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Challenges of Biodiversity

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Abstract

The conferences about biological diversity of the Unescocat Congress highlighted the need to reverse the hegemonic, anthropocentric trend in biodiversity management. They stressed the principle of interdependence among the elements of an ecosystem, calling it a requirement for life.

It is essential that we start with specific dialog-based experiences that take into account the traditional forms of understanding and interacting with the land. Science and technology, as instruments for conservation and development, should be used in the service of general welfare. Agencies like UNESCO advocate that culture is globally recognized as the fourth pillar of sustainable development. Human cultures are numerous and diverse. They allow people to make sense of their lives and to manage their relationships with other people and the natural world. Consumer cultures are behind what Gus Speth has called the “Great Collision” between a finite planet and the seemingly infinite demands of human society.

If we are to prevent both a dramatic depletion of biodiversity and the collapse of human civilization a wholesale transformation of dominant cultural patterns is needed. That means rejecting consumerism —the cultural orientation that leads people to find meaning, contentment, and acceptance through what they consume—and establish in its place a new cultural framework centred on sustainability.

Education plays a crucial role in creating new forms of “ecological citizenship” that lead people to think more critically about their interactions with the environment, engage practically with collective problems, and assume responsibility for their conduct. So the needed change for an ecological citizenship has very much to do with culture, with values, with ethics. First of all, it will be necessary to replace the sense of self as consumer with a sense of self as green citizen.

First of all I will describe the results of the conferences about biological diversity of the Unescocat Congress “Cohesion and peace through dialogue”, and afterwards I will link this to citizenship and social cohesion.

There were 3 expert’s interventions: Gita Kavarana, the head of institutional development at India’s Centre for Science and Environment, Joandomènec Ros, the secretary-general of the Institute for Catalan Studies, and Natarajan Ishwaran, the director of UNESCO’s Division of Ecological and Earth Sciences. The participating experts highlighted the need to reverse the hegemonic, anthropocentric trend in biodiversity management. They stressed the principle of interdependence among the elements of an ecosystem, calling it a requirement for life. Rather than just conserving a

particular species, what we need is a holistic perspective focused on sustainable use and fair benefit for all members of the ecosystem.

It is essential that we start with specific dialog-based experiences that take into account the traditional forms of understanding and interacting with the land. Science and technology, as instruments for conservation and development, should be used in the service of general welfare.

Gita Kavarana, the head of institutional development at India's Centre for Science and Environment, said that "Unity in diversity" is the phrase most often used to describe Indian cultural traditions and every school child learns about the diversity of Indian culture at a young age. What children are not taught is that this cultural diversity of India has its roots in the extraordinary diversity of biological resources. Cultural diversity in any part of the world is a result of the people innovating and experimenting in order to use the natural resources for their survival and livelihood. India's biodiversity is vast and varied and lifestyles and occupational structures in different parts of the country derived out of people's interactions with their natural habitat. Thus, the people of Rajasthan developed animal husbandry and nomadism as the livelihood mainstay because the land was fragile and could not be used for agriculture; the people of the Indo-Gangetic plains, on the other hand, developed farming as their mainstay; and, the people of the Himalayan mountains developed forest-based occupations to make use of their ecosystem. The production systems and lifestyles were fine-tuned over centuries, till they became an intrinsic part of our culture. Traditional practices were, therefore, almost always in tune with the ecological surroundings and specificities. The value of traditional knowledge lies in its ecological rationality where the ultimate objective is the sustainable use of the ecosystem. The seemingly backward cultural practices that are rejected by "modern cultures" helped to nourish a respect for natural resources on which all lives depend.

Modern developmental systems are destroying these ecologically sound practices, often in the name of science and progress. Even though science is supposed to be rational, the application of so-called scientific principles is becoming the new superstition "it has to be scientific" without giving thought to social and ecological context. Modern and traditional practices are both products of the evolutionary process and one is not inherently better than the other. The problem lies in the way modern science and technology is being used -- to replace and destroy the already existing ecologically rational systems instead of using it to understand the rationale and then to enhance the potential for sustainable development.

In India, as much as in many other parts of the world, there are extraordinary examples of this ecological soundness in traditional practices – in land use, agriculture, water use, water harvesting, animal care, food preservation, herbal medicines, textiles and so on. Kavarana focussed on the traditional wisdom in India in harnessing its water wealth from the rains. She discussed the situation of water management in her country. Although India has enough water for its entire population, it suffers from supply problems throughout its territory. Kavarana explained that the main problem is the destruction of the traditional systems for water collection, storage, distribution and maintenance. This is because a system similar to that used in major cities, based on large

dams and channels, has been introduced throughout the country. As a result, this basic resource is supplied inefficiently and ineffectively, because the system is very expensive and incompatible with the possibilities of many regions. Moreover, due to the homogenisation and centralisation of water management in India, communities have ceased to take responsibility for this essential element of daily life.

Faced with this situation, various organisations have demanded that the authorities consider different methods for rational and sustainable water management that are adapted to each context and carried out by local actors, and which take into account their experience, knowledge and technology. To achieve this goal, it is first necessary to once again raise awareness about the value of this resource and, at the same time, strengthen the communities' work and improve their technology.

Joandomènec Ros, the secretary-general of the Institute for Catalan Studies, analysed the topic from a biological point of view. At the beginning of the twenty-first century the situation of biodiversity is compromised: there are species that have disappeared before being discovered, and others will follow the same way. The most important causes of species extinction today are human activities. There are many ways to undermine biodiversity: direct elimination (hunting, fishing, etc.), pollution, introduction of competing species ... But the greatest threat is habitat destruction ... Overexploitation has eliminated many species.

Nowadays it remains a very small fraction of the rainforests that there were only a couple of centuries ago, and at the present rate, in another century they may have disappeared completely, replaced by secondary forests, arid deserts and badlands. The rate of deforestation, fragmentation and destruction is very rapid. For example the Amazonia was deforested 70,000 km² (area of Ireland) from 2003 to 2006. Why is a catastrophe to the destruction of tropical rainforests? It is not for what they say: the loss of the "lungs of the Earth." There are other more real and disastrous effects. The rainforest ecosystem provides basic services. When we lose vegetation, we lose a CO₂ sink, we lose a water system interchange between lithosphere and atmosphere, we lose a flooding buffer, we have albedo changes ... All these effects have consequences on climate change. And above all, we lose biodiversity.

Various estimations indicate that for anthropogenic reasons, 100 species of animals and plants become extinct daily ... It is the sixth mass extinction in the history of the Earth! Can we do without so much biodiversity? Species are dependent on each other, sometimes in a really strict way, since they have evolved together: it's what we call coevolution. When one species becomes extinct, other species are also affected: it's what we call coextinction.

Bacteria, fungi, plants and animals are useful to humans. Chemical, pharmaceutical, food, cosmetics and other industries use natural products, as they do the jewelry and handicrafts, the tourism industry, construction... But biological species and communities play a fundamental ecological role. It is difficult to know how complex systems such as ecosystems. By analogy with the brain we deduce the role of a species by the disorders caused by its absence.

Of particular importance are 'key species'. For example, the Sea otters. The Sea otters *Enhydra lutra*, is a funny and intelligent animal, centuries ago, very abundant on American and Asian north pacific shores. It feeds on crabs, sea urchins and common ormers. It's one of the few animals that use "tools" to break the shells of their prey, they eat while floating air-bellied on the sea superface. After being reintroduced and protected, different algae industrially exploited, which had disappeared, became abundant again. Populations of emblematic species (common seal, bald eagle and others) where recovered. And after years of shortage, fishing was possible again.

Why all these changes because of the reintroduction of only one species? Sea urchins and common ormers are voracious herbivores, and without control of predators, they devastate algae forests. Fish and other invertebrates, without shelter or food became scarce, and the same happened to their predators: other fish, eagles, seals ...

After the success of the protection and recovery, sea otters now have another enemy: the killer whales, seals that do not have enough to eat because we over-fish the species that feed the orcas.

Reduction or depletion of populations of fish species in all seas, due to overfishing and other causes (such as pollution) has produced other catastrophic imbalances (sharks, tuna, cod, turtles, seals, dolphins, etc. .) Species are important per se, but also for what they represent: they are key elements in the ecosystem. Another key species is honey bees. Worldwide, honey bees pollinate hundreds of species of cultivated plants. Bees suffer great mortalities not yet clarified. Our diet will not be not as it is now, not in quality or quantity, if the phenomenon is not stopped.

Biodiversity should be studied and protect four levels:

- Genetic
- taxonomic,
- community,
- and Ecosystem

Despite the difficulties and problems generated by visits to protected areas, the benefits are very important: habitats and species conservation, environmental education, protection funding, social demand, economic benefits ... But the coexistence of protection and exploitation is not easy, especially in a world hungry for resources and with an unleashed population growth.

Our species does not meet the prudent predator function: one that removes only the sick and old individuals of its prey and thus manages its population.

The protection of biodiversity must be planned on a triple base:

- a) We are just another species in the biosphere and we depend on her;
- b) Animal and plant species have an ecological role, and the communities that they constitute provide ecosystem services;
- c) We need to change traditional values that are no longer valid, and to raise new ones, environmentally friendly

If humanity is to survive, we must learn to respect this environment. Natarajan Ishwaran, the director of UNESCO's Division of Ecological and Earth Sciences, introduced UNESCO's perspective on this issue.

The challenge of reconciling global, national and local priorities for biodiversity conservation with that of human well-being through poverty eradication, expansion of socio-economic opportunities and celebration of cultural differences in conservation and development thinking and practice are integral to the UNESCO mission to promote peace and cohesion through dialogue. Conservation-development conflicts are a result of competing worldviews and their finding expressions in specific political, cultural, socio-economic and ecological contexts; their resolution through participation and dialogue between representatives from governments, private sector and civil society offer opportunities for the pursuit of a deliberative democratic approach to address complex ecological and societal issues and problems (Norgaard, 2008).

Ishwaran provided a brief overview of the current status of the relationship between biodiversity conservation and economic growth in order to emphasize the key role that UNESCO biosphere reserves could play as learning places, platforms or "laboratories" for sustainable development. He interpreted sustainable development along the lines articulated and advocated by the World Summit of Sustainable Development held in Johannesburg in 2002; i.e. it is development that seeks for mutually beneficial trade-offs between environmental, economic and social dimensions of change. Biosphere reserves are well-placed as internationally dedicated spaces on land, water and oceans for promoting dialogue among actors and stakeholders to jointly search for ways and means of sustaining global public goods for the benefit of human well-being at local, national and regional scales.

He reminded the participants of the goals of the United Nations Convention on Biological Diversity: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

In order to achieve these goals, we must introduce dialogue into the debate over biodiversity. Ecosystem management must be based on a regional perspective that strikes a balance between the demands of conservation and the demands of development. At the local level, theory and practice need to come together through interdisciplinary dialogue that necessarily encompasses the experience of the population living in the area. As learning laboratories, biosphere reserves promote both participatory research and sustainable development.

UNESCO, as the only agency mandated to promote culture as an important component of sustainable development is actively pursuing an agenda on intercultural dialogue bringing together exchange of ideas among civilizations and religions and other acknowledged forms of cultural identification. In that larger context the use of biosphere reserves as platforms for promoting a culture of dialogue and deliberative approaches to sustainable development may appear to be only a minor contribution. But if culture is seen as the "capacity to aspire" (Appadurai, 2004), then context-specific theatres such as

those provided by biosphere reserves are ideal learning grounds for recognizing and practicing “diplomatic recognition (taking the other seriously) in the planning process”. Dialogue dedicated to such learning by all actors and stakeholders is the essence of deliberative practice or learning with others ((Forester, 1999). UNESCO biosphere reserves therefore can, using Norgaard’s (2008) interpretation, become learning laboratories for testing and refining deliberative approaches to sustainable development.

Conclusion

Getting back on Ishwaran words, agencies like UNESCO are advocating that culture is globally recognized as the fourth pillar of sustainable development. As we can read in The State of the world 2010, “though the past five years have witnessed an unprecedented mobilization of efforts to combat the world’s accelerating ecological crisis, one dimension of our environmental dilemma remains largely neglected: its cultural roots. As consumerism has taken root in culture upon culture over the past half-century, it has become a powerful driver of the inexorable increase in demand for resources and production of waste that marks our age.”

Human cultures are numerous and diverse—and in many cases have deep and ancient roots. They allow people to make sense of their lives and to manage their relationships with other people and the natural world.

Consumer cultures are behind what Gus Speth has called the “Great Collision” between a finite planet and the seemingly infinite demands of human society.

If we are to prevent the collapse of human civilization a wholesale transformation of dominant cultural patterns is needed. That means rejecting consumerism —the cultural orientation that leads people to find meaning, contentment, and acceptance through what they consume—and establish in its place a new cultural framework centred on sustainability.

This might sound daunting if not impossible, there are several examples of cultural pioneers who are convincing others of the advantages of cultures based on nurturing the natural world and ensuring that future generations live as well or better than the current one.

This process has already started. Significant efforts are being undertaken by harnessing six powerful institutions: education, business, government, the media, social movements and sustainable traditions, both old and new.

Education plays a crucial role in creating new forms of “ecological citizenship” that lead people to think more critically about their interactions with the environment, engage practically with collective problems, and assume responsibility for their conduct.

So the needed change for an ecological citizenship has very much to do with culture, with values, with ethics. The spreading of ecological ethics may grow as humanity recognizes its radical dependence on the environment and we need to work on many fronts. First of all, it will be necessary to replace the sense of self as consumer with a sense of self as *green citizen*.

Active implication of the world's spiritual and religious traditions, which are highly influential in shaping the ethical sensibilities of a large share of humanity, will be of great help too.

Finally, we will also have to appreciate and adopt many of the principles emerging from “traditional ecological knowledge”—local or bioregional ecological wisdom, spiritual values, ritual practices, and ethics—that has sustained traditional peoples for millennia. In Patrick Curry's words: “Where such knowledge survives, it must be protected and encouraged; where it does not, it must be rediscovered and re-embodied in “invented traditions” that re-root humans in the natural world.”

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