Culture: An Enabler of Environmental Sustainability

Culture enables environmental sustainability at various levels: through the intrinsic links between cultural diversity and biodiversity, through its influence on consumption patterns, and through its contribution to sustainable environmental management practices as a result of local and traditional knowledge. How does culture foster environmental sustainability?

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Background Note[1]

The human-nature dichotomy has now become an obsolete notion as development debates increasingly acknowledge the vital importance of a healthy and functional environment for human life and well-being. A "culture of sustainability" has become a global trend and central element in education, stressing the need to preserve the planet's limited resources and the intergenerational responsibility to preserve them.

Culture is a key element in the "holistic approach" advocated by the concept of sustainable development as it frames people's relationships with and attitudes towards the earth and natural environment. Indeed, over the course of history, many cultures and belief systems have regarded nature as an extension or as a part of society and have embraced cultural approaches as key ideas and modalities for environmental sustainability.

While the growth objectives of rich countries were substantially achieved in the 20th century, the drive for economic growth at the cost of the environment has left critical challenges for global society. New policies and approaches have emerged while environmental debates at all levels have been initiated since the 1970s, leading to a fundamental shift in society's values. There is now a search for ways in which better results will be achieved for human welfare in developed and developing countries alike, while helping to ensure that these have a smaller impact on the environment and natural resources. Greater creativity and innovation are required to change the ways that people work with and value nature, instead of taking its services for granted.

Today, as in ancient times, human life depends on the capacity of ecosystem services and on human capabilities to manage risks, mitigate impacts, and be resilient in the face of unpredictable events such as earthquakes, tsunamis, devastating storms, and volcanoes. Human consumption and production patterns should be reviewed in the light of the global goal to sustain the environment. New technologies and scientific knowledge have increasingly enabled the recognition of the non-linear, dynamic and complex systems of the environment and the interdependence between social, cultural, economic and environmental systems. Addressing global challenges such as climate change or the loss of biodiversity will require more globally concerted actions, as well as smaller-scale

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interventions for mitigation and recovery measures privileging more locally based approaches.

Culture and Nature

Understandings and perceptions of the environment condition human life patterns and influence cultural expressions, a large part of which are rooted in specific times and places. Species, ecosystems, landscapes and seascapes continuously interact with human communities, as well as with their livelihood and management practices and social structures.

Landscapes and the components of them have always strongly influenced local cultural practices, values and beliefs. In turn, daily human decisions and actions increasingly impact on the capacity of ecosystems to provide for human life and well-being.

Biodiversity is crucial to the ecosystem and to its resilience, renewal and reorganization in response to disturbances and changes. The richness of biodiversity can be reinforced and maintained by the diversity of human communities as the quality of biodiversity often depends on the presence of culturally diverse communities whose knowledge and practices depend upon specific elements of biodiversity for their subsistence, beliefs and expressions. The convergence between cultural and biological diversity extends far beyond so-called "diversity hotspots" as a result.[2]

In this context, the current and simultaneous trends of the degradation of biodiversity and the weakening of cultural diversity have raised interest in further exploring the linkages between them and the ways and means that could be used to address them together. [3]

Beyond the essential subsistence and services provided by nature (e.g. water, food, fibres, medicines, sinks of CO_2 and shelter), the world's plants and animals, as well as forests, deserts, rivers and oceans, provide continuous sources of spiritual fulfilment, aesthetic enjoyment, artistic inspiration and intellectual development. Yet, the capability of ecosystems to provide such benefits has significantly diminished over the past century, either through changes to the ecosystems themselves, as has been demonstrated by the recent rapid decrease in the number of sacred groves and other similar sacred sites,[4] or through cultural changes such as the loss of languages or of traditional knowledge.

Traditional ecological wisdom, indigenous knowledge, knowledge of local fauna and flora, traditional healing systems, rituals, beliefs, initiatory rites, cosmologies, shamanism, possession rites, and social organizations are often presupposed by local

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[2] *Nature and Culture*, edited by Sarah Pilgrim & Jules Pretty (Earthscan, 2010); *The Cultural & Spiritual Values of Biodiversity*, edited by Darrell Posey (UNEP, 1999).

[3] *Links between Biological and Cultural Diversity: Concepts, Methods and Experiences,* edited by A. Persic & G. Martin (UNESCO, Paris, 2008).

[4] Some natural sites are not only important as sources of biodiversity, but are also sources of knowledge and practices concerning nature and the universe and thus are an important form of the intangible heritage of humanity: http://www.unesco.org/culture/ich/doc/src/01857-EN.pdf See also the 2005 Millennium Ecosystem Assessment, accessible at www.maweb.org

and indigenous languages and environmental-related vocabularies. They are the key vehicles of traditional knowledge about the environment and sustainable management of its components, yet today they are in great danger of disappearance, leading not only to the loss of cultural identities, but also to the degradation of local ecological integrity.

This degradation of culturally valued biodiversity, and decrease in associated cultural services and features, not only triggers ecological decline and cultural erosion, but also leads to social disruption and the weakening of social networks and ties within society.

Traditional Knowledge in Natural Resource Management and Disaster Risk Reduction

Some of the ideas expressed in ancient writings, such as the Vedic texts (written before 800 BCE) and those of Aristotle, Al-Karaji, or Old Norse mythology, bear witness to the understanding of natural processes, especially the hydrological cycle. Ecosystem-like concepts exist in several Amerindian, Asian and Pacific, European, and African cultures. Ecologists and anthropologists have long discovered ecosystem-like concepts in traditional knowledge, with the two key characteristics of these systems being crucial for the sustainable management of natural resources.

First, the unit of nature is often defined in terms of a geographical boundary, such as a watershed, and second, abiotic components, such as the plants, animals and humans within this unit, are considered to be interlinked. Numerous traditional ecological knowledge systems are similar to contemporary view of ecosystems as unpredictable and uncontrollable, and they see ecosystem processes as nonlinear, multi-equilibrium, and full of surprises.[5]

Traditional knowledge provides valuable insights into the biological and ecological processes that underpin environmental sustainability on the local level. Community-based strategies for conservation and the sustainable use of biodiversity enable economic, social and cultural values to connect with conservation values. These strategies have been proven to be far more effective than utilitarian or top-down conservation initiatives alone. Community-based and small-scale local management is particularly interesting for biodiversity conservation, as it usually favours multiple-use principles that distribute resource-use pressures in space and time. Long-term observation and interaction with the local environment deepens local environmental knowledge and understanding of trends over time.[6]

Sustainable development can thus benefit from locally available and time-tested resources in order to effectively reduce and prevent biodiversity loss and competition and conflict over access to natural and cultural resources.[7] Among such resources, the

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[5] F. Berkes, Kislalioglu, M., Folke, C., and Gadgil, M., "Exploring the Basic Ecological Unit: Ecosystem-Like Concepts in Traditional Societies", *Ecosystems*, 1, 1998, pp. 409-415.

[6] Cf. F. Berkes, Colding, J., Folke, C., "Rediscovery of Traditional Knowledge as Adaptive Management", *Ecological Applications*, 10 (5), 2000.

[7] Some local mechanisms, such as courts of natural resource management, reduce or prevent competition and conflict over access to natural and cultural resources. The Council of Wise Men of the Plain of Mulcia and the Water Tribunal of the Plain of Valencia in Spain, for example, provide cohesion among traditional communities and synergy between occupations (wardens, inspectors, pruners, etc.), contributing to the

traditional knowledge held by indigenous peoples[8] and local communities has an essential value in the effective and sustainable management of local natural resources, including local plants and animals, land, forests, and freshwater and marine resources. Respect for the environmental knowledge and management practices that are embedded within indigenous cultures is a cornerstone of environmental and cultural sustainability and the basis for sustainable development. However, such critical knowledge is still rarely recognized in decision-making processes related to the management of ecosystems at different scales.

Other Ecological Benefits from Culture-Related Approaches and Initiatives

Cultural heritage, particularly cultural landscapes and historic cities, can make a significant contribution to environmental sustainability. Replacing a historic building with a new one involves the higher consumption of energy. Demolishing a historic building means wasting the energy incorporated into that building, and it requires further energy to take the materials to a landfill and even more to reconstruct a new building. The energy embodied in the construction of a building is 15 to 30 times its annual energy use. A recent study from the United Kingdom found that it takes 35 to 50 years for an energy-efficient new home to recover the carbon expended in its construction.[9] Historic houses are built from brick, plaster, concrete and timber, or even from mud-brick, which are among the least energy-consuming materials. The major components of new buildings, on the other hand, are plastic, steel, vinyl and aluminium, among the most energy-consuming materials.

Well-maintained heritage is also important in addressing risks related to natural and human-made disasters. The impact of the tsunami along the coast of the Gulf of Bengal in 2005 was worsened by the progressive loss of the original mangrove vegetation. The traditional knowledge and skills of the Moken people in the Andaman Sea enabled them to survive the same tsunami. A large number of traditional buildings managed to withstand the terrible earthquake of October 2009 in Kashmir, saving the lives of their inhabitants. Conversely, badly constructed reinforced concrete buildings in the same area collapsed completely, killing everyone inside.

Revitalizing culinary traditions and promoting the cultivation and consumption of native ingredients is also a useful approach to valorizing locally-adapted species, ecosystems and biodiversity richness. Agro-ecology, as a holistic approach to agriculture and its development, promotes the linkages between culture, ecology and socio-economics by

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oral transmission of knowledge derived from centuries-old cultural exchanges. They have their own specialist vocabulary that is peppered with Arabic borrowings.

[8] Indigenous peoples currently number some 350 million individuals in more than 70 countries and represent more than 5,000 languages and cultures. The United Nations Declaration on the Rights of Indigenous Peoples advocates for the importance of indigenous peoples' knowledge systems as the basis for development initiatives that incorporate culture and identity in ongoing international processes. Its claim is that the crucial role and relevance of indigenous knowledge systems should be recognized and integrated including and especially within the process of the Post-2015 Development Agenda and the elaboration of Sustainable Development Goals.
http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

[9] J. Owen Lewis, "Renovate or Demolish/Rebuild: What are the Drivers?" (2012), available at: http://www.renovate-europe.eu/uploads/REDay2012%20ppts/REDay2012_Workshop_Owen_Lewis.pdf

incorporating traditional, alternative and local small-scale agriculture, thereby helping to sustain production, farming, communities and environmental health.[10]

In urban areas, initiatives such as sustainable architecture, ecological design, and eco-arts can stimulate creativity and innovation by linking ecological concerns, well-being and aesthetics. [11]

International Frameworks

Although considerable progress has been made in raising awareness of the importance of treating culture and the environment as parts of a unique and complex system, much more needs to be done to integrate cultural and environmental management and policy agendas systematically.

Some positive developments include the significant increase in practical expertise in the development and application of integrated approaches to landscape management practices. The concept of cultural landscapes, recognized within the framework of the World Heritage Convention,[12] builds on the links between biological and cultural diversity. Similar concepts, such as the UNESCO biosphere reserves,[13] the FAO's Globally Important Agricultural Heritage Systems,[14] and Satoyama systems,[15] as well as the considerable work done in the area of sacred natural sites, also underline the significance of the dynamic interplay between culture and the environment on the ground. In addition, the concepts of "bio-cultural diversity" and "bio-cultural heritage" have emerged in recent decades as part of efforts to narrow the widening nature-culture divide.[16]

Recent discussions on the integration of traditional and indigenous knowledge in global scientific assessments, such as in the Intergovernmental Panel on Climate Change (IPCC)[17] and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES),[18] are positive steps towards a better understanding of the environment and the effects of changes in it on human life and well-being.

On the policy side, several intergovernmental processes, policy instruments and

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[10] The FAO's Globally Important Agricultural Heritage Systems (http://www.giahs.org/) calls for "dynamic conservation" and emphasizes the balance between conservation, adaptation and socio-economic development. It aims to empower smallholder family farming communities, indigenous peoples and minority/tribal groups, helping them to conserve their traditional agricultural systems and create an economic stake in the conservation of (agricultural) biodiversity such that nature and people can prosper together.

[11] See UNESCO Recommendation on Historic Urban Landscapes: http://portal.unesco.org/en/ev.php-URL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html

[12] http://whc.unesco.org/en/convention

[13] http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves

[14] *Op.cit.*

[15] http://satoyama-initiative.org/en

[16] *On Biocultural Diversity - Linking Language, Knowledge, and the Environment*, edited by Luisa Maffi (Washington, DC, Smithsonian Institution Press, 2001).

[17] http://www.ipcc.ch

[18] http://www.ipbes.net

international scientific assessments (e.g. the Convention on Biological Diversity,[19] the Ramsar Convention on Wetlands,[20] the World Heritage Convention,[21] the Convention on Migratory Species,[22] the Convention on International Trade in Endangered Species,[23] the International Convention on the Regulation of Whaling,[24] the United Nations Forum on Forests,[25] the Convention for the Safeguarding of the Intangible Cultural Heritage,[26] the European Landscape Convention,[27] and the Millennium Ecosystem Assessment[28]) have made explicit reference to cultural drivers when dealing with biological diversity and vice-versa. They have corroborated the importance of the complex interface between cultures and ecosystems, where sustainability and resilience depend on the maintenance of such interconnectedness.

Ways Forward – Rethinking Connections and Holistic Approaches to Sustainability

Today, global environmental challenges, including climate change, the accelerated rate of species extinctions, water pollution and freshwater scarcity, biodiversity loss, land degradation and urban population growth, are closely related to global demographic, economic, social and cultural changes. Responding to these interconnected challenges is at the centre of society's concerns for its future, and as a result there has been growing recognition that culture and the environment function as parts of a single system and that they cannot be understood separately.

The knowledge, beliefs and practices of human communities in relation to nature can be considered as an important part of their cultural identity and as forming part of humanity's common heritage. They represent important tools for the adaptation to a changing environment. They provide new ways to adapt to change and to deal with the challenges, opportunities and threats posed by such change. Within this huge collection of practices, perspectives and approaches lie rich resources, which, when effectively applied, have been shown to contribute to finding sustainable solutions to increasingly complex development challenges at the local and global levels.

Integrating cultural aspects into research, decision-making and policy frameworks for environmental sustainability is an important challenge when addressing the cultural and social consequences of ecosystem change. Yet, current decision and policy-making processes rarely take into account such fundamental links between biological and cultural diversity and insist on treating them as separate entities, resulting in diverging and even conflicting agendas. This dual approach has led to varying interests, disjointed competencies and clashing domains of authority, thus leading to sub-optimal policy instruments, tools and legal frameworks.

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[19] http://www.cbd.int
[20] http://www.ramsar.org/cda/en/ramsar-home/main/ramsar/1_4000_0_
[21] http://whc.unesco.org/en/convention
[22] http://www.cms.int
[23] http://www.cites.org
[24] http://iwc.int
[25] http://www.un.org/esa/forests
[26] http://www.unesco.org/culture/ich/index.php?lg=en&pg=home
[27] http://www.coe.int/t/dg4/cultureheritage/heritage/Landscape/default_en.asp
[28] http://www.unep.org/maweb/en/index.aspx

Reversing current trends of ecosystem degradation and the unsustainable use of natural resources will benefit from the promotion and protection of traditional knowledge and local languages relating to environmental management, along with empowering groups that are particularly dependent on ecosystem services or affected by their degradation.

In order effectively to integrate culture and the environment in policy and action from the local to the international levels, interdisciplinary advances in research management and policy-development processes will be needed. The extensive use of participatory approaches and the incorporation of community values and local knowledge will be essential aspects of this work.

Finally, education for sustainable development can be harnessed by taking into account and underlining the cultural dimensions of given societies, these determining the values, attitudes, skills, forms of knowledge, languages, lifestyles and worldviews associated with specific contexts.