CONFERENCE OF THE FONDATION D'ENTREPRISE HERMÈS
AND THE INSTITUTE FOR SUSTAINABLE DEVELOPMENT AND INTERNATIONAL RELATIONS
WITH THE NATIONAL LIBRARY OF FRANCE

CONFERENCE

Saving biodiversity: is innovation the cure?

IDDRI SciencesPo. FONDATION D'ENTREPRISE HERMÈS BnF

Friday 13th June 2014
Bibliothèque nationale de France
Grand auditorium

Quai François-Mauriac
75013 Paris

This conference aims to review and assess the possibilities and limitations of new technologies and more generally of innovation as a support for biodiversity conservation. What risks do innovations pose to biodiversity? What are their contributions to the mitigation of the negative impacts on biodiversity? Can we control or channel innovation so that there is synergy, rather than conflict, to enable Earth's biological diversity to be maintained?

Biodiversity, which includes diversity within species and between species, as well as ecosystem diversity, is essential to human life. It forms the basis of the services that ecosystems provide to humanity, such as food supply, regulation of the water cycle, the maintenance of soil fertility, carbon storage, but also services of a cultural or aesthetic nature. Since the late twentieth century, biodiversity is however undergoing an alarming rate of erosion that has led some experts to talk of the Earth's sixth mass extinction.

The main commonly recognized causes of biodiversity erosion are habitat change, resource overexploitation, pollution, invasive species and climate change. Although the respective responsibilities are scientifically uncertain, this erosion is closely linked to human activity and to the effects of growth and economic development which are driven for a large part by innovation.

However, what are the effects of innovation on biodiversity? Is there a risk that it can exacerbate current degradation trends or does it enable such trends to be attenuated?

Saving biodiversity: is innovation the cure? Innovation may be a potential solution to the current decline in biodiversity. By increasing productivity and yields, agricultural innovation for example allows a reduction in agricultural area, which would otherwise need to expand into forest and other ecosystems to meet the given demand. Innovation also makes production processes more efficient and therefore less intensive in terms of natural resources (more energy obtained from a given amount of coal, for example) and can help to limit negative environmental impacts through so-called "clean" technologies. Beyond this limitation of potential degradation trends, ecology-inspired innovations could even allow the restoration of degraded biodiversity or the offsetting of certain environmental impacts resulting from growth and development; we can nevertheless question, from an ecological or ethical point of view, the equivalence of restored or compensated biodiversity and that which has been lost.

Moreover, through its contribution to scientific knowledge, innovation can also improve the understanding of biodiversity and its evolution, and thus better inform public decision-making to mitigate the negative impacts of human activity. Similarly, new technologies that have emerged recently (drones, continuous and real time satellite images) have made possible an increased level of monitoring, control and verification, which is more efficient, accurate and less expensive. In Brazil for example, satellite surveillance systems coupled with effective public policies contributed to a decline in the rate of Amazon deforestation of 60,000 km^2 between 2007 and 2011.
Overall, a number of benefits for biodiversity are expected from innovation, beyond its contribution to well-being from an economic and social point of view.

The rebound effect. Conversely, innovation also makes exploitation of natural resources more efficient and, importantly, more profitable, and enables more intensive cultivation of soils while also increasing habitat conversion. Economists call this the rebound effect: despite ever-decreasing resource consumption per unit of output, the grow in income tends to drive increased production. Similarly, technical innovation allows logging companies to exploit primary forests that had previously been difficult to reach, it enables oil companies to drill into bedrock or in very deep water, and makes it possible for giant vessels to fish in deep waters and to store and refrigerate larger amounts of fish, etc. Innovation therefore generates a potential acceleration of the disappearance of primary forests, of the pollution of aquifers and the sea, the release of chemicals in smaller quantities but with more concentrated effects, of the destruction of still unexplored seabed ecosystems, etc. Innovation can therefore put biodiversity at greater risk, though the consequences may not immediately be apparent.

Risks and benefits of innovation for biodiversity are thus the subject of debate, both in the field of research as well as in civil society. This conference aims to clarify the terms of the debate and to provide guidance with a view to informing decisions on policies and interventions, both public and private, to prevent this sixth extinction. To do so, it brings together some of the best researchers and experts from different disciplines, together with members of non-governmental organizations, civil society and policy makers.

The conference "Saving biodiversity: is innovation the cure?" will particularly focus on obtaining solutions and guidance to the following questions:

- How can innovation contribute to the development of scientific knowledge on biodiversity in order to ensure better conservation?
- How can technological innovations contribute to the better monitoring of human activities that have an impact on biodiversity?
- In particular, what are the effects of these technologies in the fields of fisheries management and forest conservation?
- What forms of agricultural innovation enable the loss of biodiversity to be addressed? In which cases does innovation pose a risk to the maintenance of agrobiodiversity?
- Can innovation instead help to limit the negative impacts of agriculture on biodiversity?
- What innovations would improve our ability to restore increasingly complex ecosystems? To what extent may innovation instead lead to the artificialization of ecosystems?
- What innovations can help reduce the illegal trade in protected plant and animal species?

08.45 – 09.15

Welcome

09.15 – 09.45

Opening session

Welcome speech

by **Bruno Racine**, President of the National Library of France
and by **Catherine Tsekenis**, Director of the Fondation d'entreprise Hermès, France

Introduction and setting the scene

by **Damien Demailly**, Scientific Coordinator of the New Prosperity Programme and Scientific Coordinator of the 2014 edition of *A Planet for Life* which addresses the issue of the promises of innovation for sustainable development, Institute for Sustainable Development and International Relations (IDDRI), France

09.45 – 11.30

First session
Technological innovation: towards a better management of ecosystems?

Session chaired by **Julien Rochette**, Coordinator of the Oceans and Coastal Zones Programme, Institute for Sustainable Development and International Relations (IDDRI), France

The development of technology has undoubtedly helped increase the pressure on natural resources; the technological tools in use today make possible the more intensive exploitation – in the case of mining in particular – and the reaching of areas that were previously unexplored – the seabed for example. However, technological tools may also contribute to a better management of ecosystems, including through the provision of the enhanced surveillance of human activities that have the greatest impacts. If used for environmental protection, radars, satellites, transponders and drones, as well as new forms of information flow and organization that are related to new technologies, can be valuable assets, particularly for the implementation of national and international standards. This session will therefore aim to provide an update on the use of these tools and, based on case studies, to give elements of evaluation of their effectiveness for ecosystem management.

- Which kinds of tools are considered the most efficient for monitoring human activities?
- How are they used for the protection of ecosystems and natural resources?
- Which accompanying measures (political, legal, institutional, etc.) must be elaborated for achieving their maximum efficiency?

How new technological tools can help in the fight against illegal activities that impact on biodiversity: the case of INTERPOL
David Higgins, Head of the INTERPOL Environmental Security Sub-Directorate, INTERPOL, France

Global Forest Watch: transforming access to forest information
Crystal Davis, Senior Manager, Global Forest Watch 2.0, World Resources Institute (WRI), United States

An overview of surveillance and enforcement approaches for maritime areas
Sandra Brooke, Research Faculty, Coastal and Marine Laboratory, Florida State University, United States

Comments
John Tanzer, Global Marine Programme Director, WWF International, France, will comment on these three presentations.

DISCUSSION WITH AUDIENCE

11.30 – 12.00

Coffee break

12.00 – 13.30

Round Table
Agricultural innovation: what impact on biodiversity conservation?

Round table chaired by **Sébastien Treyer**, Director of Programmes, Institute for Sustainable Development and International Relations (IDDRI), France

Concerns about biodiversity erosion often focus on the conversion of natural habitats; however, many landscapes that are managed by humans, such as agricultural land, contain a specific variety of animal and plant species that are in decline. The intensification of agricultural practices and its consequences in terms of simplification and homogenization of the landscape contributes to the deterioration of the state of biodiversity. In a context where changing agricultural policies are increasingly integrating the environmental dimension in the act of production and where genetic engineering and molecular biology are becoming increasingly important, the role of innovation in agriculture for the conservation of biodiversity is widely debated. The wide array of innovations relating to organisms, processes and systems (agricultural ecosystems, agricultural and food systems, etc.), practices and organizations can have beneficial or detrimental impacts on biodiversity maintenance. Organizational forms of innovation systems themselves are also widely discussed, to identify those that lead to standardization and those that would enable the maintenance of heterogeneity and thus biodiversity.

- In what form can innovation provide a promising solution to address the loss of agrobiodiversity?
- How can innovation in in agricultural products and processes that enable the protection of beneficial fauna and crop plants against pests and diseases help address biodiversity loss?
- What role can farmers play, in the North and South, in the necessary innovation systems?

- **Frédéric Thomas**, Research Fellow, Institut de recherche pour le développement (IRD), Institut francilien recherche innovation société (IFRIS), France
- **Émile Frison**, Special Representative, Bioversity International (CGIAR), Switzerland
- **François Meienberg**, Campaign Coordinator, “Berne Declaration” Association, Switzerland
- **Macy Merriman,** Senior Government Biotechnology Affairs Manager - Europe, DuPont Pioneer, Belgium

DISCUSSION WITH AUDIENCE

13.30 – 14.45

Lunch

14.45 – 16.15

Second session
Innovative ecological restoration: science and techniques at the service of ecosystems

Session chaired by **Renaud Lapeyre**, Research Fellow Biodiversity and Environmental Services, Institute for Sustainable Development and International Relations (IDDRI), France

In 1992, Article 8(f) of the Convention on Biological Diversity (CBD) established that each party to this agreement should rehabilitate and restore degraded ecosystems and promote the recovery of threatened species. Since then, and given that ecosystem conservation efforts alone will not be enough to curb biodiversity loss, international organizations and countries began to translate this necessary restoration into concrete actions in national strategies. The 2011-2020 Strategic Plan of the CBD and related Aichi targets, developed in 2010 in Nagoya at the 10th Conference of Parties (COP10), urged member countries to restore at least 15% of degraded ecosystems on the planet by 2020 (target 15).
In this international context, this session will try to take stock of technological opportunities currently available in the field of ecological restoration. Speakers will thus present innovations in this sector, but also the limitations and risks of these projects.

- What are the scientific and technological advances?
- Can they recreate complex and viable equivalent ecosystems from an ecological point of view?
- To what extent?
- Can innovation in the field of restoration and ecological engineering allow the consistent recreation of ecosystems that have been degraded by human activity?
- Under what conditions?

Innovation and efficiency in ecological restoration: achievements, challenges and prospects
Luc Abbadie, Professor of Ecology, université Pierre et Marie Curie; Director, Institute of ecology and environmental sciences of Paris (IEES-Paris), France

Support of the innovative environmental engineering industry: the role of the government in France
Émilie Babut, Project Officer "filières vertes", Water and Biodiversity Department, French Ministry of Ecology, Sustainable Development and Energy (MEDDE), France

Practical possibilities for ecological restoration and concrete issues: the role of restoration companies
Renald Boulnois, Senior Consultant, Biotope, France

DISCUSSION WITH AUDIENCE

16.15 – 16.45

Conclusion
Areas for consideration for the orientation of innovation to promote biodiversity

Francis Chauveau, Vice President Industrial Affairs, Hermès International, together with **Lucien Chabason**, Senior Advisor, Institute for Sustainable Development and International Relations (IDDRI), France, will discuss the highlights of the day and the future prospects for the various actors of society (public, private, civil society) in terms of the governance of innovation with the objective of maintaining biodiversity.

Videos and proceedings of past conferences are available on IDDRI website: www.iddri.org

- February 16, 2010: "Biodiversity and beyond?"
- June 17, 2010: "Biodiversity and intellectual property law"
- June 8, 2011: "Market-based instruments for biodiversity: nature at any cost?"
- June 1, 2012: "Policies against nature? Towards a reform of subsidies harmful to biodiversity"
- June 7, 2013: "Biodiversity and Traditional Knowledge: How can they be protected?"

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Since its creation in 2008, the **Fondation d'entreprise Hermès** has developed patronage initiatives with a common theme of traditional skills, deployed in the fields of creativity, transmission and the environment. The Fondation addresses the issue of biodiversity preservation from the perspective of local skills and contributes to raising awareness through the organisation of conferences and support for field research projects. In this respect, two calls for projects in "Biodiversity and local skills" were launched in 2011 and 2013, on the basis of IDDRI's expertise: the first was called "Supporting innovative approaches to the interface between local producers and consumers", and the second "Adaptation strategies and heterogeneity of local knowledge faced with standardization processes".
www.fondationdentreprisehermes.org

The **Institute for Sustainable Development and International Relations (IDDRI)** is a policy research institute based in Paris that works to develop and share guidelines for the analysis of sustainable development issues, particularly climate change and biodiversity loss. IDDRI supports stakeholders in their work on global governance and participates in research on the redefinition of development paths. Special attention is given to networks and partnerships with emerging countries, while at the same time forming associations with the private sector, academic, non-profit and public sector partners. Its research is structured in a cross-cutting manner around six subject areas: governance, climate, biodiversity, urban fabric, new growth models for prosperity and agriculture.
www.iddri.org

The **National Library of France (BnF)**, heir of the royal collections, maintains a prestigious heritage of over thirty million works composed over five centuries through legal deposit and an active acquisition policy. As a member of the club of public institutions for sustainable development, the BnF has for several years been involved in action for sustainable development. In line with these actions, in December 2013 it opened a sustainable development resource centre. This new structure provides diversified and multidisciplinary resource materials that can help raise the awareness of a wide audience and to provide tools for the consideration of key environmental issues.
http://bnf.libguides.com/developpementdurable#&panel1-1
www.bnf.fr

To contribute to efforts currently underway and to inform the debate on biodiversity loss and protection, the Fondation d'entreprise Hermès and IDDRI have jointly organised a series of conferences on biodiversity, with the aim of providing a forum for regular discussions with leading figures in the field, to be aimed at a broad public. Following the opening of the Sustainable Development Resource Centre, in 2013 BnF joined the IDDRI-foundation d'entreprise Hermès partnership in the organisation of these biodiversity conferences. Previous conferences have sought to inform the discussions on market-based instruments for biodiversity conservation (2011), subsidies harmful to biodiversity (2012) and the role of traditional knowledge for biodiversity conservation (2013).

Proceedings available from 30 September 2014 www.iddri.org/ Biodiversite-et-innovation

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