promote ecological austerity let alone asceticism. With a few minor exceptions (related to locally selected quality goods), market price systems tend to reduce all diversities—both cultural and biological—to manufactured and money-controlled economic commodities. An abstract, non-contextualized, universal and ahistorical utility value is assigned to use of each particular good or service, thereby replacing the multiplicity of socioenvironmental and time-space references and meanings to which most economic processes were once subjected. The emphasis and the success of contemporary dominant monetary systems lie precisely in this phenomenon: in providing natural and socially displaced, standardized products which can be divided, moved and appropriated freely and almost endlessly and entirely without restriction—save for the money involved—all over the world.

By valuing and treating the environment and the natural resources as a set of non-dimensional and fully substitutable commodities—and therefore as abstract flows without reference to stocks—both cultural and natural diversities become irrelevant. Diversity is usually seen by global market systems and rules as a hindrance to economic efficiency and growth. Indeed the foundations of our contemporary monetary economy rest on the possibility of reducing or, to a large extent, eliminating any reference to the origins of the natural resources that would hinder the consolidation of a global single market of limitless interchangeable goods and services, differentiated only by marginal functions of distinct use qualities and prices. The information contained in the price of natural resources barely contains any indication about the dimensions of time (how long this particular resource has taken to be generated), space (where it comes from) or which cultures or human collectivities have participated in their production. It tells us even less about the distributional effects which its production has involved, either in terms of the gains of the producers or in terms of the losers, for instance, by those affected by pollution or by forced displacements in the appropriation of resources. At the same time, as metaphorically expressed by Kenneth Boulding (1966), this expanding and apparently unstoppable worldwide 'cow-boy economy' keeps on measuring its success by the extent to which it can increase the consumption and 'production' (in fact, often, destruction) of an apparently limitless amount of resources, rather than by its ability to preserve the quality of its environmental and social systems.

Nation-states have also traditionally looked at diversity within their respective borders as a hindrance to national consolidation and dominion, as an

annoyance to market expansion or even as a threat to social institutions and integration. Diversity has been persecuted or made redundant, mostly in the name of modernization, both by left- and right-wing governments. A whole array of administrative arrangements and regulations have traditionally hindered diversity to shape national and sub-national institutions and have repressed, in some cases brutally, the creative tendencies embedded in cultural diversity. Diversity needed to be efficiently wiped out from maps, schools and all kinds of institutions, as well as be made invisible as soon as possible and put into line with the dominant cultural indoctrination systems. In the West, nation-state strategies to suppress diversity have been manifold and have made frequent recourse to fear, exposure to ridicule, or simply have been covert expressions of class domination, both within the metropolis and without, in the colonies. A current example is how the right to cultural diversity—to the right to be educated in one's own 'regional' language—has been and still is completely ignored in many national legislations and institutions, including some of the most 'modern' or 'advanced' ones.

Both markets and states evolve and grow together. They need each other even when in conflict. Wars are made to build nation-states *and* consolidate and guarantee key natural resources such as oil. A common misunderstanding assumes that it is possible to expand markets without the collaboration of governments and without a regulatory framework for trade. In the global economic system, non-accountable rules also dominate even the precarious and non-democratic forms of a global corporatist 'soft-state'. Neither do they incorporate any measures related to sustainability—nor, often, human rights. On the contrary, they follow the interests of large companies and corporate clusters with the aim to obtain comparative advantages in the global economy. Such arrangements very often are able to enforce behaviour only in relation to economic performance. Actions related to social and environmental issues remain outside, confined to the sphere of voluntarism or citizen initiatives. Furthermore, the scant attempts to build an international sustainability regime in some key socioenvironmental areas which have a huge potential of negative and irreversible change at a global scale have been subject to many (often insurmountable) difficulties which at the end have diluted much of their effectiveness. In this process of involution towards a global sustainability regime not only companies but also some nation-states are to blame. Telling and very well-known examples are the non-implementation and blockage by countries such as the USA of treaties such as the Kyoto Protocol on Climate Change, or the Cartagena Protocol on Biosafety in relation to the commercialization of GMO crops. The building of a new global state, which in the end may be the only way to ensure in the long-term functioning, not only of the economic market but of the social fabric as a whole, is still too far away to incorporate both diversity and ecological austerity principles. Many options for future sustainable social structuration of the global society are thus being lost.

A truly alternative conception of the world and of the global institutions building would consider diversity as positive for economic development and global state consolidation. Only in economic terms, diversity would allow help reducing the ecological effects of the current production systems and, working against current economic globalization, local markets and products could be enhanced, biological agricultural diversity recuperated, and many economic and environmental costs of transport reduced. One possibility

would be to introduce qualitative criteria based on the value of diversity and diminishing stocks of non-renewable resources—e.g. into the prices of goods—instead of basing production decisions mostly on the assumption of the existence of abstract universal flat markets of completely interchangeable quantities of goods and services. Likewise, the moral structuring of the global state institutions could also take advantage of the creative and integrative forces contained in diversity. All in all, sustainability institutions will have to be able to enforce collective action and prevent the recurrent 'tragedy of the commons' (Hardin, 1968, 1980; NRC, 2001) by integrating not only economic issues but also on the basis of social and ecological criteria under long-term, global, diversity and environmental austerity consideration.

3.2. Media and Knowledge Institutions

Social research has found that the mass media play an important role in creating the environment as a social problem, in bringing it into the political agenda and providing the audiences with particular cultural frames to interpret environmental realities and change. Usually, it is also assumed that the information provided by current mass media can increase the public willingness to take positive actions in relation to environmental quality standards. Yet it is still not very clear what is the contribution of the mass media in the generation and transmission of *knowledge for sustainability*, and even less in conditions of high uncertainty and the need to take cultural diversity into account. Particularly, the media dealing with environmental issues tends to bring either 'bad news' or to show nature and the environment as 'entertainment'. Mass environmental information mostly is about 'news', although many environmental problems, having so far been communicated for over two decades, are rarely 'new'. Much of the current contents of environmental information shown regularly on television, newspapers and other mass means of communication deals mainly with catastrophic, unusual, controversial or spectacular events that are able to catch public attention instead of showing slow processes of little visibility. Given the current way mass media operate, the dissemination of environmental information usually runs the danger of spreading confusion. An overload of little-sense information can result in a demotivating and disempowering effect on individual actions.

Furthermore, media have a powerful effect in the destruction of ethnodiversity. Media often use a rather simplistic and visual language in order to reach the largest of the possible audiences. Influential interpretative frameworks, images and expressions, are also used irrespectively to the singularities of local contexts. Corporate media, often with the support of national governments, reinforce the loss of local languages and cultural distinctiveness, whenever such local populations are unable to participate in the production of messages.

The current challenge of the mass media is not only to provide the audiences with images of apocalyptic destruction and never-ending evidence of the current negative global environmental change. Such images, in the end become rather meaningless. Rather, the main challenge is to improve the contextual conditions, incentives and resources as to allow the public to reflect in a relevant way upon the information received daily and how and why, for instance, current energy consumption and pollution levels need and can be reduced. The lack of time, access to integrated information and focused

debate respectful of diversity impede the emergence of the attendant knowledge for sustainability. However, under present fierce information market pressures, both the contents and formats of mass communication on the environment makes it very difficult for different audiences and cultures to adequately understand these kinds of problems and even more difficult to express their views on the subjects that should be most urgently communicated. Much of the present information transmitted and available through mass media on sustainability and global environmental change issues is unintelligible and even harder to apply. *In terms of sustainability and ecological austerity, wrong messages are provided in the wrong languages and in the wrong contexts.* Much of mass environmental news never becomes environmental information or knowledge transmitted nor deals with this kind of knowledge and indeed much current environmental news contains little environmental knowledge. Information, to become sustainability knowledge, has to form part of the body of the cultural reference system so that each diverse society and individual can link them either by direct experiences or by reflection to their daily practices in a meaningful way.

These drawbacks of current mass media of providing information which eventually could become knowledge can be particularly acute in relation to global environmental change and sustainability. Media has tended to focus only on those global issues which could result in public alarm or could be thought to have direct personal impacts—such as the risk of skin cancer due to the thinning of the ozone layer. Media amplify or diminish the seriousness of the global environmental problems identified by scientists, although in some cases, the correlation among the importance given by science and by media might be weak. For instance, according to Mazur (1998) the concern about global environmental change issues in the USA between 1987 and 1996 was very much dependent on the coverage given by the newspapers despite this coverage being to a large extent independent—except for the case of the ozone layer—of the assessments provided by scientists. However, as a comparative history of the international recent policy response to climate change, ozone depletion and acid rain, Schreurs *et al.* (2001) found that the media were not responsible for identifying or selecting the issues at stake or deciding which were the important issues and to what degree. This task corresponded mainly to the scientific research community. But the media acted as a mechanism that provided vivid amplifying frames, picking up goal statements and spreading messages to the international arena that could catch local attention. Similarly, for Bell (1994), public understanding of complex issues such as climate change only benefits from media information if the audience already knows something about those issues themselves.[5]

Hence, the contribution of the media and knowledge institutions on complex environmental processes in creating knowledge for sustainability will depend on the extent messages can be connected and become meaningful to the immediate contexts of action of the world population at large. This is why in a similar vein, Burgess *et al.* (1995) in their Dutch–British qualitative comparative study on public understanding of global environmental change argued that:

> the abstract concept of global environmental change can only become 'real' for people through the realities of local lives in known places

> [. . .]. The mass media acts primarily to 'sensitise' people to an issue but it has not been particularly effective [. . .] in deepening people's understanding of the issues nor enabling them to take actions beyond those which are most obviously supported by local authorities such as waste recycling. It is our view that the most effective way forward is therefore likely to be based around a rather different communication strategy, one where global concerns may be translated once more into local contexts; where local media are able to play a more concrete role in reflecting local lives and concerns; and where action is as important as language. (Burgess *et al.*, 1995, pp. 76–77)

The knowledge for sustainability is only in part the knowledge generated and transmitted by media and other information or knowledge institutions such as those from the current educational systems. Indeed much of the present knowledge production goes in the direction of unsustainability. The final uses of knowledge products are affected by local cultural conditions which in turn also influence again the production and understanding of information and its transformation into knowledge. Media can increase the awareness of the number of options that can be taken individually at the local level, but they do not increase the likelihood that the most sustainable ones will be chosen. The eventual choice depends on the personal as well as contextual factors where perceptions, rational choices between costs and benefits as well as values intervene. The main challenge of mass communication strategies dealing with global environment and sustainability at present is to contribute to the generation and transmission of messages that can be transformed into practical knowledge in the diversity of cultures. Sustainability information needs to become meaningful, understood and personally identified by large sectors of the populations of the world to become knowledge. And in particular, such information would become *more* meaningful in so far as it could be used actively by individuals in the social contexts in which they develop their daily activities. For this reason, those communication strategies dealing with complex issues such as global environmental change must take into account the values, beliefs, and cultural traditions that make the process of knowledge-building unique in each social context. However, the mass media still exhibit serious limitations in extending the public opportunities to participate in their own ways in the creation of knowledge for sustainability. The building of knowledge for sustainability demands finding new communication procedures where the existing forms of local knowledge production and transmission can be integrated with the mass media and expert ones. In this respect, new information and communication technologies (ITC) tools have a great potential for the global democratisation of knowledge production, although serious limitations exist, for instance, with regard to the unequal access to such tools.

To sum up, by and large, the mass media have become another major source of unsustainability. Along with all-embracing markets and strong nation-states based on weak democratic regimes and electoral systems,[6] media not only tend to banalize both cultural diversity and the natural world but also interact in a very perverse guise with market and nation-state goals—instead of being a necessary component in the transition for sustainability. It is thus becoming increasingly difficult—if not impossible—to gather useful meanings which could be translated into knowledge and relevant action in terms of improving

global sustainability standards. On the one hand, advertising systems and the media in general play a highly inefficient role, when not a globally destructive one, in the way they treat the natural world, in the image of the good life they convey and in the manner in which they look at diversity and ecological austerity. They promote a highly idealised image of the perfect life which is ecologically unattainable. They play a decisive role in setting up in a globally and structural way a preference system and lifestyle based on exponential consumption of natural resources, waste and pollution. Moreover, most global media base their work on corporate structures and principles beyond from democratic control and sustainability principles. For this reason, the democratisation, de-centralisation and inclusion of principles such as diversity and ecological austerity in knowledge, science and media institutions becomes a necessary precondition in any attempt to make progress towards extending the culture of sustainability to a large sector of society.

Social movements have a decisive role in such process, and in particular, the incorporation of sustainability criteria and rationality into the knowledge, science and media institutions. By participating in the procedures of knowledge creation and communication, some social movements are contributing significantly to the reorientation of the current knowledge—albeit unsustainable—society. However, economic globalization and increasing rigidity of nation-state institutions has put social movements in a very difficult situation. On the one hand it has made clear that the only way forward to obtain gains in areas such as social services, environment or cultural integration, is by extending the scale of action and to participate in the international and global institutions while keeping close links with local concerns. On the other, the resources they still command are still very small compared with the massive power of the institutional framework intimately linked to unsustainable development. Without wishing to subscribe to an openly apocalyptic view of the current situation, it is obvious that trends to an unsustainable world are still far more powerful than their opposites.

4. Civic Virtues, Participatory Dialogue and Diversity in Global Sustainability Institutions

4.1. Social Science as Global Reflection

Possibly, and given the liberal democratic setting in which most of the larger economies and regimes operate at present, the only way forward linking sustainability culture with the governance of global environmental institutions in a sustainable way may very well be the development of a vast global-local process of reflexive learning, based on citizen participation and dialogue. Sustainability cannot be imposed by force or any kind of benign enlightened despotism. It must first be debated, agreed and learnt. In order to make human populations aware of the current predicament, the growth of a world republican sustainable culture based on a minimal amount of *civic virtue* is required (Giner, 2002; Vidal-Beneyto, 2003). Considering this adaptative proposal in the light of the former assertion on diversity and ecological austerity the challenges still appear to be insurmountable. Moreover, we do not know to what extent such transformations would be feasible, or understood as necessary by the majority of the world population and its leaders, nor do we know what

procedures should be best followed in an equitable, effective and competent way. It may well be the case that social science will play a decisive reflexive and methodological role in this respect.

However, much of the environmental social science literature published so far has left untouched the question of how the general public could participate in the shaping and outcomes of global sustainability institutions and policies. This omission is particularly serious at a time when the discussion of globalization and the environment has become a pervasive topic of sociological and political debates. Leading authors have tended to orient their reflections towards revealing the cultural meanings, tracing the scientific origins of global environmental knowledge, and thinking about the social effects of this complex phenomenon. They have tried to define the role of social sciences in a debate which has been mainly dominated by the natural sciences. In addition, research on environmental citizen participation has been inclined to pay attention to issues of local, regional or national scale. Public participation in global sustainability institutions under conditions of respect for diversity and the need to curb current consumption trends is still a topic of almost non-existent sociological debate.

Social research into global environmental change has not escaped the tension between constructionism or ecological realism about the best epistemological approach in the production of theories and arguments in social science in this matter.[7] While Riley Dunlap and Willian Catton (1994), originally focused on the recognition and the effects of the *reality* of such a problematic, other authors, like Frederick Buttel and Peter Taylor (1992) and Brian Wynne (1992, 1994), believed that environmental social scientists should better concentrate on explaining its s*ocial constructions and deconstructions* both of knowledge and cultural related forms. Although both positions are not in opposition but complementary, they tend to focus on different research issues. They start from different assumptions, and suggest differing kinds of explanations for social action. Furthermore, along these lines, the need for public participation in global environmental institutions can also be linked to this broader realist-constructionist debate. On the one side, there are some voices who justify public involvement in environmental issues because of their urgency for human societies. On the other, social constructionists seem to take a more distant, less 'activist', and relativist position about the necessity or even inevitability of public involvement in these issues.

Nevertheless, whether we take global environmental and sustainability issues as reality or social constructions, or whether we use such notions as descriptive concepts or as ideological ones, there is little doubt that the development of international and national policies in global environmental change is growing fast. Processes of institutional regime building—insufficient as they may seem—are bound to have a significant economic, cultural and distributional impact not only at the global level but also upon the interests and lifestyles of large swathes of the world population. Conflicts about equity of the eventual decisions—for instance, on the Climate and Biodiversity regimes—are likely to spread. So will the demands for higher accountability and dialogue. If global institutions are to incorporate the new global environmental concerns, people will also have to have some channels to express their views and channel their beliefs and values, and in particular on decisions that will directly and increasingly affect several generations to come. In all cases, it would not make any

sense if the global sustainability institutions were not based, at least, on the respect of the diversity which they are meant to protect.

4.2. On the Difficulties of a Global Dialogue for Sustainability

A participatory dialogue between diverse and unequal parts demands to find some kind of a common language in which to translate the complexities, improve the understanding, and empower the different parts involved in the discussions to take an active role both in the structure and the contents of the issues at stake. While global environmental problems are progressively attracting the attention of the public at the local level, there is no indication that this process has been accompanied by better public understanding of these issues or by sufficient developments in institutional arrangements which could turn this rising awareness into significant changes. The intrinsic complex character of global environmental change and sustainability issues makes it difficult for ordinary citizens to conform to an identity with such problems and affected people or to take an active civic attitude in this regard. However, recent social developments in areas like green consumerism or recycling, show that a large proportion of the population is willing to participate with the means at hand whenever environmental problems and their alleviative actions are clearly explained and specified. Whatever the innate complexities or even indeterminacies of global environmental and sustainability issues might be, it will always be necessary to find procedures to translate them into an intelligible local forms of discourse if the involvement of people in the policy-making process is intended. In one sense, those processes may entail some degree of simplification. Like all simplifications, they will give an incomplete picture of the environmental 'reality' (if we are to accept that such a thing can eventually be grasped). But in another sense, it could be the opposite: as more people are able to understand and participate in the definitions of sustainability problems in their own immediate contexts of action, the final assessments and possible options devised could also be richer and have more potential for institutional transformation and adaptation.[8] In contrast with the solutions to 'practical' problems usually provided in a top-down way by a selected minority of experts, the knowledge and the new cosmovisions that sustainability demand call for bottom-up participation and dialogue. The active and responsible intervention—the republican participation—of diverse citizenries and cultures is necessary to tackle global sustainability institutions in an intergenerational and respectful way and not only for reasons of equity but also for efficiency with regard to sustainability goals. And at the same way, a wrongly framed or conducted dialogue (e.g., not open or participative enough) can lead to frustration and disillusionment.

The large uncertainties, complexities and stakes of current global environmental and sustainability issues exert powerful limitations not only upon the capacity of experts to find out the 'right' knowledge of the causes and effects, to decide the measures to be taken, and to evaluate the efficiency of those measures but also, upon their capacity to judge the *fairest* of those decisions. In this new policy-making situation new forms of democratic public involvement are called for. However, while local participation in global environmental change by the general public is nowadays more feasible thanks to new social developments in sufficiently democratic societies, such a fair and ideal

procedure does not exist yet. Nor the various attempts now under way necessarily on 'citizen science' (Irvin, 1995) or on the 'democratization of expertise' will ensure that the assessments and decisions adopted there will hold an equity character. In fact, when the scope of the issues under deliberation gets too parochial, citizen participation might lead to environmentally inequitable statements.

Seldom are assessments of global environmental and sustainability issues about objective statements of 'truth'. This is not only because current decisions on these matters inevitably have to be made under endemic conditions of uncertainty, but also because those assessments can affect the interests, values, and even the lives of large numbers of present and future beings. On the one hand, global environmental change knowledge is far too enmeshed in the cultural perceptions and social conditions where its producers work, and on the other, the verdicts that are apparently derived from it do not follow any kind of 'natural' or unidirectional causal relation. The prevalence of a diversity of perceptions and representations—including global environmental modelling—about the causes, the effects and the appropriate measures on such problematique entails that diverse individuals and social groups view differently the objectivity of its related knowledge and the equity of its derived decisions.

Thus introducing the criteria of equity and diversity into the environmental debate and decisions is neither an endeavour without controversy or a task which can be undertaken without some kind of subjective judgement. Since the 1972 Stockholm Declaration on the Human Environment, to the World Charter for Nature of 1982, the Rio Declaration on Environment and Development of 1992, and the Johannesburg Declaration of 2002, several international documents have attempted to define some basic principles that would guide environmental and sustainability policies and actions at the global scale, including the question of fairness. An outstanding one among them is the Earth Charter, which in its first principle explicitly asks humankind to 'respect Earth and life in all its diversity'.[9] However, it is not our intention to explore the meaning and components of environmental equity but rather to underline it in the context of global environmental change and sustainability. It has two chief components, one which has to do with the *content* or epistemology and consequences of its connected knowledge and decisions, and the other with the *procedure* by which these decisions are made and come into effect.[10] Both components are equally important.

With regard to *contents*, improving the fairness of environmental and sustainability policies would imply, in the first place, considering the latter's effects upon given populations or upon the environment derived from a given set of policy decisions as the *original* social and environmental conditions of such populations *before* decisions were made. That would entail considering how conditions change as a result. In the second place, improving environmental fairness in global institutions and decisions would entail basing collective and individual motives, evaluate systems and cognitive processes on new conceptions of time, space, and citizens' rights. Ideally, decisions made from the market, the polity or the media would be more 'equitable' in terms of sustainability if they would treat more justly and fairly (a) not only the people of one country or community, but all humankind; (b) not only present generations but also all future generations; and (c), not only human beings but also other

non-human species, including the whole biosphere. Hence thoughts and decisions trying to incorporate more sustainability equitable parameters should take into account the subsequent causes and effects with regard to the North-South asymmetries, recognise the intrinsic value of nature, and treat cultural and natural diversities of our planet as a global commons resources (Vries and Goudsblom, 2003). From these broader frames of reference, new notions of individual and national rights and obligations may arise, and thus much different assessments about the ultimate truth of knowledge and about the righteousness of its related decisions.

As for *procedure*, equity in this context would also involve the application of the best available set of civic and participatory channels that could be found to discover and select the most adequate courses of societal action that are intended to confront global environmental change and sustainability. In other words, diverse participation would be needed to decide what different ways of participation are most adapted to the diversity of social contexts. Thus any attempt to define what would be those 'best' procedures would have to examine how it performs in terms of inclusiveness, efficiency and representativeness of diversity.

From an operational perspective, and following Jürgen Habermas' notion of the 'ideal speech situation', Thomas Webler (1995) attempted to set down some operational rules that could be used to evaluate the fairness and competence of 'participation discourses'. Such procedures have been applied to environmental and sustainability issues and have adopted names such as citizen juries, planning cells or mediation gatherings. In relation to fairness Webler selected the following criteria: (a) that anyone can participate, (b) every participant has equal opportunity *to make* validity claims about comprehensibility, truth, normative rightness and sincerity, (c) every participant has equal opportunity *to challenge* those validity claims, and (d) every participant has equal opportunity to influence final determination of validity and to determine the way of discourse closure. With regard to competence, the conditions that ensure competence would be: (a) that every potential participant has minimal standards for cognitive and lingual competence, (b) every participant has access to the knowledge to make validity claims and criticize others, (c) speakers must have a consensually approved translation scheme for expressive claims, and (d) the most reliable methodological techniques available must be used.

Certainly, not all dialogic participatory processes which could be employed to global environmental change can be evaluated according this 'discursive yardstick'. In general participatory procedures will have to be evaluated not only against their fairness, but also in relation to their effectiveness and permanence in building a *sustainability learning structure*, which in turn will depend on the extent they follow an inclusive, empowering, and representative design of diversity and plurality. Ideally, fairness would entail that appropriate conditions are facilitated for diverse people from diverse cultures, generations, and values to participate more equally in such global environmental and sustainability decisions. In respect to effectiveness, participating people—that is, including non-experts—should be provided with enough dialogical competence as to be able to share and integrate their knowledge and assessments with other forms of knowledge. The resulting dialogue may then influence the attendants decisions, as well as the processes for new knowledge and

institutional building. Nevertheless, just as one thinks of setting up such open and universal procedures, which consider extended dimensions of time, space and morals, one immediately realizes the vast difficulties in discovering and selecting the most appropriate while considering the huge multiplicity of stakes in which such ideal dialogic learning process should take into account. Such procedures are obviously very demanding and not easy to implement. Yet, there seems little or no alternative to the creation of a solid democratic and universal sustainability civic culture balanced against and based on the diversity of cultures.

Hence, social research on global sustainability has devoted little effort to discussing how or with what methodologies fair and democratic citizen participation—republican participation, or the practice of diverse civic virtues, in our terms—can be carried out on global decisions. Dependence on expert assessments appears to be the general norm. However, discussions with informed non-expert people provide experts with very useful insights not only into the causes and effects of those problems but also on the most adequate actions to be taken. *Knowledge participation* in global environmental and sustainability problems will only be achieved when people are provided with mechanisms which ensure they are able to relate this knowledge of the causes, effects, options and people involved in the process. Nevertheless, even in this case, effective participation will encounter great difficulties in respect to the social structure of power of the context where it is carried out. New social methodologies endeavouring to improve public capacity to understand, assess and decide this kind of problems, should be able to collect and provide the experts and non-experts with the useful knowledge for global environmental change mitigation and adaptation.[11] Simplicity, accessibility, flexibility and intelligibility might be some of the most adequate criteria to orient future developments of those new approaches in order to make them widely applicable in a diversity of local contexts. Obviously, and due to the voluntary and free character of citizen participation in democratic societies, such procedures should have to be based on a diverse number of incentives and it would not make any sense to think that they could be imposed by means of coercion. Within the new extended temporal, spatial and cognitive framework of thinking and acting, and incorporating the aforementioned values of respect for diversity and ecological asceticism, it may be possible for people to find themselves engaged in a more careful, equitable and thorough examination of the current environmental predicament. All in all, such process could only be achieved by a participatory dialogue toward reflexive learning based precisely on diversity and ecological austerity criteria, aimed to create a diversity of global sustainability arrangements.

5. Conclusion

Neither a single universal global culture nor a single process for institutional regime building based on ever-increasing resource consumption and environmental pollution levels can be either sustained or sustainable. A new global *sustainability culture*, based on the respect, protection and the integration of both cultural and biological diversities capable of curbing current trends in energy and materials consumption and environmental degradation is needed if current societies are to adapt to the moral and biophysical imperatives of

sustainability. Such culture has to be a participatory one, in the republican sense, that is, in the sense that civic virtue (no matter its limitations and the adverse conditions that often militate against it in the present democracies) is essential. Without a critical participatory mass there is little hope that true sustainability conditions can be reached. That is why we speak of the need for a cultural transition, which may in many ways precede the necessary legal and institutional arrangements.

The new political ideal of sustainability, in a sense similar to the French Revolution political ideals of 'liberté, egalité, et fraternité', might be on its way to becoming the fourth moral and cultural pillar necessary to maintain the social fabric for the next generations to come. For the current non-sustainable world can neither be free, nor socially fair, nor able to maintain an integrating identity if it does not take into account the current limits to growth and/or pollution, the rights of future generations, and of the rest of the global living communities in its diverse forms, including the non-human species. Indeed, and while taking into account the issues of diversity and ecological austerity or asceticism, the new awareness of the ecological constraints should not necessary be seen as endangering or reducing the scope for human freedom, solidarity or social justice, but on the contrary as a new situation where new identities, new conceptions of such broad ideal as well as new forms of knowledge, and even the notion of the good life could be developed.

The new political ideal of sustainability is in a sense akin to the ideals expressed by the French Revolution: '*liberté, egalité, fraternité*'. Sustainability may be on its way to becoming the fourth moral and cultural pillar necessary for maintaining the social fabric of modernity for the next generations to come. For the current non-sustainable world can neither be free, nor socially fair, nor able to bestow an integrating identity upon its people if it does not take into account the current limits to growth and pollution, the rights of future generations, and of the rest of the world living communities in their diversity, including the non-human species. Indeed, while taking into account the issues of diversity and ecological austerity, the new awareness of the ecological constraints should not necessarily be seen as endangering or reducing the scope for human freedom, solidarity or social justice. On the contrary, it must be seen as a novel force giving rise to a new conception of the republican and democratic ideals.

Understood as a moral and political principle, sustainability is becoming a central force in the structuration of the global society. It would be insufficient to regard such development only as a result of an inevitable survival species mechanism, based on particular genetic or biological impulses. Rather, it seems to be a unique historical development—and at least within the Western culture a rather novel one—which can only be extended and consolidated through culture and education. Sustainability, as a political ideal and a moral structuration meta-principle, will have to be incorporated into the civic and political agenda of the global institutions. The present paper has tried to explain why this is so, by showing how not only that the respect and protection of diversities but also the promotion of some kind of ecological austerity are two necessary preconditions in guiding the institutional making of world sustainability. On the one hand, we have examined some of the values and even some of the emotional components, such as the non-rational—though not all irrational—love for non-human species in enhancing the preservation of

diversity. On the other, we have looked at the role of participative dialogue in the making of a new sustainability rationality (either in instrumental terms or in morally or ideological oriented manners) in global culture and institutions.

A rather extreme strand of universalist thinking believes it possible to create a global society based on a single culture which would hold a rather common and even consensuated cosmovision of the world. Nevertheless, one cannot see much educational and economic efforts invested by the global community in that direction in order to create such culture, apart from extending the trivial consumer culture ad nauseam with the help of corporate advertising, the state modernization programmes and the new information technology systems. Moreover, as in the creation of nation-states, the incipient creation of a 'global nation-state' looks at diversity as well as ecological austerity with distrust, as a source of conflict and danger. Instead of understanding diversity, in all its languages, knowledges and expressions, as a source of global creativity and integration, and in the end, as the eventual source from where the necessary sustainability knowledge base toward the sustainability transition can only emerge. Obsolete cosmovisions still prevail.

However, the gap between current global environmental change and the adaptation of present social structures is increasing at a pace that might be too late to prevent the large suffering and irreversible damage to vast amounts of present and future human populations together with the extinction of much of the diverse life forms upon which future generations depend. The conjoined protection of the ethnodiversity and biodiversity heritages emerges as one of the most urgent tasks of our times. Avoiding the destruction of sustainability knowledges, rationalities and other forms of cultural sustainability before it is too late and to incorporate such forms so that it can reorient the global dominant culture might be the only way to advance forward the necessary but never assured sustainability transition.

Sustainability, we said, cannot be imposed by force but only discusssed and progressively learnt. The process by which a given society *learns* the knowledge to minimize energy consumption and environmental degradation and avoids at the same time the potential negative impact on social inequality by making the best use of the available information systems can be understood as *sustainability learning*. As any broad social change, extending the mass knowledge and values for sustainability will entail that large parts of society enter into the debate of the common sense of many taken-for-grated cognitive frame, moral commitments about the current use of world's natural resource. Furthermore, not only should the majority of people participate in the debate, but be empowered enough to engage in their modification. This will need a multiple-agent process where a whole set of present social assumptions, objectives and means can be put into question and finally redefined and modified through a collective strategy. The so-often postulated goodness of limitless economic growth, the quest for being the most 'powerful nation' (instead of the most sustainable one) and many other individual and social aspirations that aim for the massive consumption of energy (and pollution generation) make little sense under the present cognitive and moral frame of sustainable development. Very likely, improvements in the sustainability of a social structure will ask for developing new forms of public participation and de-centralization that can overcome present forms of exclusion in the production and communication of 'objective' knowledge. Sustainability demands that every group and

every person is empowered enough to say something and do something about it.[12] New participative processes of knowledge building that take into account all of these variables are called for.

Sustainability knowledge is a knowledge with a moral thrust, a particular type of knowledge build upon a multiplicity of local and universal knowledges. Thus, not all advances in science and technology are relevant for improving sustainability. The opposite can be the case. Many authors argue that some very important applications of current technologies—such as agricultural biotechnology—directed to increase the profits of international corporate companies away from local concerns, skills and traditions (or even international Biosafety regulations) entail precisely a movement towards an increased unsustainability. Improving sustainability is not only about knowing *more*, but about *learning qualitative different types of knowledges*, that is, about incorporating and applying the historical lessons which different cultures have accumulated in their evolution and which will be indispensable to face an increasingly resourceless global society. Such knowledge will demand the integration of many diverse wisdoms, perspectives and knowledges: expert and non-expert, traditional and modern, universal and local, sacred and profane, female and male, and of many distinct disciplines and backgrounds.

Sustainability is a relationship between a set of socioenvironmental realities and a set of social constructions. Both the social structures and conditions which make sustainability possible and the social representations of such conditions can be unveiled by science, although science is not the only way to approach such conditions (other means, such as personal experiences and oral stories have been traditional sources of such knowledge which need also to be taken into account). In this respect, social science can significantly contribute to sustainability knowledge—and in particular to the new *sustainability science* (Kates *et al.*, 2000; Kasemir *et al.*, 2003)—by providing researchers with the appropriate set of questions and methodologies and tools to understand the social universe to unveil the main social dynamics and dependencies to which the conditions for the survival and for a dignified quality of life to large populations can be maintained in the long term.

Therefore, there is no single societal path towards sustainability but many, according to the diversity of goals, means and representations of nature and culture in different social contexts in which the new awareness has become a source for institutional innovation. To a large extent, multiple options are still open and their materialization into effective actions will depend on the degree social institutions can set up new imaginative processes which can modify the whole set of aims and organizational structures in which to base their own functioning—now under short-term, corporate and reductionist perspectives and interests. In any case, it is very unlikely that such transformation will be the result of an all-embracing top-down master plan based on global rational planning. More plausible could be to set up the means for a truly global and diverse educational process. Furthermore, such a process should also be capable of producing a new situation in which a multiplicity of options, solutions and strategies are adapted to different social contexts and cultures. A transition in culture and institutions is necessary as neither cultural nor institutional adaptative changes can be replaced by technological fixes. Sustainability transitions cannot only be based on technological innovations, given that such developments on their own are insufficient while dealing with global

environmental and sustainability problems, which are mainly of a cultural and social nature.

Hence, institutional changes may never fully succeed unless they are also carried out with the engagement and participation of its members and cannot be imposed either from above or from outside. One way—or probably the only way—to start in that direction might well be to promote, e.g. via education and democratic regulation, the values and mechanisms which could guarantee the respect and protection of diversity, as well as the progressive ecological austerity—or asceticism in the Weberian sense—necessary to adjust individual lifestyles and the working of social, economic and political organizations to the imperatives of sustainability. We have argued that a vast process of *sustainability learning*, based on competent dialogue and participation based on the protection, respect and integration of diversity and on the recognition that some kind of contention on the use of natural resources is needed if local and global institutions are to adjust to the pressing requirements of sustainability. In providing the adequate channels for such participatory dialogic processes, people from diverse cultures and societies should be able to decide not only the means to achieve a given set of taken-for-granted universal goals—such as increasing individual consumption ad infinitum—but also the goals by which such societies should organize their institutions. In setting the possibilities for competent, fair and plural participatory dialogue, diverse cultures should be able to decide and be able to carry out alternative ways of living in more balanced paths that is now following the global consumer society. Since there is no single path in the transition to sustainability but many, let us learn from diversity that which modern unsustainable culture has not yet learnt.

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Notes

1. See Young (2002).
2. We are aware that given the predominant global ideology and seemingly unquestioned policy goal of continuous growth, the plea for reducing conspicuous consumption (in T. Veblen's terms) might appear utopian or naïve, despite we consider as indispensable for the long-term maintenance of the social fabric.
3. See O'Riordan and Stoll-Kleeman (2002).
4. For a realist ecological criticism of normal science and the challenges of the current scientific endeavours, see Funtowicz *et al.* (1998).
5. For instance, as Kempton (1993) defends, the role of communication in building the knowledge to deal with global environmental change such as climate change is decisive, and the public confuse or do not know what are the actions that they can take at the local level to mitigate it. Citizen action on climate change is heavily constrained by the lack of knowledge. For him, 'Some (not all) of the problem is inappropriate conceptualization of global warming and lack of knowledge of effective responses. In these areas there is a

crucial role to be played by those who communicate with the public. Such communicative and educational efforts could potentially yield rapid results, while our societies continue the slower and politically difficult task of removing structural and institutional barriers' (Kempton, 1993, p. 241).

6. For an early discussion on social traps with regard to environmental constraints and misguided policies, see R. Constanza (1987).
7. Despite their outstanding contributions, see for instance Michael Redclift and Ted Benton (1994) and Ortwin Renn *et al.* (1995). For an exception, see Nocenzi (2003).
8. Such 'public reduction of environmental and sustainability complexities' does not mean that all different perceptions must be reduced to a single and universal version of the truth and possible actions. On the contrary, this procedure should foster respectful understanding between a diversity of cultural perceptions and values among different social groups and individuals in their own main context of action.
9. See http://www.earthcharter.org/
10. In this sense, the rightness of global environmental and sustainability policies aimed at building an international institutional regime, as those relating to climate change, will depend on the perceptual frame or the impetus in fairness, efficiency or sustainability that finally drives them.
11. The authors of this paper participated in the development of a methodology which could be used for such purposes, within the framework provided by the EU DGXII Ulysses project. See Kasemir *et al.* (2003).
12. This broad social approach to sustainability was also defended by Lester Milbrath (1989, ch. 5) who believes that *a learning society towards sustainability*: (a) uses a wealth of information; (b) finds better ways to disseminate and use information; (c) emphasizes integrative and probabilistic thinking; (d) emphasizes values as much as facts; (e) is critical of science and technology; (f) combines theory with practice; (g) is consciously anticipatory; (h) thinks that change is possible; (i) examines outcomes to learn from them; (j) develops institutions to foster systemic and future thinking; (k) institutionalizes the practice of analysing future impacts; (l) reorients education toward social learning; (m) supports research; (n) maintains openness and encourages citizen participation.

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