

EDITORIAL

A NEW START FOR BIODIVERSITY IN 2010?

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In compliance with the stipulations of the Convention on biological diversity, the delegates from over 100 countries meeting in Johannesburg in 2002 committed to slowing the loss of biodiversity by 2010. The deadline is upon us and the progress report officially submitted in October in Nagoya will be far from positive, but perhaps the same goal will be set again... for 2020!

Biodiversity?

The fact that life is characterised, among other aspects, by its diversity is an observation as old as biology itself. However, after being renamed «biodiversity» at the Earth summit in Rio, an eminently geopolitical (not scientific) event, biological diversity took on a new dimension in a new anthropocentric guise. In this new perspective, questions are no longer raised exclusively in terms of biology, but by all the sciences and even by all parts of society. It is this new perspective, i.e. «environment and development» in view of sustainable development, that now dominates all human activities.

Everyone is familiar with the three pillars of sustainable development. After the economy, the dominant pillar until recently, people are discovering the social pillar (what a surprise) and the environmental pillar. But in fact, we must abandon a vision of the world comprising separate, almost independent sectors and adopt an ecological vision. We must accept that the economy is simply a subset of the human sphere, which itself is a part of the biosphere. In which case, the full transversality of life and biodiversity become clear (see figure 1).

The concept of ecosystem services developed in the 1980s and 1990s is the logical result of this shift in perspective. It brings forward the idea that biodiversity is much more than a catalogue of species or genes. It is the living substance of the Earth, a network of species whose interaction and structure is just as important as its composition (Barbault, 2006) and that provides us with goods and services (Daily, 1997).

Biodiversity in 2010

As expected, the collapse in biodiversity has not been halted, even if it is not easy to prove that fact for three reasons that have to do with the topic itself.

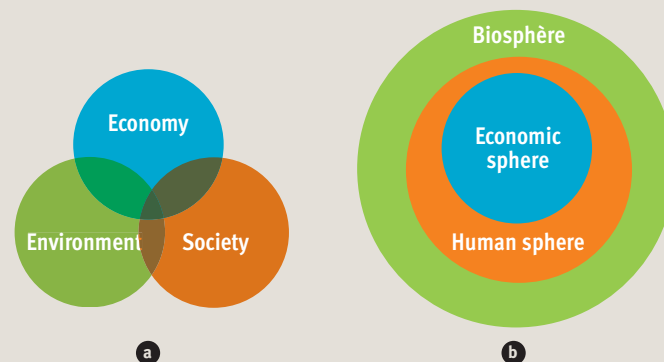
First of all, biodiversity is a complex, many faceted phenomenon, many parts of which are not well known or understood. Secondly, though continuously changing, it is characterised by a high degree of inertia and must be studied closely to detect any significant and interpretable modifications over such short time periods. Finally, we do not yet have sufficient means to measure and monitor biodiversity.

But let us return to biodiversity itself, i.e. the status of ecosystems, of fauna and flora.

The goal set in 2002 for 2010, to achieve a significant reduction in biodiversity losses on all levels, national, regional and planetary, was not met.

The decline in biodiversity continues at an excessive rate that has been criticised by, among others, the Millennium Ecosystem Assessment (MEA, 2005). For example, the most extensive direct measurements, based on species monitoring, such as the Red list of the International union for the conservation of nature (IUCN), reveal high percentages of threatened species, e.g. for gymnosperms (32% for 1 021 species monitored), amphibians (29% for 5 490 species) and even birds (12% for 9 998 species). Concerning habitat and pressure indicators, further essential criteria, they are not any more reassuring. Natural habitats continue to decline in most parts of the world, particularly coral reefs and wetlands, to say nothing of tropical forests where losses have not yet slowed. As for the five major pressures directly resulting in biodiversity losses (habitat transformation, overconsumption, pollution, invasive species and climate change), they are at best stable, but generally increasing.

1 The shift from the classic view of sustainable development and its three pillars (a) to the ecological view (b) suggested at the end of the 1970s by René Passet and adopted by the “green economy”, e.g. in the writings of M. Scott Cato (2009).



It is clear that biodiversity is a central element in all three circles of figure b, linking the economic sphere to the human sphere and the biosphere, thus making it much more than the simple “biological diversity” perceived by the biological sciences.

This presentation may appear negative, in that the situation continues to worsen and it would seem that all the conferences, summit meetings and international commitments are nothing but empty words. But that would be a short-term view because the world is changing. In fact, the goal for 2010 has been and continues to be a major driving force. In other words, it represents what may legitimately be considered a long-term investment whose results may not be immediately perceptible, but will continue to be felt for a long time to come, which is in fact the essential goal. But let us wait until the conference in Nagoya before drawing conclusions.

The challenges

Challenges concern political aspects, knowledge and strategies for conservation and land use. Leaving politics aside for now, what are the fields where we must progress?

The biodiversity indicators used by decision-makers are judged insufficiently developed and used (Walpole *et al.*, 2009). Long-term monitoring is imperative to truly know what is going on and determine the effectiveness of any measures taken. Current interest in indicators must not obscure the true priority, which is the vital need for long-term observation, analysis and monitoring systems.

To that end and even if we must obviously deal with all of nature, notably in towns and ordinary places such as parks, the networks of protected zones are an indispensable component if only because they are a cradle of the new, citizen science, combining research, management and openness to civil society, that is a true priority (Larrère et Larrère, 1997).

Because we are part of a field calling on virtually all the sciences and types of knowledge, multi-disciplinarity is an obvious component and creates a number of interesting possibilities, both in the various disciplines and at their interfaces, and in terms of action (Barbault et Weber, 2010).

In terms of conservation and restoration, two aspects will probably become increasingly important. The first is the need to bring the population into projects and to set goals in a collaborative spirit, the second is to include conservation strategies in territorial-planning efforts. It should be added that next to conservation strategies *stricto sensu*, equally important are the knowledge and practices required for restoration.

Some people would assert that «restoration ecology» and «ecological engineering» are simply a form of tinkering, that reinventing nature is not so easy given the time required and the participation of so many organisms to make nature what it is and do what it does. Tinkering, perhaps. But because we destroy the world, we must also repair it and the point is not to boast about it, but to do as good a job as possible by observing nature and improving our knowledge about ecosystems. The development of ecological engineering (see the special issues of *Ingénieries-EAT* devoted to the topic and Dutoit et Rey, 2009; Cozic et Boisseau, 2004) has become one of the essential components in strategies for conservation and management of species, environments and landscapes that must be implemented to achieve the goals that will be set in Nagoya!

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