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Navigating the environmental turning point

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Laurent MERMET (AgroParisTech)
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Introduction

Laurent MERMET and Tiphaine LEMÉNAGER

Background

As with all major environmental challenges today, the future of biodiversity is highly dependent on development trends and policies. If the current development processes do not radically change course and make some real changes (especially in agriculture, forest management and fishing), it will be impossible to stop biodiversity loss, this fundamental goal targeted by all levels of action from development players to environmentalists (UN, 2000; MEA, 2005; CBD, 2010).

Among the players concerned, development assistance operators – and especially the public agencies funding this aid – have therefore been called on to examine and redirect their actions given their impacts on biodiversity. It is certainly an ambitious challenge calling for them to change course, the type of the programmes they support and the environmental safeguards they work on. And it is especially ambitious considering the scale and diversity of the territories concerned, the sums of money at stake, the power of the economic sectors involved, the political forces at work in a context where the choices are largely for governments to make, not to mention the problems raised by any move to change and improve large organisations such as development aid agencies employing hundreds of people each.

Over the last 15 years, these bodies have travelled a bumpy road that has led them to appreciate the nature and scale of this challenge. As one of the former directors of AFD put it, "We have gradually come to understand the issue of sustainability, the environment and development the hard way, in pain, suffering and contradiction" (Severino, 2010). Today, all the large public development aid funding agencies – bilateral and multilateral – have adopted sustainable development as a major part of their work and mission statements that attach importance to environmental issues (see Box 1 at the end of the introduction).

In so doing, these public development funding agencies have officially pledged to pay more attention to environmental matters and take up the above-mentioned challenge. These institutions' commitments, but also the environmental concerns

championed by a growing number of their staff and the expression of the expectations of many of their partners, public opinion and government, have set in motion something of an environmental turning point. They all now have a portfolio funding environmental projects. They have all adopted procedures to cross-cuttingly reduce the environmental and social impact of all their activities. And they all have a proportion of their human resources working on these issues (Leménager *et al.,* 2012).

Issue and methodology

Yet where is the new course set for and how much change is wanted and needed? Given the ever-growing environmental concerns and despite apparently casting off for the environmental turning point in recent years, how can we be sure to steer it through to a new environmental deal? What kinds of tools should we use when we know how hard it is to make change happen (the fragility of innovation and the power of inertia and resistance to change) at all levels of official development assistance action from local development projects to national and international development policies?

From 2009 to 2014, AFD, directly concerned by these questions and keen to help answer them, ran a research programme on biodiversity and the sustainable management of natural resources. The programme consisted of a series of multi-disciplinary research projects whose findings form the body of this book. All these projects have the same main thread running through them across the range of studies, tools and terrains: biodiversity action cannot be usefully informed merely by making proactive commitments and an effort to rationalise action (i.e. defining environmental goals and how to achieve them, taking the required action and evaluating the outcomes). To paraphrase Michel Crozier (1979), you cannot change the environmental order (solely) by decree. We also need to pay close attention to the political and organisational factors that condition actual action taken and whether or not it is successful.

It would be misleading to talk about an environmental turning point if it were to insinuate the idea of a clear goal, a given steering mechanism and obvious leverage for action with respect to the direction taken (steering wheel or helm), i.e. a trajectory controlled by an active decision-maker. These linear principles of action are not exclusive to the image of a turning point. They are found much more broadly, in all discussions of contemporary environmental and development problems. And they are found every time the discussion turns to targets to be met, a problem to be solved and a choice of tool to be built.

Yet countless social science studies since the 1950s (especially organisational sociology and the sociology of public policy) show just how far this rational model is from the reality of the decision-making and action processes at work in collective action, especially in areas as complex and controversial as the environment and development. These studies point up two other approaches to action, which are just as decisive to understanding and steering this action: *(i)* the "political" model presents the collective decision and action as the result of multiple pressures, interactions and negotiations between players with different world views and interests working within political processes in the broad sense of the term (i.e. based partly on public controversies where the distribution and balance of power are inextricably linked with the solutions found for the problems); *(ii)* the "organisational" model presents the collective decision and action as primarily the result of rules, procedures and routines that form a fundamental part of the organisation's action (from this angle, the decision is produced by and compatible with the organisation's usual norms and way of operating).

The contrasts and tensions between these three dimensions of decision-making and action (rational, political and organisational) are so great that it is highly tempting to adopt mutual rejection stances. We believe that the literature on today's biodiversity challenges gives a good illustration of this temptation, split as it is between two schools. The first (which dominates the social sciences' handling of biodiversity) is riddled with critical studies of the political and organisational facets, which tend to reject the very idea (and real volition) of explicitly, actively and resolutely solving the biodiversity problems raised by the environmental movement and many scientists. The second school of thought (which dominates the conservation sciences and studies of public action) steadfastly works on consolidating a scientific, technical, expertise-based and legally proactive approach without getting caught up in the political and organisational aspects. Not that it disregards them: most of its advocates are not blind to the political and organisational forces that so often dash their hopes of pro-biodiversity decisions and actions. Yet they feel they have little influence over them and therefore hope instead that the sheer strength of scientific, technical and legal reasoning will give them the resources, influence and counterbalance that will ultimately prove the most useful.

The common thread running through the research studies presented in this book is to refuse to fall back on this alternative. They adhere to biodiversity conservation goals based on reason, formulated in terms of collective standards and broken down into finalised action programmes. At the same time, they insist on the fact that all action programmes must be designed and implemented in real situations and systems in which political and organisational dynamics are decisive. The common

purpose of all these studies is to put forward angles and analyses that help achieve the new environmental deal's biodiversity objectives by taking on board ways of defining an action not developed by some imaginary collective rationality, but designed from the outset to work in real political and organisational development settings. In other words, any action that aims to implement the new environmental deal must be designed with three concerns in mind: rational conduct of environmental public action; understanding and management of the associated power struggles and stakes; and full consideration of the organisational aspects of the design and implementation of action. Given that these studies are careful to make this effort with the various issues they address, they outline a more precise, realistic concept of the strategies needed to shape the environmental turning point. Although they set out more specifically to discuss the environmental importance of countering biodiversity erosion, the different reading keys proposed prove just as informative for an analysis and understanding of the strategic issues underlying the management of other environmental concerns.

General presentation of the book

This book contains 13 articles designed to feed into and develop this thinking. They are grouped into three sections covering: (1) the general situation and issues underlying the environmental turning point; (2) the intervention tools that development assistance operators can use to change their action; and (3) the organisational steering tools that operators can use to steer and evaluate their environmental work. The five articles in the first section present a general outline of the main strategic issues underlying the environment-development dialectic into which the environmental turning point needs to slot. First, we present (1.1) the environment-development dialectic, the pluralist views that revolve around it and the resulting tensions at all levels of action. The next chapter (1.2) then develops the importance of considering a clear statement of environmental goals and the balance of players involved in this dialectic. In (1.3), the authors study in greater depth the role that environmental non-governmental organisations (NGOs) can play in this area. Two articles, one on sustainable forest management (1.4) and the other on agroecology (1.5), show that development assistance operator action adheres to established generic environmental management or public policy doctrines (often established for 30 years in the case of the "integrated" doctrines). They analyse these doctrines to see whether they actually bring about environmentally friendly change.

With these outlines and the issues underlying the environmental turning point set out, the four chapters in the second section focus more on the intervention tools that development assistance operators can use to bring about pro-environmental

change. The question here is whether (as is often claimed in environmental matters) action and the results of that action can really be changed by changing the instruments, and to understand in which conditions this may occur. The first chapter (2.1) hence addresses the benchmark biodiversity conservation tool: protected areas. The following chapters look at "innovative" tools such as environmental credit lines (2.2), payments for ecosystem services (PES, 2.3) and, more generally, all the economic tools for biodiversity (2.4). The purpose of each is to identify how development assistance operators can strategically approach these tools to shape the new environmental deal. In each case, we will see that the tools cannot be considered to be effective on their own, but only as a means in the broader and more complex operational chains in which they are used. The success or failure of environmental action depends on these operational chains and the players behind them, not on the tool itself. It is therefore vital to place the tools in the perspective of the overall design of a public action, in its contexts and political constructions, in the concrete organisational conditions for its implementation. The chapters in this second section establish this principle and go on to show what action to take based on case studies and examples of methods.

Following the intervention tools, the four chapters in the third section address the use of the action steering tools (those that serve not to take the action, but to guide it). The sustainable development and environmental field often points the finger at these steering tools as if the main obstacle to a new environmental deal were that we had not yet found the right "compass" (Sukhdev *et al.*, 2010) to navigate the change. What steering tools do development assistance operators use, especially the public agencies financing this aid? Which tools can help them take the right environmental directions, the right environmental turning? And, most importantly, how can they be used wisely? Such are the questions addressed by this last section before presenting a series of summary, cross-cutting conclusions drawn from all the studies. The first chapter in this third section (3.1) examines the concrete conditions required for ecosystem service valuations to help operators make the right biodiversity project decisions. The second chapter (3.2) is a critique of the "triage" approach proposed in recent years to steer biodiversity work – an approach whose apparently rational logic obscures its total ignorance of the real political and organisational conditions surrounding action. The third chapter (3.3) draws on a detailed case study to analyse the implications of the many evaluation procedures found throughout environmental action implementation. The fourth and last chapter (3.4) presents AFD's introduction of biodiversity expenditure accounting and the complex methodological questions it raises with respect to the rationalisation of action, policymaking and organisational implementation contingencies.

A more detailed presentation of the articles is given in the introduction to each section.

Box 1 *Development donors commit to environmental issues*

In 2012, the World Bank adopted a new environmental strategy, "The World Bank Group's Environment Strategy 2012-2022 lays out an ambitious agenda to support 'green, clean, resilient' paths for developing countries, as they pursue poverty reduction and development in an increasingly fragile environment."[1]

The African Development Bank adopted a new environmental policy in 2004 stating "policy-makers [have been forced] to rethink their development strategies and to accept that the environment and the economy are interdependent. Sustainable development is now widely recognised as the preferred development paradigm. ... There is now widespread recognition among Bank and Regional Member Country staff that sustainable development and poverty reduction cannot be divorced from the global environment."[2]

For the Asian Development Bank, "Whether ... helping nations prepare for the impact of climate change or better manage their natural resources, ADB is committed to helping developing member countries evolve into thriving, modern economies that are well integrated with each other and the world."[3]

In France, AFD "is committed to promoting sustainable development in keeping with the Rio commitments, especially biodiversity preservation. It has been developing projects in sectors using approaches that combine development goals with natural resource protection and sustainable management goals for over ten years." The agency also unveiled its first biodiversity intervention strategy in 2013.[4]

In the United Kingdom, the Department for International Development (DFID) has set out to position itself "as a world leader in supporting developing countries to pursue sustainable economic growth." In environmental matters in particular, DFID's focus is on "how the environment contributes to poverty reduction and sustainable development in developing countries, as measured by progress towards the Millennium Development Goals (MDGs). The specific environmental goal is MDG7, to 'ensure environmental sustainability'."[5]

•••

[1] http://www.worldbank.org/en/topic/environment/publication/environment-strategy-toward-clean-green-resilient-world

[2] https://www.cbd.int/financial/mainstream/afdb-policy2004.pdf

[3] http://www.adb.org/about/overview

[4] http://www.afd.fr/home/projets_afd/AFD-et-environnement

[5] http://www.eldis.org/vfile/upload/1/document/0708/DOC21344.pdf

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In Japan, the Japan International Cooperation Agency (JICA) "is determined to protect our global environment that is extremely vital for the survival of mankind and natural life on earth. It also seeks the balance among environmental conservation, social prosperity, and sustainable development."[6]

In Germany, Kreditanstalt für Wiederaufbau (KfW) believes "business activities and social responsibility intrinsically go hand in hand. Therefore we are committed to the concept of sustainable development. Our activities are aimed at improving economic, ecological and social living conditions – on a local, national, European and global level – in order to foster sustainable development."[7]

[6] http://www.jica.go.jp/english/our_work/social_environmental/policy/index.html
[7] https://www.kfw.de/nachhaltigkeit/KfW-Group/Sustainability/Unser-Anspruch/

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Section 1

Overview of the strategic issues underlying the new environmental deal

1

Overview of the strategic issues underlying the new environmental deal

This first section, with its five articles, presents different approaches to define the challenges of the environmental turning point from a strategic analysis angle. It also examines the real scope of today's prevailing sustainable development and environmental management doctrines.

The first chapter (1.1) gives an overview of the challenges of the development-environment relationship. Taking research conducted by Aurélie Ahmim-Richard, Tiphaine Leménager and Laurent Mermet in 2010, it analyses the challenges raised by the environmental turning point in the specific context of development assistance. It starts with a look at the literature and schools of thought on development and the environment, turning up four very different concepts of the existing environment-development linkage ranked by the respective priority placed on each issue. The environmental action path shapes up very differently from one concept to the next. And the debates in the development sectors reveal fierce tensions between the proponents of these different concepts, tensions looming at all levels of discussion, decision-making and action.

The second chapter (1.2) draws on studies headed by Laurent Mermet since the early 1990s on the strategic environmental management analysis (SEMA). It takes concepts and guidelines from this work to analyse the environment-development dialectic, especially the specific political and organisational processes that it generates whether between the many organisations working in these areas or within the development assistance organisations (DAOs). It shows the importance of conducting analyses clearly focused on biodiversity concerns before interfacing these issues with other concerns. If this is not done, it becomes very hard not to marginalise or water down the biodiversity issues themselves. The article also discusses the significance of the

fact that development assistance is largely organised by activity sector (agriculture, industry, forestry, etc.). Last and by no means least, it shows the decisive role – in terms of the very possibility of driving forward a new environmental deal – played by stakeholders who place the environment at the top of their agenda in their dealings with other development players.

This observation highlights the importance of considering the strategic relationships that DAOs forge with the organisations most committed to biodiversity action. This is the path taken by the third chapter (1.3) based on research conducted by Fanny Guillet and Tiphaine Leménager in 2012 on relations between DAOs and leading environmental NGOs. It finds four types of relationships, with NGO advocacy or critical pressure on development projects at one end of the spectrum and situations where NGOs act as mere service providers for DAOs at the other. It draws attention to what DAOs stand to gain from managing these relationships in a considered, consistent and proactive manner and especially from further developing the two types of relationships in the middle of the spectrum: critical cooperation and partnership actions.

Another aspect of the environment-development dialectic is to find backbone concepts that can develop as close a synergy as possible between these two notions in order to resolve or minimise the tensions so characteristic of their interaction. In the environmental field in general, the notions of sustainable development and integrated management (of coastal zones, river basins, etc.) take this approach. In ecosystems and biodiversity (with which we are more particularly concerned here), it is the very aim of action doctrines and guidelines such as sustainable forest management and agroecology, which are the respective focuses of the fourth and fifth chapters.

The fourth chapter (1.4) draws on research headed by Maya Leroy in 2011 as a basis for critical analysis of the way biodiversity is actually factored into the guidelines developed by sustainable forest management to improve environmental mainstreaming in forest activities and projects. It shows that the doctrine and texts published to steer thinking and action ultimately do not make much room for biodiversity and focus essentially on the sustainability of productive potential (the forestry sector's traditional main technical line) and on carbon storage capacity for climate change action. These two concerns are regularly found to clash with biodiversity conservation, clashes that sustainable forest management has not yet analysed or addressed anywhere near well enough.

The fifth chapter (1.5) presents research by Véra Ehrenstein and Tiphaine Leménager in 2013 on the implementation of agroecological programmes in Zambia. It looks into three steps that condition the biodiversity effectiveness of action programmes that integrate the environment and development: (1) are the biodiversity goals contained in the programmes' guiding principles clear, relevant and sufficiently prioritised?; (2) are the integrated programmes (agroecology in this case) actually implemented on the ground?; and, if so, (3) are the biodiversity goals upheld or marginalised in the way the programmes are implemented? This Zambian field study pinpoints substantial differences between the two agroecological approaches that coexist in the country ("conservation" farming and "organic" farming), the strategies that the two types of project have to use to carve themselves out a place in a landscape dominated by classic agricultural intensification projects, and the fact that the biodiversity content of the conservation farming projects varies immensely depending on the attention paid to it when the projects are actually implemented.

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1.1. Official development assistance organisations in the front line of the environment-development dialectic [8]

Tiphaine LEMÉNAGER, Aurélie AHMIM-RICHARD and Laurent MERMET

"We have gradually come to understand the issue of sustainability, the environment and development the hard way, in pain, suffering and contradiction" (Severino, 2010). This statement by a former Director General of AFD puts its finger on the crux of the dialectical relationship between development and environmental protection. Far from being the mere transient result of carelessness, clumsiness or a lack of communication, this relationship is more fundamental.

Natural resources may well form a key development and poverty reduction pillar: how can we envisage and implement development without water, forests, fertile land or marine and land life? Many are the reports that point out that the environment provides our essential material assets and an economic bedrock vital for human activities. Nearly half of the world's jobs, for example, are reliant on fishing, forests and agriculture (UNEP, 2007). "The well-being of every human population in the world is fundamentally and directly dependent on ecosystem services" (Sukhdev *et al.,* 2010). Yet the fact of the matter is that these natural resources are deteriorating: 60% of the ecosystems enabling life on Earth are degraded and will continue to be so over the next fifty years. Consequently, approximately two-thirds of the functions and services that nature offers for human well-being and for our economies are on the decline. In particular, fish renewal, wood fuel, freshwater availability for all, global climate regulation, medicinal plants and wild plant and animal products, local air quality, the prevention of soil erosion, the natural purification of polluted water, biological disease and pest control, pollination, and protection from natural disasters are all in sharp decline worldwide due to an unprecedented change to the ecosystems in the form of their extreme simplification (MEA, 2005). In economic terms, these losses of services cost an estimated 2 to 4.5 trillion dollars (USD) per year, which is 3% to 8% of the 70 trillion dollars of global gross domestic product (GDP). It is estimated that 80% of this loss directly affects the subsistence and everyday lives of the 3.2 billion human beings living on less than two dollars a day (Sukhdev *et al.,* 2010).

[8] This chapter is based on research funded by AFD in 2010. It takes up some of the findings published in *[VertigO] – La Revue Electronique en Sciences de l'Environnement*; see Leménager *et al.* (2012).

The last characteristic of this dialectic is that this degradation is due essentially to recent and current changes in the land use and production activities that constitute the core of development: "An environmental problem is a negative ecological consequence of some development activities" (Mermet *et al,* 2010). Humanity has changed the biosphere more in the past fifty years than at any time in human history, essentially to meet our growing food, drinking water, timber, fibre and fuel needs (MEA, 2005). Today, this represents an average rate of human appropriation of 25% to 35% of the total net production of terrestrial ecosystems (Vitouzek *et al.,* 1986). The biological cycle of 80% of the Earth's land surface is highly affected by human activity (Sukhdev *et al.,* 2010). The anthropic origins of this loss of biodiversity and related services are found mainly in the destruction and degradation of ecosystems and habitats due to land use changes (deforestation, land conversion to agricultural use and urbanisation) and the fragmentation of natural habitats; soil, air and water pollution; overexploitation of natural resources (biomass, hunting and poaching, fishing, wild plants, etc.); invasions by alien species (such as certain algae, introduced species and invasive crop species), which disrupt the development of the local species and change – generally deplete – the ecosystems; and climate change (MEA, 2005). So key development elements (growth in needs and activities, development of new activities impacting on the environment, building of public infrastructures, etc.) are root causes of environmental problems.

Moreover, in addition to the fact that the environment is deteriorating and that the cause of this is mainly anthropic, the biological balance (which makes ecosystems viable and productive) is fragile and therefore hard to attain and maintain. Seemingly small changes in one place can have a huge though largely unpredictable impact elsewhere (Sukhdev *et al.,* 2010). Such is the complexity underlying the concept of "biodiversity" [9] which defines the entire living world from its gene pools through the species and the multiple interactions that link and keep these different levels alive right up to the scale of ecosystems.

This raises major questions for development aid operators, whether they are aired by external pressure (e.g. from environmental pressure groups) or come from changes in their own staff's concerns. The public agencies that contribute to the funding of aid (hereafter called the donors) are directly concerned as key players in this sector

[9] The generally accepted definition of biodiversity is laid down in the United Nations Convention on Biological Diversity (CBD) signed in Rio in 1992: "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems." Biodiversity can therefore be defined as the diversity of living organisms, i.e. genes, species and ecosystems, and their interactions within each of these functional levels, between these different levels and with human societies.

due to their financial, technical and political roles. What is their position regarding the environment-development dialectic? And given the way this dialectic is perceived by donors, what then are the opportunities for and/or brakes on action to be taken into account when these players seek to invest more efficiently in action to counter biodiversity loss?

We combined two methodological approaches to address these questions. The first took the shape of a review of the abundant literature addressing economic-environmental relations and sustainable development in a move to identify the different positions expressed in the space of tension between the environment and development. We drew up a map of the positions based on the different positions we observed and classifications proposed by certain authors. The map was ranked according to the level of priority these positions place respectively on development and the environment. The second approach summarised a case study that illustrates the concerns found within the different official development assistance organisations and the development sector in general. Taking this case study conducted at AFD, we then carried out some twenty in-depth semi-structured qualitative interviews with staff members working in different areas (operational, strategic, etc.) representing the separate hierarchical levels (from project managers to senior management). These interviews focused in particular on the respondents' professional and personal positions. They were rounded out by a study of the Agency's in-house publications and documents, which contain the institution's official line.

This chapter is structured in three parts. We start by reporting on certain elements of the literature review we carried out, on which we based our thinking and our own map of environment-development positions. We then present the actual map, which we believe sheds light on the debates triggered by the environment in the development sector. The third part shows how this map defines the context in which donors are working. Hence we observe that AFD has adopted a very clear position (prioritising development and integrating the environment) in its institutional policy and the wording of its action strategy (similar to other development donors). We then show that positions on the subject actually differ from one person to the next in the organisation, although there is no place for expression or discussion of these differences (or conflicts) within the Agency. Based on this observation, we discuss the opportunities for and brakes on mainstreaming the environment in development aid.

1.1.1. Three academic classifications that clarify the dialectic relations between environment and development

Academic debates over the different concepts of the relations between environment and development have been raging for more than forty years. The possible positions are many, the proposed concepts can be complicated and the terms used vary from one author to the next. Our purpose here is not to describe the state of play in these debates with all their twists and turns, but to show the major divergences that structure them, in order to understand and decipher the differences in the stances circulating among environment and development players. The need for this exercise emerged very early on in our work on development donors. Although these institutions, like their agents, appear to share (at first glance at least) a highly consensual position on sustainable development, their actions daily reveal the nature and extent of the tensions at work between the environment and development.

To show the true scale of this arena of tension, we start with a review of three largely convergent classifications frequently referred to and put forward to explain the debate.

The first sums up elements of the discussion among economists on the subject of sustainable development. As Vivien (2001) puts it, "among economists the main debate is about whether or not the notion of 'natural capital' is important and whether or not it can be 'substituted' by other manmade forms of assets (technical capital, skills, etc.)." Turner (1993) was one of the first authors in this regard to propose a typology of sustainable development approaches on a scale of sustainability from "very weak" to "very strong" according to the degree of substi-tutability between natural and artificial capital (see Table 1). This typology has since been taken up by various authors including Bertrand (2004). The clash between ecological economics theoreticians (low substitutability) and the defenders of the neo-classical school (high substitutability) forms the core of these debates. Turner adds to these two schools of thought the London School as a halfway house and a non-economist school known as "deep ecology".

Table 1 *Range of sustainability positions in economics*

Level of sustainability	Very weak	Weak/Strong		Very strong
Schools of thought	Neo-classical approach		Ecologist approach	
	Sustainable growth	Intermediate approaches		*Deep ecology*
		London School Strictly monetary measurement of environmental goods	Ecological economics Multicriteria measurement of natural resources (monetary, energy, etc.)	
Position on the substitution hypothesis	Total substitution hypothesis	More or less limited substitution hypotheses (depending on carrying capacities, rates of renewal for renewable resources, technological innovation, etc.) + Precautionary principle for the management of irreversibility risks (absolute non-substitutability)		Impossible substitution hypothesis

Source: Based on Bertrand (2004).

Dobson (1996) puts forward a second proposal, which asks the following question about sustainable development. What is it that is to be made to last? He shows that the different answers to this question provide clear, useful landmarks in the debate – landmarks that also reflect the concerns with substitutability between natural and non-natural capital (see Table 2).

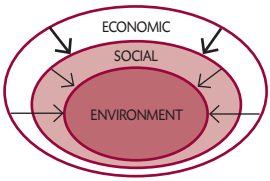
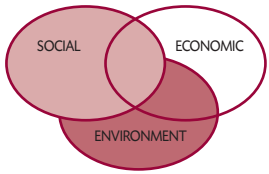
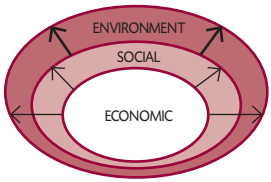
Table 2 *Four conceptions of environmental sustainability*

Conceptions / Questions	A	B	C	D
What is to be sustained?	Capital (human-made + natural) with an economic function	"Critical" natural capital (ecological functions vital to man)	"Irreversible" and vulnerable natural capital	All "significant" natural assets
Why?	Increase material welfare	Increase material and non-material welfare	Increase welfare and respect our obligations to nature	Respect our obligations to nature
What extent of natural/non-natural capital substitutability?	Considerable	Not between human-made capital and critical natural capital	Not between human-made capital and irreversible natural capital	Highly limited

Source: Dobson (1996), based on Theys (1997).

The third classification proposal comes from Boutaud (2005) who considers competitive appropriation of the sustainable development concept. This therefore leaves the "deep ecology" school of thought, which rejects the very principle of development, out of his analysis. Boutaud defines three major competing approaches by different strategic purposes based on divergent conceptions of the relations between the three "pillars" of sustainable development: economic, social and environmental (see Table 3).

Table 3 *Typology of sustainable development approaches*

		
Technico-economic approach Reasoning: "No environmental protection (or social protection) without a strong economic base" Priority: Economic Scope: Short term Type of players: Business, economists and industry	**Consensual approach** Reasoning: "Reconcile environmental protection, social equity and economic growth" Priority: No priority (balance) Scope: Medium term Type of players: Public, semi-public and local government	**Consensual approach** Reasoning: "No human system longevity without consideration of the ecological medium" Priority: Ecological Scope: Long term Type of players: Environmental protection associations and ecologists

Source: Boutaud (2005).

1.1.2. A map of positions in the space of tension between environment and development

We take these three classifications to draw up a map of the types of approaches to the environment-development tension. This map is designed to show where different lines and schools of thought expressed in economic and other fields tie in with various existing positions on environment-development tension (see Table 4).

Table 4 *A proposed typology of conceptions of the environment-development dialectic*

Positions	The overvalued environment	The integrated environment	The environment: a priority	The radical reformist environment
Priority	Requirement for a high priority placed on development	Assertion of placing the priority on development while endeavouring to integrate the environment	Demand for a higher priority placed on the environment without standing in the way of development	Requirement for a high priority placed on the environment
Lines/schools of thought				
Economic language	**Neo-classical approach**	**Environmental economics**	**Ecological economics**	**Degrowth**
Other languages	The "sceptical environmentalists"	Consensual institutional approach	Environmental advocacy approach	"Deep Ecology"

Source: authors.

First position: "The overvalued environment" – the requirement for a high priority placed on development

Robert Solow (1986) considers that the aim of intergenerational equity in terms of its principles is the intertemporal stability of per capita consumption. The way he sees it: "The current generation does not especially owe to its successors a share of this or that particular resource. If it owes anything, it owes generalized productive capacity, or, even more generally access to a certain standard of living or level of consumption." Other economists have set out to establish a link between a country's greater wealth and the care it takes over the environment. Beckerman (1992), for example, says, "There is clear evidence that, although economic growth usually leads to environmental deterioration in the early stages of the process, in the end, the best–and probably the only–way to attain a decent environment in most countries is to become rich."

Such approaches make economic development the central concern, advocating the idea of infinite economic growth, often combined with the notion of wealth and progress. The proponents of this approach believe that the solution to our environmental (or social) problems is found in growth (Meunier, 2004). This gives good reason to concentrate all efforts on development.

These approaches reflect the positions expressed by authors from other disciplines, such as Georges Rossi and Sylvie Brunel, geographers working on the question of development in Southern countries. Rossi considers, for example, that "the industrialised West commandeers a 'right of ecological intervention' [in the South] in the name of a decreed state of emergency concerning the foundations of supposedly sound scientific knowledge even though all the experts know that this knowledge still comprises many hazy areas and uncertainties" (Rossi, 2000). He adds that "conservation and development form an incompatible couple on the Southern countries' current economic and demographic landscape." Sylvie Brunel (2008) feels that the success of degrowth and sustainable development pertains to a "resurgence of Malthusian economics" and that the world is not about to lack resources: "Considerable production reserves exist, as much in terms of increasing yields... as extending farmed areas... The planet is perfectly capable of feeding a population that will never double again. It has actually far from reached its carrying capacity."

The advocates of this approach hence agree that environmental concerns are overestimated and that the priority to be placed on development needs to be reaffirmed. Their assertions are joined, in the media, by the sceptical environmentalism authors: Luc Ferry (1992) in the 1990s, followed by Bjorn Lomborg (2004) in the early 2000s and Claude Allègre (2007) more recently.

Although the language used by economists who refuse to ascribe a particular status to ecological problems is very different, in certain respects, to terms used by the "sceptics", they both have in common that they do not attach particular importance to environmental issues and regard them as a low priority compared to the central backbone issue of increasing wealth and productive capital. They strategically concur that we should be concerned with development rather than the environment.

Second position: "The integrated environment" – the assertion of placing the priority on development while endeavouring to integrate the environment

Other economists who defend "environmental economics", define economics as the science that studies "the disposal of scarce goods with alternative uses" (Robbins, 1945). As such, it is presented as being in the best position to manage any resources that are becoming scarce and hence ecological resources.

However, these authors do draw attention to the fact that the environment's (ideal) entry into the economic sphere raises particular problems. It is challenged by the

fact that the price of environmental goods and services does not reflect (or poorly reflects) their real value. Many environmental objects have no price tag and are not the subject of any market trade. Yet the proponents of environmental economics hold that as long as agents receive imperfect price signals, the "market mechanisms" cannot efficiently manage natural resources and the environment. The purpose of this approach is therefore to define a set of allocation rules (optimal if possible) for natural resources and services based on a market price system or, in other words, to internalise the environmental externalities. This "price signal" should reflect the value attributed to the environment, which leads to the question of the monetary evaluation of environmental goods and services.

Environmental economics therefore recognises the importance of efficient management of the environment and natural resources as factors for economic and social development. Its supporters believe that the driving principle should be to integrate these environmental issues into economic development, which remains the priority.

In this, they join the many authors and players for whom the key issue for the environment is its integration into development; integration into the economic system, but also into public policies, corporate management, product design, etc.

These approaches do not disregard the existence of tensions between development and the environment, but do not consider them to be very hard to overcome, and focus on the synergetic aspects of the dialectic relations between the environment and development. The "sustainable development" concept (or watchword) seminally defined by the Brundtland Report (1987) hence talks about balancing economic development with the ecological equilibria.

This line of reasoning, in its many forms, is now hugely widespread, especially at all public institution levels (from local to international). Public players, seeking a unifying line of action, have taken up this consensual approach in a move to "gather enough interest in their interpretation to get it accepted" (Rumpala, 2003). This type of position acknowledges the need for specific efforts to mainstream environmental issues, but remains based on the priority of economic and social development.

Third position: "The environment: a priority" – demand for a higher priority placed on the environment without impeding development

Not convinced that it is enough to integrate environmental concerns into economic thinking, some contemporary economists – including Boulding (1950), Daly (1968), Passet (1979) and Maréchal (1995) – have called for living sciences and social sciences, especially economics and ecology – to work together. This alignment is today fuelling

an entire school of thought called ecological economics, which forms a new interdisciplinary field studying the interrelations between socioeconomic systems and ecosystems. Maréchal (1996) sums up the main idea promoted by its proponents quite well in his statement, "The economic sphere is included in the sphere of human activities, itself included in the biosphere...; the consequence of this inclusive relationship is that economic activity cannot possibly last, not to mention develop in the long run, if nature (which provides it with free material and energy resources as well as purifying capacities long thought unlimited) were to become too badly damaged." Vivien (2005) considers that what unites the authors in this school of thought "is the idea expressed by Passet (1979) and Daly (1990) that the environment is now the factor holding back economic development, whereas for a long time it was capital."

This outlook in effect places a greater priority on the environment in our policy-making and action systems. Economics aside, it ties in with the positions of all the participants in the debate who advocate and actively support more efficient environmental management (e.g. government departments and agencies working on environmental concerns and the majority of the leading international environmental NGOs). By way of an illustration, simply look at this statement taken from the World Wide Fund for Nature (WWF) France website in 2010: "In 1969, man walked on the moon. Nothing looked as if it would stop humanity's incredible progress towards prosperity. Yet, at the start of this third millennium, a new challenge has appeared, driven by our rampant consumption of natural resources. The global economic forces behind the gradual destruction of biological diversity and natural habitats very rarely consider the planet's biological limits. We exceeded the planet's carrying capacity in the 1970s and we have been living beyond our means ever since."

Ultimately, the authors who defend these positions are not seeking to stand in the way of development, but to place limits on it to plug the drain on the biosphere's capacities. This calls for major changes to the world's development models.

Fourth position: "The radical reformist environment" – requirement for a high priority placed on the environment

The advocates of this position believe that it is not enough to propose revising current development models. They feel that development itself should be challenged. Serge Latouche, for example, calls for the idea of development to be rejected as the mask behind which the westernisation of the world and the marketisation of social relations march forward. "We are talking about... dismantling a faith and a religion in the shape of the economy. Consequently, we need to assiduously deconstruct the hypostasis of development" (Latouche, 2004). He believes that

ultimately we need to reinvent a social change psyche. "Degrowth as such is not really a concrete alternative, but rather the matrix driving a profusion of alternatives. It is therefore a necessary proposal if we want to revive the inventiveness and creativity blocked by economistic, developmentist and progressivist totalitarianism" (Latouche, 2003). He goes on to say that "post-development, moreover, is necessarily plural. It is the search for means of collective flourishing that do not promote material well-being destructive of the environment and the social link" (Latouche, 2004).

Defenders of this position often use the terms "degrowth" (see above) or "zero growth" (proposed by *The Limits to Growth* report in Meadows *et al.,* 1972). Although they do not all recommend the same solution, they do challenge the type of development underway that is based on more infrastructure, more production and more economic trade. It is by rejecting development itself that this approach prioritises environmental concerns.

This rejection of development ties in with other approaches such as "deep ecology", a term used for the first time by Norwegian philosopher Naess in 1973. The very brief and very clear manifesto of deep ecology such as it is worded by Naess and Sessions (1984) in *The Deep Ecology Platform* clearly expresses the movement's direction and its position on relations between environment and development:

- "The well-being and flourishing of human and nonhuman life on Earth have value in themselves…. These values are independent of the usefulness of the non-human world for human purposes.
- Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.
- Humans have no right to reduce this richness and diversity except to satisfy vital needs.
- Present human interference with the nonhuman world is excessive, and the situation is rapidly worsening.
- The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life requires such a decrease.
- Policies must therefore be changed. The changes in policies affect basic economic, technological and ideological structures. The resulting state of affairs will be deeply different from the present.
- The ideological change is mainly that of appreciating life quality… rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.

- Those who subscribe to the foregoing points have an obligation directly or indirectly to participate in the attempt to implement the necessary changes."

Deep ecology hence undeniably places a priority on environmental protection, seeing economic and social development concerns as minor if not destructive.

This fourth type of position – whether based on social movements attached to local, autonomous solutions or on philosophies that place a very high value on nature – does not seek to limit or control development, but condemn its very principle, i.e. that of action guided by the desire to constantly produce, supply and trade more.

This review of the opposing schools of thought on the relations between the environment and the economy, on the meaning of sustainable development and on the types of solutions that ecological problems call for finds both very clear and very different positions regarding the respective priorities to be placed on the environment and development and on the types of linkages possible (or impossible) between the two. Where do development donors and their agents stand in this mapped-out arena of thinking, debate and action? We will now consider this question in the light of our case study.

1.1.3. Analysis of the environmental position of a development assistance organisation – the case of AFD

AFD's stance: from a "high development priority" to an "integrated" position

Originally established by Charles de Gaulle as the Central Fund of Free France (Caisse Centrale de la France Libre or CCFL) in London in 1941, AFD is today the key French cooperation policy operator. In 2014, it has 71 agencies and representation offices worldwide, employs some 1,500 people and has been funding development activities for over 70 years. The Agency's historical position is rural and urban development, prioritising the construction of infrastructures. For years, it clearly took the development road with barely any consideration for the environment. Yet following the Rio Earth Summit in 1992, thinking on the sustainable development concept gradually became a given. This led the Agency's management to state, in 2010, that sustainable development is now the institution's main mandate: "Today, sustainable development has become THE fundamental focus of our house. This represents a real turnaround in paradigm" (Severino, 2010).

The notion of sustainable development now appears explicitly in all AFD mission presentation documents. It is defined as the Agency's "hallmark" in its official Strategic Orientation Plan 2012-2016. This document lists four main missions: support more

sustainable and shared economic growth, improve living conditions for the poorest, contribute to protecting the planet and help stabilize fragile or post-conflict states (AFD, 2012). The plan also states that the Agency has defined a series of additional requirements to achieve excellence in social and environmental responsibility. In its official line and strategic guidelines, AFD clearly presents itself today as a player that places a priority on development while committing to integrate the environment. In the space of just ten years then, the Agency has shifted from an "overvalued environment" position to an "integrated environment" stance, to use the terms of the of the typology proposed above.

Despite the unity of the official position on the "integrated environment", differences persist among staff

It is important to note that the "integrated environment" line does not hold currency just in AFD's policy presentations to the outside world. The same consensual positions are found as consistent markers throughout the organisation's in-house documents and discussions at all levels. Only a series of in-depth individual interviews turned up the existence of in-house differences and much more diverse points of view. Some, who place a high priority on development, feel that we are definitely in an "overvalued environment" era. As one member of staff who had been working at AFD for decades explained to us, "some people in AFD are still convinced that climate change is nonsense. Many feel that if the environment must be sacrificed on the altar of economic development, so be it. They believe that humanity will always manage."

Some interviews also turned up terms similar to those used by sceptical environmentalists, relegating the environment to a "non-priority" or a "non-issue." One person said, "The only observation we can make is that we are prepared to sacrifice strong economic interests for something whose costs and benefits we cannot guarantee." Another commented, "There are technical ways of increasing agricultural production without damaging the environment. But as long as people have to deal with the immediate concern of poverty, this is not feasible." A third interviewee saw the environment as a passing fad: "The environmental line is fairly recent. We live in a world that hops from fashion to fashion." These staff all feel that the environment is not really an issue or, in any case, that others are much more important. In this regard, it is interesting to note that there were few publications on the "environment" shelf in AFD's documentation centre when we did our research (early 2010). Among the dozen books available, the weighty volume by Lomborg as a major representative of the sceptical environmentalism school of thought held prominent place.[10]

[10] All AFD employees are entitled to order a book in connection with their work from the documentation centre.

Other opinions endorse AFD's official "integrated environment" position. One agency manager told us, "There is no contradiction between development and the environment." Likewise, a project manager said, "By nature, there is no incompatibility between the environment and development." An economist felt that "the total substitutability of natural capital is impossible." These staff members support a development priority with the aim of factoring the environment into the momentum. They believe that integrating the environment does not in itself pose any particular problem in principle. The issues it does raise are concrete, operational problems, and it is the effort made to take these up and solve them while pursuing development action that is the central focus of their attention.

Still others align themselves more with our typology's third position of "the environment: a priority". They clearly state that there can be a strong divergence between the environment and development and want to see more environment-responsive action. They say such things as, "The convergence between development and the environment is far from proved," and "There are clearly contradictions." This is especially apparent in the case of a development bank: "AFD is a bank. The notion of profitability specific to our structure does not always go with the goal of environmental quality." These employees call for more emphasis on the environment in the current dynamic. "If we do things right, it could be compatible," said one project manager. Another said, "Today, the debate does not concern whether or not the environment is factored in. That is a given. The debate is more about 'how'." A more critical senior manager felt that "we are heading for disaster. The current development approaches are unsustainable. We have to review the grounds for these approaches and pay more attention to environmental issues."

Surprisingly (for people working in a development assistance agency), the "radical reformist environment" position in our typology is also represented in-house, albeit much more rarely. We heard statements such as, "You cannot have development and sustainability at the same time; it's a contradiction in terms," and, "In my experience, I have never seen a social and economic growth project generate environmental improvements." Then again, there was, "What a meal is made of the green growth concept when it cannot exist," and even, "In the long run, we will be forced to cut down this quality of life through a lack of natural resources." These staff members consider development to be incompatible with sustainable environmental protection.

So AFD staff express the entire range of opinions presented above on the relationship between the environment and development as found in the literature. The survey therefore shows that there is quite a discrepancy between the organisation's official party line and the positions of some members of its staff. This range of opinions and positions makes it that much more complicated to inform and make decisions to ramp up environmental action within development.

Discussion-conclusion

The analytic table proposed above identifies today's main positions and describes the nature and extent of the ambitions pursued in the efforts to link environment and development. The four standard positions we have proposed based on the literature – "the overvalued environment", "the integrated environment", "the environment: a priority" and "the radical reformist environment" – reflect the different outlooks defended in practice in the debate on the environment.

Looking more specifically at donors, this typology describes AFD's official position as that which we have called "the integrated environment". All major official development assistance-funding agencies take a similar position, so it is important to know precisely what it means. When AFD's documents define sustainable development as the Agency's "hallmark" (AFD, 2012) and when they state that the Agency's mission is to contribute to economic growth, poverty reduction and preserving the planet, they are asserting the need to actively mainstream environmental and social issues into ongoing development. They are not talking about steering development in a new direction. Does this suffice or not? The answer to this question obviously depends on the general outlook adopted on environmental questions. Yet those who would like greater priority placed on the environment in view of the growing biodiversity erosion would surely like to see work continue on the already considerable efforts made.

We have also seen that the proposed typology can be used to identify and explain the huge differences of opinion and analysis within the organisation hidden behind AFD's uniform institutional position. In this, the analysis illustrates a key consequence of the current domination of the "integrated environment" model in official development action and, more generally, throughout the official line on the environment. This domination tends to make differences of position on the environment-development relationship appear dated. In reality, it has merely repressed them, as we found from listening to AFD staff in in-depth interviews. Yet it would be most useful for these differences of opinion and analysis within the development organisations to be expressed and discussed in a move to evaluate and steer current environmental integration efforts, which still pose huge problems. Such a move would be especially important to a discussion as to whether to continue to steer official development assistance towards the design of more ecologically ambitious practices. We believe that the observed tendency to repress these differences and debates (or at least smooth over them) is a problem. The question now is how to reopen constructive debate – neither too narrow-minded nor too ambiguous – involving everyone at the different organisational levels of public development

action in order to discuss the balance between development and the environment. We hope this article will make a contribution to this. The coexistence of different positions and viewpoints on the environment-development relationship could put a huge brake on the would-be environmental turning point if we cannot come to terms with it and if only the dominant voices are heard. Yet it could also become a springboard for discussion and steps to drive forward the negotiations and debate to turn them into sources of solutions.

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1.2. The environmental turning point: Who is driving the change and how?

Laurent MERMET and Tiphaine LEMÉNAGER

As the need takes shape for a new environmental deal in development, its many and varied challenges are also becoming clear: controversies over principles, the very different goals aspiring to guide the new deal, the difficulty of organising action in support of the new ecological deal (especially biodiversity issues), and the constant pull of the underlying trends and options (technical, economic, land use, etc.) driving environmental degradation. Are we looking at resistance to change, inertia or difficulty changing? Whatever the case, development brings into play forces and influences that make the new environmental deal a huge challenge.

We may well have taken a first step with the largely shared institutional statement of principles and guidelines for a new sustainable development deal and a move to address climate and biodiversity concerns. Yet it is not enough to state intentions, however official they may be. To paraphrase the title of a famous book (Crozier, 1988), we cannot change the environmental order by decree. It took a huge amount of work to get the international political bodies to endorse the goal to stop biodiversity erosion, but this has merely got us as far as square one on the board. Who is there to take action, and how, to make sure that the environmental intentions now stated are turned into actions on the ground that really generate tangible changes in the ecological performance of development and in the state of biodiversity?

This is precisely the fundamental question addressed by the strategic environmental management analysis (SEMA), an approach that we have been developing as a team since the early 1990s.[11] This approach provides an analytic framework and key concepts to break down and further structure the question of action for environmental change (Mermet, 1992; Mermet *et al.,* 2005; Mermet, 2011). The purpose of this chapter is to examine how much light SEMA's analytic concepts and guidelines can shed on the challenge that the environmental turning point represents to development aid operators. We examine five key points proposed by SEMA for the analysis of environmental problem situations (Mermet, 2011). We look in turn at: (1) the fundamental role played by the development organisation in different sectors (agriculture, energy, etc.); (2) the key role played by stakeholders whose main function is to drive forward environmental change and whom we call environmental players; (3) the strategic nature and share of conflict/tensions involved in any action

[11] See, in particular, the seminal and summary papers: Mermet, 1992; Mermet *et al*., 2005; Mermet, 2011.

for change; (4) the importance of working with clearly defined biodiversity concerns; and (5) the need to analyse and evaluate proactive new environmental deal measures from the point of view of the development dynamic as a whole, which often has much farther-reaching effects on biodiversity than specific biodiversity measures. We present the principle behind each of these analytic focuses followed by a study of its relevance to the development aid field and the work strands it points to as ways of ushering in a new environmental deal. We also consider how they interface. We conclude with a look at certain aspects of the new environmental deal's challenges of particular strategic importance to development operators.

1.2.1. The sector-based organisation of development: a key consideration for biodiversity action

Given that SEMA's primary focus is on the problems encountered with concrete action to drive environmentally friendly change and that it considers the way action is organised to be of key importance, it pays particular attention to the sector-based organisation of human activities. To understand why, simply look at the main damaging processes behind biodiversity degradation: industrial intensification of agriculture, agricultural land clearance, exploitation of old-growth forests, forest plantation coverage, compartmentalisation of habitats due to the construction of linear infrastructures, overfishing, etc. Each of these processes is more than the sum of individual initiatives. It is driven and governed by a given activity sector (agricultural, energy, forestry, industrial, transport, etc.). This often complex and multi-factorial sector organisation places major obstacles in the way of action for change. For example, imagine that a farm is offered a change of practices to refrain from a production system that is doing too much damage to biodiversity. It will soon become clear that the farm is influenced by a multitude of agricultural sector players: firms selling it certain types of inputs, technical advisory structures telling it which directions to take, trade unions and employers' federations against certain directions and for others, and the agricultural administration whose standards, funding and infrastructure programmes (irrigation, etc.) form a powerful driver for or strong brake on change. It is not that the farm's actions are strictly determined by the agricultural sector, but that it lies within its organisational reach. This is a key consideration when it comes to designing and taking any action for a new environmental deal for the farm.

More generally, any attempt to get biodiversity momentum moving in any given activity sector will find that this sector's positions, organisation and strategies become decisive elements of the playing field. This holds irrespective of whether

the impetus for change comes from outside the sector (from an environmental NGO, government environmental department or cross-cutting national policy) or from within the sector (initiatives for change led by groups of farmers or operators defending particular production methods). Thinking in sector terms is not about thinking in terms of more or less obscure blocs of pressure or resistance to change. It is simply about taking note of the fact (both inevitable and legitimate, albeit with weighty implications) that output and services are produced by activities run on a large scale. For example, agricultural food production needs farms, but also upstream and downstream sectors, farm advisory organisations, farmer representative institutions, research institutes and agricultural administrations. All of these players coordinate their actions and each player's action ultimately makes sense only in the light of or due to action by the others. From an organisational point of view, i.e. the full significance of the interdependencies and coordination that collective action entails, the sector is a fundamental defining element of development.

Yet this vital component of the action systems is played down, if not completely passed over by the vast majority of the environmental and sustainable development literature, which is dominated by an institutionalist focus on the procedures for the expression of the collective will, the establishment of regulatory principles, and the definition and enforcement of rules for the entire community. This angle may well be important to the negotiation and definition of a community's overarching environmental guidelines, but the organisational element is decisive when it comes to producing real change (in terms of each organisation's approaches and operating procedures; coordination mechanisms between organisations; alliance, rivalry and antagonism strategies; management mechanisms underlying the intra- and inter-organisational running of organisations, etc.). At a time when we are struggling so much to act on our public biodiversity commitments, SEMA suggests we switch the analytic focus from the institutional dimension (where goals and rules are formalised) to the organisational dimension (actual implementation). In other words, we need to place the sector-based organisation of development at the centre of the analysis.

We believe this suggestion to be particularly relevant to development aid operators. Their activities – whether in the form of grants, loans or technical assistance – concern largely sector projects (dams, road networks, forest development management assistance, etc.) involving different players in the targeted sector.[12] This sectoral landscape is also of practical importance to these development assistance operators,

[12] Especially operations with direct, tangible biodiversity impacts.

since they need to plug their action into a reliable, organised system. They depend on interfaces set up between their funds and designated fund recipients. In any given project, it is precisely the targeted sector's inter-level and inter-organisational capacity to organise that provides this reliable, interface. French funds for rural development may reach farmers in Burkina Faso through action chains channelling through consultants, NGOs or French agricultural applied research bodies, Burkina Faso's agricultural administration and its own correspondents, local NGOs, local social-professional organisations, and maybe even through international agricultural sector bodies, all under the leadership of a sector project manager (still called technical) based at the French donor's head office. The donors' internal organisation actually comes to reflect the sector organisation of the countries in which they work. The importance of sectors is therefore part and parcel of their own organisation, which generally intersects geographic divisions with sector divisions.

When donors decide to take action to advance the new environmental deal, to solve a biodiversity problem, this factor is key to the design and implementation of the action. A whole series of questions needs to be asked to ensure the effectiveness of the actions taken. If the action for change targets an environmental improvement in a given sector and is driven from outside the sector (by operators specialised in biodiversity, for example), how will it be received by the sector's operators? If, conversely, it emerges from within the sector itself driven by certain sector players, on what interfaces and support can it count? How will it be able to influence the sector's internal dynamics or, alternatively, what resistance to change might these dynamics put up by means of which internal sector forces?

Note, before concluding on this subject, that the productive sectors' role in situations of affirmative action for the new environmental deal is ambivalent. In some cases, they might provide organisational interfaces to drive forward the change. Yet in others, they form a factor of resistance to change. On the one hand, it is hard to change without the cooperation of the activity sector concerned. On the other, an activity sector cannot generally be expected to spontaneously jump to it to solve a biodiversity problem. It cannot be expected to take it upon itself to drive all the desired changes to practices and activities that it has sometimes gone to great pains to put in place and that it often then fiercely defends (Gaudefroy de Mombynes, 2007). In environmental action, then, the sector-based organisation of development is not just a key aspect for consideration. It also a complicated, tricky strategic factor. It warrants the closest attention when conducting the diagnosis for each biodiversity case.

1.2.2. The environmental player or, "Who is the driver for pro-biodiversity change?"

Another, even more fundamentally defining question is who drives the action in support of the environmental turning point or, to use SEMA's own terms, who is the "environmental player"? Today, obviously, many are those who step into the limelight and claim, "I'm working for the environment". Many are those who are not altogether wrong if "working for" means expressing environmental concern on occasion, sitting meekly at a table to discuss the environment and ultimately taking a few environmental measures. Yet strategically working for environmental change is about so much more than that. It is about being the initiator of the change, driving it forward deftly and surely in the face of other players who see it as just one concern among others and therefore often (and to put it mildly) not really a priority. It is about seeing it through all the way to the actual change when the players can then all take credit for it.

So who is this "environmental player"? The question immediately conjures up two extremes with a stereotypical vision of environmentalist spokespeople ("the environmental NGOs") and a systematically critical vision that totally rejects the legitimacy of these environmental advocacy players. In actual fact, every time a biodiversity project is launched, regardless of whether it is successful or its outcomes are as yet unknown, the question of who is driving it is complicated and can produce contentious answers. Yet it is not that hard to diagnose which action dynamics (and hence which players) drive forward biodiversity in each project and which dynamics (and hence which players) put a brake on it. And even though many of these players today are "schizophrenic" (to use an inappropriate, but widespread expression), it is never that hard to work out who's who in truly working for biodiversity. SEMA's "environmental player" represents both an action dynamic and the players behind it. It is not a stereotypical righter of wrongs. Nor is it a faceless medley of stakeholders involved in a project with some vaguely environmental aim (or at least not opposed to it). It is a precise answer to the question: in a given biodiversity project, at a particular given time, who is actively working for biodiversity in the strategic interactions between stakeholders?

The environmental player question is key to our thinking on development assistance operator action for the new environmental deal. As we have seen, development assistance operators cannot count on development's own dynamics and the sectors driving it to be able to set out alone on what is way off the beaten track compared with the roads travelled today. Moving towards the new environmental deal in development aid therefore necessarily calls, at least in part, for support for

environmental players. They may be players outside the sectors pinpointed as environmentally damaging. These dedicated biodiversity project promoters (e.g. supporting protected areas and ecological restoration) form something of an emerging biodiversity sector. They may also be players within a sector who take positions for change and undertake to work from within on other of their own sector's players whose activities and projects raise biodiversity problems.

The development assistance operator basically has the same tools for this assistance as for its other interventions: financial support for projects led by public or private environmental players, the more direct technical assistance tool and, upstream, the aid design and management tools. The environmental player support issue therefore has nothing to do with the intervention tools, but with the organisational and strategic situation of these players working for biodiversity. Interviews and field studies such as those covered in this book point up three issues:

(i) Biodiversity action is an emerging and as yet unstructured sector in which only a few scattered players have the financial capacity and the administrative and legal resources to be choice aid recipients.

(ii) There is a potentially large number of projects to be supported, but development assistance operators find their management features unappealing in terms of such considerations as small sums for fragmented projects and success depen-dent on long, complex implementation processes.

(iii) Supporting external or internal environmental players implies providing them with support for action that largely consists of challenging the projects and directions of certain development sectors. Given that development aid donors are also strongly committed to the development sectors, supporting an environmental player who challenges them could trigger tensions and contradictions that would then need to be handled organisationally and strategically.

Yet although these problems are real and need to be addressed, any development aid donor planning to make a significant contribution to the new environmental deal and mainstreaming biodiversity has no choice but to support the players specialised in supporting the environmental cause. This is sometimes already the case as shown, for example, by the partnerships between AFD and the International Union for Conservation of Nature (IUCN), between AFD and Conservation International, and between AFD and Kenya Wildlife Service (KWS), the Kenyan public agency in charge of protected areas. However, these partnerships are still very thin on the ground and, more importantly, are very fragile.

1.2.3. Environmental action is a fully fledged strategic action

The development of the strategic dimension of biodiversity action is a third strand of the SEMA analytic framework. To capture this aspect, we: *(i)* identify how action to make others change course is strategic and *(ii)* broaden the scope of the environmental player focus to take in structural and strategic relations with other players, relations key to the implementation of action for change.

On the first point, it is striking just how ubiquitous the notion of strategy is in the field of biodiversity: protected area establishment strategies, national biodiversity strategies and thousands of other offshoots at all levels and on all subjects. In this respect, the world strategy proposed by the IUCN in 1980 (IUCN, 1980) triggered a multitude of spin-offs modelled on its presentation in the form of a "strategy" and its content that – give or take some variations and terminology innovations since – still largely inspires today's biodiversity guidelines. Yet are all these "strategies" really strategies in the true sense of the word?

Mintzberg *et al.* (1995) define a strategy as "the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole. A well-formulated strategy helps to marshal and allocate an organization's resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment, and contingent moves by intelligent opponents [to foil the organisation's action]." Notwithstanding the replication work required to shift gear from action by an organisation to organised action by a community, this is precisely what is proposed by biodiversity strategy documents except on one point (but it is a crucial point): the fact of clearly naming the "intelligent opponents" liable to take action to foil them and limit their reach. There is no analysis of these opponents, not to mention clear inclusion of them in the strategy's design. Yet this aspect of the concept of strategy is no optional extra. What good is a commercial strategy that does not consider the competition, a political strategy that ignores its political rivals or, absurdly, a military deployment strategy that disregards the enemy's movements? Without this basic dimension – without competitors, opponents or adversaries – it cannot really be called a strategy.

What this means to the environmental turning point is that as soon as you support biodiversity advocacy players versus other development players (who may, to paraphrase the strategy definition by Mintzberg *et al.* [*ibid.*], act intelligently to deflect this move), the often-informal balance of power hence set up becomes a decisive element of the action strategy. In fact, every time our field studies talked to environmental players working on an action, we saw just how constant and central thinking

on this strategic aspect was to carrying out the action. This holds in these players' relationships with operators, such as development aid operators, who may give or refuse to give their support and who may also support projects counterproductive to biodiversity. It also holds within the development aid organisation itself with respect to the specialised agents who conduct and fund actions to drive forward the new environmental deal. Any strategic analysis of environmental management that fails to consider this truly strategic aspect risks overlooking a decisive angle of biodiversity management. The point is obviously not here, any more than in the other above-mentioned areas of strategic action (military, commercial, etc.), to reduce everything to a confrontational angle. Yet it is important to take on board that confrontation is always more or less present, even in discreet forms, and that we ignore it at the expense of our objectives.

This focus on the, at least latent, share of confrontation in action for change is particularly useful to inform development operators who find themselves caught in a web of tensions inevitably spun by their assistance to players defending bio-diversity against certain development dynamics. Development assistance operators working in support of new environmental deal actions are faced with a maze of players in tension that surpasses anything they have seen in their experience of working within a given sector. Taking a strategic angle gives them a kind of a compass, with simple guidelines to apply to each case on the ground. Who are, in this case, the players working for biodiversity? What alliances and tensions have they set up with which other players? And how can a clearer interpretation of this landscape of strategic tensions improve the way they support the environmental turning point?

If the stage for new environmental deal action (from the smallest to the largest scale global project) is pared back to its most basic cardinal points (which is precisely the role of a compass), we find tension between three types of players: the environmental player (supporting the drive for change), the sector player (organised action for biodiversity-impacting production and land use activities), and the regulatory player (players or institution with the power to balance these two forces, such as a government introducing zoning between forest areas to be logged and others to be conserved).

Many case studies using these SEMA guidelines have shown how this structural approach can inform a study of the relations between environmental players and such or such a development sector (see, for example, Billé, 2004; Taravella, 2008), but also relations within an organisation working on both productive activities and moves to mainstream the environment (Gaudefroy de Mombynes, 2007).

However, one condition is required if such an analysis is to be useful: the means, on each separate playing field and in keeping with the frame of action, to conduct a real diagnosis of groups of complex, often discreet and always partly ambiguous players whose configurations tend to change at the same time as the operational development aid action. Basically, remember that a compass is not a map. Its cardinal points (North, South, East and West) are particularly useful despite being so much more basic than any map. So once an arena's inherent cardinal points have been defined (in our case, those induced by the action for the environmental turning point), the map of the arena remains to be drawn up to reflect each situation's complexity in its entirety. A clearer picture can be gained following a real diagnosis of the set of players, provided that this diagnosis does not lose sight of the North and clearly differentiates between players driving forward biodiversity and those impeding it.

1.2.4. A useful specification of the biodiversity goal guiding analysis and action

Yet where is the "North", this direction in which an environmental turning point heads? From SEMA's point of view, all the diagnoses of players, organisation and processes can only make sense and be conducted in the light of previously clarified environmental goals. How, for example, can the environmental stakeholder (by definition, the player with the environmental stake in a situation) be analysed if we have not initially defined what that environmental stake is? The line of logic therefore runs from the environmental goals and biodiversity challenges to be taken up to an understanding of the action situations, player strategies, etc. Every time we embark on a project, the first analytical focus is to clarify and soundly explain the biodiversity goals that will serve as yardsticks for analysis and action.[13] Such an approach – define an explicit biodiversity goal and analyse (with respect to this goal) the social, political and other relevant situations – obviously comes up against various objections and problems that are discussed here in turn: first, objections of principle and, second, methodological and tactical problems.

These guidelines running from the environmental efficiency goals to analysis of the conditions for action raise two major types of objections of principle, which can trigger heated debates. The first objection is normative. Barely has a biodiversity goal been defined as a basis for analysis than the stakeholders (or researchers close to the stakeholders) who are bothered by this goal (or by its possible repercussions)

[13] Although we choose a different order here for clarity of presentation of the analytic framework.

leap into the fray retorting that another goal (biodiversity or other) could/should have been chosen or added in to steer the analysis. Imagine an analysis being prepared on possible actions to protect the African elephant population. This could immediately raise the objection, "But the problem is not the elephant; it's the Savanna biome," or, "You can't make an issue of the elephant without making it a key goal to guarantee small African farmers better living conditions and real development prospects." To quote the phrase used by such an objector in a real case (Maya Leroy, pers. comm.), "By what right [are you defining this goal as the benchmark for your analysis]?" This wording is possibly the clearest expression of the fact that any clearly targeted strategic analysis comprises a sizeable normative dimension and the extent to which these normative considerations can create controversy.

The answer to "By what right?" is very straightforward in principle: "By the right of those who attach importance to a given biodiversity problem and who consequently seek to clearly analyse how it can be solved and understand what (or who) is blocking its resolution." This answer is all the more self-evident when (as is often the case) the biodiversity goals chosen as the basis for the strategic analysis are official political commitments, e.g. concerning wetlands, deforestation, endangered species, etc.

The problem and objections often originate in the fact that a strategic analysis based on a clearly defined management issue, whatever that issue may be, inevitably raises power struggles because it points up responsibilities, suggests courses of action and can therefore make people baulk. The fact that biodiversity goals are political commitments changes nothing from this point of view. We operate within societies that, locally and internationally, operate on the basis of political commitments that are in part contradictory – a situation we have seen to be the crux of the strategic perspective of the new environmental deal. So the champions of each specific concern (here biodiversity) have good grounds to want to inform this issue with in-depth analyses and diagnoses, including expected changes to the concerns and actions of other players. In view of this, it is unacceptable to allow those who may baulk at such analyses to have something of a right of veto as expressed by the phrase, "By what right?" The pluralist debate is especially rich and legitimate in that it takes place downstream of such analyses and is deliberated by players who may have come a long way in informing the different concerns they defend.

This conception of pluralism is the total opposite of the implicit notion that sometimes seems to prevail in the field of biodiversity. Basically, stakeholders gather round a table where they first agree on the objectives to be used as a yardstick for

the analysis. Then, and only then, can the analysis be conducted. This widespread view, which holds that issues such as development and the environment can only be properly addressed by focusing on all their aspects together in an integrated approach, is also a source of objection to analyses based on clear biodiversity goals. The argument runs that a standalone analysis concentrating on biodiversity goals fails to see vital problems and links associated with action situations. This would indeed be the case if the SEMA diagnosis were alone used to guide action. Yet it never happens because biodiversity action always enters into negotiation (if not conflict) with other actions, which are also based on partial diagnoses (e.g. conditions for the technical and economic success of a given agricultural development project). Integration is the result of these negotiations (and the combination of their accompanying diagnoses), rather than a framework that can save on approaches whereby each issue (biodiversity, economy, etc.) is informed in depth on a standalone basis (Billé, 2004). Conversely, refusing to conduct these specialised diagnoses runs the risk of ending up with diagnoses and action programmes that gloss over the less actively defended issues, which are often biodiversity issues (Mermet, 2011).

The second objection of principle faced by a strategic analysis that takes a biodiversity goal as an arbitrary benchmark is apparently more theoretical. The objectors complain that the goals are constructed and that the approach should therefore include an analysis of their construction. They consequently conclude that a given biodiversity goal cannot be used as the founding assumption for an analysis. There is no refuting the first point of the argument: goals, in biodiversity as elsewhere, are social constructs. To put it in more provocative terms, even if they have a tangible, real basis, the formulation of goals on which the analysis can be based is the result of a scientific, social, political and legal fabrication. Yet this in no way means that the analysis should necessarily include this construction of the benchmark goal, nor reject it therefore as an analytic foundation. Imagine research into the question as to how we can fight hunger in a given region in the world. And imagine that the objection is immediately raised that hunger, however tangible, is a social, political, scientific and legal construct. How do you define it? How have the figures been put together? Are we looking at a hunger problem or a poverty problem? And so on. And imagine that it is consequently argued that the analysis should focus first and foremost on this question and postpone examination of the conditions for hunger action pending the answer. The idea would be rejected, and rightly so. The case would be put that some parties may well be curious to analyse how the hunger issue is constructed. Yet this does not prohibit others from working seriously on how to solve the problem based on goals and benchmark norms that, admittedly are in part contingent (and could feasibly be revised later), but which generally are already the result of many analyses and can legitimately be used henceforth as a basis for a

serious, useful study. The same line of reasoning justifies the principle of basing an analysis of a biodiversity action situation on choices of clear assumptions (contingent though they may be) regarding the biodiversity goals on which the analysis is based.

If we are stressing these questions of principle, it is because we have seen just how much they prevent, in practice, diagnoses from being conducted in support of biodiversity. This means development aid operators need to understand that one of the conditions required to make serious progress with biodiversity issues is to conduct or make use of specific in-depth diagnoses. It also means that they have to refrain from upstream presumptions (at the stage of the definition of the biodiversity goals that will serve as a framework for the studies) of pre-trade-offs with other issues and problems that could narrow the focus to the point of missing linkages vital to the environmental turning point right from the diagnosis stages.

However, once the preliminary objections of principle and scoping have been lifted and a biodiversity question has been clearly put, there are the methodological problems to deal with. We all know what they are: the complexity of the situations, gaps in our knowledge of the ecological and social mechanisms, lack of data, etc. Strategic analysis obviously cannot overcome these problems or take the place of a proficient handling of the scientific and technical biodiversity diagnoses. It merely rounds them out by, for example, lifting superfluous obstacles, the largest of which here is the strategic manipulation of uncertainty (Mermet and Benhammou, 2005). This consists of taking advantage of methodological problems and uncertainties, the ever-imperfect side of knowledge, to impede action. Yet some uncertainty, some imperfect knowledge, is inherent in all fields and not just biodiversity. To take the above-mentioned example, how would we respond to a player who basically said, "Let's refrain from doing something about this famine right now when we know neither the precise number of people affected nor the exact extent of their malnutrition and the maps locating these people need improving"? This kind of position is seen an awful lot in the biodiversity field. Development operators, analysts and researchers simply cannot allow themselves to get caught up in strategies that constantly put off action on the pretext of perfecting knowledge. Granted, it is important to invest to further develop our knowledge. Yet it is just as important to invest in action based on the knowledge we have. And it is important that work to improve that knowledge is not used to put off action that would be useful based on the knowledge available. The message here for development operators is to drive forward action and knowledge together, as they do in the areas of action in which they are already successful.

We have talked a great deal about this fourth strand of the strategic analysis, because it conditions the others and operator action often stumbles over precisely this particular element of the linkage between the normative, scientific and strategic tracks of diagnoses of biodiversity management situations.

1.2.5. Actual management: Consider biodiversity action from the angle of all the human activities that ultimately determine it

We will be briefer on the fifth and last strand of the SEMA analytic framework, which considers the repercussions of the fundamental disconnect between our biodiversity actions and projects and all our (especially development) interventions that often negatively impact on biodiversity. The state of each biodiversity concern ultimately depends on all the human activities affecting it.[14] This set of anthropic activities decisive to a given biodiversity factor constitutes its de facto management. The SEMA framework calls it actual management. This concept is often seen as counterintuitive. Many object to the use of the term "management" in that there is no actual overall orchestration of this set of activities with their impacts (negative or positive). Yet management does not just cover that action for which those who take it assume the responsibility and take the credit. When management (of a company, project or ecosystem) fails, all players might be tempted to eschew their share of responsibility. Yet where there is collective responsibility for a result, there is good reason to seek each party's responsibility in arriving at this result. Such that if we say responsibility is collective for a given biodiversity concern, then it is legitimate to seek each party's responsibility for its state. This entails examining all the activities that go to make up this result, irrespective of whether the operators of these activities realise it or whether they want their own responsibility to be highlighted in this way. Note, in passing, that analysis of the activity sectors concerned makes an important contribution to this study of all activities; a contribution on which we focus separately in track 1 above due to its own importance and because it also contributes a great deal to the analysis of the strategic interactions (track 3) that environmental players (track 2) who champion biodiversity concerns have to contend with.

A map of actual management covering all activities with a (negative or positive) impact on the ecosystem is therefore a key element of a strategic diagnosis of a biodiversity problem. The biodiversity measures taken are relevant (or irrelevant) not so much in themselves as in their capacity (or inability) to significantly change

[14] Aside, naturally, from endogenous ecological factors.

this actual management. It is this change that plays out in the players' strategic interactions (the first three tracks of the analytic framework) and it is only in terms of this potential change to actual management that biodiversity initiatives can come into their own.

Any biodiversity action sits squarely in the space that separates our efforts to preserve it from the many forces and actions that put pressure on it. Although the size of the gap between the two can be disconcerting, it is important to compare the actual management diagnosis (everything players do to affect the relevant biodiversity problem) with the biodiversity strategy proposals (everything players do to seek a positive solution to the problem).

What this means for development operators is accepting the fact that, in a given territory where biodiversity is at stake, it is not only the specific biodiversity measures, but the territory's entire development that will ultimately determine the biodiversity outcome. Official development assistance (ODA) action for biodiversity should therefore be considered from the angle of the territory's development as a whole in a realistic diagnosis that compares side by side *(i)* an overall view of the development dynamics and development projects affecting the territory (or problem) concerned, *(ii)* a clear view of the place of the development aid projects in this dynamic and *(iii)* an accurate picture of the biodiversity projects' place within this whole (which is generally greater than the sum of their parts). We cannot sidestep the often huge problems, tensions and contradictions that such a diagnosis can reveal. We need rather to embrace and manage them since they form the very substance, the key challenge of biodiversity problems. This is precisely what the above-proposed sector, player and strategy analyses seek to cover in the analysis for action.

Conclusion

This chapter sets out to show how strategic environmental management analysis can inform environmental action. SEMA proposes addressing a biodiversity issue by breaking down thinking on action into five tracks: (1) focus on the sector-based organisation of biodiversity-eroding processes, (2) particular attention paid to players who promote biodiversity action, (3) a keen understanding of the strategic (i.e. partially distributive or adversative) nature of the biodiversity action, (4) analysis and action based on a clear definition of the biodiversity issue in question and a suitable diagnosis of causes and room for manoeuvre in the light of available knowledge and (5) diagnosis of the actual management to be changed, i.e. all the human actions (e.g. development processes and programmes) that can affect the relevant biodiversity issue.

Development operators who set out to take effective biodiversity action are embarking on a rocky road. They will almost inevitably get caught up in strong tensions between certain development processes and certain ecosystem fragilities (track 5). They are walking into a strategic minefield from the point of view of the definition of problems, where an already-complicated scientific and technical diagnosis is made even harder by tactical manipulation of uncertainties (track 4). Most importantly, with their funding (projects and technical assistance), they are getting involved in supporting biodiversity defenders and will therefore find themselves entangled in complex stakeholder games involving all the inherent contradictions that come into play when biodiversity concerns are tied in with development (tracks 1, 2 and 3).

It is important to note that this kind of strategic force field is also found among the groups of players within the development aid organisation. As shown by a number of chapters in this book, in-house biodiversity promotion entails problems and challenges echoed in its defence outside the ODA organisation, which can be explained by similar concepts and analyses (here, the SEMA analyses).

Strategic environmental management analysis has not found a cure-all, a winning formula, a secret corridor to steer clear of or overcome these problems. Its sole purpose in each concrete case is to help see these problems more clearly in debate, research and field diagnosis situations where there is a huge temptation to minimise them and massive pressure to sidestep them. For this, it proposes concepts and a framework to structure the analysis.[15] Neither does it claim to singlehandedly provide all the tools needed to diagnose biodiversity situations and take action, but it does set out to structure a consistent, relevant line of questioning to address the concern in order to act as effectively as the situation permits. Yet the strategic questions it puts still need to be answered in each case. This calls for a range of diagnosis tools, further theoretical clarifications, to meet the needs arising as investigation of the problem advances. This book contains several illustrations of how, for a given problem, the strategic environmental management analysis guidelines lay the foundations for developments using a wider range of tools.

To conclude, we will simply state that the strategic environmental management analysis shows up the flip side of sustainable development. It does not take issue with the principle of seeking out and making use of compatibilities and synergies found between economic, social and environmental action. Far from it. What it

[15] It also provides food for thought on the concrete conditions for action on the ground (Leroy, 2006 and Taravella, 2008), but this aspect transcends the bounds of this chapter's scope.

does do is ask, sometimes incisively, that in so doing we never underestimate the tensions, contradictions, dilemmas and trade-offs between the economic, social and environmental fields found at the crux of the environmental turning point issue. It is fundamentally based on the principle that, in development action situations where many and partly contradictory concerns jostle for place, there is every reason for environmental concerns (e.g. biodiversity problems) to be diagnosed and specifically promoted against other economic and social concerns that are already actively championed and defended. In this, it holds that you cannot mainstream the different concerns said to produce sustainable development by decree. Such mainstreaming is the result of complex and often-tense negotiations. If biodiversity is to be conserved or restored, it has to be defended in these negotiations. In this, donor action is a key variable. Donors should therefore be careful neither to stray from the course of the fundamental conditions for the environmental effectiveness of action nor to lose sight of the structure of players' strategic games, the outcomes of which will ultimately dictate whether these conditions are met and whether development is really sustainable.

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1.3. Environmental NGOs and official development assistance organisations: Critical pressure, cooperation or service? [16]

Fanny GUILLET and Tiphaine LEMÉNAGER

The environmental crisis we are faced with today is the result of a multitude of actions and decisions reflecting a certain interplay of stakeholders that includes official development assistance funding agencies, hereafter called donors. These donors interact in many areas with different players ranging from the most local to the international level. So consideration of the environmental turning point in development aid is also a question of finding the means to examine the reality of the interplay of stakeholders that this turning point requires. In this regard, the leading environmental NGOs (ENGOs) play a predominant role in taking up the environmental concerns. They are commended for the projects they conduct (Leroy, 2008), but also for their participation in public policymaking and structuring international environmental governance for over half a century (Charnovitz, 1997; Raustiala, 1997).

On this stage, and in view of the lack of literature observed on this subject, we propose an analysis of the relations between ENGOs and donors. This proposal is especially relevant given the apparent gradual strategic alignment between these players since the advent of the sustainable development paradigm in Rio in 1992. These players have shifted from their hitherto relatively separate lines – with donors initially not inclined to focus on environmental issues while ENGOs were engrossed in environmental challenges – to gradually converge in their positions. This trend has gathered pace in recent years and both now express, virtually in unison, positions that officially support the need to conserve biodiversity, reduce the environmental impacts of development and promote poverty reduction.

How do the interactions between ENGOs and donors drive forward the environmental turning point? What are their main features? What can we expect from the alignment of these players in terms of concrete changes to practices? These are the questions we address in this chapter, which is based on exploratory research commissioned by AFD from the National Museum of Natural History in 2012 (Guillet and Leménager, 2013).

[16] This article is based on research funded by AFD in 2012 (See Guillet and Leménager, 2013).

This research, with its consideration of the relations forged between players and the resulting environmental outcomes, contributes to academic work on environmental management. It combines three levels of analysis (political, organisational and operational), all of which are necessary to understand the strategic issues involved in the relations studied and how they contribute (or not) to increasing the efficiency of the handling of environmental challenges. Note that this study does not cover all the environmental sectors. It focuses mainly on biodiversity conservation. It is based on a critical review of the grey and academic literature on our subjects of study (political science, international governance, development, environment and biodiversity conservation). This literature review interacts throughout the study with the results of a series of fifty semi-structured qualitative interviews mainly with two bilateral development assistance donors and three ENGOs. AFD and DFID were chosen as the donors for their distinctly different ODA models. AFD works mainly with loans while DFID organises its action on the basis of subsidies. The ENGOs – Conservation International (CI), WWF and Wildlife Society for Conservation (WSC) – were chosen for their leading positions among the ENGOs and their active, historical links with the two chosen donors. These interviews were rounded out by 30 more interviews of members of the French Global Environment Facility (FGEF), the Global Environment Fund (GEF), the World Bank, other French and UK NGOs, and a number of experts on environmental and development issues.[17]

To answer the questions put, this chapter first takes a brief look at the determinants of the alignment observed between ENGOs and donors. It then proposes an analytic table presenting the four main types of relations between these players as identified by our research. Based on this informative typology, we then identify the factors restricting the efficiency of these relational dynamics and look at their potential for promoting more environmentally friendly development.

1.3.1. The main determinants of the alignment observed between ENGOs and donors

Analysis of ENGO and donor strategies and positions reveals that they are coming together on the subject of the environment and development. For example, the World Bank's website states, "The World Bank Group's Environment Strategy 2012-2022 lays out an ambitious agenda to support 'green, clean, resilient' paths for developing countries.... The Environment Strategy... recognizes that while there has

[17] The authors thank all the players interviewed for the quality of the information provided and the interest they expressed in this work.

been notable progress in reducing global poverty, there has been significantly less progress in managing the environment sustainably. While developing countries will still need rapid growth to reduce poverty over the next decade, the global environment has reached a critical state that could undermine livelihoods, productivity, and global stability." [18] ENGO CI presents a similar line: "This is an extraordinary moment for our planet. Economic development has the potential to lift so many out of poverty, but too often it also places a burden on our one shared home. Today, the world is beginning to understand that we must properly value the essential services nature provides if we are going to create a sustainable development path that will benefit all people for generations to come." [19]

Albeit from somewhat different angles, our research shows that these players address relations between the environment and development today in terms of two main principles: the volition to reduce the environmental impacts of development and the purpose to promote biodiversity conservation and sustainable management activities.

Our research identifies two factors common to ENGOs and donors that have furthered the donors' mainstreaming of the environment and the ENGOs' mainstreaming of development. The first factor concerns the international governance of development and the environment, with what have become their hybrid agendas over the past forty years (e.g. Le Prestre, 2005; Selin and Björn-Ola, 2005; Roe, 2008). The reality on the ground is the second factor for the alignment mentioned by our interviewees and reported in the literature. Ecosystem degradation and problems of natural resource overexploitation and management are front-line phenomena experienced by grassroots players (Severino, 2010; Maathai, 2002). Likewise, if development and poverty reduction issues appear salient in certain areas and directly influence the state of biodiversity, the ENGOs seek to address them in their interventions (Redford, 2011). More generally, the ENGOs show that they have woken up to the inefficiency of grassroots approaches that do not secure the ownership and involvement of the local people.

In addition to these two common factors, factors more specific to one or the other of the two players studied appeared during the course of the survey. Three specific factors were identified that prompt donors to mainstream environmental issues. The first is the more or less direct pressure on them from environmental players

[18] http://www.worldbank.org/en/topic/environment/publication/environment-strategy-toward-clean-green-resilient-world

[19] http://sp10.conservation.org/about/mission_strategy/Pages/strategy.aspx

(including ENGOs). The second is a "rational" factor that has to do with the role of science: practitioners, especially in the English-speaking world, associate the mainstreaming of environmental issues with the improvement of scientific knowledge on the state of the environment. The third factor is pragmatic. It has to do with risk analysis, since the donors consider all types of risk, if only out of a concern for the performance of the banking activity. One specific development mainstreaming factor was found among ENGOs relating to their need for funding. The respondents met said that ENGOs tended to talk in development sector terms, because donors were only willing to listen to them when they took an integrated stance on the environment and development.

Although these factors explain part of the origins of the alignment observed between ENGOs and donors, they do not capture the precise substance of their relations. Yet understanding this is vital to those who want to explore the impacts of the interplay of stakeholders resulting from these interactions in terms of actual management of environmental concerns. The study reveals four main types of relations presented here.

1.3.2. A proposed typology of ENGO-donor relations

Our literature review turned up not one single paper specifically studying the type of relations between ENGOs and donors, thus confirming the exploratory nature of our research. Nevertheless, some studies did give us food for thought, such as the article by Olivier (2005) proposing a classification of ENGOs based on their role (lobbying, advisory, expertise, information or legal action). Also of note are the studies by Vakil (1997) and Yaziji and Doh (2009), which differentiate NGOs by the way they operate, and the papers by Beigbeder (1992) and Willets (1996), which analyse the status of relations between ENGOs and UN bodies. We have drawn on this work and the information collected during our research to put together a typology presenting four main types of relations between ENGOs and donors (see Table 5): *(i)* external advocacy; *(ii)* critical collaboration; *(iii)* environmental cooperation; and *(iv)* service. The typology shows the ENGOs' role in each of the identified relationships along with their corresponding types of action.

Table 5 *Typology of relations between ENGOs and official development assistance donors*

	ENGO's relationship	ENGO's role	ENGO's action
Environment-development divide	External advocacy	The ENGO seeks to change the action and decision-making frameworks that indirectly govern the donor's activity or to change the donor's practices to make them less damaging to the environment.	• Indirect pressure: media exposure and protest campaigns, political lobbying, and public awareness. • Direct pressure: targeted information or pressure, corporate petitions and more or less formal meetings. • Legal action through the courts.
	Critical collaboration	The ENGO seeks to change the donor's practices to make them less damaging to the environment.	• *Upstream phase:* participation in the development of sector strategies, principles and guidelines for action with the donor. • *Implementation, conduct and control of the change:* assistance with the onboarding of the promoted approaches. • *Downstream phase:* evaluation, capitalisation and consultancy.
Environment-development integration	Environmental cooperation	The ENGO seeks to gain the donor's support for its own activities. It endeavours to take part in developing the donor's dedicated activities upstream of their implementation.	• *Upstream phase:* environmental awareness raising, proposal of plans of action, project development and negotiations on the approaches. These interactions take place informally, within formal networks or within formal partnerships. • *Implementation* of the dedicated activities on the ground/role of middleman for other grassroots players (*via* projects under contract). • *Downstream phase:* submission for evaluation and joint communication on the issue or project.
	Service	The ENGO provides a service and meets donor demand.	• *Upstream phase:* response to calls for tender. • *Implementation* of the activities commissioned by the donor.

Source: authors.

These relations are on a sliding scale based on how they see the relationship between the environment and development. Two groups can be distinguished. *(i)* The first two types of relations support the environment-development dialectic of insurmountable incompatibilities and real antagonism between the two issues. The ENGOs in this group seek to reach and change development's environmentally destructive aspects. *(ii)* The second two types of relations are focused not on the antagonisms, but on the potential synergies between environmental protection and development. ENGOs and donors together seek areas of activity in which they can both work together and jointly achieve ecological and poverty reduction goals.

Each of the four identified categories is presented in more detail below.

External advocacy

External advocacy comprises the media information campaigns and lobbying conducted by ENGOs and the legal action they take against players more or less directly associated with donors. The ENGOs, like other types of NGOs, use these methods to effect an overall change in policies and practices indirectly connected with development aid and consequently the donors. Their goal in this is to raise the game on certain issues either ignored or barely addressed by the development sector (Prieur and Guignier, 2006). They also seek to act as a watchdog over activities for which the international institutions are responsible given their political commitments (Maltais, 2008).

Studies on advocacy, prolific in the fields of political science and international governance, would have us believe that this external critic and advocacy role played the NGOs is vital. They document, for example, the way in which NGOs influence political agendas (Arts, 1998; Slaughter, 2000), the conditions for their participation in political debates (Hudson, 2001) and how they work by building networks and coalitions (Jordan and van Tuijl, 2000). However, these studies are rarely based on specific cases showing ENGOs at work.

The reality of the ENGOs' actions actually shows that they invest little in this relational strategy with development donors. They tend rather to target primarily the leading international institutions (mainly the multilateral donors). Only the ecologist movement ENGOs, whose officially adopted and stated line of action is external criticism, appear to lend themselves to exposing bilateral donors. Examples of this can be found in the Greenpeace and Friends of the Earth campaigns on the "sustainable management of the Congo Basin forests" policy supported by the French cooperation agency (Amis de la Terre, 2011). In similar messages, these

two ENGOs charge that the French aid policy's environmental performance is overestimated, biodiversity degradation ongoing and benefits for local populations hypothetical. Yet these approaches are still relatively one-off and sporadic.

Critical collaboration

As with the previous category, the ENGOs with critical collaboration relationships set out to reduce the environmental impacts of development policies. However, criticism here is less head-on: they do not use shock tactics. Their aim is instead to draw on more in-depth knowledge of the activities with potentially negative impacts on biodiversity, of the targeted players' constraints and so on, to support them in their drive to promote development that is truly sustainable, hence the chosen term, "collaboration". The ENGOs see this primarily as an opportunity to improve donors' environmental impact reduction procedures.[20] There is also the possibility here for discussing and even co-building strategies, programmes and projects for urban development and investment in the private sector and other areas such as rural electrification and so on. The ENGOs also see it as an opportunity to interact with development players who are not directly involved in environmental protection and have not received any special biodiversity training. They believe that educating these players will really reduce the environmental impacts of development.

Nevertheless, despite both ENGOs and donors expressing a will for critical collaboration in our survey, this relational position is as yet absent from the literature and concrete examples of critical collaboration are still few and far between. One example can be found in the meetings between donors and NGO platforms. In France, development NGOs meet at the Coordination Sud platform, but only a very marginal number of ENGOs are members and the subjects addressed consequently rarely concern the environment. In addition to these meetings, the ENGOs try, when they are asked, to influence the content of donor strategies and certain donor programmes. Yet these interactions remain *ad hoc*. There do not appear to be any really established collaborative movements.

Environmental cooperation

This position is not about criticising development and its impacts. The ENGOs seek to use these environmental cooperation relations to encourage donors to develop a portfolio of activities devoted to the environment and biodiversity protection. Donors are targets for the ENGOs in that they work in ecological interest areas

[20] Environmental safeguards, impact studies, management plans and environmental evaluations.

and have resources for action at their disposal. For their part, given that the environment is part of their agenda, the donors seek the expertise they need to take these issues forward. The main focuses of environmental cooperation between ENGOs and bilateral donors hence concern the sustainable management of natural resources, especially forests and coastal ecosystems (fishing management), the sustainable financing of biodiversity conservation, the links between biodiversity conservation and poverty reduction, and ecosystem services and market instruments for biodiversity conservation.

Our research shows that environmental cooperation also takes the shape of various types of more or less formal exchanges. It is found in the signature of contracts for financial transfers to fund concrete actions in the field for three- to five-year periods. It is also seen in the signing of partnerships that formalise collaborative thinking, but are not necessarily accompanied by financial transfers (although they can facilitate them in the medium run). Less formal exchanges are also fairly common in forms ranging from the joint monitoring of a study conducted, for example, by a foreign affairs ministry through to joint participation in international networks such as the Business and Biodiversity Offsets Programme and the Conservation Finance Alliance. Last but not least, ENGO and donor members forge personal relationships that they use daily in their work. Many of them also have cross-cutting careers whereby they may already have worked in both types of structures. This gives them even stronger personal networks.

These environmental cooperation relations, as we call them, seem quite buoyant as the type of relationship most mentioned and discussed in the survey. Note, however, that the literature has little to say about this relational position.

Service

As with the case of environmental cooperation, the purpose here is to cultivate the synergies that exist between the environment and development. Yet the ENGO in a "service" relationship is no longer a co-player in the defined project. It assumes that the donor has mainstreamed the environmental issues and positions itself as a service provider meeting the donor's demand.

The role of service provider, or development operator, is relatively well documented in the literature on development NGOs. These are the brokers described by Olivier de Sardan (1995) in his essay on development players. As indicated by practitioners working in the development agencies, the donor-NGO couple forms the operational arm of the countries' cooperation policies. It is encouraged in that it makes for a distribution of official development assistance to the beneficiaries, made possible

by the NGOs' grassroots work capacities. It is nevertheless criticised for its systemic effects (as defined by Crozier and Friedberg, 1977), i.e. all the adverse effects that this way of organising action can have with, for example, the NGOs complying with donors' demands because they need the funding at the expense of defending the recipient populations' needs and expectations (Bebbington, 2005).

Given that our research is based mainly on interviews at the headquarters of the organisations studied, we have not expanded on this relationship. However, our surveys do show that it is relatively rare today to find a service relationship between an ENGO and a development donor.

This typology clarifies the array of relationships that can exist between ENGOs and donors. As such, it forms the basis for a discussion of the environmental potential of the interplay of ENGOs and donors.

1.3.3. The environmental potential of the interplay between ENGOs and donors

ENGO members, donors and the literature concerned[21] all agree that although onboarding of environmental concerns is on the increase among development aid agencies, it is still inadequate. What are the obstacles to the effectiveness of the present ENGO-donor interplay and what is its potential?

The misunderstood critic?

As we have said, external advocacy is still thin on the ground and targets mainly multilateral donors. Why? External criticism is expensive: media campaigns require considerable human and financial resources. In addition, advocacy implies taking a political position that is virtually carved in stone: it is impossible for an ENGO to use shock tactic advocacy against a player and then try to set up projects with that same player. Some national particularities also need to be considered to identify the role and place of advocacy. In France, for example, the fact that the NGO network is not well structured and the low level of NGO involvement internationally are put forward as elements that restrict the ENGOs' critical capacity. In the United Kingdom, where DFID presents a very strong poverty reduction line, comparable to an impregnable party line (Juhem, 2001) in that it cannot be challenged, it is hard for ENGOs to devise sound, critical messages in the face of such causes, even if their purpose is to challenge more the means than the ends.

[21] See, for example, the evaluation by the Independent Evaluation Group on the World Bank's environmental action: IEG, 2008.

Similarly, we have also stressed that critical collaboration relationships between ENGOs and donors are still scarce. Some observers believe that ENGOs, in keeping with the principle of sustainable development, prefer to seek synergies and avoid antagonism. Moreover, since 2008, the financial crisis appears to have diverted political attention away from environmental issues, thereby making donors less open and sensitive to criticism and ENGOs less justified in investing in such actions. A further brake seems to be found in the fact that it is hard for ENGOs to gain access to the development practitioners concerned, whether those in charge of environmental safeguard procedures or those responsible for an environmentally damaging activity sector. The former play an internal advocacy role and diplomatically negotiate the integration of the environment into the operational departments. Too much of an official display of working with ENGOs could have a disruptive effect that these departments and the institution as a whole do not yet appear to want to risk. The latter are neither used to nor even think of working with ENGOs that, in any case, rarely have extensive technical expertise in their field. ENGOs then find it hard to get a clear grip on all the complexities of the donors' activity, which is a vital step if they want to position themselves as critical collaborators.

The "critical" aspect of the ENGOs' relationship with the donors is therefore trailing somewhat today. A demand for it to play a role is found both in the literature and among the players interviewed. A number of studies show that advocacy actions have been instrumental in bringing about environmental change in the past (Corson, 2012; Smouts, 2001; Singer, 2004), sometimes after periods of misunderstanding and strong tensions between the players concerned. The prospect of development practitioners working for more sustainable biodiversity management is also highly instructive when these players mention their need to have ENGOs put the pressure on in different critical ways to justify and underpin their own internal constructive criticism position. Here we have the conditions for action by internal environment players (Leménager, 2010) being advanced. It is worth noting, however, that criticism does not need to be articulated and frequent to work. It constitutes a threat in itself and today appears to drive an unconscious screening process: projects that are too environmentally damaging are spontaneously excluded from the portfolios of donors who fear the ENGOs' potential reaction. In addition, the pressure-reaction interplay is often long term. Criticism in the form of advocacy cannot be constant. It has to seize on particular opportunities to maximise its heckling, opinion-leading effect.

Basically, our research shows that if we want to stay on an environmental track, we really need to strike a delicate balance in this between these critical relations. This means having ENGOs with their different missions complementing one another to ensure the continuity and effectiveness of the criticism. It also means having well-

constructed, well-argued criticism targeting strategically chosen players to increase leverage and drive forward change. Last but not least, efficient development of critical relations calls for donors to be willing to listen to criticism, including that which is sometimes perceived as being too vehement, if not unfair. It is the entire pressure-response system as a whole that will steer a course towards more sustainable horizons.

The effectiveness of environmental cooperation: From a win-win solution to the risks of compromise

As we have just seen, ENGOs currently do not provide much of a service. Firstly, donors do not launch many direct calls for bids on biodiversity. Service can then only be indirect, i.e. ENGOs can put in bids for calls launched by donors' borrower partners. Yet bilateral donors to date do not provide much environmental financing. It is therefore logical to find few ENGOs involved at the end of the chain.

The environmental cooperation relationship, however, appears to be more dynamic, even though development aid organisation budgets have been on the downturn since 2008, which has clearly had a negative effect on formal partnership relations with ENGOs. The creation of formal and informal networks is hindered by the turnover of ENGO members and even more so donor staff, who change jobs very regularly. Yet although these informal relational networks are obviously inadequate, they are nonetheless decisive: ENGOs and donors meet, discuss, learn from and influence each other. They help swing the balance of power more towards the ENGOs and appear to be key to the formalisation of "biodiversity" projects on the ground.

Evaluations of the environmental effectiveness of environmental cooperation have quickly turned up the project-based organisation of activities as being an obstacle. The limitations of this approach are discussed as much in the literature (Lecomte, 1986; Bierschenk, 1991; Olivier de Sardan, 1995; Billé, 2010; Guillet, 2011) as by practitioners themselves. Everyone raises the point that the project-based way of working is incapable of taking root in the real system and hence fostering lasting results. The constraints preventing a shift away from the entirely project-based action model come mainly from the donors' organisational model: the time bounds of their allocations and their own short programme cycle (generally four years) have repercussions on the activities financed. In addition, there is the donors' fear of fostering a "subscription" situation, i.e. where continued funding for a given recipient becomes a source of inefficiency as the recipient takes it for granted that they will obtain the funds. Others (Van Der Heijden, 1987) have long studied possibilities for improvement such as tailoring action models to the country and intervention site. Yet this is tantamount to totally rethinking the intervention approaches based on

a diagnosis of the targeted management situation, which is far from taken as read (Nelson, 2009).

The question of the environmental effectiveness of integrative relations includes that of how players negotiate the objectives of the projects they build together. If they agree on the sustainable development concept in general, how do ENGOs and donors go about discussing it when it comes to its implementation?

All the players agree that there are win-win solutions that meet both development and environmental objectives (such as pollution reduction and national resource management concerns). It is clear that advancing and optimising these action strategies is a course of action worth pursuing.

However, some critics say that donors are only willing to support conservation programmes if they have a direct development leverage effect for the populations. Yet there are circumstances in which ecosystem maintenance is only possible where clear protection choices are made, in essence implying restrictions on certain uses. This situation fuels criticism (often driven by preconceived ideas as pointed out by Redford, 2011) from development practitioners of certain biodiversity conservation projects deemed inadequately "social". Yet such criticism is rarely made of major infrastructure projects (power lines, dams, roads, etc.) which are not designed to secure direct benefits for the local populations and which can even have extremely negative impacts on these people. Either way, any potentially negative social impact must be taken seriously. Redford *et al.* (2008) show that the majority of poor populations live on the outskirts of urban areas, while no more than 0.5% of the poor live in areas of high biodiversity. As they say, this observation should not prevent anyone from making the most of the potential synergies between conservation and poverty alleviation goals, but it does challenge the idea of conditioning conservation programmes solely on their potential to contribute to this cause.

Furthermore, implicit, ambivalent negotiations underlie the meeting between ENGOs and donors. Few studies have analysed these relations, but the studies of cooperation relations between development NGOs and development donors shed some light on this subject by showing that NGOs often tend to camouflage their expertise to adjust their positions to the mainly procedural expectations of the donors, which compromises the effectiveness of the projects ultimately defined (Leroy, 2008; Rosner, 2009; Elbers and Arts, 2011). NGOs do in fact display a tendency to bow down to donors' demands (Lister, 2000; Michael, 2004) and to use the doctrines championed by the donors rather than basing policies on their own empirical knowledge (Edwards and Hulme, 1998; Hanafi, 2005). However, some experts believe

this donor influence to be less unilateral. They believe that players each adjust to the appro-aches promoted internationally. In terms of the consequences for action, many practitioners are worried about mission drift from an ecological goal to a diluted mission when clear ecological objectives have been analysed as one of the decisive factors for the environmental effectiveness of the ENGOs' strategies (Gaudefroy de Mombynes and Mermet, 2003; Guillet, 2011). In particular, this could lead ENGOs to withdraw from areas of great importance in terms of biodiversity. Foregoing a mission centred on ecological objectives and adopting "integrated" environmental protection for development goals moreover tends to lead ENGOs to abandon their core mandate. Strong integration, if not a reformulation of the ENGOs' mandate, implies organisational changes and the need for new resources (Guillet, 2011). This could, in a situation of financial restraint, gradually lead them to replace their envi-ronmental expertise with development expertise. Yet even with ENGOs tending to become development NGOs, there is little chance of their finding their place in an already highly organised sector.[22] This means there is a real risk of ENGOs losing their credibility and their expertise.

Conclusion

This study feeds into the studies on environmental governance. It focuses more specifically on the interplay between two of its players: the major biodiversity and environmental conservation NGOs and the official development assistance donors. These relations have grown in the past decade even though they remain marginal compared with their respective partnerships elsewhere. Our research shows that they are more subtle and diverse than the relatively uniform adoption of sustainable development goals would have us believe.

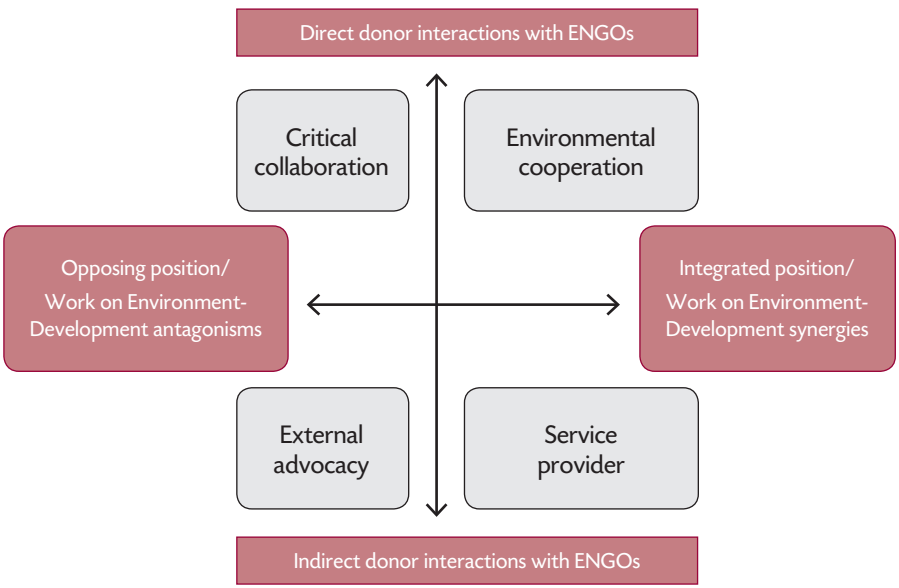
To clarify these multiple relations, we have drawn up a strategic typology on a sliding scale from opposition to integration of environmental and development concerns. It identifies four relational positions: "external advocacy", "critical collaboration", "environmental cooperation" and "service". Although the "external advocacy" and "service" roles are largely described in the development literature, these relations prove to be fairly rare in our case studies. However, "critical collaboration" and "environmental cooperation" – covered much less by the literature – are relations that ENGOs and to a lesser extent donors are keen to develop.

[22] For example, note that the WWF's annual budget stood at €494 million in 2010 (EUR; 2010 Annual Report), CI had a budget of approximately 116 million dollars (USD; 2010 Annual Report), while Oxfam's annual budget was €894 million (2010-2011 Annual Project) and CARE's budget was €665 million (http://www.carefrance.org/?page=page&id=25).

By clarifying the diversity of these relational opportunities, we can consider their effectiveness and their environmental potential in a landscape where the majority of players agree that donors still do too little to take environmental action compared with the observed environmental stakes. Our analysis notes the role of advocacy and the fact that environmental criticism is sparse today and often misunderstood. It hence calls on ENGOs and donors to facilitate its expression and its place to be able to strike a balance more conducive to environmental improvement. The analysis of the two collaborative positions highlights the need to scale up the promotion of win-win solutions conducive to both development and the environment. Nevertheless, it would appear that being too systematic about finding a compromise can also become counterproductive and potentially end up stripping ENGOs of their expertise and their credibility at the expense of environmental performance.

In addition to the analyses produced, we feel that the typology constructed can form a strategic tool for thought, especially for the donors. Combined, for example, with the more or less direct nature of their interactions, it paves the way for pragmatic thinking that can help guide an assessment and a projection of the landscape of possibilities (see Figure 1).

Figure 1 *Relational opportunities between donors and ENGOs*



Source: authors.

What shape do our current relations take? Where can they be placed? How can we create a level playing field? Which players should therefore be supported? These are just some of the questions a donor could usefully ask upstream of any partnership decisions with regard to ENGOS, while targeting an embraced new environmental deal.

This exploratory research gives a glimpse of the wealth of lessons that can be learnt from a systematic, in-depth analysis of the interplay of stakeholders in development aid. We believe that gaining a better understanding of these interactions to improve their management is a promising research aim in a landscape where the studies turned up by our research are few and far between. Investing in improving our knowledge of critical collaboration and environmental cooperation could usefully assist both donors and ENGOs with their operational thinking.

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1.4. Sustainable forest management: A management concept and arrangements that restrict biodiversity mainstreaming[23]

Maya LEROY, Géraldine DERROIRE, Jeremy VENDÉ and Tiphaine LEMÉNAGER

The Rio Summit may have produced the UN Framework Convention on Climate Change (United Nations, 1992*a*) and the Convention on Biological Diversity (United Nations, 1992b), but it concluded no legally binding agreement on forests. Yet the statement of principles on the management of forests drafted by the Rio Summit stipulates that "forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual needs of present and future generations," (United Nations, 1992*c*). It hence lays down, in sustainable development terms, the foundations for the dominant paradigm that has sought to balance economic, environmental and social concerns for "sustainable forest management" (SFM) these last twenty years.

Yet forests have continued to be subjected to intense pressure throughout this same period. The latest global forest resources assessment by the Food and Agriculture Organization of the United Nations (FAO, 2011*a*) finds an average global rate of deforestation of 13 million hectares a year for the 2000-2010 period for a total forest area of just over four billion hectares. Although the rate has slowed somewhat compared with the 16 million hectares a year in the previous decade, deforestation remains a huge concern, especially for tropical forests, as confirmed by the forest resources assessment's recent remote sensing study (JRC and FAO, 2011). In addition to the conversion of forestland into agricultural and urban areas, other direct causes of deforestation are intensive logging and roads and other infrastructures in forest zones (Shvidenko *et al.,* 2005). The causes and effects of forest degradation, on the other hand, are less well known and less studied since degradation is harder to define (IPCC, 2003). Nevertheless, the Millennium Ecosystem Assessment (MEA, 2005) gives the figure of 789 million hectares of fragmented and open tropical forests for a total of 2,027 million hectares of tropical forests (meaning that 39.3% of tropical forests are degraded). This situation is largely responsible for biodiversity erosion and endangered species. It has also exacerbated the problem of climate change and is more generally an element in the erosion of environmental goods and services affecting all the economic and social services associated with these ecosystems.

[23] This chapter draws on research funded by AFD in 2012 (Leroy *et al.*, 2013).

This observation has prompted a number of studies to point up the shortcomings of the sustainable forest management concept, its polysemous nature, its compartmentalisation under too many different approaches, its unrealistic goal and how hard it is to implement, especially in Southern countries (Nasi and Frost, 2009). Few studies have actually sought to conduct a systematic assessment of how this concept and the arrangements it has helped build manage environmental concerns. In recent years, the management arrangements promoted for SFM have diversified and been scaled up to the point where deep ambiguity has set in between the practices actually adopted and implemented and the rhetoric developed around them. It has now become vital, after 20 years of implementation, to explain the effects of these arrangements and reconsider the choices made from their ideological, theoretical and practical angles. From this point of view, this study ties in with a critical school of management science thought that questions the nature and purposes of the management processes and their actual responsibilities in terms of outcomes, especially in their social and environmental dimensions. What forms of institutional, economic and social arrangements does SFM promote today and for what environmental performance? Such is the question that this research conducted from January 2011 to April 2012 sets out to answer (Leroy *et al.*, 2013).

1.4.1. Theoretical and methodological framework

A critical management science approach

The purpose of management research is to describe and analyse concrete situations in which people organise and set up arrangements in a move to manage the achievement of a goal they have set. The "management arrangements"[24] that are built and used in these situations – which are necessarily contingent and rooted in the ground (Martinet, 2000) – combine a number of principles and forms of rationality that management science seeks to make comprehensible and actionable (Girin, 1990; Barbier, 1998). "Management arrangements", as Moisdon (1997) puts it, form a broader concept than management tools (or instruments), since they specify "what types of arrangements of men, things, rules and tools seem opportune at a given moment."

[24] The term "management arrangements" is an imperfect translation of the French term "*dispositif de gestion*", which designates a heterogeneous assembly of human and material elements put together to meet a specific goal and embedded in practical situations. It is a hybrid combination of management tools, players and ways of coordinating action. It can be seen as a convention negotiated and adopted by the players in order to construct a particular management model.

A critical analysis is required to make these processes intelligible. The key is to think outside the box in which management arrangements are perceived as the mere implementation of policy choices, seen from a purely technical and functionalist angle. Management arrangements are not neutral: they deploy and organise social, technical and scientific dynamics and ultimately affect people and ecosystems. It is therefore vital to make their principles, if not the management doctrines behind them, comprehensible (Leroy, 2006 and 2010).

We have shown in previous studies that such an analysis also calls for the means to evaluate the performance of the arrangements with respect to the commitments made, in particular in terms of environmental effectiveness (Leroy, 2006; Leroy and Mermet, 2012; Mermet *et al.,* 2010). This is also developed here.

Original methodology

We use two types of data to describe the management arrangements studied.

We first conducted a vast review of the literature to build text corpora taking in academic texts, grey literature from different institutions concerned by SFM and legislative texts. We then conducted a number of in-depth keyword analyses of these different corpora totalling nearly 2,500 texts. For this, we considered three corpora, which we addressed systematically:

- The scientific literature corpus, accounting for approximately two-thirds of the texts analysed, which reflects the scientific world's debates, positions and controversies (90% published in English over the 1990-2011 period).
- The grey literature corpus, making up some fifty texts covering the 1986-2011 period, generally for use by managers and policymakers (and sometimes the general public), which was analysed to improve the identification of the management arrangements implemented, the strategies and debates in the forums addressing SFM, and the public forest policies.
- The corpus of legislative texts, dating from 1907 to 2011, which was examined to understand the legal frameworks governing tropical forests, the spread of standards and the regulatory structuring of SFM in tropical countries.

The trends identified by the keyword analysis were linked to the types of players driving them, the countries they come from, the journals that publish them, and the dates on which they were developed. These analyses formed a first phase of work, providing the wherewithal to then conduct a more precise analysis of the concept of "sustainable tropical forest management" based on an in-depth reading of the references collected together.

We then completed this analysis with some forty interviews, which provided the information we needed to clearly pinpoint the practices and compare them with the legislation and debates in scientific and political circles. We interviewed key tropical forest management and evaluation players representing different types of mainly French-speaking institutions (intergovernmental organisations, NGOs, managers, manufacturers, donors, consulting and audit firms, and researchers). Particular attention was paid to arrangements developed by French players (or in more or less close partnership with French players) so as to identify any particularity with regard to the French, and more broadly French-speaking, approaches to sustainable forest management. Two types of interviews were conducted. The first were designed to find out about the types of management arrangements and practices used by the respondents and the link between these practices and their conception(s) of sustainable forest management. The second focused on understanding tropical forest management environmental evaluation practices.

1.4.2. Findings and lessons

Intense regulatory activity: legally translating the SFM concept

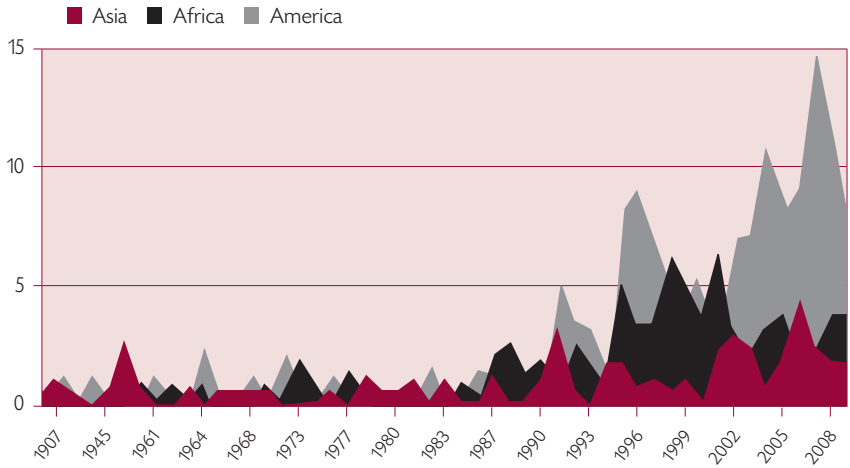
The development of the SFM concept saw a huge amount of legislative and regulatory activity in the different tropical countries (Chart 1). In 1987, the majority of tropical countries (44 of the 56 studied) had no forestry legislation as such. A first phase of legal activity to govern forest management was seen following the boycott of tropical wood and concomitant with the Brundtland report. Then, following Rio and the failure of the talks to find a binding agreement on forests, a series of UN measures were introduced to underpin the implementation of the recommendations contained in the non-legally binding statement of principles for forests. Emphasis was placed more particularly on the reform of forestry legislation, especially in tropical countries. These international negotiations gave rise to over a hundred "proposals for actions" to improve the management of forests and the creation of an instrument to guide forest policy reform: the national forest programme (NFP), which was drawn up with FAO funding.

Yet various players on the international scene were not convinced about the possibilities for concrete change these negotiations offered. Starting in the 2000s, due mainly to the difficulties tropical governments encountered in enforcing their forest policies (Ongolo and Karsenty, 2011), measures were developed in parallel, based on approaches other than mere forest policy implementation. Forest management standardisation approaches hence gained ground, driven by new private governance standards. The "Principles, Criteria and Indicators" (PCI) guide-

lines, initially regional and for government use (FAO, International Tropical Timber Organization [ITTO] and Center for International Forestry Research [CIFOR]), became structured with the advent of ecocertification as market tools and labelling introduced to guide the practices of forest farmers and sector players. NGOs, business and the private forest sector are the pillars of this drive, even though it often remains under the watchful eye of governments keen to protect their national interests (Guéneau, 2011). The widespread development of voluntary commitments to foster new market tools was also scaled up for biodiversity and carbon storage with the introduction of payments for ecosystem services, the entry into force of the Kyoto Protocol and the prospect of the new REDD mechanisms. They continue to provide normative frameworks, the subjects of uninterrupted revisions to the national legal frameworks.

In 2010, just two of the 56 countries studied did not yet have forest legislation. The majority of those with forest legislation had also introduced regulations, signalling their political will to enforce the legislative texts. The new legislation has secured governments' sovereign rights over forest property by defining the areas of public forest management and restricting rights to use related resources. Yet a number of developments have also created the conditions required for a transfer to private or community forest resource management. These moves are accompanied by a standardisation of management instruments (mapping tools and land-use plan, development plans and different types of concessions), tax breaks for forest farmers and incentives to encourage participatory management and the mainstreaming of conservation measures.

Chart 1 *Growth in the annual production of legislative and regulatory texts for 56 tropical countries*



Source: Leroy et al. *(2013).*

A small range of arrangements: operational implementation of the SFM concept

We drew on the groups of bibliographic sources produced by the keyword analyses of the scientific, regulatory and grey literature corpora compared with our interviews to identify the main management arrangements, i.e. the main ways of putting the concept of sustainable tropical forest management into operation today. These were then grouped into three major categories differentiated by their priority goals, even though they all claim to cover the three economic, social and environmental strands of sustainable forest management (Figure 2).

(i) Improve forest harvesting: these management arrangements concentrate on sustainable forest harvesting. The principle is to work environmental and social concerns more or less fully into existing forest management practices to ensure the longevity of timber production. Sustainable forestry development, reduced-impact logging (RIL) and forest certification are the main features of this category.

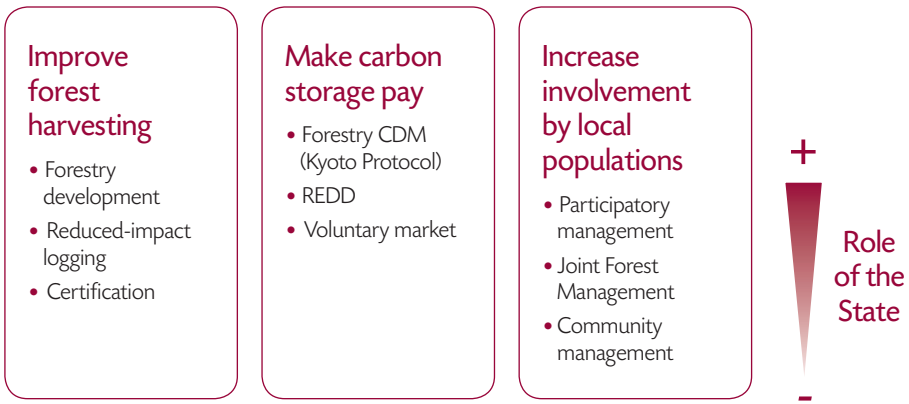
(ii) Make carbon storage pay: since the emergence of climate change concerns, a number of arrangements have been developed to increase or maintain the level of carbon storage in the forest ecosystems. The forest management projects can secure carbon credits based on the idea that carbon sequestration and the

reduction of greenhouse gas emissions are positive externalities to be remunerated. These credits are traded on the compliance market (calculation of the credits is part of the Kyoto Protocol goals) such as the forestry clean development mechanism (CDM) for afforestation and reforestation projects or on the voluntary markets (not covered by the Kyoto Protocol and therefore not binding). Nevertheless, credits traded on the voluntary markets are certified by standards that differ, among other things, in the importance they place on the environmental and social co-benefits of associated projects. The Reducing Emissions from Deforestation and Forest Degradation mechanism (REDD+) under construction could give rise to the development of local greenhouse gas-reducing forest projects and national strategies designed to restore regulatory power to governments.

(iii) Increase involvement by local populations: the observed trend here has long been to decentralise decision-making and involve local populations more closely in development projects. As regards forest ecosystem management, this movement has given rise to a number of management arrangements based on the principle that SFM can only be achieved by maximising the participation of populations concerned locally. Examples of these management arrangements are joint forest management, community forestry and communal forests, to name but a few.

These three categories of management arrangements remain centred on the development dimension of the forestry sector. The line taken is to internalise the externalities in order to integrate the environmental and social constraints into the forestry sector's economy. Although the "making carbon storage pay" arrangements set an explicit environmental goal in terms of carbon stored or not emitted, the environmental quality of the forest spaces created or maintained by these mecha-nisms can prove to fall far short of the ecological characteristics of a natural forest ecosystem, especially as regards biodiversity concerns. Similarly, although the arrangements designed to increase the involvement of local populations set an explicit social goal, this is primarily to facilitate stakeholder engagement in the smooth running of the forestry sector activity. In none of the cases is the environmental or social goal seen as possibly being at odds with the sector's economic objective.

Figure 2 *The three main categories of management arrangements*



Source: Leroy et al. *(2013).*

The operational interpretation of the SFM concept is hence limited to a relatively small number of management arrangements, which can moreover be hybridised. They are based for the most part on a model of regulation by the market facilitated by the introduction of economic instruments and contractual arrangements between stakeholders. All in all, they tend to reduce government intervention in the management arrangements to its legislative oversight role, in particular to provide the legal supervision required to implement the promoted arrangements. Management as such is now handled mainly by private operators and public-private partnerships. These doctrines, typical of the sustainable development standardisation process (Leroy, 2010), make for project fragmentation and project implementation by a multitude of regulatory bodies promoting voluntary initiatives rather than binding or interventionist rules. This standardisation takes the form of the introduction of reference frameworks, themselves competing to become established as "the standard". Inter-national audit firms are highly active players in this standardisation drive (Leroy and Lauriol, 2011). Forest certification and the competition between the main standards, FSC and PEFC, is the most concrete example of this (Mione and Leroy, 2013). There has been much criticism of the private sector's incursion into sustainable development governance (Godard, 2005), which aspires to a management that is as ethical as it is profitable, but which today does not appear to further taking direct responsibility for environmental concerns (Leroy, 2010; Palpacuer *et al.*, 2010). It is this last issue that is analysed below.

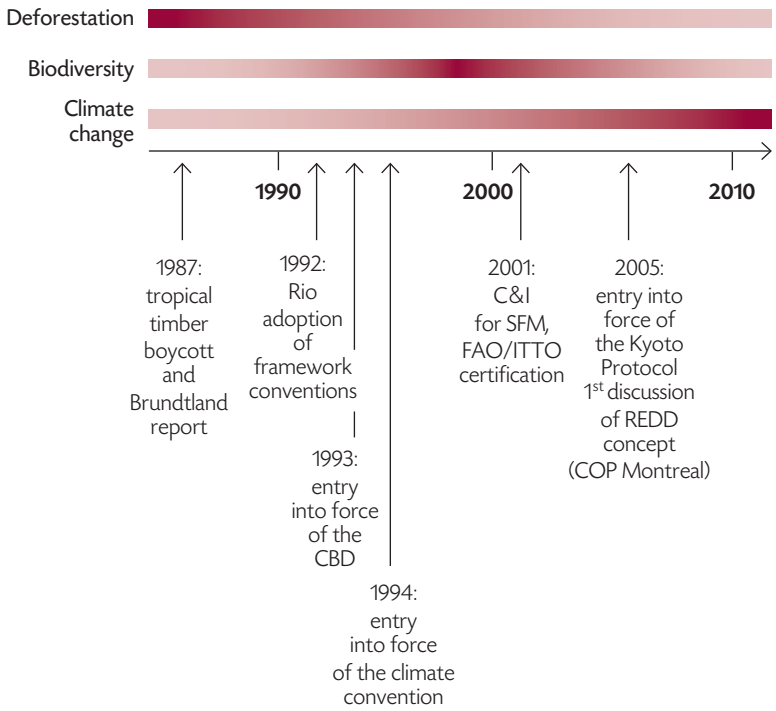
1.4.3. Is SFM as it stands today really responsive to environmental concerns and especially biodiversity?

Despite the creation of the SFM concept, a flurry of legal activity to transcribe it into many governments' public policies and the creation of various arrangements to implement it, the state of the tropical forest is still just as alarming (FAO, 2011*a*). Why is this so?

As we said at the start of this study, the concepts used and the management arrangements they help implement are not neutral. They are bearers of values. Being both technical and social, they galvanise and organise specific social and scientific dynamics and drive actions to be rationalised based on management doctrines and using instruments that will impact on both people and ecosystems.

Our keyword analysis of the corpus of scientific articles on SFM singles out, among other things, the key words that their authors use the most. Whereas production concerns, especially wood production, are central and stable over time, nowhere near the same stability is found when it comes to environmental issues. Three main concerns have emerged in turn, following the developments in the more general environmental policy debates (Figure 3): *(i)* the early 1990s saw a focus on deforestation as a whole; the entry into force of the Convention on Biological Diversity in 1993 was then followed by the development of *(ii)* the biodiversity issue, which reached its height in the early 2000s through to the emergence of *(iii)* the climate change issue, which exploded onto the scene in 2005 along with the entry into force of the Kyoto Protocol and the first discussions on REDD. It is important to note that "biodiversity" and "climate change" concerns appeared in the Francophone literature later than in the Anglophone literature. Francophone research is still more clearly focused on logging, silviculture and forestry development as ways of managing sustainable development issues. This general development would seem to suggest that international negotiations have a not-inconsiderable influence on the research focuses developed on SFM and that the scientific circles working in this field pick up on existing debates rather than initiating them. We also observe that one environmental concern tends to replace another as these debates move on.

Figure 3 *Development of environmental concerns in the scientific literature on SFM*



Source: Leroy et al. *(2013).*

A reading of this chronological development of environmental concerns addressed by the scientific literature on SFM shows that biodiversity held a choice place in the early 2000s. Yet our analyses found that no specific biodiversity management arrangement had been developed in connection with SFM, unlike the "carbon" arrangements in particular, which arrived later. We therefore conducted a more in-depth analysis of the precise content of the articles on SFM addressing biodiversity and conservation in order to gain a better understanding of this asymmetry in the handling of environmental concerns and their potential for expression in operational management arrangements.

The first observation is that the literature on SFM addresses conservation and biodiversity issues in a highly specific way, essentially in terms of the conservation of the tree resource, and hence conservation of a forest cover made up of marketable species in productive forest areas. The observation can sometimes be quite severe,

arguing that current management and development measures fall short of a sustainable rate of removal of commercial species by logging (Sist and Ferreira, 2007; Zarin *et al.*, 2007). The main proposals on which there is a consensus are in favour of rotation cycles and reduced-impact logging.

A relatively dim view is also taken of stand growth dynamics and the effects of logging on plant biodiversity (Lacerda and Nimmo, 2010). And publications focusing specifically on biodiversity concerns do not address plant forms other than the exploitable species any more than the rest of the literature does: few studies focus on undergrowth, creepers or epiphytes except in the case of resources used or sold by the local populations such as non-timber forest products. These are studies targeting one or a few species in order to define sustainable logging thresholds.

The fauna is also largely ignored as the analyses focus mainly on mammals, generally the large emblematic fauna (Meijaard *et al.,* 2006; Stokes *et al.,* 2010; Rayden *et al.,* 2010), bats (Presley *et al.,* 2008; Castro-Arellano *et al.,* 2009) and birds (Holbech, 2005; Danielsen *et al.,* 2010). Studies of fauna are virtually all conducted in managed forests, generally for the purpose of comparing animal populations between sustainably managed forests and protected and unmanaged logged areas. A number of authors stress that protected areas are insufficient to play an effective conservation role. They hence raise the importance of preserving fauna also in logged areas, but generally do not mention the ecological limitations of such a management objective (too much pressure, etc.; see Ancrenaz *et al.,* 2010). All in all, the studies remain quite eclectic: study of insects for their role as an indicator of disturbance (Aguilar-Amuchastegui and Henebry, 2007; Akutsu *et al.,* 2007), but nothing on amphibians despite the fact that they are known to be highly sensitive to changes in environmental conditions. In addition, few publications simultaneously address fauna and their habitat.

Very little mention is made of protected areas and they are not associated today with the concept of SFM from an academic point of view (as borne out by our interviews). This situation exists even though some field players we met who are more directly involved in protected area projects (forests or otherwise) felt they should be seen as sustainable forest management concerns.

This analysis hence shows that the academic literature on SFM displays only a glancing interest in biodiversity conservation and considers it a secondary issue behind the central concern of logging. Likewise, the scientific sector dealing with conservation and ecology and its associated journals has very little to do with the sustainable forest management sector. In this, biodiversity conservation issues and practices remain overlooked by SFM even though they are a pillar of tropical forest ecosystem concerns.

Turning to the legal and institutional roll-out of SFM, this has indeed driven some environmental improvements to forest policies in tropical countries: mainstreaming of the ecosystem aspect of forests, scaling up of impact studies, better forest protection measures with a ranking of forest estates to be protected and conservation goals, command of certain deforestation factors (forest clearance and fire management, definition of protection and conservation measures for development plans), etc. Yet the forest approach taken generally remains utilitarian with standards centred on timber logging. Moreover, these environmental improvements made by changes to tropical countries' forest policies still face the same constraints: the shortcomings of the regulatory strand of the new legislative provisions, complexity of the forest sector's institutional system, a shortfall in human and financial resources assigned to services dealing with forestry affairs, and a lack of skilled staff and technical means. And although most of the countries have written environmental impact studies (EIS) into their national legislation, some have not yet adopted this measure. Most of those who have officially done so have extremely vague EIS definitions and legal-institutional guidelines. In addition to certain legislative shortcomings, the bibliographic analysis and information collected by the interviews turn up the fact that EIS are still rarely conducted, including in countries where they are required by law. A number of factors stand in their way: the creation of the dedicated EIS structures provided for by the legislation is often held up or shelved and, in certain cases, EIS responsibilities are split between the environmental administration and the forest administration due to a frequent dichotomy between forest ministries and environment ministries.

At the end of the day, regulations foster the development of new arrangements without necessarily fulfilling their oversight role. This plays down the fact that an administration must have binding regulations and controls for these arrangements to work properly (including those using "market" instruments).

Note, looking back over the management arrangements to which SFM has contributed, that the analysis shows that the vast majority of these arrangements focus on the economic development of the forestry sector.

The most explicit are the arrangements designed to improve logging. The loggers' main argument is that SFM is the only way to maintain a profitable activity and hence prevent the forests' conversion for other uses. Yet many of these loggers point up the environmental limitations of these arrangements based on the blunt observation that it remains inevitable that logging changes the forests' ecological balances.

Arrangements designed to make carbon storage pay may well have an explicitly environmental objective addressing climate change, but their purpose remains primarily economic for operators who invest in "carbon" credits. Whereas some

operators see carbon as an "umbrella" issue serving to address (if not facilitating the handling of) broader environmental concerns, others remain sceptical and the simple fact is that carbon-market-related forest management methods have not yet been proved to be environmentally effective.

With respect to arrangements designed to increase the involvement of local populations, one of the lines is that local populations' traditional practices and knowledge based on ancestral social standards do a great deal to protect the natural resources, even if this is not the stated aim. Yet the multitude of local situations and contexts rules out any hasty generalisations as to the environmental effectiveness of participatory forest management methods.

This review of the different SFM arrangements therefore shows that they are of little value to the environment, despite the specific advances and innovations that each one can bring. The ambiguity found with respect to both their capacity to mainstream the environmental dimension and their capacity to make it effective, and hence produce change for ecological improvement, raises the question as to how much attention is paid more formally to these arangements' environmental evaluation processes.

It is quite common practice to have two main separate types of formal environmental evaluation tools: ex-ante appraisal and ex-post evaluation. The ex-ante appraisal is designed to identify the potential environmental impacts of a given project and to propose measures to prevent, reduce or offset them. The ex-post evaluation is conducted mid-term or at the end of the project to measure the effectiveness of measures taken *in itinere* or ex post in order to measure the environmental effectiveness of the arrangements analysed. In the ex-ante phase, the environmental appraisal generally takes the form of an environmental impact study (EIS) or a strategic environmental assessment (SEA). Nevertheless, the small number of observed applied forest SEAs lends strength to the idea that it remains a highly marginal instrument in this sector to date. Unlike the EIS, there is no legal obligation to conduct an ex-post evaluation in the tropical countries. In the forestry sector, these evaluations remain at the logger's discretion. Yet they are encouraged and promoted by the donors. Nonetheless, our bibliographic research turned up very little in this area, confirming our findings in the interviews. To conclude, and despite a few encouraging signals, formal environmental evaluations of SFM arrangements still seem to be thin on the ground in operational terms (see Box 2), even though the analysis of environmental outcomes obtained by these arrangements – to wit ex-post evaluations – is supposed to form a driving force for checking and improving environmental effectiveness.

Box 2 *The environmental evaluation of the SFM arrangements*

Today, an ex-ante environmental impact study (EIS) is almost systematically required in forest areas, especially those under the control of the forest administration or a forest protection scheme (forest reserves, protected areas, etc.), whenever there are plans to build structures or infrastructures, launch development projects, set up mining operations, establish industries, etc. However, impact studies are generally not conducted of the "SFM arrangements" themselves. The few publications that address the question of environmental impact studies in the forestry sector are only interested in the management of the industrial and health risks of forest-based industry infrastructures. Ex-post environmental evaluations of SFM projects are not published. The few evaluations there are concentrate on the implementation of procedures and the use of resources rather than outcomes. These management arrangements are actually often considered to be "sustainable" and "green" by nature, hence ruling out any idea of environmental evaluation. Moreover, the subject is too often labelled as a governance problem with the forestry sector rather than a problem with the nature of these arrangements and their environmental performance. Considering that the environmental criteria are not made very clear at the outset, it is understandable why few measures are taken to check the environmental effectiveness of these arrangements.

Conclusion and recommendations

The often-implicit theories underlying the three main types of SFM arrangements combine management by the market with contractual arrangements between stakeholders. Environmentally speaking, they generally seek to correct negative environmental externalities by endeavouring to integrate certain concerns into economic activities while fostering more broad-based participation by operators, especially in the private sector. In the case of SFM, environmental and social objectives are still largely perceived as costs and constraints on logging rather than as innovative strategic challenges for the management of these ecosystems and the preservation of their environmental qualities. Tensions also persist between SFM, focused mainly on logging, and an environmental conservation sector perceived as a potential block on the industry's development.

"Spontaneous" mainstreaming of the environment, expected from the moment the arrangements are implemented, gives these arrangements an autonomy that tends to distance players from their responsibility for the effects they produce and for their steering. Environmental responsiveness is therefore addressed but marginally.

The situation could doubtless be greatly improved. *(i)* Improving the linkage between forestry sector knowledge and conservation knowledge by holding informed, constructive dialogue between the reviewed arrangements' stakeholders and biodiversity sciences players is key to the promotion of suitable and truly environmentally friendly solutions. *(ii)* The clear definition of an ecological standard combined with a strategic environmental evaluation dynamic for the forestry sector would also drive a stakeholder learning and accountability process. Lastly, *(iii)* introducing systematic intersector dialogue between the forestry sector and other sectors putting pressure on the forests (agricultural, mining and infrastructures) is vital to identify the constraints and leeway for improving the forests' environmental management arrangements. It is unrealistic to think that the forestry sector can alone provide environmentally effective sustainable forest management.

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1.5. From agroecological principles to practice: What is their environmental effectiveness in Zambia? [25]

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The term "agroecology" is increasingly used when considering and discussing the future of agriculture, especially in developing countries. Agroecology first appeared in the academic literature in the early 1980s (Wezel and Soldat, 2009), defined as both a science and a set of practices (De Schutter, 2010). American academic Miguel Altieri, one of the major figures in the development of agroecology, associates it more particularly with the five following principles: *(i)* optimising nutrient flow and recycling biomass; *(ii)* managing organic soil matter and enhancing soil biotic activity; *(iii)* minimising losses due to flows of solar radiation, air and water by way of micro-climate management and soil cover; *(iv)* species and genetic diversification in time and space; and *(v)* enhancement of biological interactions and synergisms beneficial to the agrosystem (Altieri, 1995). In addition to these principles, the term "agroecological" is applied to a range of what are actually heterogeneous techniques and approaches such as agroforestry, conservation farming, direct seeding mulch-based cropping systems, crop-livestock integration and organic farming. This heterogeneity has prompted much debate on the scope of agroecology. A number of studies propose enhanced definitions of agroecology such as those by Stassart *et al.* (2012) who add eight principles to Altieri's five. Yet there is never a clear, precise form of agriculture to be found behind this semblance of a concept. We have to accept that we are actually looking at a number of agroecologies. However, most studies agree that, in principle, agroecology drives agricultural system change and modernisation and that it offers a dynamic innovation pathway that can provide solutions to the environmental damage laid at the feet of current conventional farming practices (erosion, long-term soil fertility depletion, water pollution, crop diversity loss, greenhouse gas emissions, etc.). What really is the case in practice? What we are interested in here is understanding the actual environmental potential of agroecology. For this, we propose analysing this potential in the light of the principles characteristic of the agroecologies found on the ground. We then analyse the extent of the adoption of what are known as agroecological practices, followed by the concrete forms these principles take "in practice" on the ground.

[25] This chapter is based on research funded by AFD in 2013 (Ehrenstein and Leménager, 2014).

Our approach draws on research conducted in 2013 (see Ehrenstein and Leménager, 2014) and is based on actor-network theory, which focuses on the range of issues and actors concerned by the sociotechnical processes that the emergence of a problem and the promotion of an innovation or an institutional change represent (Akrich, 1987; Callon *et al.,* 2001). Our reference to this school of research means we give pride of place to what the actors have to say, including those who normally have the least voice. The approach addresses agricultural innovation (here agro-ecological innovations) and the projects that drive it (public policy, development projects, associative action, etc.) as processes punctuated with frictions and clashes that each play a role in changing the promoted technique, how it is promoted and the world into which it seeks to fit (Akrich, 1989; Callon, 1999). By identifying and analysing these processes, we can examine how certainties are established, how the entities and concerns to be taken into account are defined, how priorities are fixed and how these operations are potentially destabilised.

The approach adopted is also empiricist. We take our study beyond the debate of principles to observe what happens in practice based on a case study in Zambia, often considered to be an agroecological success (Garrithy *et al.,* 2010, Pretty *et al.,* 2011). We conducted 25 semi-structured interviews in Zambia with various stake-holders involved in the agricultural sector and the promotion of sustainable forms of agriculture, including donors, Zambian NGOs, researchers, farmers, ministry staff and agricultural sector representatives. Their firsthand accounts of the experiments they are working on form the main substance of this chapter, rounded out by a review of literature on Zambia and agroecology in general.

We first present the dominant Zambian agricultural model – maize monocropping – and its limitations. We then look in turn at the two main agroecological options tested in the country today, i.e. conservation farming (CF) and organic farming (OF). We analyse each option's principles and adoption process so that we can then look into their actual environmental qualities. In the light of these elements, we discuss the real potential of seeing an environmental transition emerge in the Zambian agricultural sector and the role of the donors seeking to drive forward this change.

1.5.1. Conventional farming in Zambia: a dominant model in crisis?

Government policy: maize monocropping and commercial agriculture

Zambia, in the south-east of the African continent, covers 750,000 km^2 and has a population of 13 million inhabitants (Tembo and Sitko, 2013). In 2013, the country counted some 1.6 million small farms (up to 20 hectares, with three-quarters of the rural population holding just 2.5 hectares per farm). These small farmers' rainfed farming is largely dominated by maize. In the mid-2000s, this crop accounted for nearly half of the national calorie consumption (Chapoto *et al.,* 2012). In the 2011-2012 season, 86% of farmers with less than 5 hectares grew this cereal. The following season (2012-2013) generated no less than 2.5 million tonnes of maize, when the country produced 210,000 tonnes of soya and 155,000 tonnes of groundnuts (Tembo and Sitko, 2013).

Subsidised family (mono)cropping

Following the country's independence in 1964, the Zambian government conducted a series of interventions that stimulated maize farming among small farmers (Smale and Jayne, 2003). With the country's enforced structural adjustment in the late 1980s, the government had no choice but to reduce these subsidies, which were nonetheless gradually reintroduced starting in the late 1990s. A two-part maize-growing subsidy is now in place. Upstream, the Fertilizer Input Support Programme (FISP) subsidises fertilisers and seeds (hybrid maize). In 2012, approximately 900,000 farmers (nearly 60% of all Zambian small-scale farmers) benefited from this public maize support policy (Mason *et al.*, 2013). Downstream, the Food Reserve Agency (FRA) buys the maize produced at a set price for all. The agency has become a central player on the national market. As it buys everything it is offered, it can sometimes absorb over half of all production (this was the case in 2008 and 2009). Production is then sold on locally to millers for a slightly lower price than the purchase price. The millers are supposed to pass this benefit on in the final price for the processed product (Mason and Myers, 2011). Government intervention has hence forged a "social contract" designed to fix a reasonable consumer price without undermining the farmers' standard of living (Chapoto, 2012; Mason *et al.,* 2013).

The development of farm blocks encouraged by the World Bank

In the early 2000s, the government also started driving forward the development of commercial agriculture by supporting the expansion of farm blocks (Govereh *et al.,* 2006; Nolte, 2013). The idea here is to set up infrastructures (roads, irrigation and

electrification, etc.) to encourage commercial farmers to invest in government-held land. This agricultural development model has been supported by the World Bank since 2009, with the Bank's largest project in Zambia being an irrigation system covering three farm blocks with a surface area of thousands of hectares each. This project defines no guidelines as to the type of agriculture to be developed in the area encompassing the farm blocks. In particular, there is no mention made to encourage agroecological practices. The move to attract commercial players associated with an extensive investment drive ultimately appears to be rather more conducive, although unofficially, to the agricultural intensification model defended by the green revolution.

Tension between a productivist ideal and reported ineffectiveness

Agriculture concerns a large proportion of Zambians, forming the main livelihood of over two-thirds of the population (Chapoto *et al.,* 2012). Yet this rural population is hard hit by poverty and national average yields are relatively low. In 2012, maize yielded just 2.1 tonnes per hectare (Tembo and Sitko, 2013). On the one hand, low productivity could prompt the development of green revolution methods, which are still often seen as ideals. Yet on the other hand, the rise in rural poverty (which donors believe justifies their presence in Zambia) places a question mark over whether government policies conducted to date should continue in the same vein.

Indeed today, there is growing controversy over the role of the subsidy policy. Since the mid-2000s, the Indaba Agriculture Policy Research Institute (IAPRI), a Zambian think tank funded by American aid, has been criticising this system, which taps over 60% of the agriculture ministry's budget every year. The organisation has shown in particular that subsidies go to farmers who would have been able to acquire the inputs without support, when the programme is supposed to be reducing rural poverty (Mason *et al.,* 2013). IAPRI has also shown that the system of purchase by the reserve agency ultimately encourages an increase in the maize price, especially for the consumer (Mason *et al.,* 2012). This critical diagnosis is shared by donors working in the agricultural sector and the union of Zambian farmers, the Zambian National Farming Unit (ZNFU). Although these criticisms of the economic effectiveness and political legitimacy of the measures are gaining voice, there is very little mention of the environmental damage done by monocropping and chemically-intensive agriculture despite the ringing of international alarm bells on this issue.

Two agroecological options have developed alongside this dominant (albeit criticised) model in Zambia: conservation farming (CF) and organic farming (OF).

1.5.2. A conservation farming trend

The three principles of CF

CF in Zambia is built on three principles: *(i)* minimum soil disturbance by digging and working planting basins: these are small individual holes into which seeds are sown and a maize plant or other is planted; *(ii)* permanent organic soil cover from the previous crop's residues and *(iii)* crop rotation or mixed crops. Formalisation of what is called the basin technique has given rise to technological innovations. A special hoe called a "chaka hoe" has been designed and put on the market for farmers to be able to dig these basins more easily. A tool called the "ripper" has also been developed for farmers working with cattle. It is used to dig shallow trenches, whose spacing has been gradually stabilised. The promoted techniques are developed by research in testing stations where figures on yields are produced and by tests in the fields where farmers themselves become testers. The purpose of this is to evaluate the utility of the innovation, i.e. based on the opinions of the players met, how farmers feel about it and whether they want to continue with the practice.

A host of project promoters supported by the donors

The Conservation Farming Unit: a development association turned key player

CF developed in Zambia as of the mid-1990s, driven by a few farmers who came together to create the Conservation Farming Unit (CFU) in 1996. This body gradually set down the above-mentioned three CF principles in Zambia. In its first ten years of consultancy, the organisation forged a special relationship with the Norwegian Embassy. In 2005, the CFU started looking to develop its own initiatives and become independent. It therefore launched an initial five-year programme funded by Norway (2006-2011). The Norwegian funds gave the unit the means to expand and become properly established: it now has 70 to 80 staff based in Lusaka and a number of decentralised offices. In 2012, it embarked on a second phase to take forward its promotion of conservation farming in Zambia. The unit also receives additional funds from Norwegian aid to set up partnerships in other East African countries. As one of its founders puts it, "CFU has trained everybody in Zambia" in CF. It has gradually positioned itself as the place to go for any project seeking to develop direct seeding.

A public entity: the agriculture ministry supported by European aid

The agriculture ministry is also involved in CF with the support of the European Union (EU), which launched a project in 2009 to promote CF in Zambia. The CFU is consulted on an *ad-hoc* basis for its technical expertise. The EU works with the

FAO and the ministry at four levels of the Zambian administrative structure: the capital, the provinces, the districts and the camps. At central administration level, a few civil servants making up a national coordination unit work with the FAO. This unit supervises the provinces, which themselves supervise the districts and so on. A dedicated project unit is set up at each level, with the exception of the camp level where the correspondent is the Camp Extensionist Officer (CEO) already stationed within the Zambian administrative set-up. The CEO constitutes the Zambian agricultural administration's closest organisational level to the ground and plays a key role in making contact with farmers to be trained up on CF.

A private cotton company: Dunavant

Other non-governmental players also promote CF in Zambia, albeit on a smaller scale. This is the case, for example, with the private Dunavant Cotton Company, one of the largest multinationals on the world cotton market. In the 1990s, the company turned its attention to soil conservation techniques (Haggblade and Tembo, 2003). Today, it is part of the "Cotton made in Africa" labelling initiative.[26] This public-private partnership launched by the Aid by Trade Foundation is an association of German aid, the Bill and Melinda Gates Foundation and cotton growers. Its purpose is to produce cotton based on sustainable, acceptable environmental and social practices. In Zambia, this goal takes the form of the promotion of CF to farmers supplying Dunavant.

Nature conservation NGOs

Last but not least, there are a number of initiatives in Zambia managed by environmental NGOs combining nature conservation with the development of CF. Norway and USAID, for example, subsidise a project managed by NGO WCS. The project works around the South Laungwa national park, internationally renowned for its wildlife, where it promotes agroforestry, direct seeding and the use of compost to the neighbouring populations. WCS buys the production (mainly groundnuts), which is then sold under the "It's Wild" label in most of the country's cities. Similarly, WWF launched a CF promotion project in the area around the number three Zambian national park, Sioma Ngwezi National Park, in 2009. The initiative was funded by WWF Netherlands and Germany and the Swiss cooperation agency from 2009 to 2012 and concentrated in part on promoting sustainable farming techniques to farmers living around the protected area. The NGO's aim in this was to improve

[26] See the foundation's website for a presentation of the initiative: http://www.cotton-made-in-africa.com/en/

the preservation of the park's biodiversity, as it is a key sanctuary for elephants and acts as a corridor with the neighbouring countries of Botswana and Angola. Working with local communities, the idea championed by the NGO is to reduce human vs. wildlife conflicts and improve farmers' agricultural yields to guarantee their food security and spatial stabilisation.

A unique organisational model to promote adoption: the lead farmer

Regardless of who is managing the project, CF promotion in Zambia always takes the same operational path, known as the "lead farmer". Local CFU staff identify "lead farmers" in their assigned areas, who take a few days' training course. They are then tasked with holding training sessions themselves for farmers they know on a demonstration plot they are encouraged to set up by means of incentives in kind (seeds, equipment, etc.). A member of WWF explains that they train "community leaders" in the same way, who are then paid 100 dollars a month and given a bicycle. Cotton producer Dunavant has a member of staff first train in-house a number of "trainers of trainers", who in turn train 10 to 15 lead farmers each. The EU-funded project also uses cascading training to promote CF. Given the agriculture ministry's involvement in the projects, central and decentralised administration staff (CEOs) are trained alongside the lead farmers. The lead farmers, who also receive incentives to set up demonstration plots, then train "follower farmers". The lead farmers hence play a key role in the way in which CF training has become institutionalised in Zambia. As middlemen between development project players and farmers, they need to display many qualities. Our respondents said these lead farmers need to be farmers themselves since "farmers learn better from their peers," but that they also need to demonstrate "opinion leadership" qualities seen as "credible in the eyes of the targeted communities." They also have to be capable of "taking intensive training and passing it on."

Adoption challenges and evaluation

A small, controversial number of takers

Zambia is often presented as an agroecological success story (Baudron *et al.,* 2007; Garrithy *et al.,* 2010; Pretty *et al.,* 2011). Yet there are no accurate figures available to substantiate this claim. The EU estimates the number of adopting farmers at 250,000, whereas the Director of the CFU puts this figure at approximately 140,000. A mere estimated 10% of Dunavant's suppliers (approximately 1,000 farmers) adhere to CF principles. And IAPRI calculates that just 5% of all Zambian farmers (some 80,000) have adopted one of the practices promoted by the CFU (Arslan *et al.,* 2013).

This uncertainty over take-up numbers, both from the European delegation and the CFU, is due to the emphasis on monitoring adopting farmers, a task that is delegated to lead farmers. CFU representatives are also circumspect about the difference between the number of reported participants and the adoption figures found by the IAPRI statistical study. Like others, the CFU regrets that these figures are based on a survey that was not designed to investigate CF uptake, and which therefore has certain methodological shortcomings. However, the organisation does acknowledge the need to ask the question as to the effectiveness of CFU methods while raising the point that "it seems natural [for a lead farmer] to exaggerate the figures."

Despite the uncertainty over the number of farmers adopting CF, few players appear to doubt the future success of CF. The argument most frequently put forward in this respect is the increase in yields. A former member of the project's national coordination unit claiming to relate what the farmers were saying explained that direct seeding, "increases the yield to up to 5.4 tonnes per hectare while yields of maize in Zambia are around 2.1." These are the figures quoted by everyone in Zambia and they tie in more or less with the theoretical work of Haggblade and Tembo (2003), conducted virtually entirely in a laboratory. One EU representative said, "When you look at the yields, it's clearly better than conventional farming."

CF's promoters are therefore surprised that adoption is not more widespread and visible. As one member of the EU delegation summed it up, "CF has everything it takes to be a resounding success, so why is it not happening faster?" One answer, from the CFU, points up the limited financial resources available, "We're small, we have 25 million euros. It's peanuts." However, there are also other factors related to the way in which the projects are designed.

Underestimated constraints on the lead farmer model

As the CFU puts it, "You can't train everybody by yourself. You need intermediaries. It's logical." The lead farmer hence represents the key person in the transition of farming practices to agroecology. However, when CF players talk about the lead farmer, they seem to be referring to a generic image of an opinion leader without realistically considering the wherewithal required for such an individual to work. The story of Mr Mumba, one of the 1,800 lead farmers on whose shoulders the CFU places the responsibility of organising training, shows that their capacity for action as trainers depends on a number of parameters. Mr Mumba and his wife have received training from a series of intense CA training programmes since the mid-1990s. When he was selected to become a lead farmer for the CFU, Mr Mumba had already been practising conservation farming for ten years. He is also a former

church leader. One female farmer reports that this is why some people decided to take his training courses. Mr Mumba knows his area and its inhabitants well. He shows the thought he put into the targeted farmers when he explains that he took the local political system into consideration, inviting first the farmers with the highest social position before talking to the rest of the community. His involvement and his role therefore run much deeper than a few days of training and incentives from the CFU.

Although the lead farmer system is used by most of the interventions seeking to promote CF (the CFU network has an estimated 1,800 alone), what makes a lead farmer effective, how to identify a good lead farmer and the relationships to be forged with them are barely discussed or considered.

Demonstration plot versus the farmer's experience

By depending on the lead farmer as the only project player in direct contact with the farmers, CF's promoters find themselves somewhat cut off from realities on the ground. Although there does not yet appear to have been any qualitative study of precisely what these realities are, IAPRI shows an interest in addressing the subject. One of the think-tank's geographers, who has spent a lot of time in the field for his thesis, called the demonstration plots where the lead farmers train up farmers in CF "massively managed areas". The researcher felt it far from easy to make the transition "from this controlled situation to something that really works for the farmer." Other accounts bear out his scepticism. Consideration of new plot elements (the soil and its fertility, mixed crops, etc.) redefines the time and place of the farmer's intervention. Cynthia, a farmer, said that she no longer interplanted her maize crops because "beans were climbing on corn" and "it was messing up the field." She tested the suggestion made by an NGO for just one season. That year, she needed to work harder at the harvest because she had to unravel the tendrils wound around the maize. So despite their fertilising benefits, the farmer was unhappy with the beans even though she has a perfect command of the basin technique and has farmed exclusively this way for over nine years. Another example is that one of the major disruptions that direct seeding causes in farming life in Zambia is time-related. Farmers usually wait for the first rains to till the soil. Cutting out tillage means it takes longer to prepare the earth. Work then has to start in the dry season so that the seeds can be planted immediately the rains come, which the CFU holds is one of the advantages of CF since it means the maize is exposed longer to the rains, its only source of water, and this fosters the improvement in yields. The IAPRI geographer believes there is social resistance to changing the farming calendar, despite its economic advantage. The dry season is a period of rest, partying and

weddings. It is felt that CF's earth working requirements do not fit in with this pace: "Usually you work like a donkey during the rainy season then you relax, you drink, you go to parties during the dry season. It may be the problem with conservation farming: people don't want to work when others are having fun."

However, a study of the reasons for the adoption of a technical change cannot be restricted purely to the farming plot. When the farmers who practise CF are asked about the events that prompted them to take up this form of farming, it is the organisation of their social life as a producer that is put forward. Veronica, who has been practising direct seeding since 2009, explained that she continues to take the training proposed by the lead farmer because she needs to keep up her knowledge as she goes to shows where "I need to be able to explain what I do to share it with others." The farmers sell their seeds and buy from others at these annual shows. Since Veronica produces a lot, she has been chosen by her entourage as one of the demonstrators at these shows. Her account suggests that she continues to take the training given by the lead farmer because she wants to maintain her status as show demonstrator. So she maintains and perfects her expertise, which ultimately improves her harvests.

Farmers who embark upon an agroecological transition have to reconsider how they manage their plot, if not their farm, but also how they organise their social life during the dry season, manage the different work load, and so on. Although CF's promoters extol its higher yields, the farmers' landscape and realities reveal the role of social and aesthetic factors that many studies have defined as determinants in the farmers' decisions and choices of action (Schneider *et al.,* 2010).

We will now take a more concrete look at the environmental outcomes of the implementation of CF in Zambia.

Inputs and genetically modified organisms (GMOs): the surprise upshots of direct seeding and its implementation

In principle, CF presents a number of environmental qualities: it cuts out the need for tillage, and reduces soil disturbance and therefore the risks of erosion. The basin technique also stores water and fosters rational water management, especially in areas where water is scarce. Last but not least, direct seeding encourages the use of crop rotation and keeping the previous crop's residues to cover the plot. These two practices are intended to improve soil fertility and therefore reduce the need for fertilisers, which are criticised as pollutants. CF is therefore meant in principle to sustainably manage the natural resources (soil, water, etc.) and preserve biodiversity. But is this really the case?

One of the key environmental problems with farming is the chemical pollution caused by the use of synthetic inputs: fertilisers, pesticides and herbicides. From principles to practice, the CFU's priority is minimum soil disturbance: "Minimum tillage is the only thing we believe in." In addition, the public maize crop subsidy system actually dissuades farmers from practising crop rotation or intercropping. The CFU sums up the situation well: "Crop rotation: it's difficult. When you explain to somebody he should practise crop rotation...What if he knows he can only sell maize...then he will grow only maize." Consequently, although the use of fertilisers is not mentioned in CF's principles in theory, it is far from being a negligible element of the CF model deployed in Zambia in practice, due to the scarcity of mixed crops and crop rotation. The situation looks to be similar to some extent for pesticides. Dunavant, for example, which presents itself as a promoter of CF, distributes specialised cotton pesticides to farmers that are unfit for human consumption, but which uninformed farmers use on their food crops. There is also the fact, this time in direct relation with one of its principles (no tillage), that direct seeding means that use of herbicides is almost unavoidable since weeds are no longer mechanically pulled out by tillage. The CFU posits that herbicide use is certain to drop once the CF principles have been in use for a few years. In theory, "as you progress you need less and less fertilisers, less and less herbicides. The use of chemicals may decline with time." However, some players believe that the recent increase in their use on family farms in Zambia is directly due to the promotion of CF. "Weedkillers", as Veronica calls them, are moreover part and parcel of the package promoted by the CFU. To date, there do not appear to have been any documented cases of soil or water pollution associated with this increase in chemical input. However, a Zambian representative of WWF pointed out that "the Minister of Agriculture won't speak about water pollution. But it is increasing. The way they are promoting CF is not linked enough to the water problem."

Lastly, some CF promoters such as Dunavant not only defend the use of chemical input, but also advocate the authorisation of GMO crops resistant to glyphosate (a herbicide). The Zambian government is currently maintaining a moratorium on imports of genetically modified seeds, but, if the cotton-growing representatives are to be believed, things could change.

Some of the players who promote direct seeding today therefore have an ambivalent relationship with environmental issues. While the Director of the CFU feels that "nature is going to take its revenge," the promoted practices actually come down to a focus on the risk of erosion. Yet this means they take in the use of herbicides, fertilisers and pesticides. There does not appear to be any discussion in the promotion of CF of either the environmental health problems or the ecological

disturbance these products could cause, including indirectly *via* the introduction of GMOs. Yet these issues are central in the development of another alternative farming method found in Zambia, organic farming (OF).

1.5.3. The discreet development of organic farming

A multitude of agroecological innovations

Whereas the CFU strives to promote a stabilised form of farming designed by three principles for action: *(i)* minimum soil disturbance by digging and working planting basins; *(ii)* permanent organic soil cover from the previous crop's residues; and *(iii)* crop rotation or mixed crops, organic farming promoters in Zambia base their action on a multitude of small agroecological innovations for fertilisation, pest control, weed management, etc. All synthetic inputs are banned from the organic model. A systemic outlook is encouraged for the farm to become a truly self-sufficient agroecosystem with market gardening and cereals farmed alongside livestock (cattle and poultry) and other activities such as beekeeping. Livestock farming serves, among other things, to make compost and the kitchen garden is designed to optimise the positive interactions between crops throughout the year. The aim is to grow a range of plants. "It's not an exact science but it's based on experience." "We need to know the crops, grow them at the right time in the right way," as an agriculturalist met at the Kasisi Training Center (KTC) (see below) put it. He said, "We try to learn from nature," – "We plant companions." These crop combinations are also designed to reduce the space left for weeds to grow, hence doing away with the need to buy herbicides. One last example is the "chicken/banana" production system (Scott, 2013).[27] The combination is positive for the banana trees because it reduces, if not eliminates, the need to import fertilisers since the soil is constantly covered with chicken droppings. The crops also benefit from the animals' habit of pecking. This regularly picks out weeds and any parasites and reduces the farmer's expenditure on their food. The chickens gain from the shade of the banana leaves, which have the added benefit of hiding them from predators' eyes.

So there are a few model techniques, which need to be systematically tested in the farmed plot's specific situation and adjusted or changed if they do not work as planned. The purpose here is less to encourage the adoption of a technical package than to produce a clear understanding of the crops and their potential interactive

[27] See the description of the system on the experimental farm's blog onlined on 7 August 2011 : http://sebtree.blogspot.fr/, page consulted on 27 December 2013.

combinations. This includes drawing on the farmers' knowledge. Organic farming expertise is therefore set to evolve in the direction of the ongoing experimentation to which it contributes. In this, the approach resembles the type of research defended by the historical advocates of agroecology (Altieri, 1995).

Struggling to emerge around a small number of players

The emergence of organic farming in Zambia goes back to the early 1990s. The UK Soil Association, one of the most active organisations in the international development of OF, appears to have played an important role in the conversion of a handful of Zambian commercial farms to organic farming and the issue of certification (FAO, 2001). These conversions were designed mainly to export various products (vegetables, coffee, groundnuts, sesame seeds, etc.) to the European and especially the UK markets. The year 2000 saw the birth of the Organic Producer and Processor Association of Zambia (OPPAZ) set up to promote organic farming to supply both a national and an international market (OPPAZ, 2006). Few donors support its activities aside from USAID, which sees it as a way of alleviating poverty (FAO, 2011) Today, Zambia has an estimated 20 firms formally certified in organic farming (17 in 2006 compared with two in 1999[28]), although more farmers have been in contact with these practices without being certified (OPPAZ had 19,000 producers in 2006). In 2012, the country hosted the second African organic farming conference and OPPAZ is now ramping up its lobbying for the political recognition of this type of farming in Zambia.[29] Zambia's organic farming sector is also underpinned by the KTC, an OF test and training site (FAO, 2001). This farm-school is located not far from the capital, on Jesuit-owned land. Driven by one of these Jesuits, the centre has been selling certified products and giving a series of training courses on specific techniques since 1990: agroforestry, beekeeping, compost making, combination cropping, integrated pest control, etc. The courses are fee-paying, a cost that the NGOs often pay for groups of farmers. ODA-funded projects are rare, although the Canadian agency has been subsidising an initiative to train farmers to convert their farms since 2012.

Is the competition between agroecologies detrimental to organic farming?

Although the development of CF has raised some very visible interest, OF receives little funding and is supported by very few players, including in terms of research.

[28] http://www.unep-unctad.org/cbtf/events/nairobi2/Zambia%20ppt.pdf

[29] See the conference declaration: http://ec.europa.eu/agriculture/developing-countries/partners/au-organic/lusaka-declaration_en.pdf

There even appears to be tension mounting between the promoters of the two types of agriculture.

Organic farming, with its strict specifications (no synthetic inputs, biological diversity, etc.) and its systemic approach, has very few negative impacts on the environment in practice, in keeping with the theoretical principles laid down in the introduction. OF promoters also believe that they alone promote the "real" agroecology beneficial to both environment and farmer, which remains independent of the inputs industry and whose use is supposed to be more resistant to chance factors.

KTC members analysing the CF trend are critical and point out what they deem to be the limitations of this farming method, which in Zambia fosters the use of herbicides and monocropping if not the arrival of GMOs. In return, the CFU believes that OF is not a viable option because "it's not with their funny scientific experimentations that we will feed 20 million people." They also point up market problems: "Organic farming, it's nonsense! There are no markets." One of the unit's agriculturalists thinks that "organic farming has a bad reputation" with farmers. He refers to the requirements for conversion to obtain the OF label, a process all the more expensive since he believes that there is no premium attached to organic farming in Zambia today.

Palpable tension has taken hold between OF and CF supporters, and OF enthusiasts see their low profile as being the fault of the drawing power of CF promoters, especially the CFU. OF supporters explain that they also suffer from the fact that what they are trying to promote is incompatible not only with the national monocropping-oriented agricultural subsidies programme, but also with the major philanthropic programmes deployed in Africa today. One KTC agriculturalist explained that one of the main funders of these programmes is the Gates Foundation, which supports food security while promoting the use of GMOs in Africa. The Gates Foundation has effectively "blacklisted" the centre due to its anti-GMO positions struck with OPPAZ in line with OF defenders working on the international level. The line taken by the members of the farm-school is similar in this to the calls launched by the defenders of agroecology (as defined by Miguel Altieri) against the Alliance for a Green Revolution in Africa (AGRA), which defends biotechnologies as a solution to increase agricultural production in Africa and defend food sovereignty (Holt-Gimenez, 2009).

1.5.4. What are the best practices and methods?

The chances of an environmental transformation for the agricultural sector

The Zambian landscape is particularly interesting in that the country has not (or not yet) taken up the green revolution. The environmental, social and economic impacts criticised where green revolutions have taken firm hold are therefore limited in Zambia for the time being. The presence of agroecological alternatives supported by various players suggests that collective thinking on agricultural development methods is possible. Yet the weight of past policy choices, the current stage of public agricultural policies and pressure from green revolution players who see Zambia as a new playing field[30] all form potentially strong obstacles to an environmental transformation for agriculture, not to mention the aforesaid problems with organising the design and adoption of innovations. So what role can be played by development aid and the donors who are already highly active in Zambia?

Direct and indirect pressure for much-needed government onboarding

The importance of the maize monocropping agricultural policy is such that it seems hard to bring the government on board. Yet this needs to happen if more sustainable farming is to be introduced to produce greater food diversity. How can it be done? Two options are currently being tried out: one is based on and actively involves the government, and the other is being developed without government involvement *via* the CFU. Local stakeholders feel that these two options are at odds with one another. A spokesperson for the Norwegian Embassy in Zambia, which has opted for the CFU method, said of government involvement, "It's too bureaucratic." He believes, "This model is inefficient." He pointed out that civil servants spend most of their days managing the system of maize subsidies. A KTC agriculturalist also explained, in this regard, that he had trained CEOs in the past, but that, even though they were receptive, "The next day, a herbicide company asks them to help them find customers." The European delegation, however, has opted for government involvement. Its representatives believe that, although the problems of government involvement are well known, the CEOs will stay. This is an institution that may well be poorly equipped, but is in principle a permanent feature of the landscape. The EU has decided to work with them because "they were there before the project and they'll be there after." The delegation hopes that the agriculture ministry "will take up the project and provide the means" to carry on with what it has started.

[30] Large roadside posters often show Japanese tractors used for this farming and international pesticide players are moving into the country.

Rather than setting these two options against each other, we believe that donors could design them to be complementary and optimise their synergies. The government could be onboarded by means of awareness campaigns in the central and decentralised administrative system, although external actions should also be devised as a form of influence or pressure to prompt onboarding. The existence of the CFU and the KTC in itself has a more or less direct influence on the government. One EU representative described, for example, how one of the members of the Norwegian Embassy, the CFU's main partner and support, organised a field trip for the Agriculture Minister. Since "the minister hasn't stopped talking about how he saw two women: one practising CF whose plots were superb while the other, just opposite, had kept to conventional practices and her land was not attractive." The KTC agriculturalist explained that the farm-school is trying to convince the ministry, *via* OPPAZ, of the utility of encouraging an OF development policy, a project that looked to be under discussion in July 2013.[31]

Mainstream OF in the agroecological approach along with different forms of research and evaluation

We have seen that there is still little uptake of OF in Zambia even though it appears to have better environmental qualities (soil protection, crop diversity, etc.) than CF as practised by most farmers. In an environment of shared criticism of the current dominant agricultural model, development aid could help raise the profile of this form of farming. Note that there is very little research available that seeks to evaluate the yields obtained by an organic farming system in Zambia. Yet such information would be particularly helpful to improve the assessment of this farming method's productive functions. It would not help much to calculate a yield per crop, as is the case with conservation farming. It is the system's production as a whole that needs to be considered. A given crop's yield might be lower, for example, but this crop will optimise another crop next to it. In this way, donors could encourage both the different forms of research and the outcome evaluation associated with the agroecological process as a whole (experimental station, farmer-tester, etc.), but maybe especially with OF.

Furthermore, the market's main focus on buying and selling maize makes it complicated to develop any diversified production approach on a large scale, including for OF where the central principle is multiple cropping. Another course of action for donors might be to foster varied diets, multicropping-based market chains and demand for organic produce.

[31] See the association's website: http://www.oppaz.org.zm/about.php

Support an innovative approach combining agroecology and nature conservation

One last point we feel worth mentioning concerns the agroecological experiments conducted by nature conservation NGOs. With these initiatives, the NGOs propose an original approach whereby nature conservation areas (i.e. where productive use of the land is prohibited or at least highly restricted) are associated with productive, but ecological farming areas. These plots of land practise long-term, intensified direct seeding production, hence ruling out the need to move after a few seasons as it the case with slash-and-burn farming practised in the wooded areas around the national parks in Zambia.

This approach leads us to round out the discussion of the environmental limitations of CF. In fact, we are no longer looking here solely at encouraging agroecology, but at developing an agricultural approach interfaced with a biodiversity conservation policy. Zambia is still far from this configuration given the forestry and environmental administrations' shortcomings with regard to the agricultural sector. Donor intervention could balance out this situation.

Conclusion

Today, "agroecology" is one of the recurring terms found in development aid donor strategies. Yet as Bellon *et al.* (2009, p.4) put it, "Agroecology becomes a catch-word in many public and private organisations."

The research conducted here takes this observation and the environmental challenges of agricultural development and uses a field approach to compare agroecological principles with practice in order to discuss the actual environmental qualities of agroecology. The findings call first and foremost for the use of this term to be measured and its application to be considered in depth. They confirm that there is no one agroecological proposal as such, but a range of agroecologies promoted by different institutional set-ups giving rise to various socio-technical situations and offering a range of environmental potential.

The research conducted reviews three questions that we show to be closely linked. The first discusses the environmental qualities of different agroecological approaches based on their principles. The second seeks to understand more about why a given form of agroecology is adopted. The third question considers whether the farming adopted really does keep its environmental promises in practice.

Use of the sociology of innovation proves informative in this regard. Our study's focus on the farmers' experiences, organisation of the promotion of the innovations and the seeds of controversy seeks to reveal the real substance of the agroecological practices used, to show how they end up redefining the farmer's role, and to highlight the different ways in which agricultural development projects can be designed (since these methods are not all equally sensitive to environmental impacts). We believe this approach to be an important step in any environmental thinking.

Furthermore, although the agroecological approach already underway in Zambia is commendable, this exploratory study suggests that its success remains tenuous. Our work identifies four main messages that could serve as food for thought for the development of an ambitious environmentally friendly agroecology in Zambia and elsewhere.

The first message concerns how decisive it is to plan the organisation of the adoption of agroecological farming. Who should be supported and how? Our research reveals, for example, that bringing the government on board is key – but far from actually being the case – to ensure a new agroecological deal in Zambia. The study suggests that the government's engagement is conditioned by a subtle interplay of outreach, pressure, influence and training both internal and external to the

administration. It also defends the relevance of linking the promotion of agroecology to the upscaling of a biodiversity conservation sector.

Our research also suggests transcending the general debates that seek to determine whether organic farming has its place in agroecology or whether agroecology seeks to replace it. The analysis shows that there are sizeable differences in the environmental impacts of different agroecological proposals. In principle, conservation farming and organic farming both bear the promise of improvements. In practice, and to quote Caplat (2013, p. 85), conservation farming in Zambia is characteristic of "a form of conventional farming that is admittedly less pollutive, but resists any break with the dictates of industrial agriculture." Associating agroecology with, or at least restricting it to, conservation farming can therefore "become a source of confusion, if not a tool for manipulation" (*ibid.*). In this, any agroecological process that excluded organic farming would lose in environmental qualities in that, in both principle and practice, it is the organic farming that remains the most ambitious.

The third message turned up by our study is that the agroecological phenomenon still remains marginal across the board. This observation raises questions about the agricultural doctrines adopted by the international aid donors in particular. When agroecology is struggling so to emerge against the conventional model, is it not in the interest of public policymakers and donors to support it all the more actively to give it a real chance of emerging, rather than continuing with *ad hoc* support?

To conclude, although the study shows the wealth and diversity of the scientific approaches associated with the agroecological process, it also reveals the poor development of monitoring and concrete evaluation of results. Fostering field studies deploying the social studies, among others, can but enrich the debates and facilitate the implementation of better actions.

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Section 2

What intervention tools will drive forward the environmental turning point?

2

What intervention tools will drive forward the environmental turning point?

Following the first section's honed overview of the issues underlying the new environmental deal, this second section focuses more particularly on the intervention tools that development aid operators could use to take resolutely environmental action. All operators have to make management tool funding choices for what can be a wide range of project types. The question then arises as to whether the solution for the new environmental deal is not found in the type of intervention tool used. Basically, can changing the tool change the action and consequently its impacts? The introduction of new tools and discussion of their relevance, their possible positive and negative effects, and their potential for change is a subject of major debate in the environmental field. We have seen a succession of methods over the years, each taking the spotlight and placing hope in one or the other type of tool. We will see in this section that no tool can be deemed efficient in isolation. An instrument's particular features may well influence action, but it is only by analysing its implementation in given circumstances (organisational, political, etc.) and examining how it links up with other tools already in use on a historical timeline that we can understand and guarantee that it meets its full potential. Four articles illustrate and enhance this discussion, proposing methods to facilitate the analyses.

The first chapter (2.1) presents the findings of research conducted in 2012 at AFD's initiative by a consortium of international researchers headed by NGO African Wildlife Foundation (AWF). The article focuses on a fundamental biodiversity conservation tool: protected areas, and especially public protected areas (national parks in particular), private protected areas (such as private game preserves and wildlife tourism reserves in Africa) and community-protected areas (where village communities manage areas in which they protect biodiversity and benefit from positive returns such as ecotourism). Discussions of the tools' merits usually compare the

three types of protected areas and come down in favour of one or the other, with each argument outlining the general advantages of the tool it prefers and the disadvantages of the others. The research presented here takes an innovative look at the complementarities between these three types of tools with their different strengths, weaknesses and utility conditions. Drawing on two case studies conducted in Kenya, the authors prove the existence of such complementarities and reveal the many forms they can take depending on the geographic area concerned. They show that the effectiveness of the system made up of these protected areas is due mainly to the fact that these complementarities are implemented as part of a relevant strategy mix.

The next three articles address tools more recently used and hence often referred to as innovative. These are economic tools in support of biodiversity, i.e. an entire range of tools that send a price signal to trigger a behavioural change among targeted players.

The second chapter in this section (2.2) therefore looks into green finance tools. Drawing on research conducted by Damien Krichewsky and Tiphaine Leménager from 2012 to 2013, it presents the case of the implementation of an environmental credit line in Egypt financed by development donors for cleaner industrial installations. This financing programme can be deemed successful as it has shown real environmental effectiveness. The research presented provides a detailed analysis of the political and organisational conditions surrounding its implementation. Two salient observations are made. The first is that the financing tool worked seamlessly with the implementation of a proactive regulatory action, which formed a strong incentive to use the proposed funding to make the required environmental improvements. The second concerns the fact that a technical team with a core brief of pollution abatement appraised the projects, granted the funds and monitored their implementation. This meant that the environmental relevance of the projects proposed for funding by the credit line were the central focus of analysis at all stages of the procedures. This was an important factor behind the programme's good results. All in all, the article concludes that this credit line mechanism is more of a smart regulatory approach (i.e. rounded out by other tools working in synergy with the regulatory action) than a solution endogenous to the financial sector.

In the following article (2.3), Tiphaine Leménager and Yann Laurans set out the findings of their 2010 research on payments for ecosystem services (PES). They show, in particular, that the simplification effects promised by the archetypal PES model (direct payment agreement between an environmental service supplier and user) do not correspond to the reality of the situations in which these types of

payments are used. The many case studies available, such as those conducted by these authors, show the virtually systematic presence and fundamental importance of intermediaries who work on putting together and enforcing such agreements. The research also finds a wide range of payers who are by no means always the users of the environmental services negotiating on their own behalf. The paper proposes a typology of PES implementation situations based on different "payer" configurations. Do they use the services or not? Do they voluntarily contribute to paying for these services or is payment compulsory? This typology shows that a differentiated analysis of the PES mechanisms is more relevant to an examination of the tool's use in real action situations.

The tactic of placing the economic instruments squarely in the context of their use was pursued by a research project launched in 2011, this time covering all the economic instruments. This research headed by Laurent Mermet in association with Oxford University systematically catalogues (by means of a literature review and a series of interviews) the problems raised by economic tools for biodiversity when they are put into practice. A set of theoretical resources is then put forward to explicitly and thoroughly analyse the situations in which economic tools for biodiversity are used. The fourth chapter in this second section (2.4) takes up some of the findings of this approach and illustrates them with a presentation of one of the theoretical frameworks used: the theory of justification (proposed by Luc Boltanski and Laurent Thévenot). It shows how this theory sheds light on some of the controversies over values, controversies that are ever-present with economic tools for biodiversity and that, when they remain confused, compromise discussion of their design, relevance and implementation. This example illustrates the more general proposal made by this research: if these tools are to be used effectively, their economic rationality needs to be considered in the light of the political and organisational conditions in which they are used. Such an analysis is especially informative when it examines concepts and analytic frameworks that can shed light on the key factors of these conditions.

* * *

2.1. Greater than the sum of their parts: Exploring the environmental complementarity of public, private and community protected areas [32]

Delphine MALLERET-KING, Joanna ELLIOTT, Helen GIBBONS, Anthony KING † and Tiphaine LEMÉNAGER

The Millennium Ecosystem Assessment clearly demonstrated that all the Earth's ecosystems have now been dramatically transformed through human actions. The resulting biodiversity loss is undermining the provision of a wide range of ecosystem services on which humanity depends (MA, 2005). In this context of unprecedented crisis (IUCN, 2010), Protected Areas (PAs), which have long been the cornerstone of biodiversity conservation, are expected to play a central role (Bruner *et al.*, 2004).

According to IUCN, a protected area (PA) is "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural value," (Dudley, 2008). Protected areas are, however, not uniform. On the basis of ownership, three main categories of PAs may for example be differentiated: state PAs (SPA) owned by government or its agencies, private PAs (PPA) owned by individuals or companies with private land titles, and community PAs (CPA) owned collectively by communities. In most large conservation landscapes, a mixture of state, private and community PAs exists, generally resulting from a complex series of events over decades.

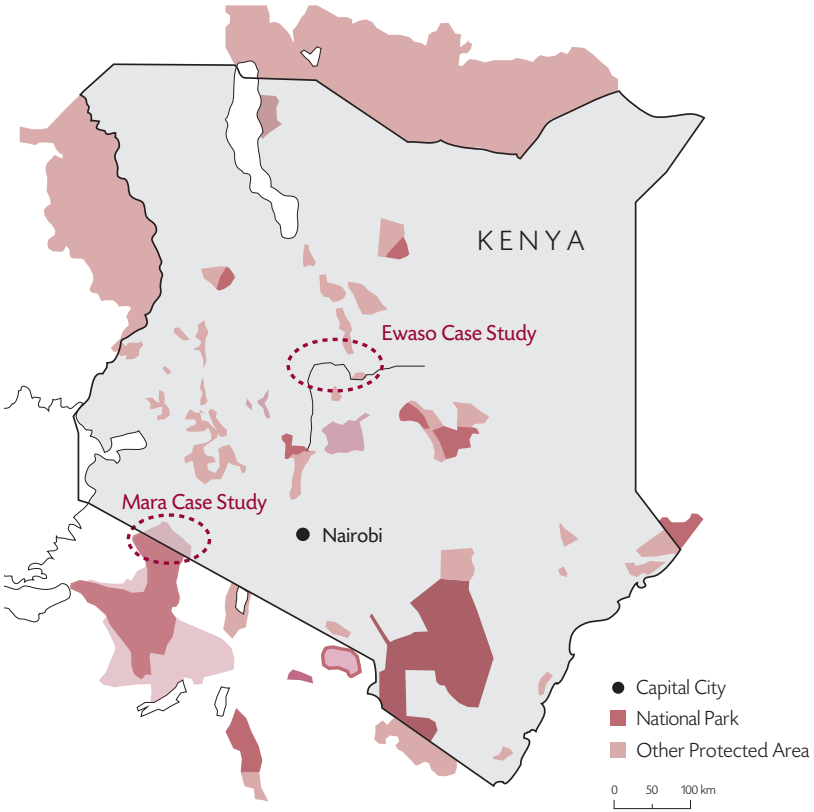
Interestingly, although considerable work has been done to understand the effectiveness of these different types of PA, it appears that there has been limited investigation of how a combination of different types of PA within a system affects its overall environmental outcomes, and thus, how a PA network can be improved, using these different types of PAs as management tools.

Consequently, the purpose of the study carried out over 18 months (2011-2013) was to fill this knowledge gap. Defining and using the concept of environmental complementarity, it explores whether or not the presence of different types of PA in a landscape affects positively biodiversity conservation outcomes (see Eliott *et al.*, 2014). In other words, its focus was to find out, in the words of Aristotle, whether the whole (i.e. the PA system) is greater than the sum of its parts (i.e. the individual PAs that make up the system).

[32] This chapter is based on research funded by AFD in 2012-2013 and published in the following article: Eliott *et al.* (2014).

Kenya was selected as the study's focus due to the wide spectrum of PA types represented in the country. The methodology incorporated a mix of in-country stakeholder interviews, a comprehensive literature review, and two landscape-level case studies: the Ewaso Nyiro and Mara ecosystems. They were chosen on the basis that they have a mix of PAs and rich information available (Figure 4).

Figure 4 *Location of the two case studies*



Source: AWF, ESRI, USGS, WDPA, 2009.

This paper presents the key findings of the research that focuses on how environmental complementarity can be understood, how it works on the ground, and how it can be used as a tool to optimise biodiversity conservation outcomes. The results presented are based on the Ewaso case study and nuanced by the findings of the Mara experience.

2.1.1. Few insights from the academic literature

No articles currently specifically define or discuss environmental complementarity between different types of PA, or provide any methodologies for analysing or measuring it. But a number of related concepts exist.

For example, for Margules and Sarkar (2007), complementarity is a central concept to systematic conservation planning. In this context, complementarity is understood as a measure of the extent to which an area contributes to adding unrepresented features to another area (Vane-Wright *et al.,* 1991; Margules and Pressey, 2000). Thus, literature on systematic conservation planning mainly contributes to assessing the ecological complementarity between different sites rather than the complementarity between different types of PA. More useful to this research is Moilanen's (2008) definition of the "conservation interactions principle": *"Conservation benefits of all conservation actions across the landscape and should be evaluated jointly and account for long-term consequences of interactions between actions".* Moilanen's approach of complementarity is more inclusive and relates to aspects of cost effectiveness, multiple conservation actions (protection, maintenance and restoration) and ecological interaction among sites (e.g. connectivity, immigration, emigration).

Complementarity between PA types is indirectly touched on in the literature mainly to argue the case for one type of PA. For example, the role of CPAs in enhancing connectivity in the landscape by providing dispersal areas in fragmented landscapes is emphasized by White and Martin (2002) and Bhagwat and Rutte (2006) while Shahabuddin and Rao (2010) argue that CPAs enhance the effectiveness of SPAs by providing corridors allowing wildlife movements, and a buffer against extractive pressures.

For Fitzsimons and Wescott (2008), PPAs enhance larger SPAs by providing linkages in the surrounding landscape in south-eastern Australia. In South Africa, Gallo *et al.* (2009) suggest that not only do private PAs increase the total area of land conserved, but the addition of private PAs to state PAs also nearly triples the number of conservation targets achieved.

The literature also highlights that PAs complement each other by increasing the diversity of habitat and species protected. Fitzsimons and Wescott (2004) and Gallo *et al.* (2009) show that PPAs complement SPAs in the type of biomes/habitats represented. The role of CPAs in protecting key species is highlighted in research on sacred forests, which shows that these forests comprise species that are not found in the SPA systems in India (Bhagwat and Rutte, 2006), Tanzania (Mgumia and Oba, 2003) and Kenya (Kibet and Nyamweru, 2008). Finally, Western *et al.* (2009) hint at environmental complementarity when they points out that an estimated 65% of all wildlife is found outside SPAs. For Nelson (2012), PPAs and CPAs protect significant populations of highly endangered species including Grévy's zebra, wild dog, cheetah and elephants in Kenya.

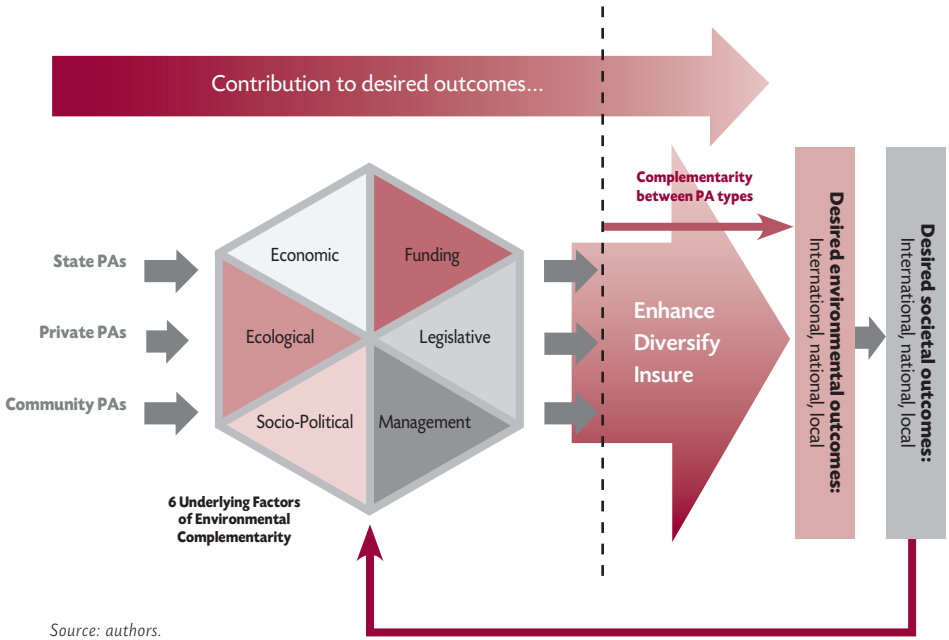
The academic literature on complementarity was thus found to be limited and mostly focused on the ecological attributes of different PAs, and on achieving optimal biodiversity representation or coverage. However, few insights were found about the underlying factors that enable the delivery of these benefits. This study seeks to shed light on the "added value" that different types of PAs bring to the PA system as a whole, which appears to be an untested lens through which to understand PA interactions.

2.1.2. An analytical framework for understanding environmental complementarity between types of PA

For the purpose of this research, environmental complementarity was defined as *"the enhancement in progress towards achieving desirable environmental outcomes (as defined locally, nationally or internationally) as a result of the presence of community, private and state PAs alongside each other"*.

A conceptual framework was developed (Figure 5) to allow its analysis. It takes as its starting point that the objective of a PA network (on the left of the diagram) is to deliver environmental outcomes (on the right of the diagram). Each type of PA can contribute to the outcome to some level (as indicated by the arrow along the top of the diagram). The amount of progress made is determined by a mix of six enabling/constraining factors identified in the hexagon (in the middle of the diagram). These are in turn influenced by external drivers or shocks (e.g. global economic recession, climate change).

Figure 5 *A conceptual framework to analyse the environmental complementarity between different types of PA*



Source: authors.

The six underlying factors, called dimensions of complementarity are described below:

(i) The ecological dimension relates to how having different types of PAs may increase the area under conservation, the connectivity between areas under conservation, the types of habitat and/or the diversity of species covered by the network.

(ii) The economic dimension concerns the way in which having different types of PA may generate additional economic benefits at different levels, and/or increase economic efficiency (e.g. by reducing costs). The greater the economic success of the system, the more sustainable it becomes and therefore achieves the desired environmental outcomes.

(iii) The funding dimension concerns the existence of different types of PA, which may increase the diversity and volume of funding available and reduce the perceived investment risks in PAs.

(iv) The legislative dimension concerns how the existence of different types of PA in a network may improve the development of legislative frameworks that, indirectly and directly, support the conservation of biodiversity.

(v) The management dimension concerns how the existence of different types of PA may strengthen the overall management of individual PAs and the network as a whole through improvements in skills and expertise, as well as in the effectiveness of management systems.

(vi) The socio-political dimension relates to how the existence of different types of PA may increase the social and/or political support for the PA system as a whole by different groups of stakeholders.

Within these dimensions, complementarity can be achieved in two main ways:

- "Additionality" happens when the presence of different kinds of PAs in a network creates "more" of something useful for biodiversity conservation. The result of their interaction is then the sum of their individual effect.
- "Synergy" happens when the interactions between the different kinds of PAs increases those impacts to levels over and above those from "additional" benefits through e.g. cost sharing and economies of scale or providing expert services to one another. In this case, the result of their interaction is greater than the sum of their individual effect.

This conceptual framework provides a structure to explore the different ways in which private, community and state PAs may help each other progress toward the desired environmental outcomes as illustrated later using the example of the Ewaso Nyiro.

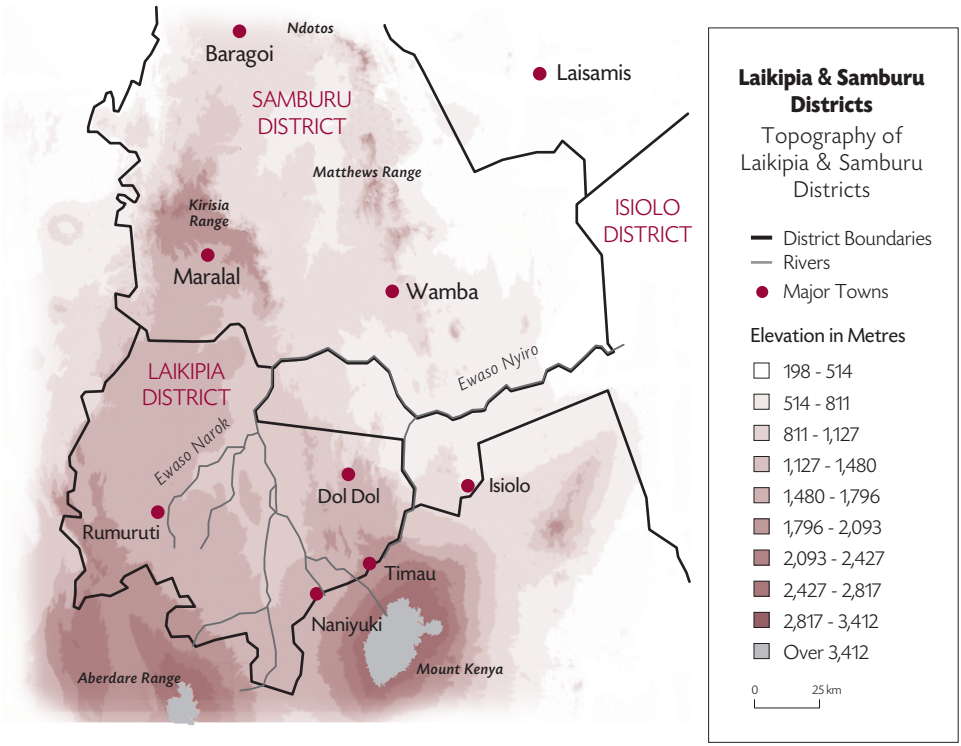
2.1.3. Environmental complementarity at work

A brief introduction to the PA network of the Ewaso

The Ewaso Ecosystem comprises a widespread and complex network of PAs which includes SPAs, PPAs and CPAs and covers approximately 50% of the 54,000 km^2 of the ecosystem's land area (NRT, 2013). The ecosystem is considered as one of the most important areas for conservation in East Africa (LWF, 2012) and beyond. Indeed, it has become critical to the conservation of endangered species, such as black rhinoceros, mountain bongo, Grévy's zebra and many endemic plants, insects and bird species (LWF, 2012; UNEP, 2003). In addition to this, the ecosystem includes a World Heritage Site (Mount Kenya National Park). Its history, diversified PA

network, high biodiversity and relative conservation success made the Ewaso an interesting case study to understand better how PAs complement each other from an environmental perspective.

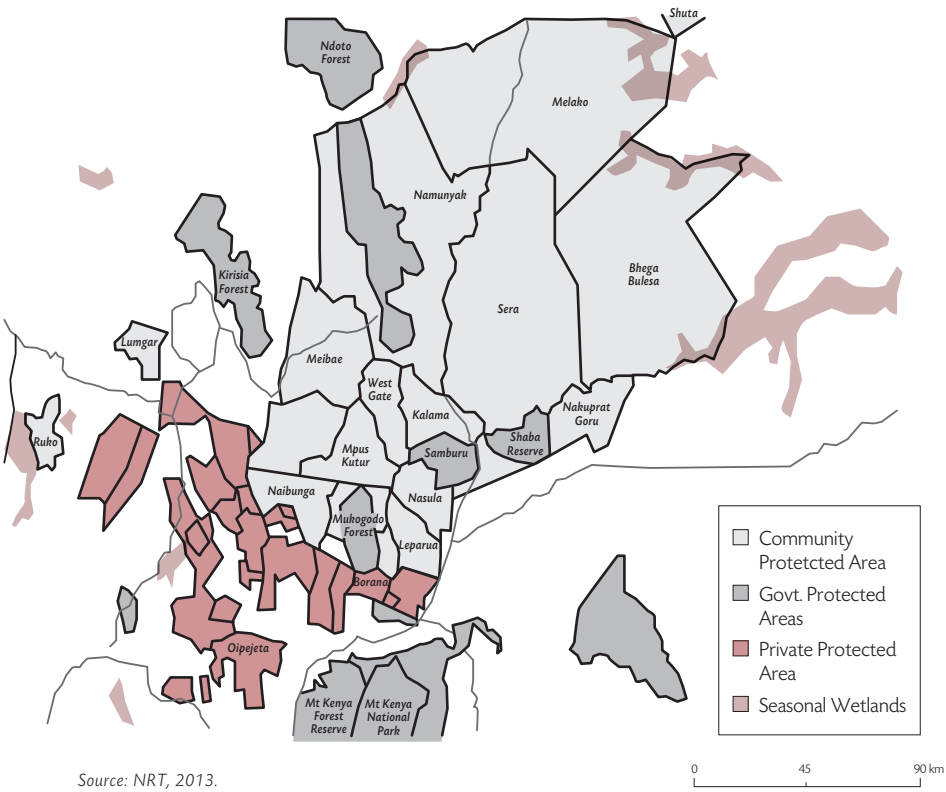
Figure 6 *The Greater Ewaso Ecosystem*



Source: Mpala Research Centre, taken from LWF (2006) King, J. and D. Malleret-King (eds).

The PA network currently includes at least 15 National Reserves and 3 National Parks (Mount Kenya, Aberdares and the proposed Laikipia National Park), 16 PPAs and 22 community PAs, these last ones having been mainly established in the last ten years.

Figure 7 *Map of the Ewaso PA network*



Source: NRT, 2013.

Traditionally, PAs were initiated by the government to protect biodiversity and key environmental services (e.g. water towers). Since the 1980s, an increasing number of PPAs and CPAs have been created. There are many drivers behind this. They range from individual passions which led to the creation, for example, of the first private wildlife sanctuary in Kenya (Solio, in 1970), the collapse of the ranching sector (Georgiadis, 2011), and the economic opportunities provided by wildlife-based tourism, which resulted in the creation of numerous PPAs and CPAs. These drivers, the global economic context and the high biodiversity, all resulted in the development of the intricate PA network, supported by conservation organisations, which enables wildlife movement across the landscape.

Describing how each dimension of complementarity may affect environmental outcomes

Interviews provided extensive anecdotal evidence of how different kinds of PA are perceived to complement each other in the enhancement of environmental outcomes through "additionality" or "synergy" in each of the dimensions identified. Results are presented below.

The "ecological dimension"

Regarding the ecological dimension, in areas where the bulk of land is owned privately or communally, as in the Ewaso, the presence of non-state PAs enables additional types of habitat, more wildlife representation and more connecting areas to be protected than would be possible through only state PAs. This contributes to ensuring conservation on a viable scale.

Similarly, ecological synergies are at play. For most informants, SPAs represent a pillar for conservation in Kenya. They are seen as significant refuges for wildlife, and as a means to protect nationally important assets such as water towers. They represent hubs for conservation, on a significant scale, on which other PAs can build. In addition to this, the presence of diverse PAs and their management regime provide a diversity of situations from which wildlife benefits. For example, areas of low human disturbance (mainly SPAs and PPAs) are particularly beneficial for predator populations (Franks, 2011). In contrast, CPAs, where higher human population densities are found, do not favor predators and may thus provide endangered prey species with a refuge, for example, Grévy's zebra (Dr King, personal comment).

The "economic dimension"

From an economic perspective, findings show that state PAs, community PAs and private PAs play different roles at the economic level due to their specificities. Each one, in its own way, contributes to increasing the economic attractiveness of the sector and thus to stimulating interest in wildlife conservation.

For example, different types of PA provide different and yet complementary tourism products. In the Ewaso, the variety of PAs makes it possible to offer a variety of tourism products, from high-end exclusive private lodges to community and cultural experiences. The non-state PAs can increase the range of alternative products, e.g. walking safaris and night drives, as they are not governed by the same rules and regulations as state PAs. It was also found that some private PAs work with their community PA neighbors to add a cultural aspect (e.g. "star beds' in the Ewaso) to

their clients' experience, while community PAs can provide their guests with a better wildlife experience than state PAs and/or private PAs.

Another level of economic synergy comes from the fact that the government in general (and thus indirectly SPAs) benefits from the taxes paid by PPAs, and that this lowers the overall costs of conservation to Kenya. However, questions are raised as to whether the PPAs should benefit from tax incentives in return for their protection of the national biodiversity asset. Finally there is also a wide agreement that the government, with regards to state PAs, has invested heavily in the Kenya brand and image as a primary tourism destination, as has the Ewaso region. This creates opportunities for economies of scale in marketing and advertising to develop regions as destinations for international tourism: the non-state PAs benefit from the brand and in turn provide more space so that tourists operations are spread over larger areas, providing a wider reach of benefits.

This leads to more tourists being attracted. As tourism is considered to be one of the main drivers to stimulate conservation initiatives, strong tourism potential may contribute directly and indirectly to improved environmental outcomes in the long term.

The "funding dimension"

Additionalities were detected with regards to funding: having a mix of types of PA is believed to enable the PAs and the conservation sector as a whole, to have access to a more diverse funding portfolio (philanthropy, NGOs, public funds, business based), and thus increase its financial resilience, as well as the potential amount of funding available for conservation. For example, PPAs in the Ewaso tend to have good access to the business sector and to extensive personal networks through which they can generate funding. Furthermore, NGOs work with CPAs to access grant and "soft" funding, and strengthen their own internal revenue generating capacity for future financial sustainability.

There are also numerous synergies between PAs with regards to funding. The presence of a PA mix allows each of them to tell a better "story" for fund-raising. In the Ewaso for example, managers of private and community PAs indicated that they successfully fundraise because they show that they support SPA conservation efforts by reducing pressure and increasing connectivity for the SPAs, which act as a refuge; they benefit from the fact that SPAs are recognized as being an effective conservation tool. In addition to this, some PPAs have done much to support the fund-raising efforts of CPAs, and have found that this then helps them to fundraise for themselves, especially when targeting development funds. Finally, non-state PAs

benefit from SPA funding when it is spent on the development of the sector as a whole. One of the examples identified by informants is SPA investment in skills development that will be used by other Pas, e.g. in strategic planning and ecological monitoring. The whole sector benefits from the investments that the Kenyan Wildlife Service (KWS – the public agency in charge of Wildlife and National Parks in Kenya) makes in training its officers who work across all types of PA. As KWS becomes better resourced, the framework in which the non-state PAs operate becomes stronger, provided funds are invested appropriately.

The "legislative dimension"

In terms of the legislative dimension, in the Ewaso, the presence of different kinds of PA is believed to enable more people to be involved in biodiversity conservation, which broadens perspectives and views. This form of additionality results in improved support for PAs and more engaged debate, which in turn helps strengthen the legal and regulatory framework for wildlife and PAs.

Synergies were also detected in legislative realms, as the presence of different types of PA within a landscape increases the variety of "voices" to push for legislative change and to legitimize the sector overall. Informants suggested, for instance, that non-state PAs rely on SPA staff to enforce the law. The presence of the SPA in a landscape means that national policing bodies are actively present, which is a deterrent to illegal activities across the network, and KWS, as a public entity, is better able to deal with fundamental and sensitive issues, such as land encroachment. There is also a feeling that non-state PAs depend on SPAs to provide access to government tools and power but can use SPAs to get "the ear" of the government. In return, SPAs can benefit from local activism and voices in support of sound biodiversity and conservation policies. Furthermore, non-state PAs provide the SPA authority with the local perspectives required to ground national policy and decision-making processes in local realities.

The "management dimension"

Regarding the management dimension, for informants, the presence of a PA mix in a network creates additional opportunities for jobs, training and career development. For example, in the Ewaso, community PAs provide opportunities for local people who are committed to conservation, speak the language required and have good local knowledge. Those with several years of experience and specific applied skills can seek to work with private PAs. In turn, state PAs tend to offer more secure career paths and broader-reaching work. It also came out that passion, motivation

and ownership are considered as key ingredients for successful PA management and to ensure environmental outcomes. By providing more career opportunities, the mix of PAs also creates more opportunities for motivated people to fulfill their passion.

Results suggest that management synergies created by the presence of different types of PA are also significant. For example, it was said in the Ewaso that the different types of PA have complementary intelligence and security networks. The combination of effective state and non-state rangers leads to greater security for both biodiversity and local people in general. Unarmed community rangers managing community PAs rely on armed official rangers to counter, and if necessary to arrest, dangerous criminals. But patrols in community PAs are better accepted when a community representative is part of the patrol team. Another synergic perspective is that the presence of private PAs in the Ewaso system is cited by other PAs as enabling a more rapid and flexible response to problems (e.g. security, problem animals) because of their complementary resources, technical skills and operating systems. Overall, it is felt that the specificities of the three types of protected areas may enable a more effective management system to operate at less cost through a synergy process.

The "socio-political" dimension

PAs require social and political support to exist in the long term. Findings show that the presence of different kinds of PA results in additionality by increasing the number of people involved and thereby creating a wider network of support, relationships and influence for PAs, which can increase overall acceptability and legitimacy.

Socio-political synergies are also taking place. For example, in the Ewaso it was said that the existence of CPAs within a network helps secure greater political support for PAs in general. In the Ewaso, PPAs are considered more vulnerable politically than other types but are generally well regarded by international stakeholders, who recognize them as being efficient and well managed. SPAs can be unpopular locally as they limit local access to and use of resources. However, they may enhance support for conservation at national and international levels through strong government relationships, national policy-setting processes, and through national efforts to reach local stakeholders. These synergies help the PA sector to remain a national agenda and to compete against other sectors that may represent risks for biodiversity.

Complementarity across the dimensions

Beyond the environmental complementarity that was found within each of the six dimensions, the research also revealed interesting complementarity across these dimensions. The Ewaso case study highlighted particular advantages of each of the different types of PA and why it was therefore important to include them within the overall PA estate (see Table 6).

For example, CPAs are considered to be important because of their social legitimacy. While their degree of professional management may vary, the fact that they have the broad support of their involved constituency means that when the need arises, they have the potential to better withstand external shocks and pressures. Furthermore, because they generate some economic benefits for the local community – in the form of jobs and income – they have the potential to raise interest in biodiversity and conservation. However, CPAs are not sufficient on their own. While their economic benefits are recognised, if more competitive economic opportunities were to appear there is no guarantee that conservation would be perceived as an optimal land use. The difficulties that these PAs have in getting legal recognition, although this is changing, is a further threat to their stability and longevity as is their limited access to sustainable sources of funding. Because of the nature of community institutions, CPAs can also have protracted decision-making processes and thus be slow to react to critical situations.

PPAs, in the Ewaso, by contrast, are particularly valued for their flexibility and ability to react to new situations quickly. They have a demonstrated success in wildlife conservation and are perceived as being efficiently managed. They tend to be innovative with good market connections and a willingness and ability to take risks. PPAs are considered to be effective at securing funding – often thanks to extensive personal and business networks and the personal commitment and passion of their owners. Not only do they thus generate funds for conservation but they also pay taxes as businesses to government thus generating an additional revenue streams for the state. PPAs are also seen as good neighbours to surrounding local communities where they have outreach programmes, generate opportunities for local community spin-off enterprises and add to local security. However, as with CPAs, they are not considered sufficient on their own, partly because there are not enough of them of sufficient scale to be sustainable. It was also emphasized that as they are individually owned, they are not always considered as part of the local populace, thus do not command the political support that CPAs do. In addition, it is felt that the objectives of the PA may change on the whim of the owner, or with a change in ownership.

In contrast, SPAs are perceived as being unlikely to have a sudden change in objectives given their conservation mandate – and that of KWS. They thus ensure continued, long-term security for conservation objectives at the national level – at least in policy terms, as political commitment on the ground may not always be as strong. SPAs also provide the backbone for Kenya's tourism industry, which generates jobs and enterprise opportunities and contributes significantly to GDP and export earnings believed to be critical for Kenya's long-term economic development. Disadvantages of SPAs include, in a number of cases, their lack of popular support – although reserves (which are run by the local councils rather than by KWS) allow some level of use and thus generate more support. A further limitation is the insufficient level of resources allocated to their management and hence the poor conservation performance of many of them.

Table 6 *Cross-dimension complementarity: some generic strengths and weaknesses of different types of PAs in the Ewaso*

Types of PA	Attributes
Community PAs (CPAs)	Why it is important to have them in the mix: • CPAs can withstand shocks, they have the legitimacy of people • They represent the mass, although not always well-run, the critical mass makes them resilient • They have strong political support • They make conservation and wildlife relevant (through more widespread economic returns – employment and income) • They are the eyes for the others/provide good intelligence ...But why not only them: • Always a possibility that conservation be abandoned for another sector if it is more competitive economically • Decision-making is slow – consensus • Governance is poor • They have few resources
Private PAs (PPAs)	Why it is important to have them in the mix: • They are flexible and quick to react • They have proven success in wildlife conservation • They are business-like management, efficient • They have access to good technical skills, good security • They are innovative, linked to market, can take risks • They have access to resources (human and financial) through business and their personal networks • They provide training ...But why not only them: • They are not considered as part of the community, have less political support • They are not fully recognized yet • When the owner changes, goals can change • PPA sizes cannot be large enough to be sustainable •••

Types of PA	Attributes
State PAs (SPA)	**Why it is important to have them in the mix:** • SPAs provide learning and inspiration • SPAs are devoted to conservation, have the obligation of conserving Kenya's biodiversity • They provide refuges for wildlife (in theory no human disturbance) • They provide legitimacy to the sector • They have control and power • They have political support (at the policy level, not always at the ground level) • They are an institution and are respected • They ensure continuous national interest • Reserves, because they are the community arm of government, thus more social support than national parks, despite being government **...But why not only them:** • They are very inflexible, not responsive • They are not always in touch with the ground, do not always have population support • They are not efficiently managed • Policies can change, leading to fewer resources and bad management, which affects biodiversity

Source: authors

Discussion – Conclusion

It is believed that the results presented are of interest and have significant implications both for the conservation of biodiversity, which is considered as a strategic action field that needs to be strengthened, and for donors wishing to invest more effectively in support of protected areas.

Our results first highlight that polarized debate, arguing for one model of PA over others, is not helpful and could even hinder the development of an effective PA network. They show that it is necessary and useful to overcome these caricatured controversies and promote debate focusing on PA complementarity, rather than on which PA model is best.

The research more specifically emphasizes the important role, currently undervalued, of state PAs. They are identified by all stakeholders interviewed as an essential pillar for conservation. However, even if essential, they remain insufficient on their own and are rarely the only type of PA in a given landscape. It was thus shown that other types of PA can be analysed as being a support to state PAs, rather than an alternative or a substitute. The research suggests that the diversity of types of PA should be considered as an advantage and a source of benefits for conservation rather than as opposite solutions. It is obviously necessary and relevant to improve the effectiveness of each type of PA. But the research points out the importance for conservation interventions and reflection to systematically consider the PA network as a whole. In this respect, the study suggests there is a complex array of complementarities between community, state and private PAs. Differences in management capacity, staff skills, social acceptability, access to financial resources, tourism products, ecological resources, etc. between types of PA were found to drive additionality and synergistic complementarities that undeniably contribute to strengthening the overall PA sector and increasing its resilience, as well as its capacity to generate environmental outcomes.

Furthermore, this research invites us not to remain stuck in a restrictive vision of environmental management tools, but to take a broader view. Within each set of tools, protected areas in our case, there are infinite varieties and versions of one model. These versions are inherent to the plurality and diversity of contexts in which the tools are used, and no tool is inherently better or worse than another. As shown in the research, this diversity of tools, here the PA diversity, results in economic, social, legislative, managerial and socio-political complementarities that all contribute to enhancing environmental outcomes.

The study also points out that opposing regulatory tools (such as state PAs in our case) to economic tools (such as private PAs) or more participatory tools (such as community PAs) may be irrelevant in the context of environment management. Boundaries between management tools are indeed not clear-cut. Our research shows that the coarse nature of state, private and community PAs divides. For example, in the Ewaso, PPAs tend to be individually owned, while in the Mara they can be coalitions of hundreds of landowners and share many of the same characteristics as CPAs. Meanwhile, SPAs include not just those managed at the national level, but also those managed by local or county government. Moreover, in Kenya as elsewhere, the actor who owns the land on which a PA exists may not be the same (or same kind of) actor that *manages* it even though this was usually the case in our study. As useful as classifications are, they always remain too rigid to reflect the complexity of reality. They have to be nuanced and their characteristics informed by the specifics of the context in which they are investigated. What appears very clear, however, is that a tool only makes sense once understood in the context of an overall strategy. In the end, it is definitely the relationship between various types of tools that allows environmental outcomes to be achieved.

We believe these elements of understanding constitute promising foundations for better thinking public policies on PAs, but also new foundations of thought and action for all actors directly involved in the management and the expected development of protected areas. While the Aichi Target 5 has the objective of at least 17% of the planet being covered by PAs by 2020, we believe that the notion of complementarity could be usefully taken as a compass to manage this challenge.

With regard more specifically to donors, complementarity may also help them to be more strategic and effective in their funding of PA networks. The study lays the basis for a diagnosis-based approach, which enlightens the decision-making process, and stimulates and promotes dialogue with partners. It calls donors to take into account the whole PA network, rather than consider PAs *via* a case-by-case approach. It provides a tested and validated framework to identify the strengths and weaknesses of PA networks, and thus points at ways to strengthen it as a whole by focusing on strategic types of PA or even a single PA. Our results show the importance of considering this approach, while concretely proposing a functional methodology. Similarly, the research shows that, in terms of doctrine, donors have no interest in favouring one PA approach over another. State, community, private, private-public: all models can contribute positively to the whole. It is rather the environmental goal, as well as recognition of the role of PAs regarding the objective of sustainable biodiversity management, that should constitute the doctrine of a donor. The PA or types of PA to support this should then be informed by the context, its characteris-

tics and its stakeholders, taking into consideration environmental objectives and existing complementarities. Finally, based on the results of this work, it seems that donors could seek to fund pilot projects whose purpose would be to enhance synergies identified within a given PA network.

This brings us to consider future research research avenues to explore after this one. Although the study attempts to fill a gap in knowledge, it could not tackle all aspects. It focused particularly on positive complementarities between different types of PA but did not explore antagonistic interactions in details. Two factors that could undermine complementarity between PA types were identified. First, PAs within a network may compete with each other for both economic and funding benefits. Second, the predominance of economic drivers for PAs may risk weakening the PA system by diluting the focus on biodiversity conservation. Analysing these aspects further and investigating potential hurdles to complementarity are essential to using the concept of complementarity effectively. In addition, increasing synergies between various types of PA, will require an in-depth understanding of relations between PAs, and of what enhances synergies, etc.

To conclude, this action-research study addressed the needs of Kenya at a time when PA-related public policies were under revision, the expectations of donors wishing to improve their financial support to PAs, the expectations of NGOs involved in the development of Kenya's PAs, etc., and demonstrated the benefits of a dynamic that combined conceptual analysis with a mid-term operational objective – a dynamic that could usefully be deployed in the future.

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2.2. The effectiveness of an environmental credit line in Egypt: Synergies between market incentive and binding regulations [33]

Damien KRICHEWSKY and Tiphaine LEMÉNAGER

2.2.1. Green finance: a new Eldorado for environmental aid?

Among the many embodiments of the global sustainable development project, "green finance" is gaining ground and profile. Designed to both avoid investments with a negative environmental impact and make investments with positive environmental outcomes, green finance draws on a multifarious constellation of institutions, mechanisms, players and practices all working towards a common general goal: to put the financial sector to work for objectives such as pollution abatement, preservation of biodiversity and natural resources, and greenhouse gas emissions reduction (Köhn, 2012). Green finance stands out for the indirect nature of the targeted contributions. It is designed to take action upstream of what is known as the "real" economy by redirecting financial flows to environmentally friendly activities (Helleiner, 2011)

In a landscape where environmental issues in Southern countries are rising up the donors' strategic agendas and gaining in importance in their project portfolios (Rist, 2012; Hicks *et al.*, 2008; Jacquet and Loup, 2009; Buntaine and Parks, 2013; Ohara, 2005), donors are proving to be particularly sensitive to the promises of green finance, especially with regard to the potential role of the banking sector. Indeed, many benchmark studies present the commercial banks as an effective driving force for sustainable development (International Finance Corporation, 2007; Bouma *et al.*, 2001; Köhn, 2012; Scholtens, 2006; Kiernan, 2009; Green Growth Action Alliance, 2013; UNEP, 2011). Besides factoring environmental parameters into their risk management mechanisms and developing "socially responsible" financial products with integrated environmental selection criteria, banks offer loans that match the specific requirements of investment projects that aim to generate positive environmental outcomes. Yet although green finance is seen as both ecologically promising and a source of profitable business opportunities for the banks (International Finance Corporation, 2007), many obstacles are impeding its development: "Most banks are in the early stages of integrating environmental factors into their internal procedures, offering only a few financial products in this field, because they believe other

[33] This chapter is based on research funded by AFD in 2012-2013 (Krichewsky and Leménager, 2014).

opportunities earn higher returns. Environmental finance faces a three-dimensional gap between needs and supply: instruments, funds and conditions. These, and the insufficient knowledge, lack of institutional capacity, and opportunity and start-up costs, constitute the challenges for financial institutions entering the field of environmental finance". (Lindlein, 2012, p. 1).

These obstacles are particularly apparent in the banking sectors in Southern countries, to the extent that the involvement of commercial banks in "green finance" remains largely concentrated in the Organisation for Economic Co-operation and Development (OECD) countries (see Köhn, 2012; Park and Kowal, 2012). For donors, driven by the constant quest for new intervention areas, this combination of promising opportunities for sustainable development and obstacles in the way of these opportunities opens up a new horizon for the design and implementation of green finance promotion projects in Southern countries. Against this backdrop, environmental credit line (ECL) projects, have become increasingly fashionable over the last 15 years. These projects consist of donors transferring technical and financial resources (in the form of loans and grants) to Southern banks in order to build their capacities fund environmental investments. The World Bank, for example, launched ECLs in a number of countries (Egypt, India, Central and Eastern European Countries, etc.) in the late 1990s to help banks finance industrial pollution abatement investments. Similarly, the German development bank KfW has used ECLs in a number of regions (e.g. Latin America, Asia, Maghreb, and Central and Eastern Europe) to provide funding in the form of banking intermediation for corporate investments. AFD's use of ECLs has grown since the mid-2000s as part of a strategy that promotes partnerships with private sector players combined with compliance with France's environmental protection commitments. In 2009, AFD earmarked over €900 million for ECLs, approximately 14.5% of its financial commitments.

What conditions the potential and environmental of this type of aid project based on green finance? The available literature provides few answers. Empirical studies on the effectiveness of green finance-based environmental aid are few and far between and their findings are often too specific to provide general insights. It is not easy to draw conclusions about ECLs from studies, for example, on the Equator Principles (Wright, 2012), the inclusion of environmental parameters in banks' risk management systems (Campbell and Slack, 2011; Thompson and Cowton, 2004) or banks' corporate social responsibility (CSR) policies (Gendron, 2007; Weber *et al.*, 2012). More general studies of the effectiveness of environmental aid also provide few insights into ECLs, as they focus on the quantitative analysis (Buntaine and Parks, 2013; Hicks *et al.*, 2008).

The findings presented here seek to help fill this gap based on an empirical study of the Egyptian Pollution Abatement Project II (EPAP II), an ECL conducted by a consortium of donors from 2006 to 2013 to promote industrial pollution abatement in Cairo and Alexandria.[34] This study focuses on the concrete dynamics and processes involved in the implementation of the ECL. Rather than focusing on formal structures and measurable outcomes, the qualitative sociological approach adopted here sets out to analyse the project-level drivers and mechanisms that condition the greater or lesser environmental effectiveness of this environmental credit line. The findings of this study of EPAP II provide useful hypotheses that could guide future research in a comparative perspective.

The chapter starts with a presentation of the conditions surrounding the setting up of the EPAP II project. It then describes how the ECL was implemented, before analysing the drivers and mechanisms underlying the project's environmental achievements. This concrete, detailed study of an as yet unfamiliar environmental aid tool transcends the often-ideological controversies surrounding such "market-based" tools. It shows the key role of non-market players in the success of EPAP II and the importance of closely coordinating binding environmental regulations and market-based financial incentive mechanisms. Lastly, the study highlights the difficulty of maintaining such virtuous coordination between regulation and green finance beyond the limited time frame of environmental aid projects.

[34] The study draws on 42 semi-structured interviews of players involved more or less directly in the EPAP II project. The sample comprises nine interviews of staff at AFD head office, six interviews of staff working for different donors in agencies in Cairo (one World Bank, two AFD, two JICA and one KfW), six interviews of EPAP II project management unit agents in Cairo and Alexandria, two interviews of staff from other Egyptian Environmental Affairs Agency departments, four interviews of staff from participating banks (two National Bank of Egypt, one National Société Générale Bank and one Commercial International Bank), ten interviews of project recipient firm staff (Egyptian Starch & Glucose, Amreyah Cement, Suez Cement, Abu Qir Fertilizers, Crush and a cluster of 180 brickmaking plants in Arab Abu Saed), and five interviews of more outlying players (one Federation of Egyptian Industries, one Arab Media Forum for Environment and Development, and one Friends of the Environment Association). Documentary sources (reports, in-house memoranda, Internet content, press articles, etc.) and in-situ observations were added to these interviews.

2.2.2. *Setting up an environmental credit line in response to Egyptian industrial pollution*

The objectives of the environmental credit line

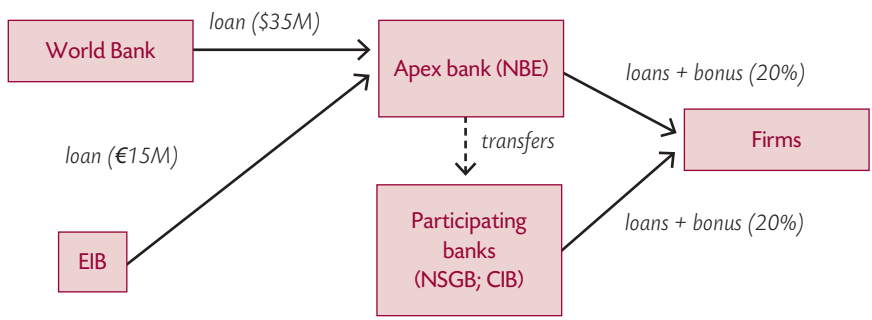
The EPAP II credit line follows on from a first environmental aid project launched by the World Bank and the European Investment Bank (EIB) in 1999 in response to industrial pollution problems in the Nile Delta. The donors' choice to use an ECL is partly due to key characteristics of the targeted problem. Egypt's industrial equipment and technologies much of which are a legacy of the proactive industrialisation policies conducted during the Nasser era (1952-1979), have suffered from a lack of investment for decades. In addition to the outdated and poorly maintained state of the machinery, the industrial sector is dominated by polluting industries such as textiles, oil and petrochemicals (Cottenet-Djoufelkit, 2011). The Egyptian population's high concentration in the Nile Delta, especially in the conurbations of Cairo and Alexandria (which account for more than one-third of the population and 80% of the country's industry (Denis, 2011), exacerbates the socioeconomic costs of industrial pollution. These costs were estimated by the World Bank at 4.8% of Egyptian GDP in 1999 (World Bank, 2002 and 2005). In this setting, the introduction of an environmental law in 1994 with associated pollution standards fell short of the mark Companies were now legally obliged to reduce their pollution levels, but most firms could not afford the massive investments required to become compliant. The World Bank and the EIB saw an opportunity to set up an ECL to enable Egyptian banks to provide loans with favourable conditions as an incentive to public and private firms to invest in pollution abatement.

Yet the launch of EPAP in 1999 was also part of a dynamic specific to the donors, especially the World Bank. The Bank's leading position among the bilateral and multilateral donors and its economic reach and global political influence are due largely to its capacity to define the tenets of the mainstream development doctrine, including in the area of environmental governance (Goldman, 2005). This means that its projects sometimes serve an in-house "laboratory" purpose to test new intervention tools and, in the best-case scenario, operate as a "showcase" demonstrating these new tools' effectiveness. Basically, as explained by a member of the Egyptian EPAP project management unit, "for the World Bank, their objective with EPAP is to test market-based instruments for pollution abatement. They want to get the banks to finance pollution abatement, and they want companies to borrow money to invest in pollution abatement. This is testing the market-based instrument, and also incentives, as there is the 20% bonus for companies that achieve the environmental targets."

The pursuit of a successful pilot project

The first EPAP credit line in 1999 was designed as a pilot project. It comprised a USD 35 million loan from the World Bank, a €15 million loan from the EIB and a €4.5 million grant from the Finnish International Development Agency (FINNIDA) to finance technical assistance for the project's implementation. Granted at lower interest rates and with longer repayment schedules than market conditions, these loans were made available to an apex intermediary bank, the National Bank of Egypt (NBE), for it to issue loans to firms seeking to invest in pollution abatement. Firms were encouraged to apply for these loans with the promise of a free environmental audit of their facilities and the waiver of 20% of the loan in the form of a "bonus" in the event of a successful investment. Eligible projects had to meet predefined environmental requirements [35] and be located in the geographic area targeted by the project (Greater Cairo and Alexandria). Two private banks, the National Société Générale Bank (NSGB) and the Commercial International Bank (CIB), contributed to the project with their own spin-offs on the same terms as the NBE (see Figure 8).

Figure 8 *EPAP I project financial set-up*



Source: authors.

Alongside this financial system came a technical track run by a project management unit (PMU). This unit was part of the Egyptian Environmental Affairs Agency (EEAA), the environment ministry's executive arm. It comprised mainly a director and a manager, a team of a dozen environmental experts in charge of monitoring the projects funded by the ECL, and a technical assistant specialised in environmental matters.

[35] EPAP-funded loans to firms had to generate at least a 50% reduction in the targeted pollution and the adoption of an environmental compliance plan, the terms of which were negotiated between the firm and the Egyptian environmental agencies.

The PMU's main brief was to *(i)* work, with the NBE, on promoting the EPAP project to firms in the areas targeted by the project *(ii)* provide interested companies with technical assistance to develop projects eligible for EPAP financing (*iii)* help participating firms conduct the selected investment projects, and *(iv)* evaluate the environmental outcomes of the investments for the approval (or not) of payment of the 20% bonus by the bank. Some of the technical assistance resources were also assigned to EEAA for capacity building, especially with regard to monitoring systems and factory inspections.

The EPAP project was wound up in 2005, having co-financed 25 depollution projects by 21 firms. As the key players involved (donors, NBE and Egyptian authorities) graded EPAP a success, meetings were launched immediately in 2005 with the resulting decision to extend the work with a second project. This time, AFD and JICA joined the World Bank and the EIB, bringing the total EPAP II credit line up to USD 160 million (EUR 142 million at 2006 rates). EPAP II was designed along the same lines as EPAP I, with the exception of a higher number of donors involved and a larger sum allocated. The project also included resources allocated for EEAA capacity building in areas such as procedures for environmental impact studies, which condition the issue of environmental authorisations for new investment projects, and the introduction of an inspection manual by activity sectors and an environmental information system feeding into a database on industrial pollution in Egypt.

2.2.3. The implementation of EPAP II: green finance on the ground

As at March 2014, EPAP II was funding (or had funded) 35 investment projects initiated by 27 firms, including a group of 200 brick factories. The total investment sum was an estimated USD 320 million, including USD 175 million in EPAP II loans and the participating firms' contributions. These investments include a number of projects to reduce dust emissions by cement works, convert factories from oil to natural gas and set up wastewater treatment plants. Others are more specific projects such as a solvent recovery plant and the renovation of and, in one case, contribution to the replacement of polluting production lines. How did the above-described EPAP II ECL actually work upstream of and around these projects?

Three main axes structure the implementation of the ECL: *(i)* the stimulation of demand for loans by targeted firms, *(ii)* the execution of the pollution abatement projects and *(iii)* the overall management of the ECL

Generating demand for loans by the targeted firms

Given that the main aim of ECLs is to encourage the financing of environmentally friendly investments, their capacity to stimulate the submission of eligible projects by interested firms is a prerequisite for their success. Feeding the project "pipeline" (to borrow an expression from the professional jargon) is also a core concern for most of the participating players. The donors' main concern is to disburse the ECL funds in line with a pre-defined schedule. The rate of disbursement and the use of all the funds before project closure are the key indicators used by donors to evaluate their project performance For EPAP II, achieving these targets called for an uninterrupted flow of projects in the ECL pipeline. For the PMU, insufficient loan applications would sign the death warrant of the credit line and rule out any possibility of continuing with the EPAP series. Feeding the pipeline is therefore not only one of the PMU's core missions, but also a condition for its existence. As regards the three participating banks, the financing applications submitted by firms are their source of commercial benefits from the project, whether in terms of satisfying their customers' needs, adding new customers to their portfolio or making profits from the loans and the associated bank charges.

At first glance, ECLs use advantageous financial loan conditions as their main incentive to attract applications from eligible projects. Yet a look at EPAP II turns up more complex mechanisms. In practice, eligible applications for EPAP II loans were the result of a considerable amount of teamwork by the project managers. This work included the publication of information for businesses in the press and holding seminars for firms in the areas targeted by the EPAP II project. At these meetings, PMU and NBE managers presented the way ECLs work and used selected success stories to showcase how participating companies could benefit from EPAP II loans. In addition, the NBE trains its sales representatives to promote the credit line to its customers. Moreover, the bank and the PMU shared information on an informal basis to hone the effectiveness of this marketing exercise by refining the identification of companies likely to be interested in the ECL.

Most importantly, the EPAP II pipeline was fuelled by tightening the environmental constraints on businesses. In 2009, the Egyptian authorities introduced stricter environmental standards at the World Bank's encouragement, and controls are on the increase as a result of the capacity building for the Egyptian Environmental Affairs Agency to which the EPAP I and II projects have directly contributed. Prospects of stiff fines and threats of facility closure for non-compliance helped create the problem that the credit line was offering to solve in the form of attractive financial and technical resources. This interplay of constraints and incentives was

also found when environmental inspectors from the EEAA directly advised non-compliant companies to consider an EPAP II loan to bring their facilities up to standard. Participating banks also fed the project pipeline by convincing polluting clients that applying for an EPAP II loan would lift environmental fines, provide access to free, technical support and give them a 20% bonus for investments that would have to be made sooner or later anyway. The ECL hence prompted, sped up or scaled up, depending on the case, business decisions to invest in pollution abatement.

This configuration generated a large number of eligible applications for the credit line totalling some USD 250 million in 2013, which is more than the credit line could fund. The system's effectiveness can be seen in the way the players involved were able to rebuild the project pipeline following the sudden withdrawal of over half of the applicant projects in 2008-2009 in the midst of a world economic and financial crisis. The fact that the Egyptian revolution had no significant impact on the EPAP II pipeline provides yet another example of its resilience: although the closure of the participating banks for a few weeks in 2011 caused minor delays, the number of projects in the pipeline continued to grow in the wake of the Arab Spring despite Egypt's bumpy economic and socio-political scene.

Implementing the selected investment projects

Once the investment project applications had been selected by the banks and the PMU in keeping with a formal priority ranking system,[36] they followed a standard course of implementation.

The design and implementation of the pollution abatement projects funded by EPAP II reveal the PMU's pivotal role. The PMU's environmental experts, supported by a proficient, involved technical assistant, helped firms to design projects with high environmental returns. PMU members also supervised progress during the implementation of the investment projects on the ground to the extent that some project managers in the firms described them as the equivalent of excellent consultants or even employees. This project implementation support extended to the sometimes difficult management of the firms' relations with other EPAP stakeholders. Such is the case, for example, with the World Bank, whose international competitive bidding procedures often proved problematic for businesses and considerably slowed down project implementation. It is also the case with the banks, which did not always appear to meet the firms' needs and caused hold-ups with the payment

[36] Thirteen parameters are used to rank the projects by type of pollution targeted and planned reduction volumes, the investment's ratio of economic cost to environmental impacts, the productivity gains generated, the project's level of innovation and the time needed to implement the project.

of suppliers. The assistance given by the PMU to businesses to solve these problems helped change the relationship between these companies and the EEAA from mutual distrust to close collaboration. Environmental authorities were no longer seen as a source of expensive obligations to be sidestepped by means of fabricated data and symbolic environmental investments. With EPAP, they became a spur and a support for businesses to make substantial environmental progress on affordable, if not beneficial terms.

Managing the implementation of the environmental credit line

ECL operation also calls for the entire system to be steered and managed mainly by the donors, the PMU and the apex bank, i.e. the NBE. Within this three-sided set-up, the donors' role as co-financers gave them prerogatives and a right of oversight over the entire project. The NBE and the PMU had to report to them and the donors, who have significant influence over the Egyptian environmental authorities, could call for adjustments to the system on the basis of these reports. The donors could also decide on the financing of projects that did not meet the pre-established eligibility criteria. In practice, however, the PMU's involvement and efficiency in the management of the ECL proved such that donors managed the project remotely and went along with the PMU's proposals to fund specific projects outside the formal scope of EPAP II.

The only significant problematic aspect in the management of the ECL was the pace of the gradual disbursement of the funds allocated to the intermediary banks by the donors. Disbursement arrangements were different from one donor to the next. The EIB and AFD disbursed their loans in tranches, with each tranche paid to the NBE once it had used 70% of the previous tranche. The World Bank and JICA disbursed their loans by reimbursing the intermediary banks whenever a firm had drawn on its credit to pay a supplier. Each use of the credit line by a business was reflected in the different donors' loans pro rata to the initial contribution of each donor to the ECL. The pace of EPAP II disbursements, which the donors use as a key indicator of smooth project running, very quickly falls behind the initial forecasts under the combined effect of external contingencies and factors internal to the project.

Firstly, given that the sharp drop in business investments driven by the 2008-2009 economic and financial crisis drained the "pipeline" of a good many of the projects submitted, it took time to top the pipeline back up. This had a direct knock-on effect on the flow of projects implemented and therefore on disbursements. To a lesser extent, the 2011 Egyptian revolution also made for holdups. Another factor was the appreciation of the yen and euro against the dollar, which raised the dollar value of the funds to be disbursed by closure date for the donors' loans. These funds

rose from their initial value of USD 160 million to nearly USD 200 million before falling back to approximately USD 180 million in 2013. Secondly, the time taken to galvanise applications and make investments appears to have been underestimated when EPAP II was conceived, given that the disbursements made by companied tend to be concentrated around the end of investment projects when the businesses pay their suppliers. The donors' own operating procedures could also be taken to task for the slow disbursement of funds. The World Bank's – sometimes extreme – bidding procedure requirements, whereby it had, for instance, insisted that a firm produce a barely traceable 15-year-old bidding document, and the time the World Bank took to study bidding procedures and give its approval have held up a number of investment projects and had a knock-on effect on loan disbursements. Moreover, the replenishment system used by the World Bank and JICA to disburse their loan to the NBE put them at a disadvantage compared with the other two donors, who were able to pay their last tranches before the businesses had used all the funds already available.

Under pressure from their hierarchy, which was keeping a particularly close eye on the pace of disbursement, EPAP II project managers working for the donors urged the NBE and the PMU to speed things up while seeking room for manoeuvre by, for example, auditing the NBE. Yet given that the NBE perceived itself as the only Egyptian bank able to manage ECLs such as EPAP II (making it indispensable in the event of the continuation of the EPAP series), the bank remained fairly impervious to this pressure. The PMU reacted by continuing to try to free up the flow of investment execution by helping firms lift the obstacles encountered and, where necessary, calling on the EEAA inspection department to put pressure on those firms deemed too slow.

Nevertheless, these moves had limited effects since the PMU had little influence over either the external contingencies or the operating procedures of the donors behind the holdups. For the donors, the option of selecting investment projects based on disbursement implications rather than predefined environmental criteria was not only too illegitimate to be explicitly considered, but also almost impossible because of the formalised project selection criteria. Moreover, the identification and selection process was controlled mainly by the PMU, a player dedicated to environmental concerns. Hence the donors end up having to handle disbursement delays themselves. The World Bank, for example, agreed to raise the ceiling below which projects are exempt from international competitive bidding procedures from USD 5 to 8 million and provided an expert to help businesses that were struggling with these procedures. Donors' project coordinators also managed to negotiate an extension on the closure dates for EPAP II loans. Lastly, the donors agreed amongst themselves to disburse the most distressed donors' loans first, despite the initial rule of drawdown pro rata to their initial contributions.

2.2.4. Development assistance and green finance: analysis of the environmental potential of an ECL

With respect to the pollution abatement rates obtained to date, EPAP II has not just reached, but topped the initial goal of a 50% reduction in the pollution targeted. For example, by the end of the implementation of the past and ongoing investments in 2014, the participating businesses were expected to have reduced their pollution by a total of approximately 90% for airborne dust and sulphur dioxide (SO_2) and, with respect to industrial wastewater, by approximately 95% for biochemical oxygen demand and 70% for chemical oxygen demand. What were the drivers and mechanisms underlying this environmental success? What are the system's limitations? And what lessons can be learnt from the case of EPAP II to improve our understanding of the relevence of ECLs as an instrument to promote and develop green finance?

A smart mix of player approaches orchestrated by an "environmental player"

It goes without saying that an ECL requires the participation of the different stakeholders to produce environmental results. Specifically, EPAP II managed to rally the relevant players in accordance with their strategic interests and their own operating models. Such is the case with the banks, which saw the ECL as a strategic resource for their commercial development: EPAP II would create new business investment projects for which only participating banks could provide associated banking services. In addition to this captive market and the injection of new customers, EPAP II contributed, in the case of the NBE, to an international development strategy, doing business with donors to make for new skills and credibility on the international financial markets for example. Likewise, EPAP II used an efficient mechanism to enlist targeted firms: firstly, EPAP II played a role in making environmental non-compliance increasingly expensive for firms and, secondly, the ECL offered participating businesses financial and technical resources designed to solve this new problem. Lastly, the system's flexibility (e.g. financing environmentally promising projects outside the initial scope of EPAP II) and the PMU's commitment to help companies carry out projects on time combined to solve the donors' disbursement problem that threatened the smooth running of the credit line.

The financial nature of the interests and strategies driving the behaviour of banks, businesses and donors could have, in some respects, thwarted the ECL's environmental aim. For example, participating banks explained that they could not consider hiring environmentalist experts to evaluate the environmental qualities of the investment projects funded. Without an external environmental evaluation of projects,

the resulting lack of technical competencies could leave the door open for the banks' commercial interests to come into play and discriminate between investment projects based on their returns rather than their prospective environmental outcomes. Participating companies also calculated economic rather than environmental values for their proposed investment projects. As regards the donors, they were not plugged into the grassroots level and were subject to many constraints (political, financial and organisational) that could have led them to prefer investment projects that make for a satisfactory pace of disbursement.

In practice however, the fact that EPAP II was embedded in the Egyptian Environmental Affairs Agency through the Project Management Unit prevented these economic interests from steering the ECL off its environmental course. The PMU, made up mainly of environmentalists and managed by staff dedicated to the implementation of Egyptian environmental policies, in effect worked as both a central and relatively autonomous "environmental player (Mermet *et al.,* 2005) in the EPAP II set-up. This "environmentalist" position and related technical expertise combined with the system's formal properties (e.g. project selection system priortising environmental criteria) helped keep the credit line on a steady course to reduce industrial pollution. For example, although the PMU was trying to fluidify the implementation of the selected investment projects, it did not allow disbursement pace issues to steer its own actions off course. Moreover, the PMU's accurate evaluations of the environmental value of investment projects made EPAP II's environmental performances visible , thereby helping donor project coordinators defend the project's legitimacy despite disbursement problems.

Close coordination between regulatory constraints and market incentives

The interlink between EPAP II and Egyptian environmental public policies is the second driver behind the project's environmental success. This interconnection comes from the fact that donors' environmental aid has evolved in tandem with the development of environmental policies in Egypt, marked by the creation of the EEAA in 1982 (Sowers, 2013; Gomaa, 1997). Work conducted jointly by the Egyptian authorities and United Nations Environment Programme (UNEP) and World Bank experts culminated in the drafting of a first National Environmental Action Plan in 1992 designed to create an institutional framework conducive to donor intervention in this area. Bilateral and multilateral donors also worked on the terms of the 4/1994 Environment Law and the different subsequent amendments and regulatory texts. To put it plainly, the development of public environmental regulations has served as much the expansion of environmental aid as the aid in Egypt has served the expansion of the public regulatory framework (see also Hopkins, 2011).

The EPAP I and II projects have taken this dynamic forward and are driven by it. The EPAP I credit line was put in place in 1999 at the end of the moratorium that the Egyptian authorities granted firms to comply with the regulations introduced by the 4/1994 Law. EPAP II took up this aim to provide technical and financial support for the enforcement of Egyptian environmental regulations. The EPAP projects also made a direct contribution to building the capacities of the environmental regulator. In return, they benefited from the presence of a stronger regulator as the use of the penalties imposed on industries by the EEAA ins-pection department played a key role in the building of the ECL project pipeline. Whereas the World Bank presents the EPAP credit lines as a showcase of the environmental effectiveness of "market tools", the interlink between these ECLs and the binding environmental public policies suggests that there is more to it than that. Rather than a straightforward "market tool" to promote the expansion of green finance, EPAP II is a successful specimen of "smart regulation" mechanisms combining a range of instruments (information, incentive, constraint, etc.) and associating an array of public and private players to achieve environmental policy goals in concrete situations (Gunningham, 2009).

The credit line makes small contributions to the development of green finance

The dominant role that public policies and the environmental authorities play in the EPAP II project raises the question as to where the development of "green finance" stands in the ECL. Although the use of banking intermediaries in project implementation is obvious, to what extent does EPAP II foster the emergence of a "green" financial market that will encourage industrial pollution abatement investments beyond the project's given timeline? New economic sociology posits that markets can be considered as concrete, institutionalised social arenas in which buyers and sellers in competition observe each other and vie for the benefits of scarce trade opportunities (François, 2008; Steiner, 2005; Beckert, 2009). In this landscape, the emergence of a market calls for a number of conditions, including sufficient participants for competitive relations, a relatively stable institutional environment in which probabilistic calculations can be made about future as well as, "judgement and trust devices" (Karpik, 2007), which to enable participants to agree on the nature and qualities of the good or service traded, to evaluate the probable utility of this good or service, and to set a monetary value for the good or service that is acceptable to the two parties.

The EPAP II project contributes to the gradual development of such conditions in a number of respects. By broadcasting information such as success stories in industrial settings and creating learning dynamics in banks, EPAP II raises the relevant players'

awareness of the potential gains of financing and making investments in pollution abatement. On an institutional level, EPAP II contributes, along with other environmental aid projects, to the development of an environmental regulatory framework for businesses to make cost-benefit calculations to guide an investment strategy for pollution abatement installations. Institutional stabilisation is also necessary for banks, which can anticipate probable growth in demand for loans to finance pollution abatement investments. To a lesser extent, EPAP II contributes to the development of judgement devices with the introduction of an environmental policy at the NBE, which defines a list of principles that sales representatives should use to evaluate the environmental risks entailed in loan applications. Although this policy currently has few effects, it paves the way for new, more sophisticated tools able to identify new commercial opportunities by incorporating environmental parameters into risk management.

Nevertheless, given that the ECL is highly dependent on the financial and technical resources provided by the donors as part of their environmental aid, the good environmental performances of the EPAP II project provide little indication of the environmental potential of non-aided green financial markets. Financially speaking, the 20% bonus is a powerful incentive for companies to conduct pollution abatement projects. Yet without the donors' help, the banks would not be able to offer such a benefit. In an environment where foreign currency is scarce and therefore expensive, the banks need the donors' foreign currency loans to help firms finance at reasonable cost the new, cleaner technologies offered by foreign suppliers. In addition to this, the ECL's environmental outcomes are highly dependent on technical assistance, which is itself dependent on the EPAP II project. In conjunction with the inspection department, the PMU is one of the main recruiters of businesses to fuel the project pipeline. The PMU and the consultants funded by EPAP II also provide valuable technical expertise for the design and implementation of the investment projects. These dependencies therefore point to the fact that the EPAP II project does not make enough of a contribution to building the conditions for the emergence of an industrial pollution abatement financing market that would generate similar environmental performances.

It would therefore be judicious to consider concrete ways of ramping up the environmental impacts of the ECL above and beyond the projects' limited timeframes. Given the exploratory nature of the EPAP II study, it is hard to make operational proposals that can be extended to other ECLs whose properties and deployment conditions may well differ from the Egyptian case. Nevertheless, two avenues might be worth pursuing. Firstly, an approach that treats the ECL projects as opportunities to build sustainable structures and dynamics could be incorporated into the project

design as an explicit objective and be allocated dedicated organisational, technical and financial resources. In the case of EPAP II, for example, collaborative structures could be set up between environmental authorities and banks to take over from the PMU once the EPAP series comes to an end. Secondly, more ECL resources could be earmarked to develop the environmental authorities' regulatory capacities so that the tightening of constraints can to some extent offset the post-project loss of financial incentives. Such an offset would be limited by the asymmetry between positive incentives and coercive sanctions, since positive incentives transfer useful resources to businesses while coercive sanctions alone are likely to be challenged by powerful interest groups and political forces. However, regulatory sanctions have the advantage of applying to all industrial firms without being restricted to a "pilot" zone and without the risk of discouraging businesses from investing in industrial pollution abatement when they cannot gain access to incentive resources.

Conclusion

Steering the financial sector towards funding green activities is one of the major tracks of the global sustainable development project. As environmental aid grows, bilateral and multilateral donors are looking to contribute to this track with intervention tools such as environmental credit lines. These tools, developed and used by particularly influential players such as the World Bank, appear at first sight to favour incentives over constraints and involve players operating commercially in a mechanism designed to align economic development with environmental protection. How does this "market" tool actually work in concrete terms and what are the drivers and mechanisms conditioning its environmental performance? The exploratory study of the EPAP II case makes a series of analyses and proposals that could usefully inform both academic debate and the action of the practitioners at a time when few studies focus on ECLs in the literature.

Although EPAP II's environmental outcomes make it a successful project, this success is not due simply to the financial set-up of incentive loans as suggested by the standard ECL model. Over and above the role of the financial incentives offered, EPAP II's effectiveness derives from the pivotal role of its management unit embedded in the Egyptian environmental authorities to keep the ECL on track environmentally. EPAP II's effectiveness is also the result of interlinking the ECL with the Egyptian public environmental policies, which are mutually reinforcing and whose objectives overlap in many ways. The EPAP II credit line is therefore more like a complex "smart regulation" system than a "market tool".

The analysis opens the way for comparative research on other ECL cases and other market-related environmental aid instruments. These studies would establish whether the interlink between financial mechanism and regulatory constraints is an EPAP II particularity or a characteristic shared by other ECLs due, for example, to the widespread involvement of donors in the Southern countries' environmental policies. These studies would also help establish whether ECLs and other market-based instruments that lack this characteristic have other mechanisms to ensure environmental effectiveness or whether they struggle as a result to achieve their environmental objectives.

The EPAP II case study also points to there being more to the role of ECLs in the development of an autonomous green banking market as a sustainable development vehicle. EPAP II may well make some contributions to the emergence of such a market by means of cognitive and organisational learning effects in banks and Egyptian industrial set-ups, support for the development of an enabling institutional framework, and the introduction of "judgement devices" needed to build economic values applicable to investments bearing environmental value. Yet EPAP II's environmental performances remain highly dependent on the financial and technical resources that donors provide the project, such that its success cannot be considered to be the demonstration of the effectiveness of an up-and-coming green finance market.

This analysis ties in with Billé (2009), who points up the intrinsic limitations of an environmental strategy based on "pilot" projects with virtues that are hard to replicate. Despite sometimes visible and palpable one-off outcomes, the pilot experiments with their more or less innovative and appealing formulas struggle to steer socioeconomic development models towards ecological sustainability on a larger scale. EPAP II's capacities to engender effective synergies between economic development and environmental improvements at project level raise the question as to how to maintain and, if possible, power up these synergies beyond the project's limited timeframe.

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2.3. Payments for ecosystem services: The tool's deceptive simplicity and the fundamental heterogeneity of situations [37]

Tiphaine LEMÉNAGER and Yann LAURANS

Recent years have seen the rise of payments for ecosystem services (PES) presented as one of the tools to be developed to address environmental degradation and especially biodiversity loss. Yet there is such a wide range of PES projects found in the literature that it is hard to understand what specifically marks them out and makes them interesting. Below are two examples presented and recognised as PES. In 2002, the Government of Mexico launched a national payment scheme for hydrological environmental services in a move to tackle the country's intensive deforestation and overexploited aquifers. Every year, a call for tenders is launched. Multi-year contracts are subsequently signed with a number of landowners who wish to take part in the scheme and whose proposals meet a list of pre-defined criteria. These landowners undertake to conserve a defined area of forest cover in return for payment. In 2010, the Mexican Federal Government ploughed tens of millions of euros into the scheme. The second example of PES is in Northern Tanzania where land bordering a national park is being increasingly used for crop growing by farmers mainly from outside the region. These farmers are unseating the Maasai herders and are a direct threat to the wildebeest and zebra migration, which is vital to the survival of the country's exceptional wildlife. This problem prompted a local tour operator, a hotel owner, a conservation consultant and a researcher to team up and offer an annual payment of €2,500 *via* a local NGO to one of the village councils adjoining the park on the condition that it take steps to prevent attempts to grow crops on its land. The village, as sole landowner, was offered a five-year contract. The village accepted and used the first year's payment to claim and recover the right of ownership of land taken over and illegally cultivated by an outsider.

The contrasts between these two examples are striking in terms of the circumstances in which the PES emerged, the players involved, the financial sources and volumes, the mechanisms proposed, the scope of application and so on. They raise the question as to whether all instruments involving a payment for the conservation of an ecosystem service would count as PES. Virtually all environmental actions could then be labelled as such. Yet under the most widespread definition of PES proposed by

[37] This chapter is based on research funded by AFD in 2010 (Laurans *et al.*, 2011).

Wunder (2005), there are very few "true" PES. Wunder defines a PES as a voluntary arrangement, with specific conditions attached, for a clearly defined service set up between at least one payer (informed and consenting) and one provider. Such a configuration is particularly rare and Wunder (*ibid.*) himself wonders, "If our field search thus produced barely any 'true PES' hits, is it perhaps because the above PES definition was simply too narrow?"

Yet a number of expectations are made of PES:

- As PES schemes establish a relatively direct relationship between a service producer and a buyer, these payments are expected to produce pragmatic, local, effective actions suited to the environmental issues identified (Börner *et al.,* 2010).
- In a situation of financial stress (Pearce, 2007), PES are expected to open up access to new biodiversity funding avenues not yet explored deploying the beneficiaries of the targeted ecosystem services who previously used them free of charge. PES schemes are therefore widely discussed in studies on innovative environmental financing (Parker and Cranford, 2010; OECD, 2011).
- The voluntary aspect of this instrument means that no additional regulations would be required and that hence there would be less need for monitoring measures especially since fewer stakeholders would be involved. Add to this the fact that PES mobilise few players in theory and solely the players concerned anyway, and the efficiency of PES could ultimately be expected to be optimised.

However, given the persistent lack of clarity surrounding PES and the vast array of mechanisms that appear to be at work under this name, do the expected benefits really deliver? And how, then, can players such as donors who want to contribute to financing environmental protection, and more specifically biodiversity, understand the diversity of PES situations?

Such are the questions addressed in this chapter, drawing on research conducted in 2010 based on a broad critical review of the literature concerned, and on five case studies in Mexico, Tanzania, Namibia, New York and Indonesia (Laurans *et al.,* 2011).

This chapter starts by clarifying the scope of PES by situating them among the environmental instruments, explaining their generic workings and proposing a system to differentiate between PES types. We use these three stages to take a new look at this instrument in terms of its strengths and weaknesses, showing that this can only be done in a differentiated manner. Lastly, we show that the roles played by intermediaries and negotiations are two of the underlying determinants of this instrument's environmental effectiveness.

2.3.1. *PES among the environmental instruments: characteristics and functional model*

An economic instrument based on a voluntary producer

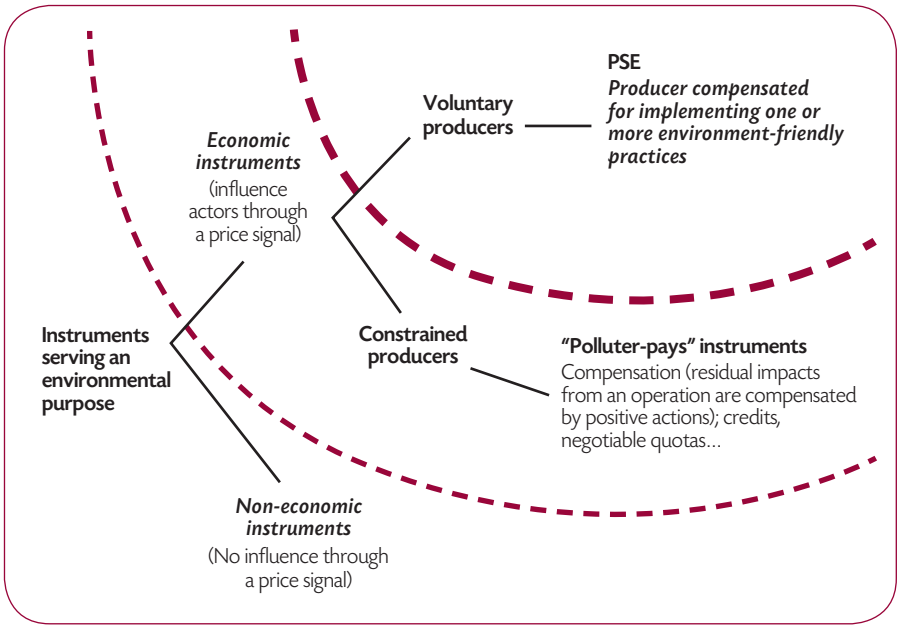
Three main types of instruments can be differentiated from across the entire spectrum of environmental policy instruments:[38] *(i)* non-economic instruments, *(ii)* economic instruments based on a regulatory constraint, and *(iii)* economic instruments based on the producers' voluntary participation. Echoing most of the theoretical papers on ecosystem services, we use the term ES "producer"[39] to designate any economic agent whose activity conditions the existence of this service. This may be the case where the ES is a direct result of the producer's activity: an extensive herder, for example, whose activity helps to maintain the upkeep of scenic landscapes and foster a broad diversity of plant and animal life. It also applies when the producer's activities help prevent or mitigate ecosystem service degradation: for example, a forester who practises "soft" forestry and in so doing helps maintain the water regulation service provided by the forests.

An in-depth field and literature analysis of the different initiatives called PES around the world shows that they come under this third and last category (see Figure 9).

[38] See, for example, Salamon (2002) for a review of the public policy instruments in this area.

[39] The literature often chooses the term "provider", which we feel to be problematic in cases where the agent is paid to reduce pollution or cease an illegal practice. The term "producer" seems more neutral and also makes reference to the fact that the economic agents paid by the PES scheme are almost always producers in the economic sense of the term (loggers and farmers in particular).

Figure 9 *PES compared with other environmental policy instruments*



Source: authors.

Let's take a brief look at each of these categories:

- Non-economic instruments cover all environmentally friendly activities that do not use a price signal to influence producer behaviour. Although no price signal is used here, there is a wide range of financing involved in this category of instrument, covering such activities as monitoring, legal, management, training and outreach conducted mainly by the environmental administration or NGOs. It also concerns regulatory or legislative policies. In this case, the ecosystem service producer is subject to a number of unilaterally imposed rules, banning (or at least limiting) a given practice and/or behaviour: a ban on hunting certain species, limits on the emission of a given substance into the natural environment, caps on tree felling, etc.
- Economic environmental policy instruments use a price signal to influence the behaviour of targeted players. In this second category, the price signal is subject to a regulatory constraint. Such is the case with the "polluter pays" economic instruments: ecosystem service producers are bound by law to a payment designed

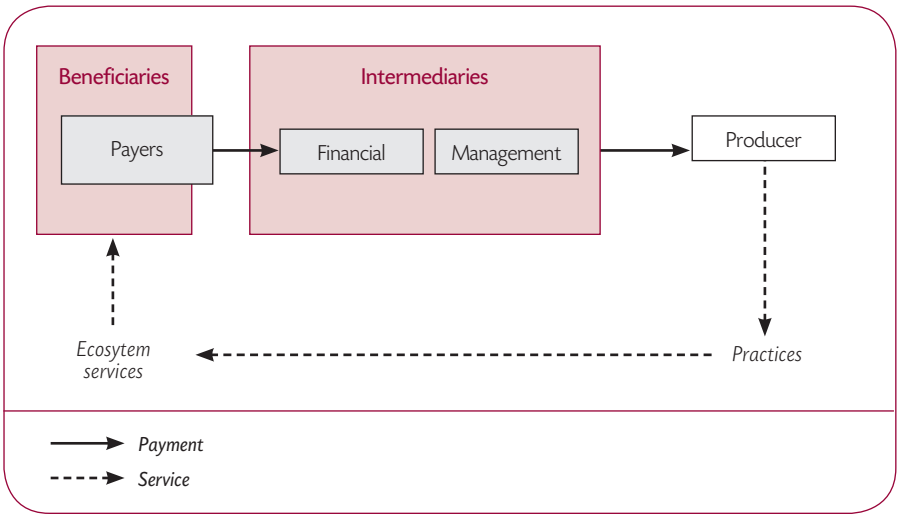
to curb some of their practices. As in the case of the above-mentioned legislative policies, the constraint is on the producer, but it is less direct. It works by means of economic dissuasion: the amount paid is on a sliding scale based on the producers' responses insofar as they may decide to change their behaviour and balance out their practices depending on the price they have to pay.

- PES differ from these first two categories. They do belong to the category of economic instruments (PES use a price signal to influence the behaviour of ES producers), but they are based on the producers' voluntary participation. Unlike the two former categories, service producers are not bound to comply. They are even paid for their practices in return for their voluntary commitment. This is the case, for example, when a company receives state aid to improve its pollution reduction performance (over and above the regulatory requirements) and when farmers receive state aid to set aside land that they themselves have chosen to fallow. Yet it also applies where a water consumer pays a forest owner or a farmer who has decided to adopt a certain number of drinking water management practices. These two features of "price signal" and "voluntary producer" combined form the lowest common denominator so to speak of the many PES projects. It is their particularity. A PES can therefore be defined as an economic instrument by means of which a voluntary producer is paid for practices conducive to the upkeep of one or more ecosystem services, irrespective of the financing sources used.

A multi-part functional model

This differentiation of PES from among the environmental instruments in itself forms a first key to understanding PES. Yet it gives no clues as to how they work. We conduct a cross-cutting analysis of all the cases discussed in the literature, as well as those we have ourselves studied, to identify a way of working generic to PES (see Figure 10) that is organised around a certain number of players.

Figure 10 *The functional model of all PES instruments*



Source: authors.

- An economic agent or group of agents, generally called the "beneficiary", has the use of an ecosystem service.
- A "payer" or group of "payers" pays for this service. Payers and beneficiaries are separated out here since they may be one and the same or different depending on the case.
- The service depends on the practices of another economic agent, called the service "producer" here and sometimes called the "provider" in the literature (Kremen, 2005).
- The "payer" pays the "producer" to use practices compatible with maintaining the ecosystem service provided.
- Yet more often than not, these players are joined by "intermediaries" who play an important role in the system. These include all the organisations that have funds and distribute them and/or create the conditions for the scheme to operate (governments and public bodies, NGOs, businesses, etc.). We make the distinction between two types here: "financial intermediaries" (who collect funds from different sources and pay the service producers) and "management intermediaries" (who manage project implementation or help, or use their influence to, to set up projects, host them, provide them with technical support, etc.). In some cases, both

functions are provided by one and the same body (e.g. an NGO that uses its funds to manage a PES scheme). In other cases, they are separate (e.g. a grant allocated by a collector of voluntary funds to a project management body).

These first two stages confirm that PES are indeed a fully fledged environmental policy instrument. They clearly define the scope of PES, a step often neglected by those addressing these instruments today and who, in certain cases, lump them together with polluter-pays tools and even entirely non-economic instruments. It is also vital to identify the generic workings of PES if we want to support or take part in one of them. It is by assisting one of the above-mentioned players that financers can take action and it is, more specifically, as a payer or intermediary that donors can, if necessary, get on board. Nevertheless, it is still hard at this stage to address in detail the diversity of PES mentioned in the introduction. Our analysis therefore proposes a more detailed classification of PES types.

2.3.2. Differentiation between PES types: two "payer" status criteria for four PES categories

As the aim of our analysis is to explain the lie of the land to a potential financer, we felt it crucial to identify the financial flows that PES can set up. From our detailed study of the literature and the wide range of PES cases we studied, we also observed a particularly large gap between one of the main principles of PES and the reality on the ground. This concerns the status of the payer. Although in a PES, the payer is in theory (as expressed, for example, by Wunder, 2005) supposed to be an ecosystem service user who is willing to pay a producer, we observe that this is seldom the case. Payers are sometimes specific users of the ecosystem service concerned, but not always. Moreover, they may be more or less voluntary. For these reasons, we differentiate between the PES based on two criteria relating to the payer's status.

- First criterion: the payer may be a "user" of the ES targeted by the PES or may have "*no specific link*" with the ES.
- Second criterion: although the "producer" is by definition always voluntary in a PES, the payer may prove to participate on either a "*voluntary*" or "*compulsory*" basis.

These two criteria produce four categories of PES (see Figure 11).

(i) PES where payers are "voluntary and users"

The first category concerns PES where payers are "*voluntary and users*". It represents a sort of the contractual archetypal model of the PES. This is the category the most akin to the Wunder (*ibid.*) definition given in the introduction. It also corresponds to what the Anglophone literature calls "*market-based*" instruments (Vatn, 2009). It is a voluntary agreement contracted freely between two parties: the beneficiary (or user) of an ecosystem service pays a voluntary producer, who implements practices to ensure the maintenance of the service. The Tanzanian case presented in the introduction illustrates this category, as does the famous example of Vittel in France, presented in particular by Perrot-Maître (2006). In the late 1980s, the private French company Vittel decided to launch an agricultural conversion programme on the 5,000 hectare (ha) watershed that supplies its springs to address threats to the nitrate and pesticide content of the natural mineral water it markets. Its aim was to reduce the level of nitrates in the water to 10 mg/l (as opposed to nearly 40 mg/l) and to remove all traces of pesticides. Under this programme, Vittel bought up the majority of the agricultural land and land-use rights in the mineral water catchment area. It then made them available free of charge to interested farmers provided that they adhered to technical specifications drawn up on French National Institute for Agricultural Research (INRA) recommendations. In addition, Vittel paid the farmers €228 per hectare per year for a seven-year period *via* a subsidiary specially set up for the purpose (Agrivair). The subsidiary also provided the farmers with free services to meet the technical specifications (technical advice, composting, manure spreading, etc.). The farmers signed up for periods of 18 or 30 years. The programme is estimated to have cost Vittel the equivalent of €0.15 per litre for an outlay of some €24.25 million.

(ii) PES where payers are "voluntary but not necessarily users"

In the PES category where payers are "*voluntary but not necessarily users*", payers also voluntarily pay the producers, but are not necessarily users of the ecosystem service concerned. The relationship between payer, producer and ecosystem service is therefore less direct than in the first category. This is often the case when the payments used in a PES come from an NGO: the payers, i.e. the donors, are voluntary, but they are not necessarily users of the ES that the NGO has decided to preserve. Our study identified various illustrations of this category. One example is the case developed by Clements *et al.* (2009) of the Bird Nest Protection Programme set up by the NGO Wildlife Conservation Society (WCS) in four villages of the Kulen Promtep Wildlife Sanctuary in Cambodia in 2002. The country's Northern Plains, rich in bird species, were threatened by the local populations' trade in eggs and

chicks. The NGO decided to offer to pay villagers five dollars to report the presence of a nest and a payment of one dollar per day to those undertaking to protect these nests and to refrain from certain damaging practices (such as egg consumption and felling nesting trees). Where the service provided is successful (i.e. if the chicks leave the nest), this payment is doubled. The contracts are drawn up individually and WCS staff make checks weekly. The total cost of the programme to the NGO stood at some USD 25,000 per year in 2009. Some villagers have become specialised in nest protection, changing species depending on the nesting season. Consequently, they receive payments for much of the year for a potential total of USD 400 per year (a large sum compared with other available sources of income). From 2002 to 2008, the programme protected over 1,200 endangered species' nests. Many species have seen a growth in population. However, populations have stagnated for other species. This phenomenon is reportedly due to the presence of a major threat other than hunting: the destruction of habitats, which is a direct consequence of deforestation and agricultural intensification. Following this programme's successful implementation, it was extended to the neighbouring Preah Vihear Protected Forest reserve in 2004. Another example in this category is the well-known case of the Los Negros PES in Bolivia (see Asquith *et al.,* 2008). PES with biodiversity conservation targets are found mainly in this category.

(iii) PES where payers are "bound to pay and are users"

Unlike the first two cases, the funds used to pay the (always voluntary) producer in the PES where payers are "*bound to pay and are users*" are collected on a compulsory basis. Payers do not choose to pay: they have to pay. In addition, the payers in this category form an ES user group. The well-known case of the Catskills in New York, discussed by Hoffman (2010) and Laurans and Aoubid (2012) among others, is a good illustration of this model. A PES mechanism was set up to guarantee the quality of drinking water upstream for consumers in New York. This strategy also ruled out the need to build a water treatment plant (an operation estimated at USD 6 billion, with annual operating costs of some USD 150 to USD 300 million). The Catskills strategy includes a tax in the water bill sent to New Yorkers (approximately ten million people). The Department of Environmental Protection (in charge of the water service, effluent collection and wastewater treatment for the entire City of New York) uses this tax to buy water-quality-sensitive land and promote sustainable farming practices throughout the Catskills and Delaware watershed. Also of note here is the regional water rate mechanism introduced in the City of Heredia in Costa Rica and reported by Smith *et al.* (2006). Here too, water users pay a tax included in their water bill (USD 0.1/m^3 of water). Heredia's water utility (Empresa Servicios Públicos de Heredia – ESPH) uses half of the money collected

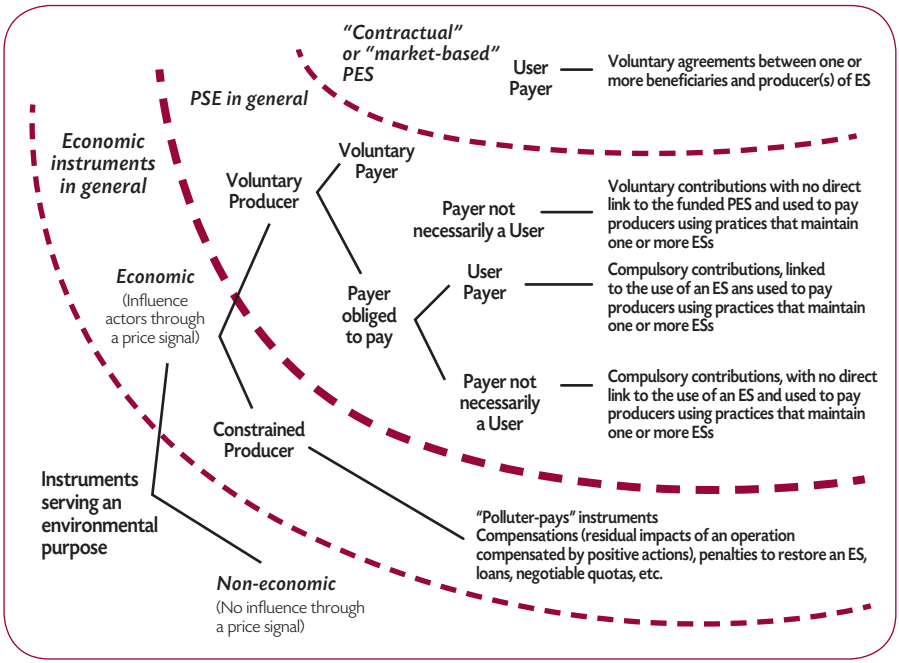
to pay landowners for forest conservation and reforestation in three watersheds in Costa Rica's Central Valley. The other half of the money is invested in renovating and building infrastructure and in research.

(iv) PES where payers are "bound to pay but are not necessarily users"

The PES category where payers are "b*ound to pay but are not necessarily users*" is a step further removed again from the market-based archetype. It includes mechanisms still funded by payers bound to pay, but these bound payers are not necessarily users of the ecosystem service concerned. They are rather a heterogeneous community of taxpayers paying *via* public subsidies or taxes levied on a basis that has no link with the ES. Here, the connection between paying for and benefitting from the service provided is optional. For these compulsory levies to form PES, they have to be specifically used to pay voluntary producers to apply practices to maintain the provision of an ecosystem service. These types of instruments are among the earliest PES documented. They are used mainly in the northern hemisphere for the large-scale financing of environmentally friendly farming practices, such as the Common Agricultural Policy's agri-environmental measures in Europe. Also of note, however, is the Grain for Green Programme in China, discussed in particular by Liu *et al.* (2007) and Bennett (2008). The Chinese government launched a programme in 1999 in a move to reduce flooding and erosion. It pays farmers in the west of the country to convert terraced farming areas into forests or pastures. By the end of 2006, around nine million hectares of cropland had been converted for a programme cost of CNY 90 billion (€9.7 billion).

These four categories round out the PES typology started in Figure 9 (see Figure 11).

Figure 11 *Typology of PES*



Source: authors.

2.3.3. A fresh look at PES to improve their environmental effectiveness

A typology used to diagnose the strengths and weaknesses of PES in each situation

The typology presented above forms a benchmark against which past, current and future PES projects can be gauged in a given geographic area. It forms the basis for an analysis of their strengths and weaknesses, especially from the point of view of the expectations made in principle of the PES (and raised in the introduction). To illustrate our point, we take the example of a donor who wants to participate in the development of this tool in Mexico. We will see the range of situations the donor may be looking at and the extent to which using our typology will usefully inform the donor's thinking.

As presented in the introduction, the Mexican Government has set up a nationwide PES system. It is managed by the Comisión Nacional Forestal (Conafor), the government agency in charge of forest management. The funds used come mainly from the general state budget, together with a small portion from taxes levied on water usage. In 2010, the project had a budget of €60.5 million. The funds are allocated to forest landowners who agree to preserve part of their forest cover. The strengths of this type of mechanism are typical of its public nature: being government run, it has nationwide reach, a large financial budget and therefore a considerable potential impact. However, it cannot be said that it has really raised new funds from ecosystem service users who previously used a service free of charge. In addition, the action channels are long and fraught with red tape: control measures are required and transaction costs are high (a call for tenders is launched every year, etc.). In terms of environmental response, a study has analysed the proposals accepted every year since 2003, given that contracts are supposed to be concluded in areas identified as being at risk of deforestation and with overexploited aquifers. Yet, in 2008, just 13.5% of the projects financed were in areas with overexploited aquifers and 47% were in areas with a high or very high risk of deforestation. So landowners are being paid when their initial practices did not apparently pose a threat to the aquifer ecosystem. This type of PES, which fits in more with our "*bound, non-user*" payer PES category, is far from the PES archetype. The mechanism has none of the advantages of a local set-up and the "short loop" between problems, players and solutions found. So what is expected of these PES is rather a moot point. Furthermore, the mechanism is subject to the political risks inherent in public action, including (especially in developing countries) corruption, political instability and little attention paid to long-term environmental issues. Lastly, the money used here comes from payers who are neither aware of nor voluntary defenders of the environmental cause concerned. Consequently, the system makes little contribution to biodiversity accountability or awareness-raising measures that are so clearly needed.

Let's look now at other, sub-national Mexican PES. The Government of the State of Mexico (in South-Central Mexico) has set up its own hydrological PES to conserve its forest areas (the State of Mexico's forest cover extends across approximately 900,000 ha, which is nearly 40% of the national forest cover). The main aim is to guarantee the water supply to the State's population. Implementation rules are regularly published (conditions, commitments, selection procedure, etc.) and landowners who want to take part are paid to conserve a specified part of their forest cover. The Government of the State of Mexico has introduced a compulsory levy on the State's water supply companies to fund the operation. These companies have to pay the State 3.5% of their turnover to contribute to the PES programme.

This PES corresponds to the "*bound ecosystem service user*" payer PES category. As with the first category, this PES demonstrates the strengths and weaknesses of a public action. The advantage of "bound" payer PES systems is found mainly in the guarantees it brings in terms of stability and regularity of revenues. Yet it is not certain that the same effectiveness applies to the other side of the equation: it might be easier, in such a configuration, to organise the collection of resources rather than contract-based solutions with producers. In addition, the parastatal nature of the instrument makes for a looser relationship between beneficiaries and producers, a more cumbersome mechanism and the risk of resources being lost. In other words, these mechanisms that are far from the archetype of direct contractual market exchange lose both their qualities and their shortcomings. The relationship is less direct, the "loop" is longer and the initiative is diluted. Conversely, large-scale organisation is easier and can therefore address more general issues. Unlike the PES presented above, this example has a strong point in its "user pays" feature. It appears to have been successful in raising new funds. The water companies benefiting from the hydrological ecosystem service are now engaged in forest preservation to ensure the maintenance of this service. This virtuous characteristic of these PES also tends to make users more responsible for their actions.

Moving on with our Mexican overview and closer to the PES archetype, we turn to an example of a PES implemented by the Mexican environmental NGO Pronatura. This NGO signs contracts with local communities in the Cuatro-Cienagas valley, renowned worldwide for its biological wealth, in the northern Mexican State of Coahuila. One of the contracts signed in 2009 stipulates, for example, that the *ejido* (community of landowners) of Antiguos Mineros shall receive two million pesos (€121,000) in two instalments to improve its practices over an area of 4,500 ha for a ten-year period (44 pesos/ha/year; €2.6/ha/year). The community of landowners has made various commitments to develop environmentally friendly practices. A community reserve has been set up with clearly defined conservation areas (1,300 ha) and other sustainable farming areas (3,200 ha). The money used for this project comes from a grant made by an American wetlands conservation institution (Laurans *et al.*, 2011). This is a "*voluntary non-ecosystem-service user*" payer PES. The strength of these mechanisms lies in the fact that the bodies collecting the donations and setting up the PES are generally well embedded locally. These players can therefore drive forward the implementation of local actions suited to the environmental challenges. In addition, their local position helps them build relationships of trust with the ecosystem service "producers", relationships that can contribute to their long-term adoption of the actions. Such is the case with Pronatura, which knows the communities with which it concludes contracts very well. Last but not least,

these intermediaries can use the ecosystem services line to prospect for and collect new donations from new payers. However, the weak point of these PES mechanisms is that they are based on revenue sources that are not guaranteed since they rely on voluntary action by the payers. Furthermore, given that the initial payer is not a user, this mechanism cannot be counted on to produce the educational aspect that comes from putting an ecosystem service producer in contact with the user of this service.

Our survey of Mexico did not find any mechanisms that perfectly match the archetypal "voluntary user" payer PES category. However, we did study one that is endeavouring to do so. In the north of the country, NGO Profauna is taking action to protect the Saltillo watershed and especially to preserve the Zapaliname forest, which supplies part of the watershed's sources. Its method involves paying communities of forest landowners to use practices conducive to the restoration and/or preservation of forest cover. This is meant to keep the watershed's hydrological system going and preserve local biodiversity. "PES" contracts are hence signed for terms of one to fifteen years. The funds the NGO uses to remunerate these contracts come from various sources (national subsidies, donations from private foundations, etc.), with one source being voluntary donations from water users in Saltillo. These donations are collected by the water utility Aguas de Saltillo. They appear on the consumer's water bill. The NGO sees this as an extremely important financial source and hopes to develop it in the future. Information campaigns are hence regularly rolled out for Saltillo's residents. PES initiatives built on this "voluntary user" model are led, as in the previous case, by players directly concerned by the environmental problem addressed and well-established locally. Their knowledge of the local situation enables them to define and implement practical bespoke solutions that are reportedly quite effective. These PES are also conducted entirely voluntarily by both producer and payer and generate no additional regulations. Financially speaking, the mechanism appears to have found new funds for biodiversity. This potential is not inconsiderable in view of the large number of users who have hitherto not invested in the ecosystem services they used. Yet it is still hard to estimate the volume of these funds. Profauna is hence perfectly aware that it cannot rely solely on this financing for its activities, even though its geographic area of action is very small compared with the first two examples addressed above. In addition, the ecosystem service users' willingness to pay depends partly on how sensitive they are to environmental issues and their financial capacity (Adger *et al.*, 2001; Pagiola, 2005). Poverty and low levels of education could therefore place limits on this type of PES in certain developing countries.

Fostering the effectiveness of the PES

As we have just seen, the strengths and weaknesses of PES will differ depending on their characteristics. It is clear that no situation on the ground ties in directly with what the literature appears to expect from such mechanisms. Taking this fact on board enables us to understand the particularities of each (type of) PES and see how the design of a given PES can be improved to make it effective in view of its own strengths and weaknesses and the environmental issue addressed.

Public PES can be expected to be able to handle environmental issues calling for large-scale action such as aquifer overexploitation. Yet the mechanism cannot be expected in itself to particularly foster the implementation of solutions pragmatically designed for the grassroots level. As we have shown, biases can end up making them less relevant from an environmental point of view. The Mexican Government combines its national PES programme with a process to evaluate the contracts concluded annually and review project selection criteria so that it can steer the programme as it progresses to ensure that the initial environmental objectives are not diluted, as was the case in 2008. This approach has also revealed that the poorest landowners were not coming on board, which prompted the government to launch an information campaign for these less accessible populations.

With respect to the voluntary payer PES, the risk of funding instability can be problematic. Depending on the situation, it may consequently be worthwhile to combine this type of project with a trust fund mechanism, for example, or to plan ahead for the fact that the search for funds will need to form a standalone track of the project developed.

Lastly, an analysis of the strengths and weaknesses of the PES shows that they cannot alone, whatever their nature, address all the determinants of environmental degradation. In northern Mexico, for example, the Saltillo Forest may well be threatened by deforestation, but it is even more endangered by the pressures of growing urbanisation, a factor over which PES have little control. Similarly, taxing water users to fund PES could be expected to prompt these users to save water, making the PES doubly virtuous due to its impacts on user and producer. In practice, tensions on the ground are generally such that only solvent users end up being taxed. There are many who continue to use water free of charge, such as the farmers in Mexico. This shows the need to consider PES in conjunction with other environmental tools.

The key role of intermediaries

Various authors cherish the idea that PES are potentially efficient tools that generate few transaction costs and which, being bilateral, should deploy a small number of players. In practice, and this can clearly be seen from the generic workings shown above (see Figure 10), all the reviewed cases of PES rely on one or more intermediaries. Intermediary players are omnipresent, including in the "*voluntary user*" payer PES category. In the Tanzanian case, the intermediary is a local NGO. In the case of Vittel, the intermediaries are the French National Institute for Agricultural Research (INRA) and Agrivair, a subsidiary set up by the company to manage the project.

Far from being trivial, this feature of the PES gives pause for thought: the role of these intermediaries is key since they are the players who put a PES into action on the ground. So many points need to be checked before embarking on a PES support process, such as their expertise and their capacities to handle environmental issues, manage local tensions, generate constructively critical debate and build relationships of trust with the producers concerned.

Role and place of negotiation

In addition to addressing the PES one by one to identify their strengths and weaknesses and gauge their potential in terms of environmental impact, our analysis also captures the diversity of the PES on a larger scale. To take our Mexican example, four PES initiatives are described, all mainly targeting forest cover preservation (see Table 7).

Table 7 *Comparison of the Mexican PES studied*

PES project	Body actively involved	Price offered to conserve forest cover	Initiative
Saltillo – Zapaliname forest (State of Coahuila)	Profauna	1,300 pesos/ha/year	Local
Mexico	Conafor	400 pesos/ha/year	National programme
Cuatro-Cienagas (State of Coahuila)	Pronatura	44 pesos/ha/year	Local
State of Mexico "water" PES	Government of the State of Mexico	1,500 pesos/ha/year	State of Mexico

Source: authors.

On completion of the project-based analysis of PES, it becomes apparent that different PES initiatives can share similar objectives (here, preserving forest cover). Yet they have different rules, variable payment prices, different contract terms, etc. These mechanisms, coordinated by various types of players, give rise to ongoing negotiations on the content of the activities conducted, payment prices and so on. These negotiations shape each mechanism. PES intervention cannot therefore assume the existence of a standard mechanism, standard price or the possibility of defining general rules. It calls for negotiations specific to each situation or at least involvement in current or future negotiations. Consideration of the environmental effectiveness of PES therefore entails finding the means to analyse these specific action situations, their balances of power, the skills of the players involved and so on. Only such an analysis can determine how a PES mechanism may or may not be set up in support of biodiversity.

Conclusion

Our observation of the diversity of PES worldwide addresses this tool by considering the lowest common denominator of its many different forms. A PES can therefore be defined as an economic instrument whereby a voluntary producer is paid for practices conducive to the maintenance of one or more ecosystem services, irrespective of the financing sources used. This definition, combined with a way of working that has proved to be typical of PES, establishes this instrument as a fully fledged environmental policy tool. This initial typology is then extended by adding in two differentiation criteria – the fact that a PES payer may be (first criterion) a "*user*" or "*not necessarily a user*" of the ecosystem service concerned and may be (second criterion) "*voluntary*" or "*bound*" to pay – to establish a typology that singles out four categories of PES. This typology is used to examine the different strengths and weaknesses of each of the PES types put in place compared with the expectations made of them. It serves to lessen the confusion criticised in the introduction. All operators interested in this mechanism now have access to the means of understanding what it is in practical terms and of steering their actions towards the objectives they want to achieve.

Many examples of PES schemes show that real force for action can be set in motion by their power to raise funds, their down-to-earth management and their adaptability due to their many forms. However, it is hard to say today whether their media attention and success reflect a significant critical mass effect in terms of implementation: there may well already be hundreds of PES schemes, but it is hard to estimate what percentage of all the environmental actions and budgets they represent. This success might, in part at least, be a victim of a temporary

fad that could simultaneously drive the rampant development of initiatives and the presentation of old ideas as new. There are also concerns that observed successes may have been achieved in geographic sectors with all the right conditions in place and in areas that are already economically viable (such as water and carbon), as seen in the Mexican case extensively discussed in this chapter. Caution and pragmatism are therefore the watchwords. PES schemes should be taken as one of many tools rather than as the solution to all the current environmental ills and especially biodiversity loss.

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2.4. How to gauge the relevance and effectiveness of economic tools for biodiversity[40]

Laurent MERMET

In recent decades, a whole host of economic tools have been put forward to address our environmental and especially our biodiversity problems. The following simple list of four main types of instrument sets out our present concerns:

- Ecosystem service valuation (ESV) calculates the economic value of an element of biodiversity or a given state of ecosystem functioning in monetary terms to improve the mainstreaming of ecological considerations into the economics of policymaking.
- Payments for ecosystem services (PES) consist of giving certain ecosystem management players regular payments in exchange for practices conducive to the sound functioning of this ecosystem (e.g. restricting the use of polluting inputs in agriculture and refraining from deforestation).
- Land tools are based on the purchase of land rights. These rights may be partial with easements (e.g. landowners keep their land, but waive the right to build on it) or full with the purchase of land for biodiversity conservation.
- Lastly, offset banking systems are based on regulatory systems that require players to purchase offset credits for damage to ecosystems and offer the possibility of trading, buying and selling these credits.

These instruments' definitions and typologies, and even their classification as economic or market instruments, are obviously open to debate (see, for example, Broughton and Pirard, 2011). Recent years have also seen literature abound on their operating principles, targeted benefits and feared adverse effects (see, for example, the final TEEB report for an overview: Kumar, 2010). These debates come in response to the growing profile (one might also say the obsessive brandishing) of economic tools in the field of biodiversity. Much hope is placed in them, as shown by this quote from Daily *et al.* (2009): "Over the past decade, efforts to value and protect ecosystem services have been promoted by many as the last, best hope for making conservation mainstream – attractive and commonplace worldwide." Are we right to place our hopes in this range of tools? Are economic tools actually adopted in practice and do they really have the potential for large-scale use and effectiveness? Are they

[40] This chapter is based on research funded by AFD in 2011 (Mermet *et al.*, 2014).

more effective than other biodiversity action tools (regulations, communication, cooperation, etc.)? The question is especially pointed since the biodiversity crisis is not under control. For those players who are really trying to find solutions, the question of possible action strategies and tools to be used is becoming crucial and debates are intensifying.

This tension is becoming more acute as critical and often virulent questions pour in from those who fear that the use of economic instruments in biodiversity action could harm other causes (if they result, for example, in the "commodification" of certain resources, placing them out of reach of the poor populations who depend on them today). So the boom in literature promoting the economic tools has seen a return volley of literature that is fundamentally critical of the very principle of economic tools (see, for example, O'Neill, 2007).

On the whole, the debate on economic tools for biodiversity (ETBs) is dominated by variations on a recurring theme of confrontation between those who promote them and those who criticise them in general, based mainly on arguments of principle. Yet behind their argument with each other, the two sides of this quarrel appear to share two assumptions: *(i)* economic tools are (or could be) used massively with huge potential effect (otherwise, there would be no clear reason for the hopes or the fears they raise) and *(ii)* the way they work on the ground is unquestionably in line with the economic theory to which they claim to adhere (otherwise discussion of their principles would be irrelevant to a discussion of their practical repercussions). Yet these two hypotheses do not stand up well to the observation of the practical uses made of economic tools in the real world of biodiversity management. Often, little use is actually made of the tools even if a great deal is said about them. Such is the case with the ecosystem service valuations in policymaking (Laurans *et al.,* 2013). Or alternatively they are actually used, but the dynamics and consequences of their use differ hugely from the principles laid down by the theory, as shown by the example of payments for ecosystem services (see Chapter 2.3 of this book and Laurans *et al.,* 2011).

At the end of the day, there is a gulf between the tools' principles of action as envisaged by economic theory and how they really operate in concrete biodiversity management situations. And although the arguments of principle for and against economic tools have been repeated so much that everyone is now familiar with them, the dynamics on the ground are a lot less studied, charted and understood. Hence our present call to focus attention not on the principles, but on the actual uses made of the tools. The question is this: which analytic frameworks can serve as a guide to study the use and effectiveness of economic tools in concrete situations

addressing a biodiversity problem? To answer this question, we conducted research (Mermet *et al.,* 2014) comprising two series of complementary studies. The first focused on the exact state of play of the questions of use raised by the main ETBs, based on a series of interviews and an examination of the (still sketchy) literature on the use made of these tools.[41] The second series examined which types of theoretical resources were needed to advance thinking (as much academic as practical) on the use of economic tools and how they could (or not) really help handle biodiversity problems. This chapter concentrates on the second issue.

Its principle may seem paradoxical: in thinking on the implementation of economic tools, it is common practice to compare a theoretical realm – economics – with a practical realm, which, by nature, is not a product of theoretical approaches. This is precisely what the shortest interview in our research tersely sums up. Asked about the theoretical resources needed to map out the use of the economic tools, this internationally renowned environment economics researcher replied, "No theory paradigm except basic micro and common sense." Although we understand this point of view, we consider that the complexity (technical, social, cultural, political, psychological, etc.) of biodiversity management action in situ raises particularly tricky interpretation and conception problems that largely escape economic theory. It is often preferable, if not necessary, to do more than rely on just "common sense" in the explanation, discussion and development of the challenges and dynamics of collective action. The question then is to identify which frameworks for thinking, which concepts and which theoretical resources may be appropriate in a given situation to address a given concern.

Our research concludes with five defining questions to take forward the issue of the use of economic tools. It proposes addressing them from five different, complementary theoretical angles. To present our results, we first give a fairly detailed presentation of one of these five issues – the moral controversies surrounding the implementation of economic tools – and the resources that the theory of justification (Boltanski and Thévenot, 1991) provides to address it. Besides the specific importance of this question of values in the implementation of ETBs, we hope this example will illustrate the relevance of the practice of using theoretical resources outside economics to shed light on the use of economic tools in action on the ground. The second part of this chapter presents a briefer overview of the other four issues taken up by our research and the theoretical resources we propose to use to address them. We conclude with a look at the limitations of prevalent

[41] See Mermet *et al*, (2014) for the results of this state-of-the-art study.

ways of thinking that take the line that a given tool can alone solve a problem (or exacerbate it as the critics would have it), when the effectiveness (or harmfulness) of a tool has to be considered as part of the entire operational chain of which it is only ever a single link. What these diverse theoretical approaches manage to achieve, each in their own way, is to re-contextualise these tools within an overall operative action.

2.4.1. The theory of justification to clarify the multitude of values involved

One of the most immediate tests faced by work on economic tools for biodiversity is the intense criticism they provoke in terms of such issues as the commodification of nature, stripping ecological concerns down to their utilitarian aspects, and the inegalitarian effects of money-based tools. Many reports by the promoters of these tools themselves (such as the TEEB reports [Kumar, 2010] and the report from the Centre d'Analyse Stratégique on ecosystem service valuation [Chevassus-au-Louis *et al.,* 2009]) show that they have heard this criticism and do their best to take it into account in their thinking and positions. As one of our interviewees, a specialist in economic tools on a UN biodiversity team, told us, "First you have to clarify the basic elements of the economic tools: where does the non-financial fit in; what ethical environment are these tools developing in?" Caught up as it is in so many controversies over values, we believe that the field of economic tools for biodiversity needs intellectual tools to explain them, analyse them and consider its own moral markers.

The theory of justification put forward by Boltanski and Thévenot (1991) in their book *On Justification: Economies of Worth* is particularly useful in this respect. It is based on the following observation: faced with the many trials and tribulations of living in a society, people are not guided solely by the strategic pursuit of their own interests; they also spend a good part of their time making choices morally justified by the common good. The theory's architects looked in depth into the content of justifications and the justification-building process developed by people who disagree on an issue. Their investigation was based on empirical observation (observing how people justify themselves) and discussion of political and moral theories concerned with justification. It concluded with the development of concepts and an analytic framework worked into a theory that can be used for a thorough and in-depth analysis of many situations of clashes between claims that are contradictory, but all morally founded (founded, as we will see, on their own contradictory moral principles). A number of researchers quickly seized on the potential of the theory of justification to address controversies of value over

environmental issues (see, in particular, Lafaye and Thévenot, 1993, and Barbier, 1995). The following presents some of the key nuts and bolts of theory, showing how they can inform the question of the use of ETBs.

Understanding the clash between contradictory values when each value is justified by the common interest

The theory is based on a dual observation: *(i)* people justify their actions based on different normative and largely mutually incompatible principles and *(ii)* only a small number of these principles are actually used in justification debates. Indeed ETB controversies unquestionably involve a clash of scales of value that themselves claim to be at odds with one another and, after a while, these controversies start to run in ever-decreasing circles, inevitably returning to the same configurations. The same holds true in other fields such as corporate social relations, on which Boltanski and Thévenot take as an example in their work. By examining the reasoning behind the justification of choices, they identify six value systems, six ranking logics, each of which has a strong basis of legitimacy in our society and is regularly used in debates that criticise or justify positions and decisions. The theory calls them "worlds" as each of these scales of value forms a moral and political order held together by sophisticated links that enable us to live together despite our differences. The civic world, for example, is built on the search for the common interest based on political and legal procedures. In the market world, the pursuit of common prosperity is based on the active search for trade advantageous to the protagonists. The industrial world is organised around the search for effectiveness and efficiency (in the production of goods and services and in the resolution of problems). The domestic world expresses the order handed down by tradition (an order based on a hierarchy of interpersonal links and dependencies). The world of fame ranks values based on the amount of attention each person (or each thing) gets from others. Lastly, top of the inspired world's hierarchy of values is access to valued inspired states such as artistic creation and aesthetic or religious rapture.

This proposed theory of justification reflects common sense observations, which is hardly surprising since, in keeping with the "pragmatic" angle it takes (see Dosse, 2005), it is based on the observation of how the people themselves organise their understanding of the world on a daily basis. Yet it goes much further, on two levels, than the vernacular observation of the conflict between these scales of value. Firstly, it analyses in detail how these orders of worth work and explains the notions they entail and how they are built (their "grammar" to take the concept used by the authors of the theory). Secondly, it traces the social and historical construction of these orders of worth, a construction and rooting without which they could not be

strong enough to withstand criticism in justification controversies. These two points are key since the challenge of justification in public controversies such as those on biodiversity is not solely to assert one's own hierarchy of values, but to manage to base the defended choices on values that *(i)* can explain how they contribute to the common good when they are at odds with other values, and that *(ii)* are admissible by a large enough proportion of the protagonists to stand a chance of prevailing in the collective decisions.

At this first level of reading of the theory, some of the conflicts that form such an obvious part of the controversy over ETBs and their use are already partially explained: market logic versus tradition, practical service production utilitarianism versus the aesthetic and spiritual value of nature, the democratic legitimacy (legal and political) of biodiversity decisions versus commercial logic, etc. A first lesson could be drawn: the clash of values that weighs so obviously on these ETBs is not specific to these tools, but reflects the very construction and dynamics of our society, themselves based on the co-existence of orders of worth in a state of tension that are differently, but equally legitimate. The point cannot be to overcome these value controversies, but rather to incorporate them better into the design, implementation and evaluation of the ETBs. Let's see how certain aspects of the theory of justification provide resources to do just that.

Rethinking the widespread conflict between economic tools and ethics

In the literature on ETBs and in informal discussions about them, economic reasoning is often presented as clashing with moral requirements. The problem is then presented as a power struggle or a problem of finding a balance between economics (seen as immoral, or at least amoral) and morals (see, for example, O'Neill and Spash, 2000). The theory of justification substantially refocuses this issue. As Boltanski (1990) writes, "Persons in a market are *moral beings*[42] in the sense that they are capable of abstracting themselves from their particularity to reach agreement on external goods, the list and the definition of which are universal." In other words, by placing a good on the market, the person agrees to set aside his or her own perception and submit it to a test of justification of the value of this good in the eyes of others by means of a public procedure. For the theory of justification, this acceptance of submission to an order of worth shared with others forms the very basis of the moral orders.

[42] Author's italics.

The controversies surrounding the use of ETBs should not therefore be analysed as a conflict between morality and an immorality (or amorality) found in the economic order, but as a set of confrontations between different moral orders including that on which economics is based. Each of these moral orders, pushed to the limits of its own logic, rejects the other orders of worth present as immoral. Yet if we broaden the focus just a little and accept that a pluralist society is based precisely on this confrontation in practice between a number of mutually incommensurable moral orders, then the issue becomes one of learning to read the crisscrossing game of one moral order's criticism of the other and taking a position.

In their book, Boltanski and Thévenot (1991) show in detail how each of the worlds forms a systematic critique of each of the other based on its own logic: "civic" critique of the "market" order, "market" critique of the "domestic" order, "industrial" critique of the "inspired" order, etc. This systematic crisscrossing of critiques is particularly informative in fathoming the controversies that ETBs arouse, especially once the market scale of value has been reintegrated into the clashing orders of worth. This structures a matrix of mutual indignation. On one side, critics of biodiversity economics attack the economic tools in the name of values that the theory of justification helps identify more clearly: they jeopardise traditional nature management arrangements (domestic world); they compete with and bypass making choices by political and democratic means (civic world); they drain biodiversity of its aesthetics (inspired world), etc. It is clear here that these critiques of the economic approach to biodiversity differ greatly from one another and it is also easier to read the ways in which these critiques try to combine with one another and the problems such combinations raise. Yet conversely, the indignation of economists is also plain to see when an economic transaction that could generate prosperity comes up against various arguments (tradition, regulations, pressure of public opinion, etc.). Their reactions are sometimes put down to cynical arrogance, but they can also be driven by moral indignation. In the clash of scales of value, each person can get indignant about the values defended by the others.

This interpretation suggests that moving forward implies accepting the pluralism of values that form the basis of our society and finding the means to break away from simplistic preconceived ideas so that we can understand the full wealth of the dilemmas and moral debates involved in biodiversity management and especially the development of ETBs.

Economic tools for biodiversity are based on "compromises" between values

In addition to clarifying the mutual critiques of the orders of worth, another concept put forward by the theory of justification is particularly enlightening for the use of economic tools in the management of ecosystems: compromise. When two (or more) scales of intractable values come into conflict over a given situation, Boltanski and Thévenot (*ibid.*) propose three possible solutions:

- The protagonists can choose one order of worth rather than the others. It may, for example, be technically and economically beneficial to have the motorway run through one of the endangered hermit beetle's last habitats, but it does not happen because it is against the law.
- They can undertake to combine two orders of worth. This then produces a hybrid scale of values that is not as pure or as resilient to criticism, but can hold up to a certain point, at least in certain contexts. This is what Boltanski and Thévenot (*ibid.*) call a "*compromise*".
- They can, in the face of the practical constraints of a situation, give up on morally justifying the decision. In the terms used by the theory of justification, this is an "*arrangement*".

In research on the French water agencies, Godard (1995) shows that the "agency system" and the way in which it combines polluter fees, pollution abatement support programmes and the pluralist deliberation body that is the watershed committee (often presented as a "miniature water parliament") constitute a market-industrial-civic compromise. In other words, the justifications for this system are based on a balance struck between the economic, technical and democratic logics. The utility of this analysis becomes patent in the context of the heated controversies over the water agencies when the Ministry of Finance took issue with them in the mid-1990s. The agencies found themselves under intense attack, criticised for not having purely, steadfastly and justifiably toed the economic line. Seen purely from the point of view of a given order of worth, compromises, being hybrid orders, are necessarily impure and, for the purist (such as an economist who may insist on sticking solely to the internal logic of economics) they are unjustified. And yet these hybrid constructions can make a major contribution to dealing with common problems, as shown by the example of the water agencies.

The same holds true for economic tools for biodiversity. They are called economic, but are not actually in line with market logic. They are generally based on compromises (as defined by the theory of justification). Ecosystem service valuation

(ESV) may well be expressed in monetary terms. Yet the notion of an ecosystem service is clearly rooted in the industrial world, based on the concern to produce services as rationally as possible by correctly managing the ecosystems, seen here as natural service production facilities. The basis of ESV is therefore an industrial-market compromise. Various propositions aim to expand this compromise, for example by conducting participatory valuations, to give them added civic legitimacy. To take a second example, especially if the term "bank" is taken to mean a financial establishment (rather than a place of deposit), biodiversity offset banks may be perceived as complete commodification of natural habitats. However, a more detailed study (Mermet *et al.,* 2014, Chapter 4) shows that these systems are really just complementary modules added on to a highly administered regulatory management of building and infrastructure project authorisation procedures, such that it is fairer to see them as civic-market based depending as much on the legal and political strength of administrative authorisation systems as on the market world trade dynamics by which they are made more flexible and complete.

This notion of compromise therefore enriches and refines the analysis' explanatory potential already provided by the table of mutual critiques between worlds. It offers the possibility of a more explicit, accurate and shaded reading of the ETB controversies than that suggested by the summary indignation and conflicts that encumber the debate. It also shows that the different instruments that we are all too quick to label "economic" are actually based on diverse normative foundations. When looking at using ETBs in concrete biodiversity management situations (situations themselves highly diverse from the point of view of their normative issues), this ability to clarify the instruments' foundations and normative import is valuable both to understanding the situations and conducting action.

In search of a green world: do economic tools for biodiversity foster or hinder the emergence of new ecological values?

Yet one key question remains: do ecological issues carry their own order of worth? Do they have their own moral substance and import? This question was raised soon after the publication of *On Justification* by Lafaye and Thévenot (1993), and then by Godard (1994). In both texts, the authors observe that ecological issues are seen through the lens of the worlds that came before them and as if diffracted into different dimensions. The arguments for biodiversity conservation are based sometimes on one and sometimes on another of the theory of justification's six scales of value (economic, functional, traditional, aesthetic arguments, etc.). Yet as rich and informative as it may be, this justification of biodiversity in the light of other values does not manage to convey ecological values entirely. Nevertheless,

Lafaye and Thévenot, like Godard, still believe that we cannot talk about an ecological world that is built on specific values, mainly because the concern about the ecological systems would not be based on a concern directly involving man, as dictated by the grammar of Bolstanski and Thévenot's six worlds grammar, but involving man in too much of a roundabout way (future generations, indisputable interpretations of the socioecological situation by scientific experts, and the fact of conferring rights on non-humans). We consider, however (Mermet, 2007), that the ecological world definitely exists and is gradually growing. Its defining principle is its focus on nature, on "the planet", and on everyone being prepared to make a gesture, an effort, to defer his or her own immediate interests for their benefit.

We believe that this issue of the particularity of ecological values points up an important aspect of the debate on the use of ETBs. Many people involved in biodiversity issues are there precisely because they set great store by biodiversity itself and want to take action for it. For these people, it is important in itself to protect nature, to take care of elephants, forests and the deep seas. The use of arguments and instruments based on other values (utility, aesthetics, etc.) puts them in an ambivalent situation. On the one hand, these values can be used to help rally other players to their cause (even for reasons that have nothing to do with ecological values). Yet on the other hand, if they do so, do they not hold back even further the emergence of the ecological values they are most keen to promote, insidiously barring their way and strengthening their opposing elements (for example, where advocacy based on recreational ecosystem services strengthens the values of consumerism)? In the face of pressures of all orders and the barrage of ethical criticism they encounter, conservation actions need allies to support them and to find a way for their own values to exist in their own right. The economic instruments bring allies on board, and this is one reason why many advocate their use. Yet completely different assessments of their purpose and effects can be found depending on whether they are seen as a pure means to serve a cause (bio-diversity) or as a redefinition of the ends reducing biodiversity once more to the oversimplified concept of a resource (that can be used and abused). The thinking on the possible status of ecological values in the theory of justification's world model could provide useful conceptual frameworks for these dilemmas and controversies.

The balance between contradictory values is found in practice, not in an overarching debate of principle

To conclude, the theory of justification provides interesting resources to answer the question as to what position to take in the controversies of values surrounding the economic tools for biodiversity. It also points up that this issue of values is not

some kind of general preliminary question to be addressed in an overriding debate of principle, but that its many contradictions can and must be addressed in practice by debate and discussion among players at all levels of organisation of action.

2.4.2. Other defining questions and viable theoretical approaches

In addition to the question of values that we have just addressed in some detail, our research into the concrete use of economic tools for biodiversity points up four other defining questions to drive thinking. Who is the biodiversity action operator? What management rules and institutions can be negotiated between protagonists for the management of the common good that is biodiversity? How can the technical, social, political, economic and other relevant aspects be remixed to reach new socio-ecological arrangements? What should we make of the power struggle, or balance of power, aspect found in many biodiversity issues? We have identified a theoretical approach to each of these questions, which we believe sheds useful light on each one. We briefly review these questions below in such a light.[43]

Who is the biodiversity action operator?

It is hard to imagine thinking about the use to which a tool can be put without a clear picture of its operator. What kind of player is the operator? How is the operator organised? What are the operator's capacities? Yet many articles and discussions on the economic tools for biodiversity either consider the answer to be self-evident (it is the government that acts) or evade the question as if it mattered little whether the tool was used by an administrative authority, by the players "around the table" or by an NGO defending biodiversity. Drawing on previous studies (Mermet *et al.*, 2013), we propose lifting the fog by clearly defining five types of biodiversity action operator configurations: *(i)* government (action is taken by the public authorities), *(ii)* coordination (action is the responsibility of players working jointly), *(iii)* revolution (action is conducted by revolutionary forces able to overturn a political and economic system intrinsically detrimental to biodiversity), *(iv)* governance, a hybrid of government and coordination (where action is the result of complex procedures in which both public authorities and biodiversity players take part), and *(v)* minority action for change (where action is driven by a player specifically committed to the environment over the other players in society).

[43] See chapters 6, 7, 9 and 10 in Mermet *et al.* (2014) for more details on these questions.

The economic tools are used for different reasons and purposes and in different ways depending on the benchmark operator on which the reasoning is based. To give just two examples, using ecosystem service valuations to make decisions based on a cost-benefit analysis only makes sense in government or coordination configurations where there is a certain unity of decision-making. However, the use of these valuations as advocacy can be envisaged in all case scenarios (for example, to justify a policy from the point of view of the government or to feed into an opposition argument from the revolutionary point of view, etc.). Nevertheless, depending on the type of promoter envisaged, neither the actual valuation nor the use made of it will work in the same way. In a second example, the way payments for ecosystem services are negotiated and work and the impacts they have will be totally different depending on whether these payments are made by a public authority or are the result of a direct agreement between civil society players (Laurans *et al.,* 2011).

All in all, we believe it is particularly useful in discussions about economic tools for biodiversity and their use to have clear explanations according to which type of collective action operator each party is reasoning with. The actual use of the tools on the ground especially implies a detailed clarification as to the tool operator's identity and operating environment.

How much do economic tools help to usefully renegotiate the biodiversity management institutions and rules?

Another element vital to understanding the context surrounding the use of ETBs is to understand the management institutions and rules already in place and to analyse the players' capacities to improve and implement them. From this institutional angle, the economic tools for biodiversity can be seen as rule elements to be added to the existing arrangements to enhance and improve the way they work. In the case of the ecosystem service valuations, for example, this might entail making the rules for public infrastructure project justification studies more bio-diversity-sensitive (this is the main aim of the Centre d'Analyse Stratégique report on biodiversity, see Chevassus-au-Louis *et al.,* 2009). Payments for ecosystem services can contribute to the development of complex agreements between an ecosystem's management players by providing the possibility to balance accepted constraints with financial transfers (Muradian *et al.,* 2009). Purchases of land and easements create leverage to restructure relations between players by reorganising the land situation. Biodiversity banks round out legal development rules by introducing new possibilities for the implementation of obligations to offset unavoidable impacts on biodiversity.

The tool does not work on its own, but as a possibility or an additional obligation in a set of already complex rules governing relations between players in any situation where biodiversity is involved. It is not the tool itself that determines a result, but all the rules governing the situation wherein the tool, presented as new or decisive, is actually just one element among others. It is therefore vital to analyse situations regarding the use of economic tools for biodiversity from the point of view of the capacity (or not) of stakeholders to negotiate the introduction and enforcement of rules that will ultimately effectively solve their resource or biodiversity problems. The theory of common-pool resources (Ostrom, 1990) is particularly helpful to an in-depth analysis of the conditions for the possibility (or not) for these decisive renegotiations to take place. To give just one example, Fisher *et al.* (2010) show how the use of PES in watershed management in Tanzania is not really relevant when placed in the context of the management institutions and rules for the resource such as it is analysed in this case by the theory of common-pool resources.

Economic tools for biodiversity: real innovations or add-ons?

Other aspects of ETB re-contextualisation concern the balance between the economic, technical and political aspects of biodiversity management situations and the role of innovation, of the ongoing changes at work in these situations. Here, the sociology of translation concept put forward by Callon (1986) provides some useful perspectives. It is based on the idea that if an innovation is to be successful and drive tangible change, it has to form an "obligatory passage point" and show that it is in the interest of all the situation's protagonists to change how they operate to take on the new mechanism proposed. The point is not so much whether they can manage to make the innovative mechanism work, but whether it can take hold by making the protagonists give up certain previous ways of doing things and hence establish new behaviour and new relations between the situation's stakeholders.

So if we see ETBs as innovations, the question can be put as to whether the ESV manages to change the players' and policymakers' ways of thinking or whether it is merely an autocratic exercise of translation into monetary figures that brings no new information or attitudes (a kind of new Esperanto). Similarly, PES have totally different impacts on the ground depending on whether they effectively (re)configure how things are done or simply form an additional source of finance in an unimproved situation (as in the eco-opportunist behaviour observed by Busca, 2010).

Another important element of the sociology of innovation is to show how inter-dependent the technical, economic, political and legal and other aspects are, and to provide conceptual frameworks to analyse how the innovators' action (based here

on new economic tools for biodiversity) manages (or not) to address all these different angles together to generate new configurations.

The concepts proposed by Latour (1999) on the "politics of natures" make similar, complementary points that focus more on the questions of deliberation among players and the political reconfigurations (in the broad sense) that accompany the mainstreaming of the new ecological questions.

Understanding the balances of power found in many biodiversity cases

In the second chapter of this book (1.2), we show that each biodiversity project has to be driven by an environmental player if it is to get anywhere. We also point out the importance of the balances of power that develop between the environmental player and other players who are indifferent, reluctant or resistant to change in support of biodiversity. This aspect is just as decisive in the use of ETBs as in all other environmental actions. We have proposed strategic environmental management analysis (Mermet, 2011) as a way of addressing it.

This analysis suggests, for example, putting actions in support of a given bio-diversity issue in perspective with other actions that play a negative role. In the field of economic instruments, this can prompt a reversal of perspective as the spotlight turns on brown subsidies rather than just the financing designed to protect biodiversity (e.g. PES programmes). We believe such a turnaround to be particularly relevant considering just how frequently brown subsidies are so much greater than biodiversity financing. Similarly, it serves little purpose to have an ESV show the economic losses caused by a project's ecological impacts if we are prepared to conduct this project even when it is not economically profitable, which is often the case (Henry, 1986; Mermet, 2003). Here again, the turnaround advocated by consideration of the strategies and balances of power shows that it is often more useful to criticise economically groundless infrastructure projects than to add extra biodiversity elements to already debatable justification studies.

The strategic perspective also has the advantage of showing that to understand the import of ETBs, it is essential to know how motivated (you could say combative) for biodiversity the operator using them is. What may appear to be the same tool (e.g. PES for the adoption of certain farming practices) will not have the same impact, depending on whether it is used by an operator who will exert pressure to ensure that it really has positive biodiversity effects or by an operator representing the farmers' interests who is liable to be much more sensitive to the income support effects and focused on having as many producers as possible benefit from it irrespective of its environmental relevance (Busca, 2010).

Conclusion

The economic tools for biodiversity are an important consideration for donor activity, and official development assistance for biodiversity in general, in that donor action is based much more broadly speaking mainly on economic tools. We believe the question is not so much, "Should they be used?" as, "How can they be used effectively?" We hope to have shown that in order to understand both the potential and the shortcomings of economic tools for biodiversity, it is now important to focus research, thinking and discussion on the real conditions of their use rather than on general judgements of principle. Their effects – and especially their utility or not for biodiversity – depend closely on the context of each case. However, we cannot merely state that each case is a generally complex individual case. We (or more particularly the donors and their Southern partners in our case) have to find the means to describe and analyse the diversity and complexity of real situations. This calls for clear questions to organise and steer the diagnosis, or to take our five key questions in another order: *(i)* Who is the operator taking the biodiversity action and using the economic tool for biodiversity? *(ii)* What balance of power is this operator involved in? *(iii)* The implementation of an economic tool for biodiversity would come as an addition to which existing institutions and rules, and what is the players' capacity to usefully negotiate the rules for biodiversity? *(iv)* What technical, economic and political innovations are concerned and what recompositions are underway? *(v)* On which arguments of value do the issue's stakeholders disagree? It also calls for the use of theoretical tools (analytic frameworks, concepts, and ways of developing and organising the questions) suited to the particular situations and to the subsequent action issues. There exist abundant resources for this exercise (a certain number of examples of which we have proposed here). It should now be a priority to work on harnessing these resources and further developing them to understand the economic tools for biodiversity in concrete terms. Indeed, and here we take up the book's general theme, these tools only make sense and produce (or not) their expected effects in concrete circumstances of action strategies and particular implementation situations.

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Section 3

What steering tools will drive forward the environmental turning point?

3

What steering tools will drive forward the environmental turning point?

Following the intervention tools, the third and last section of this book discusses the use of a range of tools called "steering tools". Examples abound of steering tool proposals implying that all that is needed for successful action is the right tool, the right compass. It is true that all actions are subject to developments, changes, more or less anticipated effects, multiple decisions, etc. In this section, comprising four chapters, we therefore focus on the existing tools, those that development aid operators use (or could use) in support of their environmental turning point. Although the tools addressed are different to those analysed in the second section, we will see here again that any tool has to be understood in its organisational and political action context if it is to be effective.

The first chapter of this last section (3.1) again considers an economic tool, but this time as a steering tool. Yann Laurans and Alexander Haddad present the findings of research conducted in 2012 into how ecosystem service valuations (ESVs) can be used to steer development aid organisations' biodiversity project choices. In principle, these valuations are supposed to round out the project cost-benefit analyses (CBAs), correct the hitherto inadequate examination of ecological impacts by these CBAs and thereby remedy any resulting decision-making mistakes. A detailed study of project funding decision-making processes in four development aid organisations shows that decisions are hardly ever determined by the results of a given analysis. They are driven by the project heads' very general assessment of project risks and feasibility based on the many contextual elements. This assessment is made prior to the launch of the formal project appraisal procedure and its findings are very hard to question once it is underway. CBAs and especially ecosystem service valuations, which form just one (and not necessarily the most robust) component of CBAs, cannot be used as a basis for these decisions for a number of reasons (detailed in

the chapter). However, the authors show that if we stopped obsessing about using them for this impracticable role, they could be put to use in another direction to improve adversarial advocacy on project advisability and the measures to be taken to improve their implementation.

The second chapter (3.2) is a *reductio ad absurdum* of the abyss into which a steering approach would fall if it were purely rational and deliberately disregarded the political and organisational conditions of biodiversity action. Raphaël Billé analyses the impasses thrown up by the controversial "triage" approach that has emerged in recent years, which defines arbitrary biodiversity priorities that effectively sacrifice certain species, habitats, etc. on the grounds that biodiversity conservation resources are finite and so we have to choose what we want to save. However, a study of the controversies sparked by the tool and its methodological problems clearly shows, quite aside from the ethical objections it raises, that defining priorities creates virtually impenetrable methodological and political impasses. Biodiversity conservation decisions are actually made by procedures, bargaining and negotiations that can in no way (and have no reason to) follow priority rankings set in advance. Neither are the resources available for biodiversity conservation any more independent of the priorities, such that the linear nature of the reasoning that states "we have X resources so let's set priorities for optimal resource allocation" does not apply. The "pragmatism" claimed by supporters of such apparently rational tools is therefore mere window dressing, disconnected from the real conditions for action.

The third chapter (3.3) takes up the key findings of Karine Belna's PhD research. From 2009 to 2013, Belna observed and analysed the implementation of the Forest Carbon Partnership Facility (FCPF), an international fund designed to promote better forest management, especially for carbon storage, but also for biodiversity. One of the main principles designed to guarantee the facility's relevance is a form of environmental conditionality. Governments present national forest action programmes. These programmes are assessed, especially from the point of view of their relevance with respect to the programme's environmental objectives. Funds are allocated to each national programme given a positive evaluation by the designated experts. Yet Karine Belna shows that this elegant theory of linear, rational action is skewed by its real implementation conditions. Firstly, the facility's operation is steered by a committee of participating countries, a committee steered by United Nations rules and procedures and hence the political principles of multilateral international negotiations. This means that governments are involved in the evaluations, which therefore become products of negotiation and drive decisions (also negotiated) from which the simple principle of conditionality is all but squeezed out. Secondly, once the fund allocation decision has been made, the World Bank handles implementation.

Actual compliance with the environmental conditions provided for in the decisions therefore depends on the way in which this organisation administers the funds. Its complex procedures and management imperatives to keep disbursement timeframes short in turn steer concrete action even further away from the environmental conditions of principle stipulated by the initial intentions and decisions. In other words, the environmental effectiveness of international financing mechanisms is not a mere matter of decisions of principle. It depends on operators' political negotiations and organisational models.

In the fourth and last chapter (3.4) proposed by Tiphaine Leménager, all the previously mentioned issues are somewhat subsumed in a very simple question: how can we put a figure to a development aid organisation's biodiversity expenditure (for example, once the political leaders have made international commitments to a certain level of spending)? How can we identify what is spent on biodiversity? How do you separate out development expenditure from biodiversity expenditure when projects interface these two issues in different ways? Is it reasonable to estimate the magnitude of biodiversity work based on a level of spending? In practical terms, how can a "biodiversity" expenditure accounting system be set up within the organisation? In this chapter, Tiphaine Leménager places the question in the context of multilateral biodiversity commitments and presents the successive steps taken to set up such an expenditure accounting system at AFD. This study shows how technical questions, political strategies and organisational set-ups are interconnected in practice. We observe with the author that although it is anything but an exact science, this accounting work serves as an interesting medium for discussion and a useful tool for the management of biodiversity-related ODA and national and international biodiversity policymaking.

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3.1. Ecosystem service valuation for development aid donors: The expected theoretical uses mask the real potential for use

Yann LAURANS and Alexander HADDAD [44]

Over the last ten years or so, there has been a huge resurgence of interest in ecosystem service valuations (ESVs) as shown by the exponential number of publications on the subject in recent years (Gomez-Baggethun *et al.,* 2010; Sagoff, 2011; TEEB, 2009; Turner & Daily, 2008). This renewed attention [45] is probably due in part to the hopes raised by the possibility of assigning a monetary value to the services provided by ecosystems and biodiversity. By "putting a price" on these services, ESV is supposed to enable them to be mainstreamed into the process by which businesses, households and administrations "weigh up the pros and cons" to make decisions (Pearce, 1998). The monetary values attributed to ecosystem services are hence available to be worked into the arguments on which the decision is based,[46] especially the ex-ante analysis of the potential costs and benefits (CBA, see Box 3).

[44] This research was funded by the Hermès Foundation and edited by Raphaël Billé (Iddri). It is based on guidelines developed by Laurent Mermet (AgroParisTech). The fieldwork is indebted to the hospitality and availability of the 42 managers in the five official development banks mentioned, the list of whom is too long to give here, but who opened their files, answered our questions at length and each contributed some of their knowledge to the production of the results found. Jean-Roger Mercier (World Bank) and Tiphaine Leménager (AFD) opened up the valuable gateways to the French and American landscapes.

[45] The approach is not really new, but the attention paid to it by the scientific community and publications of all kinds has grown exponentially since the early 2000s and especially since the UN commissioned the Millennium Ecosystem Assessment (Hassan & Scholes, 2005, p. 821).

[46] What environmental economics calls "the internalisation" of environmental goods and services.

Box 3 *Ecosystem service valuation and CBA*

Ecosystem service valuation (ESV) is designed to appraise an "environmental cost or benefit", i.e. the monetary value of the loss or gain of an ecological function, a species, a natural space, a landscape, etc. This resulting monetary value can then be associated with other monetary values taken into account to make an ex-ante comparison of the estimated costs and benefits to society of a project's implementation with the costs and benefits of not implementing the project: the cost-benefit analysis (CBA) (Mishan & Quah, 2007; Pearce & Turner, 1990; Secretariat of the Convention on Biological Diversity, 2007).

In CBA, some of the elements to be taken into account do not raise any conceptual valuation problems. For example, the budgetary cost of investing in an infrastructure is naturally expressed in monetary terms. Yet this does not hold true for the environmental and social aspects, which do not all refer to market-traded goods and services.

This is why a CBA's main challenge and problem is how to incorporate non-market values, and it is on this score that the most research has been conducted (Schultze, 2004).

ESV is hence the process by which a (virtual) price is set for ecosystem services and CBA is the model used to conduct an ex-ante assessment of the collective worth of undertaking the project under consideration (Chevassus-au-Louis *et al.*, 2009; Turner & Daily, 2008).

In this regard, international donors are theoretically most suited to the use of CBA and ESV for at least four reasons:

- Their mission is to contribute to the development (in principle sustainable) of the countries assisted: in this respect, their decision has to factor in the general interest of the economy of the said country and therefore not only economic criteria, but all well-being criteria.
- Even if the planned project is steered by the recipient country, these donors are quite autonomous in their decision-making in terms of project choice and selection, are often lead financers of their projects, and sometimes even head their implementation process; for the least developed countries, in particular, their financing often determines whether the project exists.
- They have to make quite precise, concrete decisions regarding the advisability of financing each project or not.

- Lastly, they provide (especially the World Bank) benchmark sources in the literature on CBA (IUCN *et al.*, 2004; The International Bank for Reconstruction and Deve-lopment, 2004; the World Bank Operations Evaluation Department, 2002; World Bank IEG, 2010).

The international donors' practice of using these economic instruments could therefore be expected to encourage them to make decisions in support of the environment in general and ecosystem services in particular.

This assumes at least two conditions: *(i)* that these instruments are really used and that they occupy a decisive place in the donors' decision-making processes; *(ii)* that their results and the messages they convey are conclusive enough to produce pro-biodiversity decisions. We seek here to establish whether these two conditions are met.

Box 4 *Materials and methods*

The research is based on five case studies of international donors (see Haddad, 2011): World Bank, AFD, KfW, EIB and the Inter-American Development Bank (IDB). These donors have different characteristics associated mainly with their oversight bodies and shareholders and consequently their relations with the governments: bilateral donors (AFD and KfW), regional multilateral donors (EIB and IDB) and international multilateral donors (World Bank). In addition to an analysis of the literature on these donors and their corporate and business literature, interviews were held with 42 different representatives of these donors' staff selected for their position in the decision-making chain. The interviews were semi-structured, based on a flexible questionnaire. In some of the institutions, we had the good fortune to meet renowned environmental evaluation researchers and draw on their publications.[47]

Each international donor was studied on the basis of the following questions: *(i)* How is its decision-making system organised (managerially)? *(ii)* How does this system address environmental issues? *(iii)* What roles do environmental evaluations play in this system?

With respect to environmental issues, the research focused solely on international donor projects with "local" environmental impacts (water, spaces, species, ecosystems, landscapes, etc.), thereby excluding the atmosphere, the climate and carbon.

The surveys and documentary analysis were conducted in 2010, and the publications and events occurring since October of this year are excluded from this research.

[47] For example, Ken Chomitz, Kirk Hamilton and Stefano Pagiola.

We conduct a detailed analysis of five international donors' project decision-making processes, which can be used to examine the real potential for ESV use in this context. We show, first of all, that the international donors have all adopted a similar organisation and that decisions therein are the result of two opposing principles: an active production principle and a passive principle of control by screening. We then see that CBA is positioned as a means, among others, for the second principle and that this is where ESV fits into the procedures (i.e. as a component of CBA). We are then able to analyse the actual use of these instruments by theinternational donors and observe a large, growing deficit in use, which is surprising in view of the fact that they are perfectly designed to play this screening role. This shortfall in use is due to both the characteristics of donor practice and the ESV's basic weakness as a control and screening instrument. Lastly, we show that the ESV's potential to guide donors' decisions could be developed by recognising its heuristic, discursive and rhetoric characteristics which, although not conducive to its use for screening, are well suited to feed into the active component of project production.

3.1.1. Decision-making by international donors active proposals versus passive selection

Understanding international donors' decision-making processes in the official development banks first calls for an examination of their general organisation.

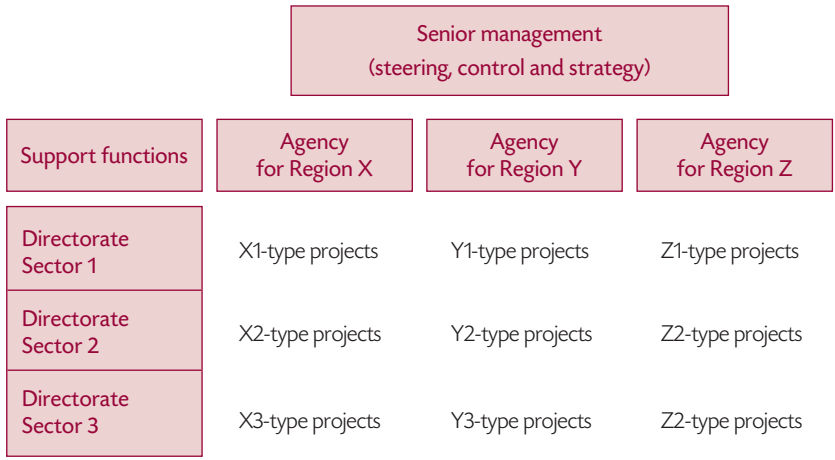
General organisation of the international donors: a matrix structure

Despite their differences, the five international donors studied work on the same terrains and propose similar products and services (sovereign loans, non-sovereign loans, grants, technical assistance, etc.). As Woodward (cited by Mintzberg, 1982) predicted, organisations with identical purposes adopt the same "technology". The international donors' organisation also displays a very similar matrix set-up. There are the units organised by geographic region (at the institution's head office and/or field-based), which we will term "agencies" here. Then there are the units organised by technical intervention sector, which we will term the "sector directorates". Lastly, there are what are called the "support" units that assist the above-identified units in various areas. All units are tasked with together producing the products and services proposed by their institution, hence the concept of functioning as a "matrix". This matrix is steered by a control, supervisory and general management system, which we will call the "senior management".

This general principle is found for four of the international donors studied in detail. Only the EIB presents a slightly less matrix-based structure in which geographic areas are grouped into two units dividing the EU from the "rest of the world" and

sectors are covered by one single projects directorate.[48] On the whole, however, all the ODBs could be said to manage their projects on a dual geographic and sector basis (see Figure 12).

Figure 12 *General organisational structure of the official development banks studied*



Source: authors.

Organisation of decision-making

On the basis of such a matrix structure, decision-making authority is therefore structurally distributed among the main three bodies, here the agencies, sector directorates and senior management.

A project's lifecycle

A project's lifecycle is typically made up of three phases, each comprising two steps, found to be virtually the same, albeit under different names, within the five international donors studied.

[48] This is especially due to the fact that the EIB is atypical since its range of action covers both developed and developing countries, with all the hues and shades in between. The vast majority of projects are conducted in the less complex environment of the European countries, which calls for less geographic specialisation by units.

1. The first phase is emergence. In this phase, the teams, in close contact with the partner countries, seek to generate and prepare projects likely to present an interest for the country and in line with the general strategies (the policy objectives and priorities) that the international donor has defined, in liaison with various stakeholders, for the country and for the issue in question. This first phase is subdivided into two distinct steps. First, there is the identification step during which the teams (mainly the agency, but also the sector directorates) explore the regions, identify the opportunities, assess them and discuss them with the local partners to come up with a draft project. Second comes the preparation step, during which the project's structure is gradually defined and detailed (dimensions, target players, associated area, etc.). The agencies and sector directorates are involved in this process, although the distribution of roles between these two bodies differs from one international donor to the next. By the end of the preparation step, the broad lines of the project have been defined.

2. After emergence comes the appraisal phase. This is a more formal phase during which the projects are appraised ex ante, checked and gradually adjusted to bring them into line with the international donor's in-house standards. The project produced by the preparation step is put through a series of tests to see whether it complies with the standards adopted by the institution, standards themselves designed to guarantee the different quality criteria adopted by the official development banks: the project's operational economic sustainability, resilience to economic risks, soundness of economic governance, guarantees against corruption and money laundering, credit risks, minimised environmental and social pollution, etc. (we will come back to these last two points later). This appraisal phase also comprises two steps: *(i)* firstly, a still-relatively-open assessment where the project's value to the establishment's policy is assessed and where the project can still be significantly changed (with the addition or deletion of significant tracks or characteristics, for example); and *(ii)* the clearance step where the project is submitted to increasingly formal screening, mainly in the form of checks, before being formally approved by senior management. Clearance here marks the end of the decision-making process itself. The average timeframe for appraisal from the moment the project profile is first recorded (during the preparation step) to the board's funding approval is, for example, 15 months at AFD. At the end of this appraisal phase, a financial agreement is drawn up for the project and signed by the different stakeholders. The project is then "committed", with "annual commitments" being one of the main activity indicators used by an international donor.

3. Following the decision comes the execution phase. This includes an operational implementation step with the more or less gradual disbursement of the commitments contracted, followed by a project closure step with its ex-post evaluation.[49]

Decisions are based on a combination of active proposal and passive selection functions

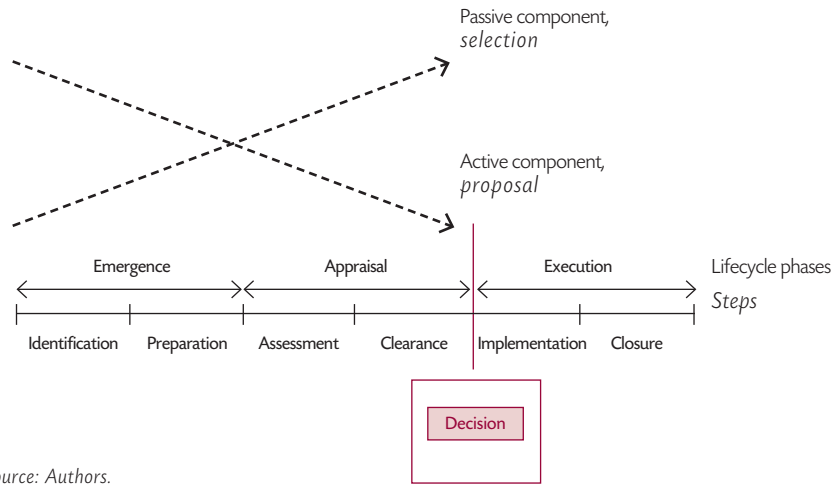
There are therefore two main factors involved in decisions about projects. First, there is an "active" project design and "promotion" function. The agencies and project heads are the main players in charge of this function, with the former working more on prospection and identification, and the latter more on project construction and implementation in the later phases of the project's lifecycle.

In addition to this "active" function, there is a "passive" checking function that submits the project to a series of tests to check whether it meets the organisation's expected characteristics in keeping with defined criteria. Note also that the terminology used for the decision semantically reflects this dual relationship whereby an active principle "pushes" a project through a series of screens, a relationship as it were between initiative and selection: the term of "clearance" used at the step concerned literally means the barriers have been removed and the road is clear. The final decision is perceived as the end of selective resistance.

In the process leading up to project clearance, the active dimension present at the beginning gradually falls off through the series of steps to project clearance as a growing passive dimension takes over (see Figure 13).

[49] The World Bank calls the six steps Identification, Preparation, Appraisal, Approval, Implementation and Completion. AFD refers to them as Identification, Feasibility Study, Evaluation, Decision, Supervision and Ex-Post Evaluation.

Figure 13 *Phases and steps in the international donors' project decision-making process in the official development banks: growth in the relative weightof the active and passive components*



Source: Authors.

3.1.2. The environment in the donors' decisions: a precaution

How environmental responsiveness is organised

The analysis and guarantees concerning the projects' environmental, and social, impacts are managed by the same dedicated teams in all the banks. These teams, which are generally fairly recent additions in the organisation, as yet occupy a marginal place in the organisation chart and are sometimes not even mentioned in the official organisation chart (as is the case with the World Bank and IDB, for example). Their members may handle both questions (social and environmental) or may be specialised in one of the two aspects (as with the EIB and certain staff in the other banks). Across all the international donors, the teams of environmentalists and social science experts are tasked mainly with what are known as "environmental and social diligences". Their job is to provide the guarantee that moves have been made to avoid, mitigate or minimise adverse environmental and social impacts.[50]

[50] "avoid, mitigate, or minimize adverse environmental and social impacts of projects supported by the Bank", Operational Policy No. 4.00 of the World Bank manual, *Piloting the Use of Borrower Systems to Address Environmental and Social Safeguard Issues in Bank-Supported Projects.*

Basically, the international donors are set up primarily in keeping with economic and banking rationale (Marschinski & Behrle, 2007). Environmental and social approaches are therefore present mainly, and recently, as limits placed on a central, driving financial model. They provide guarantees that this financial centricity will not create unacceptable social or economic damage, measured by the international donors' own yardsticks. The banks' main aim is economic development and this is the criterion against which they strive to produce positive results. In so doing, they endeavour not to do (too much) social and environmental damage as summed up by the expression, "Do no harm".

The environmental and social impact study, although theoretically required at the assessment step, is rarely finalised in practice before the end of the clearance step. It may even be finalised after clearance. Validation by the unit in charge of this check in charge of this check is incorporated into the financing agreement as a suspensive condition.

Taking precautions: the steps

The principle of introducing safeguards to prevent the projects' negative impacts has gradually grown with a screening approach to protect the international donor from projects that might damage its reputation. Such is the case, in particular, with the World Bank hit by a series of environmental and social "outcries" over large projects in the 1980s and early 1990s (especially regarding dams such as the Sardar Sarovar Dam in India).

Environmental precautions are taken at a number of steps in the process. One of the most significant is the environmental and social tiering classification at the end of the preparation step. This classification is conducted similarly across all the international donors studied based on a rising scale of risk categories from C to A.[51] The risk category is attributed based on project type and size and its potential impacts, the sensitivity of the affected area, and technical criteria and thresholds. A similar classification exists for social issues (the final classification chosen is the strictest of the two). This classification then determines the precision and importance of the checks to be conducted. A blacklist also generally exists listing the types of project the bank systematically refuses to fund (tobacco, projects entailing the destruction of a critical nature habitat, etc.)

[51] Except at the EIB, where the ranking is inversed.

To conclude this section, the decision-making process for an official development assistance project features an active proposal principle and a passive selection principle. Dedicated environmental projects (e.g. financing for "biodiversity" projects) aside, environmental projects' environmental issues are addressed by the passive part of the process, as a precaution, based on criteria to guarantee that the project does not do too much harm to the environment.

Where and how does the economic valuation, and especially the economic valuation of environmental goods and services (ESV), fit into this process map?

3.1.3. The role of the economic environmental valuation in the decision-making process: a little-used safeguard

A situation theoretically conducive to the use of the economic calculation for decision-making

Our analysis shows that the international donors' decision-making process is well suited to the use of an analytic tool designed to assess the advisability of a project or policy from the point of view or a country or region's public interest. We firstly checked that the process common to the international donors really does display *(i)* an autonomy of decision-making by each bank and a relatively centralised organisation, and *(ii)* general welfare objectives that make for the consideration of a wide range of criteria (market and non-market, collective and individual, social and environmental, etc.).

CBA design and theory date back mainly to the 19th century to a time when governments were in a position of single (or nearly) decision-maker without any decentralisation, negotiations or contracts with supra- or infra-State partners. They conducted huge infrastructure investment policies and pursued a general economic development aim (Etner, 1987; Schumpeter, 1954).

The international donors' situation actually has a certain number of points in common with the situation of the administrations for which CBA was designed. Granted, for the official development banks, the role of the beneficiary country, negotiations with other partners and opinions asked of external bodies is possible during the first phase of the process (emergence). This is due to the fact that this phase is marked by the initiative of the agencies that "set up" a project and, in this, respond to the interest of the beneficiary country and other partners. Yet, as the project moves out of the mainly active phase and enters into the mainly passive phase, the screening effected by the safeguard check is the donor's own. It is a check on compliance with standards.

The cost-benefit analysis, and the monetary valuation of environmental benefits or costs, is in principle a suitable tool for this type of check and is designed for the job. It is capable of providing a clear ratio to unequivocally gauge whether a given project provides society with an increase in welfare greater than its cost. It is hard not to see this as one of the ideal screening instruments for the passive part of the official development banks' decision-making processes, which is probably why these banks, and the World Bank in particular, were historically large producers of CBAs. Based on the analysis of the decision-making process and the characteristics of the economic calculation, it stands to reason to expect the international donors to effectively use CBA in their decision-making. They can be expected to use it to choose, amend, reject and accept projects that are proposed as a result of the active decision-making phase. Yet our case studies of the five international donors studied show that this expectation is countered by the way the decision-making processes are organised and work in practice.

The CBA, an established standard for decision-making

Economic development is definitely given as the main criterion of the official development banks' activity, as we have stated and as is confirmed by the literature (see, for example, Marschinski and Behrle, 2007, p.24). The World Bank adopted CBA back in the 1970s as its main tool for evaluating the positive impact of its projects. The World Bank's Operational Manual devotes an entire chapter to the "economic evaluation of investment operations" [52] (WB-OP, 1994)

Economic analysis is compulsory for all investment projects. The project must be compared with other design variants including differences in the choice of beneficiaries, types of outputs and services, production technology, location, etc. It is also compared with the alternative of not doing it at all. The objective of comparing alternatives is to maximise the net present value, i.e. the sum of the differences between benefits and costs over a given period. Last but not least, the Manual stipulates that projects may have externalities, a large proportion of which are environmental: "The economic evaluation…takes into account any domestic and cross-border externalities" (and, in certain cases, global externalities).

[52] The term CBA is never actually used. It is replaced by the Net Present Value (NPV) calculation and the Economic Rate of Return (ERR).

This use is not as explicitly stated by the other official development banks. The IDB's general operational policy stipulates that "bank-financed projects shall: Contribute effectively to the economic and social development of the regional member countries.…Be technically, economically, and environmentally sound, financially secure, and take place in an adequate legal and institutional framework." The EIB's statute stipulates that projects must be profitable and contribute to "an increase in economic productivity". Lastly, AFD's statute simply states that AFD "assesses and evaluates projects" (AFD, 2009, pp. R516-6-1).

The fact remains then that the economic calculation is, more or less formally depending on the international donor, established as one of the selection methods used in the passive phase of the decision-making process.

We now need to look into the extent to which this doctrine is actually applied and how much CBA, and any ESV involved, is used as grounds for final approval or "clearance". The possibility of using ESV as a tool to "weigh up" the projects' environmental costs and benefits with the other costs and benefits in the decision process depends on it. In this role, ESV is necessarily a component of a CBA that covers all the considerations involved in the decisions over and above the environmental aspects.

First observation: the use of CBA is on the downturn

In 2010, the World Bank's Independent Evaluation Group measured the proportion of projects adopted by the World Bank Group where a CBA had been used. This rate had been on a steady, sharp decline virtually since the outset: it had slid slowly from 75% of projects in 1970 to 25% in 2001, the last year analysed by the study (World Bank IEG, 2010). It is also felt that the analyses conducted are losing in thoroughness and rigour: official recommendations are rarely taken up, estimated values are rarely realistic and do not take enough account of returns on experience, being based mainly on the optimistic assumption that "everything goes according to plan". Lastly, just 13% of the project documents estimate the costs and benefits of the environmental externalities and include this estimate in the economic analysis. In 34% of cases, the environmental impacts are quantified without any mention of internalisation. And 47% of the projects simply discuss environmental costs separately from the rest of the analysis.

These observations are not made as clearly by quantitative analyses for the other official development banks. However, our own case studies have turned up comparable observations. A few significant comments made by EIB staff suggest that a similar trend is at work in the Luxembourg institution. The experts interviewed at

the EIB consider that the economic rate of return (ERR[53]) is calculated less often than before and that the CBA is lacking in rigour. They believe that the transport and energy sectors, major CBA users, are a relative exception to this rule. In addition, the project team itself generally calculates the ERR without discussing the matter with external consultants.

The situation at AFD is singular, in that economic analysis appears to have historically been less important in project appraisal. It only really took off in 1995 with the arrival of a new Chief Executive Officer who had previously worked for the World Bank. Today, the opinions collected suggest a similar trend to the findings of the IEG's quantitative study: "There is no systematic calculation of the ERR." Moreover, their practice is not in keeping with the doctrines established by the manuals, "ERR is always [only] calculated by way of comparison with the situation without the project." Alternatives to the project are therefore not considered. Our analysis of the project documents confirms this opinion.

We do not have enough information to discuss KfW and the IDB. They are therefore excluded from the following discussion on the use of the economic evaluation.

The reasons given for the lack of implementation

The staff who answered the IEG's survey to find out why there was such a low rate of CBA use at the World Bank and our own respondents say that they do not have the time or resources to used CBA for its intended purpose to collect the information required to quantify the benefits since there are too many non-market benefits: "We do not always have the luxury of being able to collect enough data. It's a devil of a job to define the costs and benefits. Especially the benefits. In urban areas, we can evaluate the value of the inhabitants' time [their hourly opportunity cost], but in rural areas? What is the monetary value of the time a Zambian woman spends carrying water on her head?"

Yet both the IEG's and our own analyses reject the hypothesis that the evaluated projects are, by their nature, not suited to a cost-benefit analysis: the conditions mentioned in the introduction are all there (single decision-maker, regional or national welfare maximisation criteria, and the issue of the advisability of a collective investment). However, it would appear that the evaluated projects are supposed to produce a combination of different types of costs and benefits, some of them economic and others social or environmental. CBA and the ESV's monetary valuation

[53] The economic rate of return is a form of brief expression of the result of the CBA: it is the yield on the investment needed for zero profit.

of environmental externalities are unquestionably the economic tools designed for this job. We do not believe that the particular problems associated with the resources to be used are entirely justified, since they are not specific to ESVs considering the total length of time invested in study and analysis when setting up a project.

Furthermore, on analysis, the cost of conducting the study is found to be marginal compared with the cost of the resources invested in the project and even the in-house resources invested in the decision-making process. The median cost is USD 16,000 per study for projects whose total cost commonly ranges from USD 10 to USD 100 million, thus contributing 0.016% to 0.0016% to the transaction costs (World Bank IEG, 2010).

This shows that CBA and ESV are not ruled out by the nature of the projects and do not seem to be clearly beyond the international donors means. There must be other reasons why the processes and the players in charge of conducting them do not use this instrument despite its being categorically compulsory in the passive part of the process.

The observation made by the study of the five international donors is that conducting a CBA is always placed among the last verification steps of the passive decision-making phase. At first glance, there is nothing to say that this position is not conducive to the use of CBA. It is indeed meant to submit a project's advisability to a detailed test. It therefore needs to be able to make a judgement based on elements that have been sufficiently defined by project appraisal and hence on an already well-advanced project. And it nevertheless comes into play at a time in the process when it is officially possible to reject, extensively rework or amend the project.

Practice gives the lie to this theoretical property, and this is what we believe explains the lack of use. The observation across all the international donors is that, once a project is presented by the project manager at the start of the passive decision-making process, shelving it or extensively reworking it would be seen as poor management performance on the part of the project manager, the team and the entire organisation. At this stage, the international donors consider that they have already invested too much in own resources (time spent by the teams and the studies sub-contracted) to pull out now. Similarly, they see the external opportunities created (mobilisation of partners in the client country) as capital that would be lost if they were to drop the project. McElhinny (2010, p. 7) puts it this way, "Lant Pritchett, former World Bank economist and current professor at Harvard, was scathing in his remarks as panellist. In his years at the World Bank between 1988 and 2007, he observed that 'economic analysis played a zero role in financing decisions…to stop projects was a career killer'."

This could explain the introduction of screening, safeguards and various diligence procedures that are lighter weight than a CBA, but are positioned more upstream of the process. The concern is to avoid risky projects, to rule out obviously poorly designed projects early on enough in the process to prevent the decision to drop the project from being detrimental. This means making decisions based on projects whose outlines are still vague.

It still remains to be explained why a testing tool, even situated late on in the passive phase of the decision-making process, is not used to rule out projects when CBA concludes that their economic returns are too low. Why, in this case, do the international donors not make it an advisability criterion capable of preventing unprofitable investments? It must be said that, even when an ODB has invested in preparing a project, it should not continue with its investment if an evaluation shows that it will be doing so at a loss, at least for the aid recipient country.

The main answer given to this question is that CBA methodology, and especially the estimation of non-market costs and benefits, is seen as not being reliable enough to enable it to play such a role. With the exception of the international donors economists themselves, donor staff feel that the economic non-market value evaluation methodology leaves the door wide open for arbitrary choices by its authors. This disqualifies, at least partially, its status as a measurement instrument and means that it cannot be trusted to sway decisions that carry heavy budget implications. They believe that CBA can be manipulated to produce a desired result. Their remarks often reflect this: "A lot of tools, including ERR, are nothing but informed subjectivity," (a World Bank manager); "ERR is unfortunately one of what is seen as the more lightweight criteria, because they are less objective and more debatable," (an EIB manager); "Of course, there are the analyses conducted by the legal experts and such like who see things as black or white. But things are often much more philosophical for the technicians and economists," (an EIB manager); "The [EIB's] policymaking process is beyond the economists' power, as the economists' hypotheses are always open to question and the effects on society as a whole are so complex that they are hard to evaluate," (an EIB manager).

To sum up, the use of CBA is on the decline in the international donors' decision-making processes. When a CBA is conducted, it does not appear to play the role in the decision process that would be expected of an instrument supposed to measure a project's general advisability by analysing all the costs and benefits of a given investment. This is reportedly due to the fact that the use of CBA is organised as a checking element brought into play towards the end of the passive phase of the decision process, at a time when the organisation and its members feel it would

be poor management and bad for them to rework or drop a projects. This already-decisive first reason for the low rate of CBA use shows the futility of expecting ESVs to be used as contributions to a decision that we imagine to be based on a cost-benefit calculation. Especially since there is also a second fundamental problem: whereas CBA methods are already deemed too arbitrary to be an objective measurement of a project's advisability, authors of methodologies to measure non-market costs and benefits in monetary terms, and especially ESV, are suspected of an even higher level of subjectivity.

3.1.4. Towards a redefinition of the role of the ecosystem service valuation

These observations can nevertheless serve to suggest other avenues to make ESV an influential instrument for biodiversity preservation in donor decision-making processes.

The relative flop of CBA and ESV is due mainly to the "checking" role assigned to them. This obviously points to two options: *(i)* improve the tool so it fulfils this role better; *(ii)* use it for another role.

The first option could be envisaged. It would mean making the CBA more reliable and robust and managing to reduce the number and importance of its authors' choices regarding the parameters whose values determine the result. It would, more particularly, mean being able to make ESV a simple, objective instrument for the measurement of the economic value of the benefits and costs resulting respectively from ecological service preservation or degradation.

This prospect could meet the hopes and ambitions of some of the ESV authors (Fisher *et al.,* 2008; de Groot *et al.,* 2010; Liu *et al.*, 2010). Firstly, ESV is clearly tooling up, especially with the development of digital models that represent and simulate the responses of environmental services (ES) to variations introduced in land cover, pollution pressures, etc. (Fürst *et al.,* 2010; Gret-Regamey *et al.,* 2008; Kremen *et al.,* 2007; Maes *et al.,* 2009; Swetnam *et al.,* 2010). Secondly, the methods used to assign a monetary value to individual preferences for non-market services are evolving with increasingly sophisticated variants.

Yet these developments are hardly likely to officially lead development bank managers any time soon to consider these methods as conclusive enough to justify project rejection, extensive reworking or additional investments. This is because what is at issue with these ESV reliability problems is not a lack of accuracy, but the necessarily hypothetical nature of a large part of the ESV's parameters and metho-

dological steps (see the excerpts from the interviews above). Firstly, some of the parameters are by nature themselves political choices, as in the well-known case of the discount rate (which reflects a relative preference for the present over the future). Secondly, having more sophisticated preference evaluation methods actually lengthens the chain of logical operators used by the evaluation and makes the process even more opaque for users of the results.

Moreover, even ambitious methodological ESV improvements will probably do nothing to lift the obstacle to their use formed by the actual organisation of the decision-making processes, as we have shown above. We therefore feel that developing the tool to make it a more reliable instrument for project selection is not a very promising course of action.

We believe, however, that the second option of using the tool for another role is a promising prospect.

As we have seen, CBA is used mainly to equip the passive component of the international donors decision process. This is probably due to the common view of the decision process contained, implicitly or explicitly, in the economic calculation theory, which assumes the monolithic, optimising "rational player" mentioned in the introduction. Yet we can now look into how to "equip" the active component of the decision process. This has been made possible firstly by the tendency among decision-making experts in recent decades to show that there is more to the decision process than the "rationalist" aspect, and that this aspect needs to be rounded out by organisational and political aspects (Laurans & Mermet). Secondly, it is due to the fact that the international donor's decision has at least as much to do with how the projects are born, designed, proposed and most of all how the case is made for them. For a project to reach the appraisal phase takes long emergence processes that, in effect and sometimes by default, make the bulk of the decision. The projects that finally emerge (and that everyone will then take to heart to bring to fruition, as we have shown) are those to which the development and environmental players subscribe. Opinions of the project need to converge with the "client" country's administrations. The project needs to be considered consistent with the guidelines adopted by the country and various bodies such as the EU, the American Senate and the UN organisations. And the project needs to have the support of a significant proportion of the populations concerned, NGOs, etc.

CBA is not suited to this phase of the decision-making process, because it is meant to evaluate precise, rounded projects so that the analyst can estimate costs of implementation, repercussions and impacts on the economic and the environment. You cannot conduct a CBA on an idea in the pipeline, a projection or an ambition.

Yet although CBA is a highly specific economic calculation method, ESV is a much more protean practice and possibility. The recent practice of ESV confirms this: a huge number of valuations provide more or less precise information on the economic, social and environmental value of biodiversity preservation. Many ESVs take the form of advocacy designed to raise discussion about the main growth and development options by showing, in various ways, the importance of ecosystem services to societies, their well-being, their wealth and their subsistence. Our own analysis of a corpus of 313 articles presenting ESVs shows that 46% were put forward by their authors as arguments, as "awareness-raising" messages, rather than as means of selection and rational decision-making (Laurans *et al.*, 2013).

So ESV should be seen as the means used in the most active and decisive phase of the decision process, i.e. strategy development. It is here that it could play what we believe to be its most realistic and promising role: as an instrument of advocacy and debate, as a tool for exploration. This view was perfectly summed up by a former AFD chief economist we interviewed:[54] "I think we are in a period of redefinition of the system of values, where we are realising that a certain number of things that have perceived value for the players have no price tag to convey this value: one of the first tasks [of the economic instruments and] of the [economic] valuations [of the non-market aspects] is to show that these things have value and to get that value accepted.…We are in a process where we are gradually discovering new, socially acceptable systems of values, so it is a real social process. And one of the problems involved in the analysis of these economic instruments is that we analyse them technically, but we do not sufficiently recognise this role of gradual discovery and sharing a new system of values. I do not believe that science has an answer to the question as to which value we are prepared to give [to the non-market], and these instruments also serve to help find out the answer to that."

[54] For the project on which the Mermet *et al.* (2014) publication is based.

Conclusion

Although the international donors' decision process in principle presents a particularly fertile ground for the use of economic evaluation, it is disappearing from use as a project selection tool. The inevitable importance of many hypothetical parameters influences the findings and reduces its credibility as a selection criterion. ESV is seen mainly as a component of CBA. In this role, it does not make the use of CBA easier. It does just the opposite. In other words, CBA and especially ESV are authors' practices and, as such, cannot easily assume the role of measurement instrument assigned to them by the process.

However, precisely because it is an author's practice, ESV could be used to factor biodiversity more into the phases of exploration, dialogue and political debate, shifting positions, engaging allies and other phases that represent an important, creative phase of the international donors' decision process. This calls for ESV to be somehow detached from CBA, and for it to be considered as an autonomous means for expressing and discussing values attributed to the uses of biodiversity and ecosystem services, for it to be detached from the evaluation as the expression of a value, freed as it were from the framework of CBA. We believe, therefore, that ESV could represent a resource conducive to the international donors' as a deliberative and didactic instrument for the discussion of authors' choices in such a way that points of view can be compared on a reasoned and demurrable basis. While many ESVs are designed by their authors for this purpose, it is up to the environmental players in the said banks and their partners to seize this opportunity more effectively to make ESV a useful tool, among others, in their range of project developers.

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3.2. A "strategic" tool without players and out of context: The triage impasse

Raphaël BILLÉ [55]

In an international environment of fiscal crisis in the developed countries, persistent debt in most developing countries, stagnating official development assistance volumes and chronic criticism of the ability of this aid to meet its goals, we need now more than ever constructive debates on the resources required, the means available and how best to use the allocated funds. The trend, typically embodied by the Millennium Development Goals (MDGs) and the new public management movement (Billé *et al.,* 2010), is one of coordination and rationalisation. The donors, like many other players, are no exception to this trend. Who, in any case, could object?

In biodiversity, the issue of North-South financial transfers is now top of the negotiating agenda between States party to the Convention on Biological Diversity (CBD), at least since the Conference of the Parties in Nagoya in 2010 (Billé *et al.*, 2010 and 2012). Between the needs identified (Feger & Pirard, 2011), the relatively low level of financing allocated today and the ever-more worrying biodiversity situation in the developing countries, calls for pragmatism [56] are growing. The vehicles for this pragmatism are many and varied. These include the following examples:

- The ecosystem services approach, which many believe "may well not cover the notion of biodiversity, but offers a pragmatic basis for discussion with policymakers".
- The economic valuation of biodiversity, "which may well not measure all the biodiversity values, but translates minority concerns into policymaking language".
- The market instruments and innovative financing mechanisms (payments for ecosystem services, offset banking, etc.), "which may well be poorly defined, risky and not conclusively effective, but point to a future less dependent on public finances for biodiversity".

[55] The views in this chapter are the author's own and do not necessarily reflect the positions of the SPC, AFD, FGEF or IDDRI.

[56] In this chapter, the term "pragmatism" is used in its common sense of: "Dealing with social and political problems by practical methods adapted to the circumstances" (*Oxford English Dictionary*).

- The Yasuni ITT [57] initiative by the Ecuadorian government, "which may seem a lot like ecological blackmail, break national laws and provide no guarantees for either biodiversity or the climate, but which is a take-it-or-leave-it initiative."

Such arguments are inevitably appealing, especially to development assistance donors always on the lookout for explicit, rational sector strategies, impacts and effectiveness. Yet they raise their share of objections. In each case, the debate seems to pit the upholders of pragmatism against the champions of a certain nature ethic. Yet in each case – and without wishing to deny either the importance or the utility of these debates – it is vital to focus the critique as well, if not above all, on the very substance of pragmatism with a strategic analysis of the context for action in which these concepts, methods and instruments are used (see, for example, Laurans *et al.,* 2013, on economic valuations, and Pirard *et al.,* 2011, on the Yasuni ITT initiative).

Among the most contentious of these bids for rationalisation, triage is designed to identify the (non-) priority species and areas for biodiversity in order to steer the allocation of conservation resources (Jenkins *et al.,* 2013). It is based on the assumption that "conservation efforts and emergency medicine face comparable problems," (Bottrill *et al.*, 2008*a*). Triage has been used in the medical field since the First World War in situations (especially accidents and attacks) where a large number of victims need to be treated urgently when medical personnel and means are in short supply. Patients are then treated in order of priority based on the extent of the wounds, chances of survival, the victim's age, etc.

Applying the notion of triage to biodiversity conservation is nothing new (McIntyre *et al.,* 1992; Vane-Wright *et al.,* 1991). It appeals directly and explicitly to leading conservation donors (development banks, NGOs, foundations, etc.) and appears to have grown in importance recently: it receives significant media coverage [58] and is attracting growing interest among scientists. Rudd (2011) shows that many scientists are potentially in favour of triage with, for example, 50.3% and 9.3% of scientists agreeing or strongly agreeing, respectively, with the statement, "Species and ecosystems are going to unravel so it is important that the conservation community considers criteria for triage decisions. If we don't, *ad hoc* decisions could be even

[57] Initiative launched by the President of Ecuador, Rafael Correa, at the United Nations General Assembly in 2007 to maintain unexploited reserves of 846 million barrels of oil in the Ishpingo-Tambococha-Tiputini (ITT) area of the Yasuní National Park in return for international compensation of approximately half of the revenue lost (http://yasuni-itt.gob.ec/Inicio.aspx).

[58] In the general press (see, for example, "Triage: Not all endangered species worth saving says scientist. Cost-efficiency decisions needed", *The Australian*, 10 October 2007, p. 25; C. Vincent, "Tigre ou ver de terre : qui vaut-il mieux protéger ?", *Le Monde*, 6 February 2012, p. 6); science magazines (V. Nouyrigat, "Le dilemme de Noé", *Sciences et Vie*, October 2012, pp. 102-108; A. Bomboy, "Faut-il sauver la nature à tout prix ?", *Ça M'intéresse*, November 2012, pp.48-52); and radio programmes (France Culture, Culturesmonde, 22 February 2012).

worse." The personal observations made by Hagerman *et al.* (2010) in the leading international conservation meetings from 2004 to 2010 confirm that triage is on conservation experts' minds everywhere, much more so than it is in writing.

This chapter conducts a critical examination of the notion of triage in a move to inform donors' thinking and action with respect to their commitment to biodiversity. We first present the state-of-the-art report on the studies available today on this notion, outlining its theoretical foundations and the debates surrounding it. We then examine the criteria proposed to conduct triage. Lastly, we discuss the concept's suitability to the strategic context in which it is supposed to be used and look over the validity of the basic assumption that can be summed up as, "With finite resources, we have to make choices and cannot save everything."

3.2.1. The triage debate between pragmatism and ethics

Why is triage necessary?

As "proof of lucidity" on the part of the ecologists, as Courchamp sees it,[59] triage responds to a simple observation: conservation resources are by nature finite and structurally insufficient to handle "astronomical" needs (Botrill *et al.*, 2008*a*). In other words, we can't save it all. Consequently, defining priority areas for conservation is seen as "a major goal of conservation science" so we can reconsider the allocation of conservation resources globally to achieve maximum impact with limited conservation resources (Jenkins *et al.*, 2013). Out goes the polar bear, condemned by the inevitable melting ice floes, the Javan rhinoceros and the Chinese panda, condemned eventually by the destruction of their habitat and already-low population numbers. As Courchamp sees it,[60] "it's all wrong to spend as much energy and money on them for unsure results. All this effort is at the expense of other animals, which it would surely be wiser to choose." In other words, "the scientific community would do better to publicly declare that it is giving up on saving a given emblematic species because it is a lost cause. That would be a strong symbol. In any case, we have to make pragmatic decisions."[61] Another famous example is the California condor, which cost nearly 20 million dollars to save from the brink of extinction. As Possingham, one of the main advocates of triage, raged "that $20 million could have been used to secure large tracts of rainforest to save hundreds of species."[62]

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[59], [60] Cited in V. Nouyrigat, "Le dilemme de Noé", *Sciences et Vie*, October 2012, pp. 102-108.

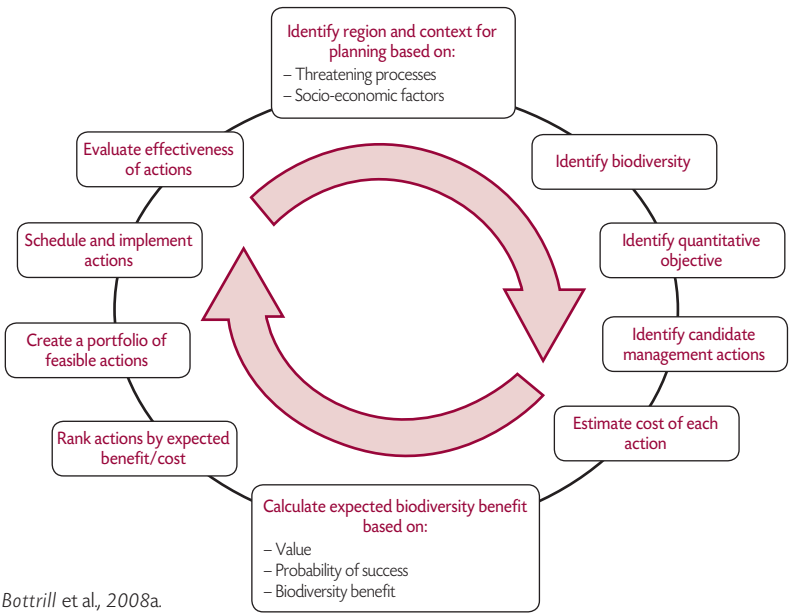
[61] Julliard, cited in V. Nouyrigat, "Le dilemme de Noé", *Sciences et Vie*, October 2012, pp. 102-108.

[62] Cited in "Triage: Not all endangered species worth saving says scientist. Cost-efficiency decisions needed", *The Australian*, 10 October 2007, p.25.

Triage is hence held up as a "rational process to maximise protection" by "wisely allocating resources". It is said to make often implicit, and hence presumed to be inefficient, choices explicit (Bottrill *et al.*, 2008*a*). Its proponents say, "This cost-efficiency approach finally finances conservation explicitly and rationally."[63] For these advocates, in the triage approach, "pragmatism is king".[64]

Triage makes "lucidity", "rationalisation" and "optimisation" the watchwords of a conservation community hitherto accused of fooling itself. It gives this community an operational model for the optimal allocation of conservation resources (Figure 11).

Figure 11 *An operational model for allocating investment to different conservation actions to achieve a stated goal using the process of triage, which incorporates parameters of cost, value, probability of success and biodiversity benefit*



Source: Bottrill et al., *2008a.*

[63] Possingham, cited in V. Nouyrigat, "Le dilemme de Noé", *Sciences et Vie*, October 2012, pp. 102-108.
[64] C. Vincent, "Tigre ou ver de terre : qui vaut-il mieux protéger ?", *Le Monde*, 6 February 2012, p.6.

How can triage be conducted?

Once the triage approach has been laid down, all you apparently need to do is develop a list of criteria. Bottrill *et al.* (2008*a*) posit that the minimum criteria are the parameters of cost, value, probability of success and benefits. The list proposed in the literature is actually long and varied, focusing in turn on:

- Keystone species, whose disappearance would cause an extinction cascade due to their role in the ecosystem;
- Species of high symbolic value (i.e. likely to galvanise huge support for their conservation);
- The most "useful" species, especially in terms of the value placed on genetic resources by the pharmaceutical, agricultural and other such sectors;
- Species with vital functions in the ecosystem (allowing functionally redundant species to disappear in favour of those that play a unique and necessary role);
- Species with the greatest chances of survival, a criterion that eliminates the largest (elephants and whales) and the most endangered. (Traill *et al.,* 2010, recommend, for example, attributing funds for conservation based on the gap between population size and the "minimum viable population");
- Species that supply the most ecosystem services and hence economic benefits;
- Genetically distinct species: targeting the most original species (duck-billed platypus, tuatara, coelacanth, etc.) that have a distinct genetic heritage due to their long evolution and are the last representatives of a group of extinct species. (the Evolutionary Distinct and Globally Endangered programme [EDGE; see Redding & Mooers, 2006] is emblematic of this);
- Genetically commonplace species: taking the opposite line of supporting common species that will further evolve and form the biodiversity of the future, as the others have reached "evolutionary impasses";
- Species that are "saveable" at the lowest cost;
- etc.

These different criteria identify species to be saved and others to be given up on, but also define priority geographic areas based on these species.

Overview of the triage debates

The emergence of the triage notion in conservation has sparked heated debates of principle. Although still a dirty word in certain circles, some argue that triage is already common practice: whether they admit it or not, conservationists have long discussed what to save (Marris, 2007). In fact, prioritisation is already at work in each conservation organisation and by each conservation player: the Royal Society for the Protection of Birds has chosen birds, Conservation International has chosen hotspots, WWF has its 35 priority regions, FGEF the priority solidarity zone, and the Fédération Rhône-Alpes de Protection de la Nature…nature in the Rhône-Alpes region. Each country establishes priorities based on its network of protected areas, each environment ministry allocates different resources to different conservation focuses, each scientist concentrates on a particular subject. Triage is hence often implicitly at work since there are subjects that are worked on and others not. McIntyre *et al.* (1992) criticise the irony of a situation where everyone is already practising a form of triage, "unconsciously" as Loreau puts it, joining Julliard in this:[65] "We make tons of choices informally, always in a rush, and without the slightest hint of an ethics commission to oversee these decisions."

Yet the notion of triage is distinct from the usual prioritisation. As Hagerman *et al.* (2010) put it, triage "includes the explicit decision not to treat a given individual (protect a given population/species), knowing that a lack of effort…will likely lead to death/possible extinction of the first population/species triage." This means not putting resources into targets deemed non-priority on the basis of various criteria, to the advantage of other targets that "score" better. Most importantly, the triage approach is necessarily more global, transcending a particular player: it aims to rationalise the entire conservation effort in a global and coordinated undertaking. The debate is about these particularities of triage compared with straightforward prioritisation, not about the indisputable advisability for a given player to make strategic choices.

Just as many of the most fervent opponents of the ecosystem services or economic valuation approaches take an ethical (if not moral) stance, most of the criticisms made of triage to date are indignant. Barbault, for example, finds "the process quite appalling: by what right does man make such choices?" He sees it as a "morally outrageous method".[66] In the same article, Kirchner rages against the findings of Rudd's survey (2011): "I am flabbergasted: this triage was an absolute taboo in our

[65], [66] Cited in V. Nouyrigat, "Le dilemme de Noé", *Sciences et Vie*, October 2012, pp. 102-108.

scientific community up to this point!" Rull (2010) considers triage as "an unconditional surrender to the market", while Myers (cited by Marris, 2007), who strongly doubts the feasibility of triage, tells how his hotspot map has often been called immoral since all species are equal. From an epistemological point of view, Jachowski and Kesler (2008) say that "allowing extinction is contrary to the fundamental concepts in conservation biology – that species have inherent value and that extinction is unacceptable."

From among a few more lone voices, Noss (1996) ties ethics in with tactics, calling triage "ethically pernicious and politically defeatist", while Pimm (2000) alone considers the implications of the message conveyed by triage: "Triage is seductive music to some managers' ears. It combines the semblance of a tough decision-making style with the substance of doing nothing. 'It's really too bad about species X, but I can fund more research on species Y' and, sotto voce, 'avoid politically difficult choices about X.' Years later, the same argument will be repeated about species Y."

The need to focus the critique on the substance of pragmatism

The problem with the ethical criticism of triage (important as it is) is that it is largely shared by the very promoters of this "rationalisation". As with the other forms of "pragmatism" already mentioned (ecosystem services, etc.), these promoters freely admit that they would prefer to do things differently. Walker (1992) concedes: "regrettable as it might be, it is most likely that global biodiversity concerns will ultimately reduce to a cost-benefit analysis." An expert quoted by Hagerman *et al.* (2010) explains that "we are going to have to make hard ethical choices for species and habitats that have so little hope that they are not worth trying to save. I hate to say this, but this is the reality of the situation. The flip side of this is that it frees up more money to buy up more reserve land." So we should adopt Margaret Thatcher's famous expression, "There is no alternative!" and accept the fact that "rather than being an ethical position, conservation triage is simply an unavoidable step in the process of efficiently allocating resources when budgets are constrained," (Bottrill *et al.*, 2008*a*).

As its partisans themselves see it as ethically undesirable but necessary for practical reasons, triage remains beyond the reach of ethical criticisms, which it makes its own so it can easily dispose of them. An analysis of the technical conditions and especially the strategic configuration surrounding its use could, however, raise questions about the need for it and its feasibility and therefore its stated pragmatism.

3.2.2. Are the proposed criteria usable?

Criteria that are hard, if not impossible, to assess

Ecologists and biologists seem far from being able to take up the scientific challenges raised by the proposed triage criteria. "We are so fundamentally ignorant," says Myers (cited by Marris, 2007). "We cannot afford, by a long, long way, to say which species are dispensable." Ehrlich (*ibid.*) compares the species to thousands of rivets holding together the parts of a plane in flight: how do you know how many you can pop before you pop one too many? The links between species and ecological functions, or between functions and services, are highly uncertain. There is no consensus over the "minimum viable populations" (Flather *et al.,* 2011; Traill *et al*., 2010), and predicting possible survival is far less certain for a threatened species than for a human patient (Parr *et al.,* 2009). A strict triage approach would, for example, have abandoned the whooping crane, which had only 15 individuals left in North America in the early 20th century, but which today has been saved by conservation work. And similar examples abound (Jachowski and Kesler, 2008). Moreover, scientific progress will not necessarily reduce the uncertainties, since new processes and new interactions or retroactive effects could be discovered that would actually increase them.

Above all, many of the criteria proposed are highly relative. For example, Jenkins *et al.* (2013) base their prioritisation on three taxa – mammals, amphibians and birds – since these are the most well known. Consequently, they do not identify the same priority zones as Myers' hotspots based on plants. Abandoning a so-called "redundant" species also raises the following question. When two species have the same function in an ecosystem (if indeed we can sometimes be sure that this is the case), which of the two is redundant? And what is an "attractive" species? Is it a shark, a bear, a wolf, a lion? Don't the Maasai nickname Kenya's large wildlife "the white man's livestock"? More fundamentally, when, according to Mora *et al.* (2011), only 1.2 to 1.8 million species have been identified out of a possible total of some 8 to 100 million,[67] what is the point of "rational" triage? Given this state of knowledge, it may well appear less effective and rational to target species separately than to protect the vast habitats of species that attract financing (tiger, bear, etc.) as lone shields against fragmentation and hence the last bastions for thousands of species that we do not even know exist.

[67] Many more if micro-organisms from all kingdoms are included: prokaryotes (bacteria and archaea), eukaryotes (fungi, single-celled algae, protozoa, etc.), and even viruses.

Irreconcilable criteria

In addition to the problem of assessing each possible triage criterion and even if the necessary scientific progress were made (which would require a sharp rise in financing inconsistent with the budgetary constraint on which triage is based) and an unlikely overall standardisation of cultural preferences attained, the criteria would still not be compatible with each other. It might be possible to compare two types of potential for genetic evolution or two ecosystem service valuations, but not to compare potential for genetic evolution with cultural attractiveness and the service provided. Tigers, pandas and gorillas are not on the list of species with a high genetic value (EDGE programme) even though their protection is a key driver of public support for conservation. An expert cited by Hagerman *et al.* (2010) suggests that we "try to ensure that at least one member of every genus survives – to try to maintain evolutionary options," while acknowledging that "that is arbitrary and capricious, and you could come up with another strategy".

In the face of this huge obstacle, triage's supporters take refuge in two directions. Firstly, they cite the need for more research. Hagerman *et al.* (*ibid.*), for example, describe a discussion between scientists defending the idea of allocating the most resources to the most endangered species and others proposing to leave them to their fate. "In the end, the tension was displaced with the unanimously agreed upon comment that 'the trouble with these conversations is the data gaps that exist'," which avoided having to make any decisions on the choice of criteria.

Secondly, the most fervent triage aficionados propose highly mathematical multicriteria approaches that obscure the arbitrary nature of the relative weight assigned to each criterion behind models inaccessible to the common people. Possingham is the "champion" in this, asserting that "the conservation industry [does] not have the training in applied maths and economics to make good decisions." Universities should therefore offer masters in quantitative wildlife management. "It's hard to convince people in first year that maths is relevant but by third year they realise that all of science is quantitative." [68] McDonald-Madden *et al.* (2008*a* and *b*) offer no less spectacular examples, as do Joseph *et al.* (2009) who, in their "project prioritization protocol", combine level of threat, various species value metrics (evolutionary particularities, ecological importance, social importance, etc.), management cost and probability of success.

So figures, equations and models shroud ultimately arbitrary choices behind the illusion of formal rationality that, given the multitude of concerns and (good) reasons to protect biodiversity, has no chance of gaining a global consensus, which is the prerequisite for the rationalisation the partisans of triage are calling for.

3.2.3. Is triage suited to the strategic context of conservation?

A tactic that raises questions

The tactical aspect of triage has not escaped its defenders' notice. McDonald-Madden *et al.* (2008*b*) highlight "the need for managers to consider triage not as merely giving up, but as a tool for ensuring species persistence in light of the urgency of most conservation requirements, uncertainty and the poor state of conservation funding." An expert cited by Hagerman *et al.* (2010) adds, "There is a social context to this and you need to make sure that you're not giving people the idea that you are just going to do triage. You need to emphasize that hopefully we will get funding in place to deal with this in a much broader way. We may have to do a little triage, but the message would be, we don't want to be in a position of doing a lot of triage." In other words, the suggestion, even unintentional, that triage is the solution to the resources problem risks becoming a self-fulfilling prophecy to justify budget choices detrimental to biodiversity. Yet for Bottrill *et al.* (2008*b*), we are far from giving up: "Being explicit about potential consequences (i.e. extinctions) of inadequate funding can elicit more resources from governments and donors than fostering the 'we can save everything' delusion. By denying the realities of a constrained budget, we can lead policy makers to believe that current resources are sufficient to implement management actions needed to reduce extinction to zero."

However, Jachowski *et al.* (2008) believe that the exact opposite could happen: "If governments that fund conservation tighten the purse strings, conservation biologists using a triage approach would have to respond by assigning more species and systems to the ever-enlarging extinction pile." The message conveyed by the notion of triage could consequently be one of yielding to the forces resisting the change needed for biodiversity conservation, without their having to make a corresponding effort on their side. What if the conservationists had always asked too much? What if they could hone their priorities and drop the utopian goal of stopping biodiversity loss? The message would probably be welcomed by a majority of decision-makers reluctant to make the effort required for biodiversity conser-

[68] Cited in "Triage: Not all endangered species worth saving says scientist. Cost-efficiency decisions needed", *The Australian,* 10 October 2007, p.25.

vation, especially if more research were needed for this honing work (to define the criteria) and if the scientists did not agree on the criteria. The rest of society's answer to the biodiversity conservationists would then inevitably be, "Come back when you've figured out what you want!"

There is another risk involved in taking the side of efficiency rather than the defence of the living as a whole: the risk of focusing the debate on this notion with players whose approaches involve inevitably differing, albeit all logically legitimate, views. Jachowski *et al.* (2008) warn that such a change in conservation biologists' philosophical stance would have repercussions extending well beyond the "ivory tower" in which triage is debated: "If conservationists sanction extinction in the name of efficiency, what would stop others from justifying extinctions based on interests contrary to conservation? Some would surely argue that efficiency calculations should include the impacts on corporate profits of conservation programs [and] policymakers might have difficulty selecting between the extinction-bound species identified by efficiency-minded conservation biologists and species selected by corporate profiteers hindered by conservation programs." In this case, only the conservation actions that do not significantly challenge profitable sector activities would be considered as efficient. This would not clarify the conservation field. It would reduce it.

It is hard to settle the tactical controversy unilaterally when conflicting arguments can be heard and tactical choices are fundamentally dependent on the contexts. Yet the main conclusion to be drawn from the study of the arguments raised could be that debate transparency and publicity are not systematically appropriate (contrary to the popular belief largely held by both sides). Certain tactical choices within the conservation community could be better off in terms of their outcomes if they were discussed behind closed doors. Who could imagine industrialists in the most damaging sectors, seeking to minimise the environmental constraint on their business, opening their strategic decision processes to the public in total transparency?

A complex configuration for action

It is hard, and very clearly so this time, to envisage the use of triage in the context for action in which conservation is deployed.

This is due firstly to the conservation players. There are so many that any attempt to count them would be in vain, and they operate on a multitude of levels with a whole host of different approaches, concerns and objectives. Even if wetland X in France, which association Y fights locally to protect, proves to be of very little ecological importance globally (no endemic species, low diversity, low-value ecosystem services, etc.), no one will ever be able to reallocate its funds to another wetland of infinitely greater ecological importance in Amazonia. Likewise, the funds allocated by the European Union and France to protect the bears in the Pyrenees can, technically speaking, never be attributed to Malagasy lemurs. Possingham's rage against the California condor therefore makes no sense in practical terms: no one could have decided to reassign the 20 million dollars to the tropical forests. These sums are in the hands of flesh-and-blood players whose action is contained within jurisdictions. Funds do not exist in themselves, independently of their intended assignment, unless global conservation is implicitly considered as the work of a handful of large international NGOs and organisations (as it is very clearly perceived in the article by Marris, 2007), even though conservation efforts are in fact extremely fragmented. Hence the illusion of the possibility of a global, optimal, coordinated choice by a single decision-maker or consortium of a few decision-makers. Mace (cited in Marris, 2007) laments on this score: "It has been a not terribly profitable exercise over the last ten years to have such a proliferation of schemes that are basically very similar. They act as sort of branding for the organizations. It still surprises me that the big conservation organizations have not gotten together under a single banner, like Make Poverty History." The idea of a centralised decision-maker for biodiversity action is actually no more desirable than it is realistic. It is not desirable in that the range and fragmentation of biodiversity players guarantee a vital diversity of approach and focus, reflect a wide range of "philosophical decisions" (Hoekstra, cited by Marris, 2007), and contribute to the resilience and strategic adaptation on the ground of biodiversity action. It is not realistic in that it is hard to see – and the debates on triage illustrate this – who would be able to get the many partisans of biodiversity to speak and act as one. The fragmentation of biodiversity players (and hence the heterogeneity of the conceptions they defend) forms the real context in which action is taken. It is not a blip in the system. So any thinking on "the allocation of conservation resources globally to achieve maximum impact with limited conservation resources" (Jenkins *et al.*, 2013) has no audience likely to act on it, which is ironic for a "pragmatic" approach.

The second reason why triage is not suited to the practical conditions for action has to do with the complexity of the decision processes. Figure 11 is characteristic of the oversimplification, in sequential form, that many authors have largely shown to be mismatched with a reality that obstinately refuses to submit to its apparent rationality and to have highly concrete adverse effects (Muller and Surel, 1998). As Bako-Arifari and Le Meur (2001), write, we should be wary of a "linear design-decision-action-evaluation view, which is as far as you can imagine from the social reality (but which has very real social effects)". This view is more than just simplistic: if taken seriously enough to be allowed to steer action, it creates a strategic naivety that hugely restricts its effectiveness (Billé, 2007).

Thirdly, triage assumes that there is a direct link between action and result, in other words that the decision to protect can be passed on to a given player with a reliable leverage for action. Yet this is not the case. Conservation is based on political processes in which confrontation and negotiation play a large role. In practice, everything sacrificed on the altar of efficiency, before any negotiations even started, would definitely be lost (because the outcome of giving free rein to destructive forces is fairly clear-cut) whereas the future of everything selected for protection would remain negotiable. Conservation, especially in the long run, cannot be imposed by decree: once the decision has been taken, the instruments have to be designed, negotiated, implemented, evaluated, their shortcomings and adverse effects corrected, tried again and so on. And ultimately, as Pimm (2000) fears, only to have to "split the conservation difference" again a few years later when funds are still inadequate, pressure has risen and new choices need to be made "pragmatically"...

Are financial resources actually infinite?

There are a number of reasons why it is worth looking into the apparently clear lack of financial resources for conservation that forms the basis for the idea of triage.

- No one knows how much is spent annually for conservation worldwide. The CBD's strategy for resource mobilisation adopted in Nagoya in 2010 may well provide indicators for a more detailed estimate of this sum, but the available figures remain approximate and only include a fraction of the conservation players.
- Even when a figure can be put to spending, this has nothing to do with the means available. Apart from the case of certain mechanisms such as the Global Environment Facility (GEF), there is no global budget available and waiting to be spent for which we could discuss the best use. This means that abandoning the protection of species X or ecosystem Y does not free up resources for another goal. To go back to the example dear to Possingham, the money spent on the California

condor would not have been automatically made available for the tropical forests: given that the condor has its own "fans", without them there would probably have been no money.

- The estimates of needs are still infinitely less robust than the estimates of expenditure (Feger and Pirard, 2011). Their calculation was a central focus of the discussions at the 11th meeting of the Conference of the Parties to the CBD (Hyderabad, 2012) and has given rise to many ad hoc methods that are all really approximations of real needs that everyone (or nearly everyone) agrees are fundamentally impossible to evaluate (Billé *et al.*, 2012). For example, the figures calculated by the GEF for the 2014-2018 period to achieve the Aichi Biodiversity Targets in the developing countries give a bracket of 74 to 191 billion dollars, but no one can say whether this is merely an approximation of the means needed to stop biodiversity loss.
- Is it a large figure? As we have seen, Botrill *et al.* (2008*a*) consider that the sums needed are "astronomical", but Parr *et al.* (2009) point out that they are only astronomical from one point of view: they are around the same as the resources allocated to space exploration today. Is it unrealistic to imagine that the international community might allocate as many resources to protecting the planet's living fabric?
- Conservation resources have probably always grown and are doubtless still growing today judging by the budgets of the major NGOs and the GEF. In any case, there is no reason to believe that they cannot grow in the future: not all countries have been hit by the fiscal crisis and, more importantly, the world is not any less wealthy than in the past. With global GDP constantly rising, only the distribution of wealth (especially between the private and public sectors) changes. This means that the challenge for conservationists in the future runs more along the lines of finding how to get hold of the money where it can be found.
- Not a word is said about the action effectiveness problems. Although no one has the miracle solution, we cannot close our eyes to the fact that the conservation policies and projects at both domestic and development assistance levels by no means always obtain satisfactory results. Triage aside, there is a great deal to be gained from focusing on the environmental effectiveness of the instruments used, which is not a central concern for all the players at the present time.
- The major factors behind biodiversity loss are not beyond our reach. Triage might make sense if a meteorite were heading for Earth or a virus were rampant and we had to choose what to save in the face of phenomena beyond our control.

Yet the problem with biodiversity does not come from outside our society: the only reason why conservation and conservation financing are needed is because human activities are destroying biodiversity. Stepping up or rationalising the conservation effort is tantamount, at this point, to filling a bucket with a hole in it: efforts have hitherto always risen as the pressure has increased. For example, conservation financing is marginal compared with subsidies that are damaging to biodiversity (TEEB, 2009): reducing, if not axing these subsidies, even without reallocating the funds, would in fact raise the financing available (or would reduce the financing required to attain the same results).

- An accounting approach is required. Whales are said to be expensive species to protect and in a genetic impasse, but whale watching generates two billion dollars in annual earnings, which is far more than the sums allocated to protect them. Quite aside from their key role in the marine ecosystems and the knock-on effects their disappearance would have, we would all lose more than we would save if we were to give up on them. The players responsible for the expenditure are obviously not the same as those who gain from the whales' existence, but that is a different matter.

Conclusion

In an environment of budget restrictions, donors are having to increasingly justify and legitimise their actions. Each donor is constantly under pressure to prioritise. Which geographic areas and sectors should they be working on? Should they choose education or energy supply? Should they prioritise the least developed countries or the emerging countries? Should they target the poor or concentrate on the middle classes? The list of choices to be made is endless and the resources never enough. Yet despite much-needed aid coordination efforts, there still remains quite a multitude of approaches and priorities wherein pride of place is given to each donor's organisational culture, policy choices and specific intervention contexts, to the partnerships they develop and the different demands of the recipient countries.

Should the situation be otherwise for biodiversity conservation? The notion of triage can, in many ways, appear to offer a rational course of action fostering the optimisation of decisions and results. Yet an examination of the notion of triage from the point of view of its prospects for use clearly shows that the proposed criteria are unusable and that its very principle is unsuited to the real, highly political and strategic context for action in which triage is supposed to be used. The parallel with emergency medicine that underlies the triage proposals does not stand up to analysis: the situations in which conservation is implemented are more complex with more

players with inevitably different approaches and multiple levels of intervention. Conservation is a social and political practice rooted in complex histories, territories and means of action. It is implemented by flesh-and-blood players and there is nothing to say that its financing should be either restricted or restrictive. Although each conservation player's key concern should obviously be the environmental effectiveness of their action, this calls neither for hypothetical global optimisation and coordination mechanisms nor for abandoning, even reluctantly, species and ecosystems that some segments of society have set as conservation objectives. Irrespective of any moral consideration, triage is bound to fail.

Triage is characteristic of conservation approaches that, based as they are on a form of despair that makes sense (in view of the discouraging state of global trends), respond to a badly put question with an unrealistic answer dressed up in all the finery of the quantitative sciences where ecology and economics meet. The "zero extinction" goal may well seem to grow more distant with each passing day. Yet it is a useful reference as a utopian prospect on which many players and governments worldwide have agreed, as a position for negotiation in concrete action situations. We therefore do not propose an alternative to triage here since, aside from its being a falsely pragmatic response, it is the question that is wrong. The problem facing biodiversity conservation is not how to finally find the right method to steer the choices of an imaginary decision-maker with limited means.

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3.3. Can evaluations drive biodiversity mainstreaming? The case of the Forest Carbon Partnership Facility [69]

Karine BELNA [70]

At the tenth meeting of the Convention on Biological Diversity (CBD) held in Nagoya in 2010, the 192 participating countries adopted a number of biodiversity action commitments (called the Aichi Targets).[71] These commitments joined the many environmental commitments made by different international forums in response to the challenges of biodiversity preservation, climate change (United Nations Framework Convention on Climate Change), forest protection (United Nations Forum on Forests), etc. This proliferation of declarations, programmes and commitments to protect the environment raises the question as to the consistency of the actions taken by governments and public donors in this field, especially given the tensions between the different environmental objectives (Bennett, 1992). Looking at the net carbon footprint, for example, you can get as much carbon sequestration from planting trees as from not destroying forests rich in biodiversity. It is also the much easier option. Yet such an approach has extremely negative impacts on biodiversity preservation. So mainstreaming biodiversity conservation is not self-evident when it comes to financing climate action (Pistorius *et al.,* 2010).

We are faced here with a contradiction, a risk of inconsistency in international public environmental action.

Evaluation of public action is one of the main recommended ways of ensuring the consistency of public action. Its purpose is to conduct an in-depth examination of each intervention's effectiveness and relevance against the others (OECD, 2002). Evaluation today is a profuse practical field in which one term covers a multitude of aims and theoretical approaches (Stufflebeam, 2001; Owen, 2007; Alkin, 2004; Fitzpatrick *et al.,* 2004). Some of these approaches, based on an equally wide range of methods (more or less participatory, etc.), are designed to assess policy and programme effectiveness (Vedung, 2005; Young, 1999). They can be used to improve the mainstreaming of certain relevant collateral issues, such as biodiversity conservation issues.

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[69] This chapter is based on dissertation research work conducted from 2009 to 2013 and funded by AFD and the French Ministry for Agriculture (Belna, 2014).

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[71] Five of the 20 targets in the Strategic Plan for Biodiversity 2011-2020 concern the forests: deforestation is at least halved and where feasible brought close to zero by 2020 (Target 5); sustainably manage all areas under forestry by 2020 (Target 7); conserve at least 17% of terrestrial areas by 2020 (Target 11), restore and safeguard ecosystems that provide essential services by 2020 (Target 14); and restore at least 15% of degraded ecosystems by 2020 (Target 15) (CBD, 2010).

In this chapter, we examine the extent to which evaluation methods and procedures can mainstream biodiversity in climate action financing programmes. To be more precise, we analyse the main pilot programme set up by the international community to reduce greenhouse gas emissions linked to the deforestation and the degradation of tropical forests (REDD+). This analysis considers whether the many international climate change mitigation policy evaluations are or are not a useful way for donors seeking to support and mainstream biodiversity conservation. We focus here on the Forest Carbon Partnership Facility (FCPF), in which AFD is a donor. The FCPF is a multilateral programme administered by the World Bank Carbon Finance Unit. Its purpose is to provide financial and technical support to forest countries seeking to design national REDD+ programmes and to remunerate demonstrated deforestation control efforts by "pilot" countries. One striking characteristic of the FCPF is the omnipresence of evaluations at the different steps of its implementation. This chapter hence seeks to understand whether these many evaluation processes further the mainstreaming of biodiversity conservation issues for two reasons: to assess their effectiveness with respect to the biodiversity conservation goal that the FCPF sets itself,[72] and to assess their consistency with commitments made by the CBD, the international community and especially FCPF donors.

Following an analysis of *(i)* biodiversity mainstreaming in the REDD+ mechanism and in the FCPF, we focus on *(ii)* the many FCPF evaluations conducted to identify whether they manage to act as a springboard for biodiversity conservation issues. We then look into *(iii)* the particular role played by evaluations among the strategies and instruments available to donors (and other stakeholders in the negotiations) seeking to promote biodiversity mainstreaming in order to ensure that multilateral FCPF-type programmes are responsive to these issues.

3.3.1. A hard-earned, low level of biodiversity conservation mainstreaming by the REDD+ mechanisms

The international community's creation of an incentive mechanism to pay forest countries that demonstrate efforts to curb deforestation and hence reduce greenhouse gas emissions provides a unique opportunity to link up climate change mitigation with global biodiversity protection in one policy. Yet although REDD+ and the FCPF appear to soundly pursue "carbon" goals, responsiveness to other

[72] One of the four general objectives driving FCPF action clearly focuses on the promotion of biodiversity: the FCPF aims to "within the approach to REDD, to test ways to sustain or enhance livelihoods of local communities and to conserve biodiversity" (FCPF, 2008, 10).

issues, especially biodiversity issues, is not evident due to the very design of these multilateral cooperation mechanisms.

Biodiversity mainstreaming is not self-evident in the range of possible REDD+ actions

The process was launched in 2003. In a move to involve the maximum number of countries in global climate change action (including those that had not made Kyoto Protocol commitments), plans were laid to make payments for the reduction of deforestation in intertropical areas deemed responsible for over 15% of global greenhouse gas emissions (van der Werf *et al.,* 2009). At the outset, the purpose of REDD+ was to preserve natural forests and their biodiversity in order to mitigate climate change. Yet the mechanism's scope was quickly extended. In 2007, the reduction of forest degradation was added to the reduction of deforestation to satisfy the Congo Basin countries concerned mainly about degradation processes rather than total deforestation (Karsenty, 2010). Then, in 2009, the mechanism also took up carbon stock enhancement (by means of afforestation) and the sustainable management and conservation of existing forests (UNFCCC, 2009) to onboard countries such as Guyana with a history of low deforestation levels, which were asking to receive payments for their conservation efforts. At the same time, the utility of REDD+ for biodiversity conservation fell. Today, it does nothing to encourage opting for natural forest deforestation reduction actions over afforestation to sequester carbon. Worse still, the net accounting system adopted means that afforestation (for which there are no conditions laid down as to the species to use or the areas to choose) can obscure continued deforestation. With the extension of the field of actions eligible under REDD+, biodiversity conservation is no longer clearly connected with carbon storage action.

Nevertheless, the concern to give biodiversity back an explicit place in the REDD+ mechanism can be found in a number of initiatives supported by institutions, NGOs and countries. In 2010, the parties to the Climate Convention adopted environmental and social safeguards. One of them explicitly concerns the conservation of natural forests and biodiversity: "That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions…are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits," (UNFCCC, 2011, p. 26). Similarly, UNEP's map of zones rich in carbon and biodiversity and the environmental and social criteria and indicators developed by the Climate, Community and Biodiversity Alliance all aim to steer REDD+ actions towards mainstreaming biodiversity. Bolivia

also stands out in the international negotiations for its alternative proposal for REDD+ centred on natural forest conservation and rejection of the exclusively carbon approach and its remuneration by market mechanisms, such as they are provided for (Morales Ayma, 2010). However, these initiatives remain limited in their reach and our case study on the FCPF clearly shows how hard it is to mainstream biodiversity in climate policies at this point in time.

The national REDD+ strategies developed in connection with the FCPF do little to factor in biodiversity conservation

The FCPF acts as an intermediary between international negotiations on the definition of the REDD+ mechanism and the implementation of this mechanism in forest countries. The first FCPF fund (called the Readiness Fund), launched in 2008, is designed to support some forty forest countries in their preparations for and implementation of national REDD+ programmes by financing policy and technical measures. The second fund (called the Carbon Fund), which became fully operational in 2011, is set to make payments to a small number of pilot countries for their emission reductions once their REDD+ programmes are up and running. The carbon credits purchased may be sold on the markets. As at 2013, 19 donors (mostly governments) were contributing to the FCPF's funding. AFD is one of them and has been a contributor since 2008. NGOs are observers on the Readiness Fund's decision-making committee, which means they can attend all the meetings, but officially have no part in decision-making (FCPF, 2011*b*).

Despite the FCPF's clearly identified aim to promote biodiversity, the national REDD+ programmes show that it actually endorses and funds a discreet but insistent crowding out of biodiversity issues (Belna, 2014). Our analysis of a sample of 15 programmes approved by the FCPF from 2009 to 2012 indeed shows that no country, except Colombia, differentiates forest plantations from natural forests. The attributes of forest ecosystems and their environmental challenges are also generally poorly defined and the anthropogenic pressure behind the deforestation is never pinpointed.

Our analysis also shows that very few countries explicitly focus their REDD+ strategies on biodiversity: the objectives set by other international environmental agreements (such as the CBD), integration into other national environmental policies, and mainstreaming biodiversity in REDD+ measures are virtually never taken up (except in Cambodia, Panama and Colombia). In particular, rare are the countries that discuss the environmental relevance of their planned afforestation in their national REDD+ programmes. Two countries (the Democratic Republic of Congo

and the Central African Republic) even consider developing logging in still-natural forest zones in their REDD+ strategies. More generally, the REDD+ strategies appear to very rarely ever develop consistent, relevant responses to the deforestation factors identified.

Yet it is precisely the purpose of the evaluations provided for by the FCPF, especially the ex-ante environmental assessments, to consider the environmental utility of the REDD+ strategies. They should all serve in principle to diagnose, measure and curb the dynamics that crowd out biodiversity conservation issues. Is this really the case?

3.3.2. The many evaluations that line FCPF implementation fail to guarantee the mainstreaming of biodiversity conservation

Right from the outset, the FCPF placed considerable emphasis on the evaluation processes for the REDD+ programmes proposed by forest countries (FCPF, 2010) and the conditionality of the aid disbursed by the donors. Presented as a guarantee of programme quality and objectiveness in the allocation of grants, evaluations line the entire FCPF implementation process.

The practice of evaluation is omnipresent in FCPF implementation

The FCPF conducts a dozen evaluation processes that can be classed into four main groups:

(i) The forest countries' own evaluations for their national REDD+ programmes (see Table A.1 at the end of the chapter). These "self-assessments" concern mainly deforestation factors (deforestation diagnosis), the effectiveness of past and present deforestation reduction policies and programmes, the potential impacts of the REDD+ strategies (ex-ante environmental assessment) and the "non-carbon benefits" generated by the REDD+ strategies (monitoring and evaluation of environmental co-benefits) (FCPF, 2011*c*).

(ii) FCPF ex-ante assessments, mid-term reviews and ex-post evaluations of these REDD+ programmes (see Table A.2 at the end of the chapter). These evaluations are conducted either by FCPF Technical Advisory Panel experts, by donor peers and forest countries, by the World Bank or even by NGOs and civil society representatives. All these evaluations, except those by NGOs, have institutional status irrespective of whether they assess programmes based on certain criteria defined in advance by the FCPF or whether they check on the sound application of

the implementation conditions specified in the resolutions adopted for each national REDD+ programme. They are all explicitly provided for in the FCPF's procedures.

(iii) *FCPF assessments of the emission reductions programmes* (see Table A.3 at the end of the chapter). These evaluations follow up on the REDD+ programmes produced by the Readiness Fund and form the basis for FCPF Carbon Fund commercial negotiations.

(iv) *The evaluations of the FCPF facility itself* (see Table A.4 at the end of the chapter). As stipulated in the FCPF's charter, a participatory evaluation was conducted mid-term by a consulting firm and the World Bank's Independent Evaluation Group also conducted its own evaluation of the programme following three years of operation.

An evaluation is made up of a number of separate steps: framing the evaluation, analysing the data, judging the merits and using the evaluation findings. In the case of environmental action programmes such as the FCPF, each evaluation, but even more so each of these steps, is an opportunity to check that the environmental issues are soundly mainstreamed throughout the programme's implementation. Yet a detailed analysis of FCPF evaluation activities casts doubt on this hypothesis.

The overall dynamic that crowds out biodiversity conservation affects the entire FCPF evaluation process

We propose a thorough diagnosis of the way in which the FCPF's evaluations (excluding the evaluations of the FCPF itself) mainstream (or not) biodiversity conservation issues based on an in-depth documentary review, regular participant observation of the Participants Committee meetings from 2009 to 2012 and an extensive campaign of interviews.[73] Here are the main findings.

The stipulated REDD+ programme evaluations, which forest countries are bound to conduct, are on the whole cursory, if not altogether void of substance

Forest countries have to conduct a number of environmental assessments during the national programme readiness preparation phase. The ex-ante environmental assessment of REDD+ strategies is supposed to assess the relevance of planned

[73] Documentary analysis of a sample of 15 national REDD+ programmes, all the resolutions adopted and the findings of all the evaluations conducted from 2009 to 2012.

REDD+ measures to biodiversity conservation issues. In particular, it is meant to ensure compliance with World Bank social and environmental safeguards, which legally condition any disbursements. In the case of the FCPF, this concerns in particular safeguards covering the forests, natural habitats and environmental assessment.[74]

The ex-ante environmental assessment methods were largely reviewed in 2009 following the examination of the first three REDD+ programmes. Whereas this assessment was initially supposed to be conducted upstream of the countries' implementation of REDD+ strategies, the FCPF decided to move it to the national programme implementation phase. So the programmes examined by the FCPF no longer present the findings of the assessment and the analysis of compliance with the safeguards, but an outline for a future assessment. At the same time, a decision was made to no longer submit the safeguards analysis to the FCPF Participants Committee: the process was to remain entirely in the hands of the World Bank in liaison with the forest country concerned. Shifting this assessment downstream of the national strategy definition stage and taking it away from the FCPF Participants Committee closed the process's main "window of opportunity" (Slunge *et al.,* 2009) to be able to steer the REDD+ strategies towards mainstreaming biodiversity. It quickly became clear that the national REDD+ programmes were merely announcing the future assessment procedure by reiterating, sometimes word for word, the FCPF's instructions without providing any specific elements of preliminary analysis.

In addition to a weakened ex-ante environmental assessment, the monitoring and evaluation of environmental "co-benefits" scheduled for the implementation phase is cursory and full of holes in most of the national REDD+ programmes:[75] study budgets are derisory compared with the funds earmarked for the monitoring and evaluation of carbon stocks (2% of the total programme budget on average compared with over 26%); the indicators chosen by the countries are not explained; and some of the ecosystem study features are left out (ecosystem services, ecosystem connectivity or fragmentation, etc.). In addition, assessment of the effectiveness of past environmental policies and deforestation factors, although required for the national REDD+ programmes, is either absent or sketchy.

[74] Environmental assessment must ensure that "projects proposed for Bank financing…are environmentally sound and sustainable" and identify "ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts," (World Bank, 1991, 1).

[75] With the exception of Cambodia, Colombia and Vietnam, which all paid particular attention to this step.

In practice then, these evaluations, which are supposed to help make the national REDD+ strategies more environmentally relevant and effective, actually fall way short of their target. Initially poorly framed by the FCPF (which sanctions the "dilution" [Persson, 2004] of the requirements and their deferral), they are then poorly handled by the forest countries. They raise the question as to the relevance of a "self-assessment" when it is conducted for an application for financial aid. How then do the other FCPF evaluation processes fare?

The external ex-ante national REDD+ programme assessments are saved by negotiation and administrative procedures

The expert and peer appraisals of the national REDD+ programmes and the World Bank checks, all made prior to granting approval, arguably play an important role in making up for the few biodiversity mainstreaming guarantees provided by the forest countries' assessments. Yet the risk of diluting the environmental requirement appears right from the design stage of these appraisals. Past environmental policies, the positive environmental impacts of REDD+ strategies and (through to 2010) monitoring and evaluation of environmental "co-benefits" are assessed jointly with other requirements (see Box 5). This makes it hard for evaluators to differentiate between the results, since they are all rolled into one single assessment criterion. They are faced with the following dilemma: if just one of the aspects of the standard studied is not up to scratch, does this merit a low overall performance score? This is a frequent pitfall in the framing of expert and peer reviews, and it is precisely what prompted the NGOs to ask for a revision of the assessment criterion for environmental co-benefits monitoring and evaluation.

Box 5 *The national REDD+ programme assessment standards adopted by the FCPF*

"Land use, land use change drivers, forest law, policy and governance" are assessed by a single assessment standard. This standard checks that the REDD+ programme includes a "presentation of a complete assessment of the following aspects: definition of the main land use trends; assessment of the direct and indirect factors of deforestation and forest degradation in the sectors most relevant to the REDD+ context; recognition of the main land rights, rights to natural resources and governance problems and shortcomings; description of past failures and successes in implementing policies and measures to combat the factors of deforestation and forest degradation; enumeration of the principal stakes, opportunities for progress

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and gaps in the REDD+ context and creation of the conditions required so that the national REDD+ strategy can directly tackle the causes of changes in land use," (FCPF, 2011*c*). This shows that assessment of past environmental policies is just one of the many focuses of this standard. The standard provides for just four overall levels of performance: "not met", "partially met", "largely met" and "met".

The same holds true for the REDD+ strategy options standard. Among other requirements,[76] it provides for "a plan of how to estimate the costs and benefits of the emerging REDD strategy, including benefits in terms of rural livelihoods, biodiversity conservation and other developmental aspects." This criterion is to be evaluated jointly with the other requirements and assessed on the basis of a single performance indicator.

Monitoring and evaluation of environmental co-benefits was assessed jointly with carbon monitoring and evaluation up until 2010, when a separate assessment standard was introduced.

Moreover, the independence of the expert reviews has been undermined since 2009 following protest from forest countries and so as not to hold up rapid implementation of the FCPF despite programme shortcomings. Expert reviews have been rid of their original purpose as critical assessments designed to report on programme performance and have been turned instead into learning processes underpinned by closer interaction with forest countries and hence negotiation, even tacit, of awarded performance scores. This change to the purpose of the evaluations, from conditionality to learning, has led experts to submit often-positive and, by their own admission, sometimes-overestimated reviews.[77] In addition, the expert review

[76] "The R-PP should include: an alignment of the proposed REDD strategy with the identified drivers of deforestation and forest degradation, and with existing national and sector strategies, and a summary of the emerging REDD strategy to the extent known presently, and of proposed analytic work (and, optionally, ToR) for assessment of the various REDD strategy options. This summary should state: how the country proposes to address deforestation and degradation drivers in the design of its REDD strategy; a plan of how to estimate the costs and benefits of the emerging REDD strategy, including benefits in terms of rural livelihoods, biodiversity conservation and other developmental aspects; socioeconomic, political and institutional feasibility of the emerging REDD strategy; consideration of environmental and social issues; major potential synergies or inconsistencies of country sector strategies in the forest, agriculture, transport or other sectors with the envisioned REDD strategy; and a plan of how to assess the risk of domestic leakage of greenhouse benefits. The assessments of the RPP must ultimately produce a more complete, more detailed and more in-depth REDD strategy," (FCPF, 2011*c*).

[77] Sources: personal notes, 6th, 7th, 8th, 9th and 10th meetings of the Participants Committee. Overviews presented by the Ad Hoc Technical Advisory Panel. In the case of the Central African Republic's national programme, the experts judged the monitoring and evaluation of the environmental co-benefits as satisfactory even though the information provided did not merit this mark, as one correspondent expert admitted (interview with a correspondent expert, November 2010).

has little influence on the Participants Committee's REDD+ programme approvals. Only some of the recommendations can expect to be addressed before the implementation grant is approved (despite initial requirements stipulating that all conditions to be met by the countries are to be addressed at this point in the procedure). The standard procedure adopted by default is to put these matters off until the implementation phase.

The World Bank's assessments also tend to foster fast-tracking the implementation phase at the expense of sound environmental responsiveness. This can be seen from the Republic of Congo's REDD+ programme: the Participants Committee asked for the programme to be revised to include certain conditions particularly relevant to biodiversity before the grant could be approved.[78] Despite the Congolese team's highly inadequate response to this request, the World Bank still gave them the green light. It was NGO diligence that finally brought to light the World Bank's over-indulgent assessment. Two donors then took the matter in hand and sounded the alarm. The Republic of Congo was asked to provide more pertinent responses and the World Bank was asked to ensure in its assessment that this really happened.

To conclude, the national REDD+ programme assessments conducted by the FCPF upstream of implementation grant approval do not really reincorporate biodiversity conservation into the REDD+ strategies. These evaluations, initially designed to be instrumental in rationalising international public environmental action, have been overrun by the principle of multilateral negotiation governing the FCPF and the World Bank's administrative organisational model.

When mid-term and ex-post performance evaluations get bogged down in red tape

The findings for the national REDD+ programme mid-term and ex-post evaluations are not much better. Contrary to what the FCPF charter and the resolutions adopted for each national REDD+ programme would have us believe, the mid-term progress report has quickly become a mere formality for additional funding allocated to drive programmes forward from the readiness preparation phase to the phase of FCPF Carbon Fund payments for emission reductions. This has been brought about by relatively calm negotiations, during which it was decided that the relevant country grant managers should be responsible for reviewing mid-term progress and that the FCPF would leave this assessment in their hands.

[78] In particular, revision of the deforestation diagnosis, which was partial and biased, and re-estimation of the budgets earmarked for the environmental impact assessment and monitoring and evaluation of non-carbon environmental benefits.

The ex-post evaluation of REDD+ strategies (the culmination of the "readiness preparation" phase) has been likewise hijacked by an administrative and financial approach even though it is crucial to environmental mainstreaming and especially the safeguard compliance check. Changes have been made to the scope and timeframe of the ex-post evaluation negotiated at the launch of the Carbon Fund, which the World Bank pushed to get up and running as quickly as possible. Firstly, it is now only compulsory for countries applying to the FCPF Carbon Fund. Secondly, it is conducted after these applications have been approved. Given the direction in which all the evaluations are going, this timetable turnaround reinforces the impression that the ex-post evaluation is a mere formality accompanying the selection into the Carbon Fund (even though, in principle, it conditions the possibility of presenting an emission reductions programme).

Here again, the biodiversity crowding-out effect can be seen at work at all stages of the evaluation processes to the extent that these assessments are struggling to refocus the decision process on biodiversity-relevant elements, if not deliberately sidestepping the issue altogether. We now need to know how and why this is happening so that we can look into what can be done to give these evaluations more influence over action in progress.

The factors that weaken the evaluations are inherent in the FCPF's design and place in the international negotiating forums

Biodiversity conservation issues are disappearing from the different steps of the evaluation processes provided for by the FCPF (evaluation framing, data analysis, merit judgement and use of the findings). This erosion takes various forms: deferral (of the evaluation itself or use of the findings), diluted requirements, derisory budgets, overestimated performances, partial or negotiated findings, drift towards a procedural approach, etc.

The first reason for the evaluation's decrease in scope has to do with the determination of donors, forest countries and the World Bank to fast-track the process, especially the FCPF Carbon Fund. An operational Carbon Fund, seen by some as the FCPF's be all and end all, is expected to justify REDD+'s raison d'être and effectiveness in the other international forums. So rather than asking for certain requirements to be tightened in the first programmes submitted, the FCPF actually revised the evaluation criteria downwards – including the rules for the ex-ante environmental assessment of the REDD+ strategies and application of the safeguards – on the grounds that this was merely the REDD+ readiness preparation stage and the forest countries' initial levels were all different.

A second explanation is found in the FCPF's position among the different carbon market set-ups. The carbon offset markets consider one tonne of carbon to be equivalent wherever it is. This is incidentally the very characteristic on which the creation of these markets was based, whether the market set up by the Kyoto Protocol or the "voluntary" carbon markets. Yet biodiversity is harder to typify (CBD, 2012) and placing too strict an emphasis on mainstreaming biodiversity conservation could put a brake on the supposed market momentum. The FCPF's management by the World Bank Carbon Finance Unit (set up to promote the carbon markets [79]) clearly adds to the confusion surrounding the FCPF's ability to guarantee biodiversity mainstreaming. This has also driven some donors who want to promote the carbon markets to finance the FCPF, especially its Carbon Fund. So behind the lip service paid to biodiversity, its actual mainstreaming in the national REDD+ programmes and the FCPF's stated emission reductions payment principles is really highly conflictual. This did in fact become obvious right from the launch of the FCPF back in 2007, when the reference made to biodiversity in the G8 declaration was deleted at the last minute (G8 Summit, 2007).

Thirdly, the FCPF is primarily about negotiation. To keep forest countries on board the initiative and prevent any deterioration in bilateral relations with some of these countries, the donors and the World Bank have had to come to terms with this multilateral dimension, even going so far as to review their requirements. So the reduced impact of the expert reviews, turned into learning instruments rather than selection tools, is a direct result of this negotiation, even tacit, between the different parties. Similarly, the substantial weakening of the ex-ante environmental assessment is due to the tricky situation in which the FCPF found itself in 2009 when it had to decide whether to approve grants for Panama, Guyana and Indonesia. These three countries' national REDD+ programmes reportedly did not meet the requirements laid down by the World Bank's safeguards, which were supposed to condition any disbursement. The programmes should therefore not have been approved. Yet the World Bank and most of the donors feared the potential impact of rejecting the first three programmes submitted, especially since the United Nations REDD+ programme had already approved some national REDD+ programmes and several forest countries were threatening to desert the FCPF if the REDD+ strategy approval process was rendered too strict. Consequently, following heated negotiations, it was decided to defer the ex-ante environmental assessments (Carey, 2009; BIC, 2009) and restrict their scope. This event was a catalyst for the distinctly cursory handling of biodiversity conservation in the national REDD+ programmes.

[79] http://wbcarbonfinance.org/Router.cfm?Page=About&ItemID=24668

So the FCPF's organisational and multilateral characteristics would appear to be behind the evaluations' weakened relevance for biodiversity conservation. Caught in a stranglehold between support for carbon market development, the uncertain participation of forest countries and the aim to fast-track implementation, the FCPF relaxed some of its initial requirements sometimes at the risk of displeasing other parties. For example, the change to the scope of the ex-ante environmental assessment was met with an outcry from the NGOs and reservations from certain donors, which nonetheless continued to support the FCPF. In response to these repeated attempts to undermine the FCPF's consideration of biodiversity issues, shrewd, determined strategies have emerged to bring these concerns back on board. In certain significant cases, they have succeeded.

3.3.3. Deploying effective strategies to promote biodiversity mainstreaming: what role can donors and NGOs play?

We have just seen that the FCPF evaluations, originally intended to be instrumental in guaranteeing programme effectiveness, have found themselves stuck between two other approaches to action: a political negotiation model and an administrative (or organisational) model. The development of strategies that can plug into the interface between hugely different action approaches and link them up rigorously could form a key factor for the successful mainstreaming of biodiversity conservation in the REDD+ programmes. As we will now show, this is precisely how some improvements have been made to the FCPF's biodiversity content.

Joint donor-NGO actions manage to reinstate the biodiversity conservation relevance of certain evaluations

On a number of occasions during the FCPF's implementation, alliances of donors and NGOs have managed to improve responsiveness to certain biodiversity issues. Three such negotiations are noteworthy.

- Firstly, there is the World Bank's negotiation on the environmental and social safeguards. These safeguards have to meet high standards (Hunter, 1994). They also have their own associated redress mechanism: complaints may be lodged with an Inspection Panel to handle disputes over the proper application of the safeguards. In several cases already, this panel has reoriented (if not put an end to) projects disputed mainly from the point of view of their stakeholder consultation provisions. In the face of in-house problems with the allocation of the first FCPF grants, the World Bank proposed delegating grant administration to implementing partners (UN agencies and regional development banks). Common minimum

safeguards had to be defined for this (since each organisation had its own safeguards). The FCPF's NGO observers refused to see the FCPF safeguards pegged to the lowest common denominator and joined forces to lobby World Bank staff and managers and FCPF donors (Accountability Counsel *et al.,* 2010). Securing the support of a number of them, they finally managed, after long negotiations with the FCPF in 2010 and 2011, to get common safeguards defined with the same high level of environmental and social standards as World Bank safeguards.

- Turning to the World Bank assessment of the Republic of Congo's programme, we have already discussed above how two donors sounded the alarm raised by the NGOs over the inadequately critical nature of the assessment. The REDD+ programme consequently had to be further amended in some major biodiversity-relevant areas before it could qualify for the grant and enter the implementation phase.
- Thirdly, a number of donors, forest countries and NGO observers rallied to include a social and environmental co-benefits criterion in the assessment used for emission reductions programme selection: preference will be given to national programmes with demonstrated positive social and environmental impacts, even if there is ultimately no payment premium for biodiversity benefits.

These three examples show that donor support for NGOs (generally the ones to raise the alarm) can reduce the overall environmental crowding-out effect.

When the evaluations come to the rescue…of the evaluations

Although the evaluations provided for by the FCPF have generally fallen short of the mark of putting biodiversity conservation back on the agenda when the main dynamic is crowding it out, some evaluation processes, used more in advocacy approaches, have had some success.

Note, first of all, that NGOs' non-institutional evaluations of national REDD+ programmes are more resistant to erosion by negotiation and organisational rationales than official evaluations. As such, they play a very important role in the defence of environmental concerns. These targeted evaluations (including of biodiversity mainstreaming) have grown in importance in decision-making circles to the extent that they now have at least as much influence as the institutional evaluations. For example, NGO evaluations raised the following points about the Cambodian programme: the need for the evaluation of deforestation factors to identify public economic land concession policy more clearly, for an analysis of the effectiveness of past and present environmental policies conducted in connection with the REDD+

programme, for a larger budget for the social and environmental impact assessment, and for a budget to be defined for the overall monitoring and evaluation of implementation (Forest Livelihoods and Plantations Networks and Cambodian Human Rights Action Committee, 2011). These major points were defended by the NGOs in negotiations and supported by the donors, and most of them became conditions for implementation grant approval (FCPF, 2011*a*). NGO evaluations have also served as a basis for the inclusion of key issues in the resolutions adopted for many other countries, once these organisations have championed them in negotiations and they have received support from at least one donor.

Our own experience of peer reviews on the AFD team has shown that these assessments can also provide an opportunity to promote environmental concerns. In the case of Cameroon, for example, all the concerns raised by AFD in its review found their way into the final resolution, in particular: no assessment of past environmental policies; no monitoring and evaluation of environmental aspects and highly sketchy proposed general monitoring and evaluation; the invalid argument that slash-and-burn agriculture is a more predominant deforestation factor than agribusiness; and no measure covering the granting of farming concessions. Similarly, AFD's review of the Central African Republic's programme highlighted holes in the proposed monitoring and evaluation of non-carbon environmental aspects, gaps in the monitoring and evaluation of implementation and, more generally, insufficient budgets for the environmental assessments (Agence Française de Développement and The European Commission, 2011). Despite dissuasive pressure from the World Bank in negotiations to have just a small number of recommendations condition programme implementation, several of the peer review's major points were taken up.

These experiences clearly show the importance of defending these concerns at all evaluation stages. Yet how exactly do the recommendations of certain evaluations ultimately manage to influence the decision where many others fail?

The need for strategies on the negotiation front and on the organisational front

One of the main keys for success is to promote the findings of the evaluations *via* active participation in the decision processes (especially when these processes have a high negotiation content, as is the case with the FCPF). The NGOs, which have campaigned hard for biodiversity conservation mainstreaming, are clearly aware of this. At two pivotal moments – the participatory evaluation of the FCPF and the drafting of the emission reductions payment criteria – they have concentrated their action on a single agenda: to increase their participation in the decision processes by

securing the possibility for forest country NGOs to be observers on the Participants Committee and to attend Carbon Fund commercial negotiations between donors and emission reductions buyers. This points to the fact that the NGOs feel it is even more important for them to be represented in the forums where the mainstreaming of environmental concerns will ultimately play out than it is to fight for their mainstreaming as far upstream as possible in the programmes at the risk of seeing the environmental commitments sidestepped downstream at moments and in decision-making forums from which the NGOs are absent. In addition, the support that NGOs receive from certain donors, which convey their concerns in the negotiations, scales up the impact of the alarms they raise.

Another key element is the evaluation's legitimacy, without which the promotion of environmental issues would have little effect on the decision. In an environment where the main concern is to win over a maximum number of participants (forest countries and donors) and make fast progress with the process to drive forward the construction of REDD+, the hue and cry from forest countries over the process of evaluation by independent experts in the early days of the FCPF marred its subsequent potential for influence. The peer reviews (by delegates from other FCPF member states) were seen as being more legitimate. And against all expectations, the NGOs carved themselves out a choice niche in the decision-making forum thanks to the environmental and social safeguards' stakeholder consultation imperative.

The World Bank's safeguards have played a crucial role in this from both a substantive point of view (forest and environmental assessment safeguards offer optimum conditions for biodiversity mainstreaming) and a procedural point of view (obligation to consult national REDD+ process stakeholders and existence of a redress mechanism). They have given the NGOs strategic resources to voice their concerns in the negotiations and the wherewithal to play a central role in the decision processes, there where they were initially mere observers.

So by reinstating biodiversity conservation as part of the FCPF's own instrumental, negotiation and organisational principles, the NGOs and a handful of donors have managed, in this case, to curb the crowding-out of environmental concerns from an international carbon programme. Such a feat nevertheless assumes that the players promoting these concerns have the fullest possible understanding of the other players' procedures and strategies, are constantly on the ball and have significant human and financial resources.

Conclusion

Although many bodies uphold the need for effective multilateral public environmental protection policies, the analysis of the FCPF shows how hard it is to guarantee the mainstreaming of biodiversity preservation concerns in the international carbon programmes. This multilateral programme designed to mitigate climate change in the forest sector has all the characteristics of complex decision processes, coverage of multiple issues and a combination of many and varied players and types of financing, all of which mean that it inevitably calls for political, administrative and financial strategies for action. It is accompanied by bespoke tools designed to ensure the consistency and relevance of the decisions adopted. Evaluation is one of these tools, and it is ubiquitous in the FCPF. Yet it cannot alone form a springboard for this international forest-climate programme to satisfactorily mainstream biodiversity, despite its being placed high on the agenda right from the outset.

The study reveals the importance of having a few highly tactical, deeply committed players champion biodiversity conservation at each step of the process (and the evaluations). If the evaluations want to meet their goal on a stage dominated by donor-forest country interaction based on multilateral negotiations and by the World Bank's principle of organisation, they will have to come to terms with the three fronts – instrumental, negotiated and administrative – typical of the programme's implementation. It is on this condition that evaluation will become an effective tool to resist the crowding-out of biodiversity conservation issues at each of these steps.

All of these strategies illustrate the fact that environmental mainstreaming is not self-evident, that it cannot be imposed by decree (Billé, 2004). It relies on the will, stamina and resources of a handful of players and their ability to pick out the opportunities (sometimes needles in organisational haystacks) offered by certain programme design aspects such as the World Bank's safeguards. The donors, with their crucial negotiating resource in the form of their financial contribution to the existence and implementation of the development programmes, are also key players in that they can diligently promote these concerns and drive their promotion by other intermediary players in the decision and evaluation processes.

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Appendix

Table sources: author.

Table A.1 *Forest country internal evaluations for the REDD+ programmes*

Type of evaluation	Evaluator	Initial evaluation time frame	Consequences of the relaxed environmental requirements and evaluation steps concerned	Reincorporation of biodiversity conservation and evaluation steps concerned
Evaluation of the effectiveness of past and present policies	Forest countries	Before implementation grant approval	Framing phase: Dilution of requirements in an overall evaluation criterion Evaluation phase: Postponement tolerated by the experts and the Participants Committee	Framing: In a few rare cases (e.g. Panama and Ghana), the need to conduct the evaluation is a condition for grant approval, following its recommendation in the ex-ante programme assessments
Diagnosis of deforestation factors	Forest countries	Before implementation grant approval	Evaluation phase: Partial diagnosis (political factors are inadequately identified) Use of findings: Partial inclusion of the identified factors in the REDD+ strategies developed	Evaluation phase and use of findings: In a number of cases, the need to improve the diagnosis and/or align it more with the REDD+ strategy is a condition for grant approval, following its recommendation in the ex-ante programme assessments
Ex-ante environmental assessment of the REDD+ strategy	Forest countries	Before implementation grant approval	Framing: Dilution of requirements in an overall evaluation criterion Evaluation phase: postponement formally decided by the Participants Committee (to after implementation grant approval); underbudgeting by the forest country; partial framing presented	Framing: Move to adopt minimum environmental and social safeguard standards blocked by the rallying of NGO observers and certain donors Evaluation phase: Following the ex-ante programme assessments, in a number of cases, the need to re-estimate the budget is a condition for grant approval; in a few rare cases, the need to review the framing is a condition

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Type of evaluation	Evaluator	Initial evaluation time frame	Consequences of the relaxed environmental requirements and evaluation steps concerned	Reincorporation of biodiversity conservation and evaluation steps concerned
Monitoring and evaluation of non-carbon benefits generated by the REDD+ strategy	Forest countries	After implementation grant approval	Evaluation phase: Evaluation underbudgeted; poor quality tolerated by the Participants Committee in most cases	Framing: Adoption of a specific evaluation criterion in 2010
Monitoring and evaluation of carbon stocks due to the REDD+ strategy	*Forest countries*	*After implementation grant approval*		
Monitoring and evaluation of the implementation of the national REDD+ programme	Forest countries	After implementation grant approval	Evaluation phase: Evaluation underbudgeted; poor quality tolerated by the Participants Committee in most cases	Framing: Initially optional; made compulsory in 2010

Non-institutional evaluations are underlined.
The evaluations not underlined are institutional evaluations.
Evaluations in *italics* are evaluations conducted by the FCPF, but not analysed by this article.

Table A2 *FCPF evaluations of the REDD+ programmes*

Non-institutional evaluations are underlined.
The evaluations not underlined are institutional evaluations.
Evaluations in *italics* are evaluations conducted by the FCPF, but not analysed by this article.

Type of evaluation	Evaluator	Initial evaluation time frame	Consequences of the relaxed environmental requirements and evaluation steps concerned	Reincorporation of biodiversity conservation and evaluation steps concerned
Appraisal of applications	*Experts*	*Before selection into the Readiness Fund*		
Ex-ante national REDD+ programme completeness check	*World Bank*	*Before implementation grant approval*		
Ex-ante assessment of the national REDD+ programmes	Ad Hoc Technical Advisory Panel experts	Before implementation grant approval	Framing: Dilution of requirements in the assessment criteria, opacity and deferral Evaluation phase: Tacit negotiation with forest countries Use of findings: Selection of those recommendations that can claim to be conditions for grant approval	
Ex-ante assessment of the national REDD+ programmes	Peers (Participants Committee)	Before implementation grant approval	See above	Evaluation phase: In a number of cases, environmental concerns defended within the peer review team Use of findings: In a number of cases, environmental mainstreaming is a condition for grant approval

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Type of evaluation	Evaluator	Initial evaluation time frame	Consequences of the relaxed environmental requirements and evaluation steps concerned	Reincorporation of biodiversity conservation and evaluation steps concerned
Ex-ante assessment of the national REDD+ programmes	Civil society organisations and NGOs	Before implementation grant approval		Framing: Only a few concerned are targeted Use of findings: Findings promoted and conveyed to the negotiations by NGOs and some donors
Compliance with social and environmental safeguards	World Bank	Before implementation grant approval	Evaluation phase: Deferral to the implementation phase; administrative principle	Framing: Adoption of minimum safeguard standards prevented by the rallying of the NGOs and certain donors
Mid-term review	Forest countries World Bank	Mid-term		
Ex-post evaluation	Forest countries Experts	Ex post		

Table A3 *FCPF evaluations of the emission reductions programmes*

Type of evaluation	Evaluator	Initial evaluation time frame	Consequences of the relaxed environmental requirements and evaluation steps concerned	Reincorporation of biodiversity conservation and evaluation steps concerned
Ex-ante assessment of the emission reductions programmes	Carbon Fund Participants Committee	Ex ante	Framing: Payment for environmental co-benefits is rejected a priori and will be negotiated	Framing: One selection criterion concerns positive non-carbon environmental impacts

Table A4 *Evaluations of the FCPF*

The evaluations in *italics* are evaluations of the FCPF not analysed in this article

Type of evaluation	Evaluator	Initial evaluation time frame	Consequences of the relaxed environmental requirements and evaluation steps concerned	Reincorporation of biodiversity conservation and evaluation steps concerned
Mid-term participatory review of the FCPF	*Consulting firm*	*Mid-term*		
Monitoring and evaluation of FCPF implementation	*World Bank Independent Evaluation Group*	*Mid-term; ex post*		

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3.4. Accounting for biodiversity funding in official development assistance: A technical, political and organisational headache

Tiphaine LEMÉNAGER

Funding is today a key issue in biodiversity debates and action from the local level right up to the international level. As Waldron *et al.* (2013, p.1) put it, "Inadequate funding levels are a major impediment to effective global biodiversity conservation." However, the devil hides in the details of this relatively universally accepted observation. Needs and expenditure to date have to be estimated before a figure can be put to the funding shortfall, but there has so far been little work on or interest in calculating current biodiversity funding and, where there is, a whole host of methodologies and calculations are used. Yet we need to account for these funds if we are to raise the volume of available funding and the quality of its management.

This chapter takes stock of the technical challenges involved in this accounting exercise and the problems that such a process can encounter. It shows how these challenges and problems affect the biodiversity action taken (or not). We focus here on the case of public agencies providing international development aid directly involved in biodiversity loss mitigation action and financing.

Given the lack of literature on this subject, the analysis proposed here is based mainly on the author's active participation in various related think-tanks and deliberations in France and Europe from 2010 to 2014.[80] It is also based on an analysis of the documentation produced for the Convention on Biological Diversity (CBD) Conference of Parties (COP) meetings and a number of expert assessment reports and scientific papers found to be particularly informative for the analysis.

The chapter proceeds in three main stages. It first presents how the subject is addressed by governments internationally. Then it focuses more specifically on the development assistance sector's international position and related methodological debates. Thirdly, it takes an in-depth look at AFD, a key operator in French official development assistance. Following a description of the accounting tool developed

[80] In particular, the author defined and proposed an initial accounting method for AFD biodiversity funding in 2010. She then took part in applying and developing it in the organisation through to 2014. The author also attended the series of meetings of European experts held by the European Commission Presidency in 2010 to discuss and hone the response from the European Parties to the CBD to the calls made by the COP 10 in Nagoya concerning the fund-raising strategy for biodiversity. Lastly, the author co-held working meetings in France with representatives of the French foreign affairs, treasury and environment ministries and with European donors from 2011 to 2013 to share and discuss methodological proposals made by AFD.

and now in use by AFD, we analyse how a move to financially account for bilateral official development assistance commitments can become a driver for the strategic promotion of the environment. We also point out its potential adverse effects.

3.4.1. An issue struggling to make headway in multilateral international relations

Prior to 2008, the international biodiversity debates launched in the 1970s quite regularly discussed its financial aspects, but not generally in any depth. The World Heritage Convention, for example, adopted in Stockholm in 1972, simply states that each State Party to the Convention shall "take" the appropriate…financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage," (UNESCO, 1973, p. 3). In 1987, the World Commission on Environment and Development's *Our Common Future* report asked that development agencies pay more attention to the problems of species conservation (United Nations, 1987). This also led to the creation of the Global Environment Facility (GEF). Yet financial thinking remained in its infancy. In 1992, the Earth Summit in Rio defined and adopted the CBD. The developed countries that have ratified this convention undertake, in Article 20, to provide financial support to the developing countries to help them implement biodiversity measures (United Nations, 1992). Yet here again, no accounting approach is proposed to rigorously monitor these commitments. The main concern at the time was to identify and diversify financing sources (CBD, 2010*a*). The CBD's *Methodologies for Estimating Funding Needs* report published in 1994 is quite a good example of the lack of thinking and methods available to estimate the financial volumes required for biodiversity preservation, a similar subject to that of estimating funding provided or in use. None of the methods is convincing. The report does mention that this is a complex area, although it does not go into any depth or really come to terms with it (CBD, 1994, p. 2): "In examining current expenditures, only expenditures on conservation and sustainable use of biological diversity should be included. It may not always be easy, however, to distinguish between expenditures that are or those that are not concerned with biological diversity conservation and the sustainable use of biological resources." The different international meetings that followed Rio continued to stress the need to raise biodiversity funding without properly considering the practical technical problems involved. The subject of the financial flows to be included in the calculation of "biodiversity" funding had still not really got off the starting blocks by the early 2000s, or the authors that did consider it only looked at spending on the management of protected areas (James *et al.,* 1999*a* and 1999*b*; Balmford *et al.,* 2003).

It was not until 2008, and the 9th meeting of the COP to the CBD, that the subject was addressed in any real detail. The meeting produced a dedicated funding strategy defined upstream of the adoption of the second strategic CBD implementation plan for 2011-2020 (adoption slated for the COP 10 in Nagoya in 2010). This "strategy for resource mobilisation" contains eight goals,[81] the first of which explicitly sets out to improve the financial information available (CBD, 2008). This strategy has a reporting track set up to report on the state of play to each of the following COP meetings. So it was that in 2008, an official call was properly launched in the form of Goal 1 of this strategy to collect relevant scaled information on biodiversity funding.

However, it took some time for data collection to actually take off. In 2010, a review of the first strategic plan 2002-2010 for the implementation of the CBD reported disappointing environmental outcomes. It clearly singled out the lack of funding as a brake on action. Yet, as the Global Monitoring Report 2010 pointed up, no specific financial analysis was conducted due to a lack of available data (CBD, 2010*a*, p.8): "The lack of quantitative indicators in respect to funding requirements has prevented meaningful analysis of exact causes of the financial failure."

When the COP 11 meeting was held in 2012, results were still poor. The CBD's Secretariat noted that "only 14% of countries are known to have assessed funding needs and gaps in quantitative terms…, mostly in Africa and Asia, and these assessments have applied different methodologies, mostly by presenting a list of project proposals/ideas/concepts," (CBD, 2012, p.9; see Chart 2). Waldron *et al.* (2013, p.1) report that "20 years after the original Rio agreement, most countries are still unable to quantify the relative adequacy of their level of conservation finance, or use widely differing criteria and even guesswork to do so. Even baseline data on current conservation spending by country have proved difficult to collate and are highly incomplete."

[81] "1. Improve information base on funding needs, gaps and priorities; 2. Mobilize domestic financial resources for the Convention's three objectives; 3. Strengthen existing financial institutions and, promote replication and scaling-up of successful financial mechanisms and instruments; 4. Explore new and innovative financial mechanisms at all levels with a view to increasing funding to support the three objectives of the Convention; 5. Mainstream biological diversity and its associated ecosystem services in development cooperation plans and priorities including the linkage between Convention's work programmes and Millennium Developments; 6. Build capacity for resource mobilization and utilization and promote South-South cooperation as a complement to necessary North-South cooperation; 7. Enhance implementation of access and benefit-sharing initiatives and mechanisms in support of resource mobilization; 8. Enhance the global engagement for resource mobilization in support of the achievement of the Convention's three objectives."

A goal was set for 2014 to diagnose *(i)* needs, *(ii)* expenditure, and from there *(iii)* gaps (the sum of needs minus expenditure). "The baseline on the number of countries that have identified and reported funding needs, gaps and priorities for the new decade may be set at zero since the existing efforts have diminishing relevance to the year 2010.…The target can be that by 2014, all countries will have identified and reported funding needs, gaps and priorities, and this target should be renewed for 2018." (CBD, 2012, p.9).

3.4.2. More progress sooner for official development assistance

Biodiversity-related official development assistance stands out, even as a pioneer, on this particularly difficult stage for the definition and practice of government biodiversity funding accounting. This chapter looks back over how exactly this came about and the choices and debates in progress on this subject.

Prior to 1998: Trailblazers already producing figures on "biodiversity ODA"

Right from the start of discussions on biodiversity funding, ODA was identified as one of the funding vehicles to be used. By 2012, it was top of the CBD's list of nine official funding vehicles to be included in the calculation of biodiversity funding (see Box 6).

Box 6 *Nine categories identified by the CBD for the calculation of biodiversity funding*

1. Official development assistance (ODA)
2. Domestic budgets at all levels
3. Private sector
4. NGOs, foundations and academia
5. International financial institutions
6. United Nations organisations, funds and programmes
7. Non-ODA public funding
8. South-South cooperation initiatives
9. Technical cooperation

Source: CBD, 2012, p. 4.

Analysis of the ODA figures presented shows that, between 1992 and 1998, some trailblazers had already managed to produce figures on biodiversity-related ODA when no official accounting system had as yet been set up. For example, the CBD's website contains a report on a workshop held by the WWF, WRI and IUCN in Argentina in 1996, which states, "A recent comprehensive study by Birdlife International, analysing OECD and CSD data from the Organisation for Economic Cooperation and Development (OECD) and the Commission of Sustainable Development (CSD) on official development assistance (ODA), estimates that the financial needs for biodiversity conservation in developing countries amounts to about $20 billion per year, compared to current global spending on conservation of only $4.14 billion per year.…ODA for biodiversity peaked at 1.7% of total aid in 1992 and fell to 0.3% in 1994.…" [82]

However, the report did hint at the tortuous accounting path behind the presentation of these figures: "Donors have not produced their own data on a standardised basis to allow the OECD figures to be checked." [83]

It also talks about the obvious errors that the calculation generates: "These figures, bad as they are, may still in fact be overstating the amount of 'new and additional' funding for biodiversity. The report proposed that the OECD/CSD figures suffer from fatal definitional defects and should be rejected. All 'agriculture' projects, for example, are counted as 'sustainable agriculture' and the clearing of a natural forest for a eucalyptus plantation is counted under 'forestry' and thus as 'biodiversity conservation'. The COP should direct the CBD Secretariat to work with OECD and donors to devise an honest, transparent system for determining real levels of funding that support biodiversity conservation and sustainable use…, excluding activities such as plantation forestry, intensive aquaculture, monoculture agriculture, and other activities that reduce rather than protect biodiversity." [84]

A first accounting system set up by the OECD in 1998

An official biodiversity accounting approach started shaping up in 1998 in connection with improvements to the entire ODA financial monitoring system. The Development Assistance Committee (DAC) [85] began collecting more details on aid from its mem-

[82] Source: http://www.cbd.int/doc/reports/fin-baires-ws-en.pdf

[83], [84] Source: *ibid.*

[85] The OECD's DAC is a forum of the largest development assistance funders. It comprises 29 members: 28 government donors and the European Union. The DAC became part of the OECD by Ministerial Resolution on 23 July 1961. It is mandated to see new ways of operating to increase the quantity and quality of aid, in other words to improve aid effectiveness.

bers and from other donors (non-DAC countries and multilateral agencies such as the World Bank, regional development banks and UN agencies). It asked donor countries to say whether each activity they funded was in support of one or more of the three Rio conventions (biodiversity, climate change and desertification). This approach was piloted from 1998 to 2006. Notification became compulsory in 2007.[86]

The biodiversity commitment made by the CBD in Rio is broken down into three objectives: *(i)* conservation of biological diversity, *(ii)* sustainable use of its components, and *(iii)* fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. Each development project therefore has to be scored using the "biodiversity" Rio marker. A project that supports none of the three CBD objectives[87] scores 0. A project that targets one of these three objectives as a significant objective scores 1. A project that targets one of these three objectives as the principal objective scores 2.

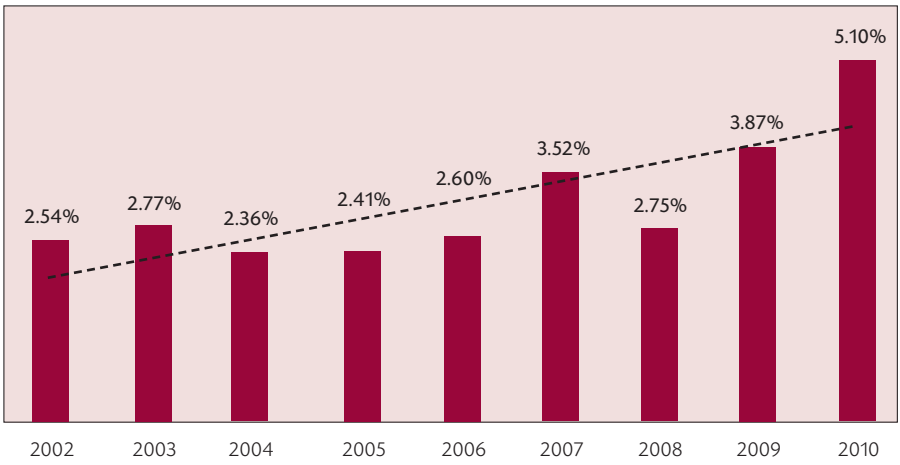
The strategy for resource mobilisation for biodiversity adopted by CBD COP 9 in 2008 further boosted this biodiversity-related development assistance monitoring approach. It is now relatively easy to access OECD figures on the annual amount of ODA spent on biodiversity worldwide. For example, the CBD presented the following figures at the COP 11 meeting held in Hyderabad in 2012: "EU Institutions and the 23 countries that are members of the Development Assistance Committee (DAC) marked USD 6.57 billion biodiversity assistance from their development cooperation data in 2010, three times higher than the same measurement (USD 1.35 billion in current price and USD 1.99 billion in 2010 price) in 2002," (CBD, 2012, p.20[88]; see Chart 2).

[86] http://www.bipindicators.net/LinkClick.aspx?fileticket=6miRvraQEas%3D&tabid=146

[87] *(i)* Conservation of biological diversity, *(ii)* sustainable use of its components, and *(iii)* fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, as cited above.

[88] http://www.cbd.int/doc/meetings/cop/cop-11/information/cop-11-inf-16-en.pdf

Chart 2 *Growth in marked biodiversity funding by DAC members*

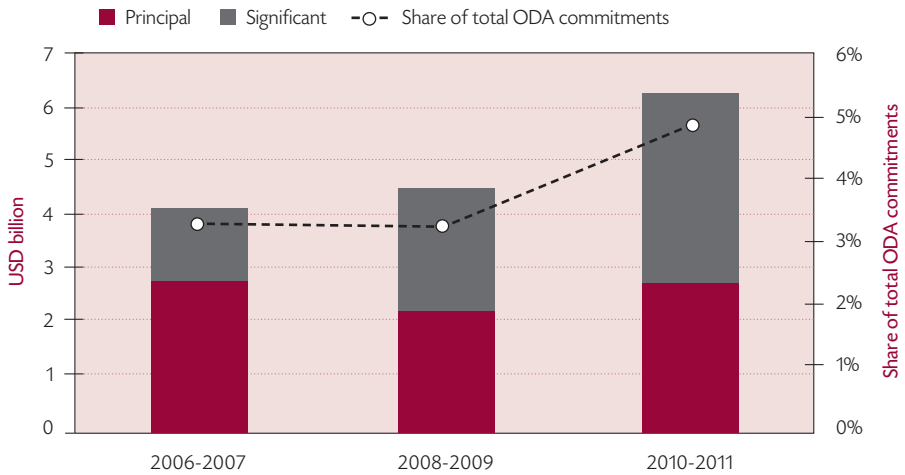


Source: CBD, 2012.

A criticised accounting system

Looking at these figures in more detail, we notice that they are obtained by adding the amounts of the development assistance activities scoring 2 on the biodiversity Rio marker (one of the three CBD objectives is the principal objective) to the amounts of those scoring 1 (one of the three objectives is a significant objective). Chart 3 produced by the DAC shows, for example, that development assistance earmarked a little over USD 6 billion for biodiversity over the 2010-2011 period. This was just short of 5% of total development assistance commitments. This sum of USD 6 billion actually breaks down into USD 3 billion declared under the Rio 2 marker ("principal" on Chart 3) and USD 3 billion declared under the Rio 1 marker ("significant" on Chart 3).

Chart 3 *Biodiversity-related bilateral development assistance*



Source: OECD DAC (2012).

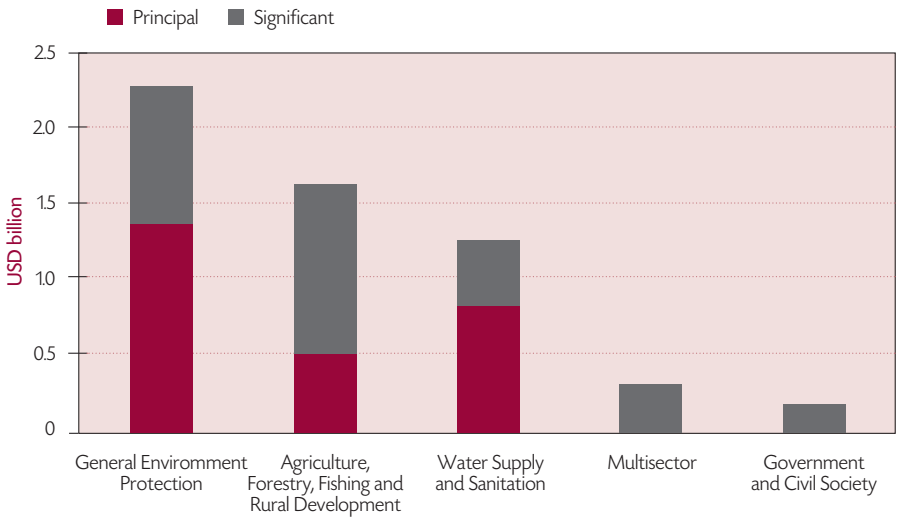
In this regard, the OECD's website states, "Data do not allow exact quantification of aid allocation or spending on biodiversity. They give an indication (best estimate) of biodiversity aid flows and describe the extent to which donors address the objectives of the CBD in their aid programme."[89]

In actual fact, these OECD figures, based on data provided by the institutions concerned, are confusing and come under criticism. And there are indeed a number of flaws in the adopted methodology. First of all, biodiversity Rio marker project scoring (0, 1 or 2) is often conducted by project managers who are not very skilled in these matters and who tend to overscore their projects, as shown in the case of AFD (Corbier-Barthaux *et al.*, 2010). The DAC therefore bases its accounting on biased scores. In addition, even if the projects were properly scored, there is a question mark over the very relevance of the definition of the Rio marker itself. For example, the OECD's website presents a list of projects to be classified as biodiversity-related (principal or significant score), including projects targeting "water rehabilitation", integrated watershed management", "sustainable agricultural and farming practices", "sustainable fishing" and "sustainable use of sensitive environmental areas for tourism."[90] Yet it has long been established that far from all "integrated" resource

[89] Source: http://www.oecd.org/dac/stats/rioconventions.htm.
[90] Source: http://www.oecd.org/dac/stats/46782010.pdf

management and "sustainable" resource management projects have positive impacts on biodiversity (Billé, 2004; Leroy *et al,* 2013). Likewise, sanitation projects do not necessarily have positive impacts on biodiversity depending on where they are sited. Yet they are included in the count today and even form a significant share of the total. A look at the map of sectors receiving what the DAC classifies as biodiversity-related funding in 2010-2011 (see Chart 4) shows that the second and third columns (from the left) actually cover agriculture, forestry, fishing and sanitation and are consequential in terms of declared funding. Here again, there is good reason to ask whether this funding can really be said to have a positive effect on biodiversity. Although these funds may well have some positive repercussions on biodiversity in certain cases, it hardly seems warranted to include them wholesale in the accounting as if they were projects entirely dedicated to CBD objectives.

Chart 4 *The five main sectors receiving 91% of biodiversity-related development assistance*



NB: The "multisector" column includes urban development, education, training and research.
Source: OECD DAC (2012).

Proposals made to overcome the limitations of the system set up by the OECD

Although the OECD's accounting system has its limitations, it is a definite step in the right direction that can now form the basis for discussion, debate, and so on. In response to this accounting method that adds up all the diversity Rio marker 1 and 2 funding, a number of development assistance operators have looked into how it might be possible to use a weighting system to paint a better picture of the actual positive impact of ODA funding on biodiversity. The European Commission, for example, has opted for 100% of funding scored 2 (i.e. whose principal objective is biodiversity-related) and just 40% of funding scored 1 (i.e. whose principal objective is not biodiversity, but which nonetheless significantly contributes to biodiversity conservation). The Germans report that they measure their projects on a case-by-case basis: they review all projects and only count the share of funding actually allocated to biodiversity. This share is then declared to the OECD under marker score 2. Consequently, they declare no funding scored 1. A certain number of exercises are underway today, with exploration and tests firmly on the agenda.

3.4.3. An innovative accounting experiment at AFD

AFD's approach forms part of this movement. We look back here over the process that built the method used today to discuss the technical considerations underlying any accounting exercise in more detail and to define how these issues may affect the action conducted by the donors in support of biodiversity.

Building a biodiversity resource indicator

The method adopted by AFD to account for its biodiversity funding was built in four main steps.

1. A starting point: the 2008 Biodiversity review

AFD's biodiversity accounting process kicked off more specifically in 2009 with the Evaluation Division's "mapping" work on AFD biodiversity funding. As biodiversity and the environment climbed AFD's agenda, due especially to the Chief Executive Officer's commitment, AFD decided to devote a position in this Evaluation Division to environmental issues. The AFD staff member who took this job was one of the most environmentally committed of the whole agency. He hence proposed producing a map of AFD's biodiversity activities. This map was the focus of an official 2009 AFD publication, which pointed the finger at the overestimation of biodiversity commitments and re-estimated them (Corbier-Barthaux *et al.*, 2010). It reviewed all

the projects funded from 1996 to 2008 and judged to have had a positive impact on biodiversity. The consultant in charge of this study retained only the funding actually involved in this positive impact for each project.

2. International momentum: France's announcement at the COP meeting in Nagoya in 2010

This first initiative had a knock-on effect on the international biodiversity negotiations. As mentioned at the beginning of this chapter, in 2008, these talks started to stress the need for figures on current biodiversity funding, needs and gaps and on the new financing sources identified. In the lead-up to the COP 10 meeting in Nagoya set for 2010 and at the request of the French Ministry of Foreign Affairs (MAE), a member of staff in charge of biodiversity projects at AFD prepared working papers on the figures published by the "biodiversity map", making corrections and improvements to them based on the biodiversity funding accounting conducted in 2009. The calculation for 2009 was therefore made in 2010 by a handful of people concerned at AFD.

France then announced at the COP 10 meeting in October 2010 that it would double its biodiversity-related official development assistance by 2012. This meant earmarking some 200 million euros for biodiversity for 2012 (as opposed to close on 100 million euros in 2009). France also announced that the share of biodiversity in official development assistance would be gradually raised to 10% (compared with 1.6% in 2009). The country then announced that biodiversity funding would be raised to 500 million euros per year as of 2014. So France plans to spend over 4 billion euros on biodiversity from 2011 to 2020, mainly *via* ODA. These political announcements came as a surprise to a number of AFD managers, who then paid more attention to the subject while contending that there was no clear, formally expressed political agreement behind them, either upstream of COP 10 or downstream of the announcement made in Nagoya.

3. The AFD Communication Department and the MAE: keen interest

Following the COP 10 meeting in Nagoya, the AFD communication team decided to improve the agency's biodiversity image. It asked the relevant AFD staff for up-to-date information. Alongside this in-house request, the MAE asked AFD to join it in attending European meetings on biodiversity accounting and financial innovation with the different CBD parties. As demand rose for information in-house and out of house, it became clear that the subject was becoming institutionalised and could no longer be treated as an ad hoc exercise. It was here to stay. The expert-based

calculations used to date had distinct disadvantages: they took time, involved a certain amount of subjectivity so that it was hard to make calculations consistent from one year to the next, and could not be easily explained by those who had not made the calculations. With the help of a colleague in the Operations Division, we therefore proposed a methodology to conduct the accounting exercise in a more standardised way. The purpose of this was to feed into European discussions while providing an admittedly imperfect, but quick and easy method to minimise the OECD system's overestimation and providing a set baseline for ease of comparisons from one year to the next. This methodology is based on a weighting system associated with the "biodiversity" Rio marker score.[91] AFD then drafted a first framework to present the chosen methodology, which is based on the following principles:

- The inclusion of 100% of funding scored 2 (biodiversity conservation is the project's principal objective).
- A systematic weighting system for projects scored 1 (biodiversity conservation is a significant objective of the project). On this subject, the framework explains that environmental performance, particularly when favourable to biodiversity, is often a desirable and explicit sub-goal of AFD sector and cross-cutting projects. Since this performance requires a special effort from donors and their partners, it often relies on a subsidy from the French government. Hence the legitimate need to account for this effort in the calculation of France's biodiversity commitments. The methodology therefore proposes that the management and creation of green urban spaces, the introduction of natural resource sustainable management methods, the reduction in pressure such as pollution on natural habitats and erosion control all be included in the calculation of French action for global biodiversity. However, AFD makes it clear that it is only the fraction of the total commitment amount responsible for the positive impact that is to be counted. To keep these accounting principles easy and user-friendly for those who are not expert in biodiversity, AFD offers a systematic weighting table for project funding scored 1 broken down by project focus with four weighting categories: 1%, 5%, 30% and 80%.
- For the projects scored 0 (none of the project objectives supports biodiversity conservation), AFD points out that some of these projects may have a biodiversity "offset" track (mining projects, dams, etc.). These projects liable to offsets have a negative overall impact on biodiversity. The "offset" track can then at best lend the project a certain impact neutrality. It was therefore decided to exclude these

[91] Note that, in keeping with the DAC's specifications, AFD project managers systematically score their projects' contributions to the "biodiversity" Rio marker either 0, 1 or 2.

projects from the biodiversity accounting. Given, moreover, that these projects with their offsets involve huge sums, even a very small percentage of the total amount would be a large figure. The biodiversity calculation could then end up looking as if it had been pumped up by projects highly criticised by the environmental sector. However, factoring in the offset track is seen as being consistent with the overall proposed approach to count all biodiversity funding without taking into account funding damaging to biodiversity elsewhere.

- The inclusion in total biodiversity expenditure, in addition to the funding for Agency projects, of AFD personnel costs for dedicated biodiversity staff and the costs of communication and research activities with an environmental focus.

This method, which ultimately defines eight funding headings for inclusion in the accounts (see below), was presented to the relevant French foreign and finance ministry representatives in 2011. These authorities received it well, seeing in it the opportunity for France to position itself as a source of inspiration and trailblazer on a scene where few proposals had been made by the different countries concerned.

4. In-house consolidation from 2012 to 2013

Political funding commitments were ramped up on the international stage in 2012. At the 11th meeting of the COP to the CBD in Hyderabad in October 2012, the parties pledged to double biodiversity-related international financial resource flows by 2015, taking average 2006-2010 funding flows as the baseline for the calculation, and to maintain this level until 2020. The French Ministry of Foreign Affairs used AFD's method to review France's situation for these international negotiations. It also used the method to improve its answers to the Monterrey questionnaire in 2013. [92]

The debate on AFD's methodology carried on more specifically in-house with the drafting and finalisation of AFD's biodiversity strategy. Biodiversity funding figures were needed for this strategy to conduct its inventory of allocated funding. In-house players hence came to the table to negotiate the method defined in 2011. The head of the division in charge of sanitation project funding felt, for example, that the contribution of these projects to biodiversity conservation was underestimated. The percentage contribution of water and sanitation projects was consequently raised from 5% to 30%. Not all of the biodiversity project managers agreed with

[92] This questionnaire follows the international Monterrey Consensus on financing for development signed in 2002. Signatory States fill it in every year to produce an accurate, detailed picture of total development funding. For more details on the Monterrey Consensus, see: http://www.un.org/french/ffd/pressrel/22apress.htm

this decision, but it was endorsed all the same. AFD's Executive Committee of top managerial staff asked for the 1% weighted funding category to be withdrawn. The (non-climate) environmental credit lines included in this category were hence incorporated into the 5% category and responsible irrigation projects, previously also assigned 1% weighting, were excluded from the accounting.

The accordingly revised methodology hence contained not eight, but seven funding headings (see Table 8). It was approved by AFD's Executive Committee in June 2013 and officially endorsed with the adoption of AFD's biodiversity strategy by its Board of Directors in September 2013. The biodiversity strategy nonetheless mentions that the accounting method may well change again between now and 2016.

Table 8 *Proposal for a standardised weighting system to calculate AFD's biodiversity commitments*

Type of activity	Subject (examples)	Percentage of funding
Marker 2 projects (Rio – Biodiversity)	Protected area (marine or land) Support for environmental NGOs Biodiversity trust fund Budget support for biodiversity	100
Marker 1 projects (Rio – Biodiversity)	Sustainable management of forests Sustainable management of fisheries REDD	80
Marker 1 projects (Rio – Biodiversity)	Agro-ecology Pastoralism-transhumance Organic fair trade sectors Wastewater treatment and IWRM	30
Marker 1 projects (Rio – Biodiversity)	Urban development with an urban biodiversity element Sustainable waste treatment – reducing waste impact Credit lines for the environment (non-climate)	5
AFD Personnel (FTE*)	Value of FTE assigned to biodiversity	100
Communication	Activities with a biodiversity aspect	50
Knowledge production	Studies focused on biodiversity	100

*FTE: full-time employment
Source: AFD, 2013.

AFD biodiversity funding

This biodiversity strategy presents the most recent AFD "biodiversity" funding figures. It reports that (AFD, 2013, p. 64) "between 2000 and 2012, AFD's spending on activities to support biodiversity totalled 758.9 million euros. This figure increased tenfold over the period, going from around 10 million euros to over 100 million euros. In 2012, spending on biodiversity activity reached 141.2 million euros. This represents 2.3% of AFD's commitments for 2012."

The strategy also presents Table 9, which sums up how the accounting approach has evolved:

- For 1996-2008, the figures correspond to the biodiversity mapping calculations made in 2008.
- For 2009, the figures correspond to the in-house expert-based calculation.
- For 2010-2012, the figures correspond to the in-house calculations made using the method endorsed by the Board of Directors in 2013, excepting the fact that the three FTE, communication and research headings were not presented for lack of data.

Table 9 *AFD biodiversity funding (€ millions and % of commitments)*

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Grants	0.00	13.27	5.30	11.30	7.40	18.50	67.54	33.17	25.90	33.62	26	9.7	38.3
Loans	9.00	8.20	0.00	9.00	0.00	0.00	17.40	0.02	89.40	49.08	91	71.6	102.9
FGEF	2.28	2.96	0.94	0.87	3.90	1.86	5.47	0.89	0.50	1.49	-		
Total	**11.28**	**24.43**	**6.24**	**21.17**	**11.30**	**20.36**	**90.41**	**34.08**	**115.80**	**84.19**	**117**	**81.3**	**141.2**
Total AFD	1,257	1,381	1,724	1,735	1,644	2,166	2,790	3,148	3,810	5,362	5,906	6,144.2	6,168.5
% of AFD commitments	**0.9**	**1.8**	**0.4**	**1.2**	**0.7**	**0.9**	**3.2**	**1**	**3**	**1.6**	**2**	**1.3**	**2.3**

Source: AFD, 2013, p. 65.

We will now look at how this method can foster more biodiversity mainstreaming by donors.

3.4.4. "Biodiversity" accounting to promote the environment

Biodiversity gains in legitimacy by working its way into the accountability process

Bear in mind that AFD is a bank under government oversight, reporting to the French Ministry for Finance. It is funded in part by public monies and it operates in keeping with policy decided upon in close liaison with the government departments concerned. It is consequently accountable for its financial commitments to both the supervisory authorities and the French public in general. Accounting exercises are therefore conducted every year to present the Agency's activities. Accounting snapshots of AFD budget use are also provided for various political reasons. MPs may require them for specific reasons or they may serve for the government to decide on AFD's annual budget. These accounting calculations present a number of breakdowns. For example, they show total annual financial commitments and the ratio of public funds used to the total volume of financing commitments (referred to as leverage of public funds). They separate out grants from loans. They also present the breakdown of funding by activity sector, and so on. AFD's very status therefore makes accounting for its annual commitments a pillar of its operations. A number of Agency staff work directly on this accountability task. The transparency goals increasingly actively embraced by AFD are placing greater demands on these activity explanation and clarification deliverables. So the incorporation of a biodiversity track into this accounting process is in itself an advance. Biodiversity comes across as less marginalised and more legitimate in everyone's eyes. It has become a focus of attention and supervision. Now that it has an accounting method, AFD has to account for it.

An instructive tool

The tool building process teamed up different stakeholders who had to compare their views on biodiversity. The weighting choices made forced both the institution and its administrative authorities to address development aid from a biodiversity angle. Even neighbouring European countries eventually took an interest in the exercise as inspiration for their own, and in some cases as yet non-existent, approaches. The move from word to the actual deed of making a weighting choice called for an explanation and justification exercise that was in itself instructive in view of the few references the players had on the matter. Work on defining the method set up a common language in relation to the notion of biodiversity.

In addition to the educational gains of building the model, lessons can also be learnt from its use. This purpose was clearly demonstrated by AFD and its administrative authorities in their decision to opt for this more detailed, and hence more educational, method even though when it was adopted it produced lower funding volumes than the European method (which includes 100% of Rio marker 2 funding and 40% of Rio marker 1 funding).

AFD's annual biodiversity training course for some 30 staff in-house will probably now include an explanation of this method. This will provide an opportunity for discussion and experience sharing. Project managers will also all be instructed to choose weighting for the projects they appraise. The greater accuracy of the weighting compared with the Rio marker will narrow the margin for error and help project managers identify how much their projects are contributing to biodiversity.

Strategic leverage

In addition to the rather formal process of accountability, this tool can also be used as a pressure and lobbying instrument by players seeking to scale up AFD's biodiversity commitment. This method was officially presented to AFD biodiversity players during discussion of AFD's biodiversity strategy in September 2013. Although these players did not approve of all the weighting levels chosen, they did commend the Agency's work and expressed where they saw a use for the approach. The accounting figures produced are and will continue to be systematically presented out of house to give NGOs, public authorities and the general public information to hand that they can use to discuss and debate with the Agency. The figures presented will also be able to be compared with the international commitments made by France and the Parties to the CBD. Players could ask AFD to do more, with figures in support. Staff promoting biodiversity within AFD could also use the information and defend their portfolio of activities to ensure that AFD has the support of its players.

The method used today is tried, tested and improved. It can play a positive role in biodiversity, as we have just shown. Yet the tool itself is still an indicator that, like all indicators, has its limitations. A biodiversity commitment, by definition, cannot be accurately quantified. A mere indicator cannot be expected to report perfectly on such a complex subject as biodiversity. In this way, all accounting methods are imperfect. So it is important to identify the potential adverse effects of using this tool.

3.4.5. The potential adverse effects of the "biodiversity" accounting method

An end to protected areas?

A first point to consider is the difference in average sums spent by Rio 2 and Rio 1 project type. Biodiversity projects are generally complicated set-ups with a long appraisal timeframe due to various factors (partner status, political will on all sides, more or less conducive local context, etc.), all for relatively low levels of financial commitment: it is rare for a "protected area" project to be allocated any more than 8-10 million euros. This type of project does not generally include any large-scale infrastructure calling for a large financial investment. It makes a few investments in tourism, equipment and so on. Moreover, the team in charge of these projects is so small that there is rarely ever more than one protected area project underway in any given year. In fact, it can take several years for a project to actually be signed. These projects therefore count for little in the biodiversity accounting, even though 100% of their funding is entered. However, a sanitation project that is quicker to appraise and averages at tens of millions of euros (if not 100 million euros) will have much more weight in the calculation despite the fact that only 30% of its funds are counted in.

As it stands, the method does not properly value the projects designed to improve a biodiversity sector. If AFD were to engage in a battle for numbers in the future, it could lead the Agency to withdraw from the protected areas. Although less obvious than with the OECD method, the current method continues to place much more value on projects designed to reduce pollution and mitigate the negative impacts of the productive sectors. Is this a problem? Yes, because we cannot hope to improve the state of biodiversity if we do not use the two approaches together: funding "biodiversity" projects in sectors potentially damaging to biodiversity and funding projects as ambitious as we can make them in a dedicated biodiversity sector. Since it is the very existence and action (direct and indirect) of a strong, institutionalised biodiversity sector (with its own players, training, legislation, dedicated tools, etc.) that will gradually drive damaging productive sectors to reduce their impacts on biodiversity.

AFD's biodiversity funding still seems low (approximately 2% of AFD's total commitments). The first question then is whether this funding will be increased in keeping with the 10% commitment announced by the French Minister of State for Ecology in Nagoya in 2010 and in accordance with the commitments to double funding in Hyderabad in 2012. Secondly, in view of the above, it is uncertain whether this funding will really drive a new environmental deal. If the idea behind biodiversity

accounting is to progress in a relative way, we still need to make sure this compass is steering us in the right direction. One way to ensure the overall quality of the biodiversity portfolio would be to downwardly revise the Rio marker 1 project weightings or define annual quantitative targets (financial volume or percentage of the biodiversity portfolio) for projects whose principal objective is biodiversity (Rio 2 project).

What about harmful funding?

A second point to think about is that only positive biodiversity resources are counted in this method. What happens with the funding that deteriorates biodiversity? In 2012, biodiversity commitments represented just 2% of AFD's commitments. What does this mean? What percentage of the other 98% is damaging to biodiversity? We do not have the information to answer these questions today. Yet the concept of funding harmful to biodiversity is on the increase. It is a key element of the strategic plan adopted in Nagoya, which states that "by 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts…" (Aichi Target 3; CBD, 2010*b*, p. 8). The report on biodiversity-damaging official aid drafted by the Centre d'Analyse Stratégique (CAS) in France in 2011 at the Prime Minister's request emphasises that, "given the wealth and fragility of ecosystems in the recipient countries of a large proportion of ODA, it is possible and even probable that one and the same euro of damaging public spending will have more negative impacts in these countries than in mainland France," (CAS, 2011, p. 12). It goes on to say about subsidies damaging to biodiversity that "particular attention should be paid to official development assistance (ODA) and especially to funding from AFD," (*ibid.*, p. 28).

When the means say little about the ends

One last point is that this accounting in terms of resources defines but very loosely the real outcomes of the action in support of biodiversity. When looked at in detail, a protected area project (scoring 2 on the biodiversity Rio marker), for example, might also be a source of environmental disruption. Such is the case when a road for tourists is built in a park, even if the idea is to make the park more economically attractive and consequently more sustainable. Yet in addition to this problem, the means allocated in no way stand alone as evidence of a project's end results. A small amount of funding may in itself have very good outcomes for the environment. Imagine a subsidy of a few million euros granted to a highly efficient NGO. This project could have much more positive impacts on biodiversity than a sustainable forest management project where, even after years, the operator granted a loan has still not implemented its sustainable management plan. A means indicator should therefore never be confused with a results indicator.

Conclusion

Accounting for biodiversity funding is in itself a necessity if we are to raise funding and the quality of its management. We have shown here that this issue has emerged late in the day and that donors appear to be the players that have made the most progress with it to date. Nevertheless, there is no silver bullet here. Eagerly awaited on the international scene, the figures circulating today and in the foreseeable future can be no more than approximate and debatable. Yet talking about biodiversity in terms of money and financial volumes enables it to exist as a cost centre and therefore a centre of interest. For donors, adoption of an accounting method amounts in a way to getting an extra compass and improving their discussion and strategic planning tools in an environment ruled over by the transparency obligation. This inexpensive approach hence comes as an addition to the box of tools that all the organisation's internal and external players can use to launch a new environmental deal. The main thing is to see it not as a search for a definitive, indisputable methodology, but to take it knowing its limitations and use it as additional strategic leverage to steer the implicit tension between development and environmental conservation (Leménager *et al.,* 2012) towards truly sustainable development.

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Conclusion

Analysing and managing the political and organisational challenges of the environmental turning point for official development assistance

Conclusion

Analysing and managing the political and organisational challenges of the environmental turning point for official development assistance

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Governments and the international community now have a good understanding of biodiversity loss, its impacts and the need to take action to curb it. Legislative frameworks and human and financial resources have been put in place to take action at all organisational levels from local to international. However, there is nothing to say whether these measures will stop – or even put a sharp brake on – biodiversity loss. The challenge is no longer to identify and pinpoint the problem, to understand its causes and repercussions or even to decide in principle that action is needed to solve it. What we now need is to take work to the next level, clearly steer the activity sectors responsible for the most biodiversity loss in a new direction, and address the complexity and multitude of small and large changes required no longer in word, but now in deed at all geographic and organisation levels. We need to raise the game from an approach that "acts in support of biodiversity" to one that "makes the decisive changes required to conserve and restore biodiversity." It is this ambitious step change with its much-needed – and sometimes massive – changes of course that we have summed up here under the name of the "environmental turning point".

This turning point concerns all players whose activities directly or indirectly affect or are affected by biodiversity. The official development assistance funding agencies are among them. They form one of the links in the chain of development players and hence play a specific role. Certain aspects of development (in agriculture, water, forestry, fisheries, etc.) need a sharp change of course to conserve and restore biodiversity, and these agencies are necessarily concerned by and have a stake in the highly concrete and often huge amount of work needed to change. Moreover,

when administrations seek intermediaries to conduct a specific biodiversity action, it is logical that they should call on these agencies in particular. They are among the only public operators established internationally there where the future of biodiversity is playing out and with the resources required to take action at such levels (financial, organisational, relational, technical expertise, etc.). Tiphaine Leménager (Chapter 3.4) reports, for example, that AFD, a key French development assistance operator, accounts for a large and growing proportion of French biodiversity funding worldwide.

Yet as development aid agencies advance down the road of biodiversity action, they are coming up against a number of problems. These agencies, working in close interaction with all the networks of players in the different environmentally damaging development sectors, are not plugged into the grassroots level. They have some influence, but remain highly dependent on the capacity of their many partners to launch and drive biodiversity change in their own sectors. More specifically, development aid agencies face all the usual problems involved in action to support dedicated biodiversity action programmes, from finding resources for a low income-generating sector to the tensions resulting from these programmes' potential conflicts with other types of development action. Like the other public and private development players, although official development assistance organisations clearly state the need and intention to take ambitious action for the environment, their action remains somewhat up in the air, stuck midstream as to the scale, nature and feasibility of the changes needed to really stop biodiversity loss.

The question raised when you are stuck midstream is how to bring about more decisive change, despite the hesitation felt by those who have already made a great deal of progress without managing to obtain irrefutable results, despite the problems, reluctance and differences of opinion and strategy that have created a log jam at the entrance to a heralded environmental turning point that may have started, but has not yet happened and, from many points of view, has not yet really picked up steam. We feel that the many debates on this subject tend to focus on the direction in which to steer action in general, nationally and internationally, as shown by the three following questions:

- What commitments have been made and/or should be made by governments and development aid organisations? This concerns, for example, the commitments made at the meeting of the Conference of the Parties to the CBD in Nagoya in 2010 and the development aid funding agencies' commitments mentioned in the introduction to this book.

- Which new doctrines should be adopted to steer environmental action and tie it in with development issues? This concerns, for example, "sustainable forest management" and "agroecology" as examined in chapters 1.4 and 1.5 of this book.
- What new replicable, scalable tools could operators use for more effective action? This concerns the place in the current biodiversity debates of tools such as ecosystem service valuation and payments for ecosystem services addressed in chapters 3.1 and 2.3 of this book, and also the participation of local populations in conservation actions.

As important as these questions of intentions and directions may be, we feel it crucial, as in any situation of difficult changes to be made, to round them out with a detailed study of the concrete dynamics for change. This raises questions such as to what extent are the commitments met? How are they turned into action? How do they stand up, in real terms and on the ground, in the face of other priorities? To what extent and on what terms are those doctrines presented as innovative able or not to drive real, extensive change on the ground? To what extent are the tools actually used? Does their innovative principle translate into real effectiveness? Are they really replicable, or have they only proved their worth in certain cases? And so on.

The answer to these questions, alone able to shed light on the change underway or to come, is found not so much in the debates of intention and principle as in an observation of the commitments, doctrines and tools in action. This means training the spotlight on the concrete implementation of action. This is precisely the strategy of the research presented in the thirteen chapters of this book focusing more especially on the analysis of the role of official development assistance funding agencies in biodiversity. By painting a picture of the contexts, players, strategies and real problems involved in biodiversity action, they put a finger on the decisive tensions underlying biodiversity action today, on the tug of war that needs to be considered if we are to make clearer headway with the environmental turning point.

The cross-cutting research discussed here identifies four lessons, summed up here and developed below.

1. The balance between development and biodiversity conservation cannot be reduced to either pure antagonism or generalised synergies. It evolves in a tension whose concrete conditions (and hence possible treatment) are complex and highly variable.

2. Action by public development aid operators is a balance between global policy set at a general level (by a country or group of countries) and implementation highly dependent on the many and varied contingent conditions of the different terrains. As with all action taken by development aid agencies, biodiversity action must be based on grassroots realities.
3. Consequently, the player or players who take concrete action to defend biodiversity on the ground against the forces and contingencies that would brush them aside play a decisive role and form a key aspect of any strategy defined in support of biodiversity.
4. Internal organisational concerns have a major influence on the type and scale of environmental actions taken by any large organisation and especially, with respect to this study, official development assistance organisations whose structures, dynamics and specific organisational concerns it is important to analyse.

Between development action and biodiversity conservation: a multitude of configurations between antagonism and synergy

Debates on the environment (especially biodiversity) have been striving for over thirty years to place the relationship between the environment and development in a universally applicable synergy. These attempts have given rise to various broad concepts such as "eco-development", "sustainable development" and "integrated conservation". Yet this work remains ambiguous in both its purpose and its effects. Admittedly, it would be absurd not to seek and develop synergies between development and biodiversity conservation in areas, places and at times where they actually exist (or can really be built). Yet to turn synergies into a be-all-and-end-all is to deny the irreducible dilemmas and choices involved in a large number of situations where biodiversity conservation meets development.

For example, the research conducted by Maya Leroy and her colleagues (Chapter 1.4) shows that the "sustainable forest management" doctrine [93] supposed to guarantee both the economic development of forestry sectors and forest biodiversity conservation actually skirts round the key forest biodiversity conservation concerns, which are ultimately addressed but marginally so by self-styled "sustainable forest management" actions. Similarly, the research by Véra Ehrenstein [94] on the practice of

[93] See also Leroy *et al.*, 2013.
[94] See also Ehrenstein and Leménager, 2014.

agroecology in Zambia presents a detailed picture of the limitations of a display of arbitrarily defined synergistic integration between development and the environment (here between agricultural development, rural ecology and biodiversity). "Agroecology" is just as ambiguous as "sustainable forest management" when it comes to the actual place given to environmental concerns. Which environmental benefits are really targeted? Which are not? Where are the nature and level of ambition of the ecological objectives discussed? The field study of implementation (here in Zambia) finds two more factors that further impede the positive impacts of this doctrine devised as an integrated grassroots approach to development and biodiversity conservation. The first concerns its lack of currency (although it receives top billing in agricultural development aid, agroecology is actually very much in the minority compared with support for the highly environmentally damaging intensive maize cropping, which is the mainstay of the Zambian government's agricultural policy). The second factor concerns the players who participate in the agroecology support programmes – who redefine the programmes' technical methods and goals to suit their own purposes – and the realities and contingencies on the ground all working against the environmental objectives.

All things considered, the positions, reasoning, recommendations and methods for action based solely on assumed a priori synergies between development and the environment sidestep, and hence cloud, the dilemmas and choices made (or to be made). They disorientate the diagnosis and the action taken, and play a major role in the current problems preventing the environmental turning point from getting properly underway. These positions also put a brake on the implementation of possible synergies, as they require the necessary choices to be addressed at the same time. A local experience reported by the Zambian research gives a good counter-example of this. An NGO and a development aid funding agency finance a sustainable farming project for farmers living around a protected area with the dual aim of reducing human vs. wildlife conflicts and hence pressure on the protected area and improving food security and residents' income. This example reveals a clear choice in favour of biodiversity in part of the space (the protected area), a clear choice in favour of agricultural development in another part of the space, and also an effort to find synergies (in the choice of the most environmentally friendly production techniques and in the differential allocation of the space). It displays a good grasp of both choices and synergies: a crucial step in the implementation of any development strategy effectively serving to support biodiversity.

The example also points up the more general observation that a public development aid organisation's biodiversity actions cover an entire series of clearly differentiated activities:

- Funding for dedicated biodiversity projects such as the creation and management of a protected area, restoration of an ecosystem and support for gaining biodiversity knowledge.
- Funding for development projects, which comprise agricultural, forestry, fishery and other such production, but are more biodiversity friendly than if they were to promote "classic" techniques. Examples are agroforestry production projects and support for certified fishery production systems.
- Limitation of the negative impacts of the donor's portfolio of funding activities on biodiversity using a system of environmental and social safeguards. Here, there is no reorientation of development, but the maximum possible limitation of its operational impacts.
- Exclusion of projects when their negative impacts are structurally too high. This is, for example, what AFD did with atmospheric pollution when it decided to stop funding coal-fired power plant projects. The Agency's biodiversity position may well be less definite, but is all the same present in the form of the establishment's official blacklist concerning biodiversity in its points 3, 4 and 5.[95]

These activities are different: they concern various professional sectors and call for distinct skills and expertise. They are also based on a different balance between the environment and development: *(i)* separate actions, *(ii)* actions where the environment changes the content of development, *(iii)* actions that mainstream the environment into development, and *(iv)* the exclusion of certain development actions. There are obviously bridges and combinations to be found between them. Yet in view of the haziness and controversies on the ground and in the literature, we believe that the main thing is to clearly acknowledge that they each have their legitimacy, their place and their role to play in the activity of an official development assistance funding agency. In other words, the design and implementation of a realistic biodiversity strategy calls for a clear understanding that such a strategy can only come from a differentiated portfolio of projects and programmes (dedicated, integrated production innovations and limitation of negative impacts) and their necessarily differentiated support resources. Although this is already often the case, it is not a given. Under (especially financial) constraints, development agencies often put this differentiation back on the debating table particularly when trying to smooth

[95] See http://www.afd.fr/webdav/site/afd/shared/RSE/AFD%20-%20RSO%20-%20Liste%20d%27exclusion.pdf. With respect to biodiversity, AFD excludes from its funding: "3. Trade in animals or plants or any natural product that does not respect the measures of the CITES; 4. Fishing activities using a drift net that is more than 2.5km long; 5. Any operation that leads to or requires the destruction of critical habitat, and any forestry project that does not implement a sustainable development and management plan."

over the antagonism that can arise between them and looking at synergies to be developed. This can sometimes create confusion between the first two categories at the eventual risk of weakening biodiversity action.

Another important upshot of the tensions between development and the environment (i.e. due to the fact that their relationship cannot be reduced to a single synergy or type of antagonism, but has to be addressed in a tension that differs with the situations and intentions) is found in the coexistence of contradictory rhetoric and perspectives on the environment-development balance. Although some of these lines claim (and have long claimed) to be new (such as the participation of local populations and environment-development integration) and try to pass the others off as being old, we have found that they make for a relatively stable division of the arena for discussion of the environmental strategies to be conducted. The research by Aurélie Ahmim-Richard [96] (Chapter 1.1) on this subject identifies four main positions in the space of tension between prioritising development or the environment. The authors refer to the position dominating the current official development assistance landscape as "the integrated environment". This position corresponds to the idea that development action is the priority, that we need to do the best we can to find synergies between the environment and development, take precautionary steps to prevent unnecessary impacts and, when choices still have to be made, find compromises that partially address the environment. Another position that can be summed up as "the environment: a priority" refers to the line taken by organisations and staff working for these organisations who see the environment as a key area for innovation and call for changes to development action without questioning the actual principle of this action. Other players take things further, even to the point of challenging development and seeking "radical reform" in the environment. Conversely, a fourth position in the development field remains active and influential as much in the literature (e.g. *Le ciel ne va pas nous tomber sur la tête*, edited by Brunel and Pitte and published in 2010) as in interviews with development aid operators. This position holds that we are already too taken up with the environment and should sharply cut back on work in this area. Once these conflicting fundamental positions have been clearly defined, it becomes much easier to pick a path through the recurrent and often tangled debates in which they constantly clash despite changes in terminology. One of the most important findings of the interviews conducted by the research presented here is that these positions are not confined to the literature and academic debate, but are also found among development operators. Staff working for official development assistance organisation AFD clearly display all four

[96] See also Ahmim-Richard, 2010, and Leménager *et al*., 2012.

positions, depending on the staff member interviewed. Even recently, a number of AFD staff were asked to answer the following question at a meeting: what proportion of AFD's activities can be defined as sustainable? Some felt that the answer was 100% of the portfolio, while others believed that not one single project could justifiably or categorically be called sustainable. Divides persist under the surface of the institution's official position, even if they are not always actively or openly discussed. There is nothing shocking or unusual about this. We believe these divides to be inherent in the tension between the environment and development, and the staff's different positions form something of a resource in the differential management of this tension (by issues, terrains, projects and partners).

In addition to these differences of opinion over the level of environmental ambition to pursue and trade-offs and balances between the environment and development, disagreement can also be found between the different environmental issues. Ever since Bennett's now-old book on environmental dilemmas (1992), it has been clear that some of the difficult choices to be made are between divergent environmental concerns. Research by Karine Belna (Chapter 3.3) on the Forest Carbon Partnership Facility (FCPF),[97] which funds forest policy measures, shows the major problem raised by the concern to ensure that deforestation abatement mechanisms in climate change action do not exacerbate biodiversity loss (e.g. by fostering low-biodiversity tree plantations that, supported by carbon finance, end up replacing natural forests or high-biodiversity non-forest habitats). So tensions between competing environmental concerns also keep coming up as an issue when considering mainstreaming the environment into development action.

To wind up on this first conclusion drawn by the studies presented here, it is unrealistic to hope to dispel the tensions between the environment and development with a single general decision, doctrine or set of tools defined *a priori*. A diagnosis is needed in each case, for each site, problem and type of project to clarify possible synergies and dilemmas so that synergies can be developed realistically without skirting round the choices that need to be made.

Close dependence on the intervention terrains

It is especially important to put the general biodiversity policy choices, doctrines and instruments in perspective in that action by official development assistance organi sations is highly dependent on the constraints, contingencies and diversity of the

[97] See also Belna, 2014, and Belna *et al.*, 2012.

terrains. This is the case for all organisations working internationally on biodiversity. Biodiversity is dictated precisely by the site's ecological, geographic, social, economic, cultural and other diversity. Taking suitable biodiversity action is about understanding and addressing the particularities of the place and the social, economic and ecological situation in each case. So the suitability of the action, its goals and its forms to the terrain is always an important consideration in biodiversity. The official development assistance organisations also have other important particularities to consider in addition to this general picture. First of all, since their intervention is essentially financial, they do not work directly on a project and their action is actually that of the project managers they financially support. The development aid agencies' possibilities for action and the type of action they can support depend on these project managers. In addition, development aid agencies, whether bilateral or multilateral, work in sovereign countries in keeping with their national public policies. The development donor's intervention is conditioned by the approval and active support of these countries. This makes them highly dependent on the terrains' different contexts and on powerful, legitimate players – a factor to always bear in mind when considering public development aid organisations' environmental strategies.

Although development aid can wield a great deal of influence in biodiversity matters by means of its financial and technical leverage, this is only possible if project managers are willing and recipient governments agree. It comes into play as part of a negotiation, not with a unilateral capacity for action. In the research presented here, these particularities are regularly pointed out as a major element, supporting or impeding the implementation of the development aid agencies' biodiversity intentions. The research by Damien Krichewsky on the implementation of an environmental credit line in Egypt[98] (Chapter 2.2) shows that elements in the Egyptian context were decisive to the efficient implementation of this financial tool (to fund the modernisation of industrial installations to reduce pollution) and the achievement of its environmental goals. On one side, it was driven by the Egyptian government's definition of environmental regulations (actively assisted by the development donors and especially the World Bank) and its resolute implementation of pollution regulations (increasingly stiff fines and threats of closure giving companies a strong incentive to use the financial tool). On the other side, it was driven by the environmental credit line implementation mechanism set up to give a technical project management team an important role. This team, embedded in the Egyptian Environmental Affairs Agency, played a crucial role in making the technical content of the

[98] See also Krichewsky and Leménager, 2014.

funded projects environmentally responsive. It also played a key role in the credit line's environmental effectiveness. This field example illustrates and highlights the fact that the effectiveness of the economic and financial tools used is not guaranteed by their working principle or the level of resources committed, but depends decisively on their relevance (or not) to each concrete problem/situation, on their combination (virtually always necessary in practice) with other very different tools, and on the details of the organisation and execution of their implementation. These three conditions are obviously highly dependent on each terrain.

Raphaël Billé's chapter on the triage impasse (Chapter 3.2) presents a sort of *reductio ad absurdum* of this. The principle of triage is the idea that biodiversity action should be rationalised and based on a preset, general, objective, scientific priority ranking. The way the defenders of this approach see it, it is as if biodiversity action were conducted by a decision-maker on high able to orchestrate biodiversity interventions (better than today), choose their objectives and allocate their resources. Yet this view disregards that each biodiversity project is presented and resolved (or fails to find a solution) in the specific context of a place and a situation (geographic, social and political), doubtless in association with other organisational and decision-making levels, but certainly not at the bidding of an enlightened privileged few. The chapter's author tells, for example, how triage's promoters have criticised the huge effort made in the United States to save the condor and how they consider that the same resources would have been better spent elsewhere on other biodiversity issues. Yet the author asks whether the people and organisations that funded saving the condor would have financed an action programme for another issue elsewhere decided on by a hypothetical central scientific committee. And as regards the huge amount of work that went into the public awareness campaign and local political negotiations to save the condor, who would have done the work and how for these other problems? And with what guarantee of success? Any line of thinking on biodiversity action focuses and tools that is not plugged into constraints and resources on the ground will lead to a dead end for action. This is especially true for the official development assistance agencies, which are highly dependent on what is happening on the ground.

Turning to the current and extremely active thinking on economic tools for biodiversity, we feel it important to train the focus now not so much on the theoretical economic arguments underlying the different types of tools, but on the conditions for the relevance and effectiveness of these tools in actual biodiversity management situations. Laurent Mermet's research on this subject[99] (Chapter 2.4) therefore

[99] See also Mermet *et al.*, 2014.

reviews the problems with the use of these economic tools for biodiversity in practice and puts forward a set of conceptual frameworks to correctly position the considerations surrounding their use on the ground and forge diagnoses of the implementation situations depending on the terrain. By way of an example, Chapter 2.4 shows how one of the conceptual frameworks used (Boltanski and Thévenot's theory of justification, 1991) sheds much-needed light on the controversies over values that are having such a major impact on the implementation of biodiversity action on the ground and, with particular intensity and implications, on the use of economic tools. This chapter hence illustrates what we see as one of the implications of the dependence of biodiversity action on the terrain: the need to develop and disseminate methods to analyse situations on the ground designed to prepare and flank biodiversity interventions.

In addition to the questions of method for analysis and diagnosis of biodiversity action situations, we also feel that a public development aid agency such as AFD, where it currently stands in its development of its biodiversity action, could find it useful to conduct diagnoses of biodiversity action contexts and challenges by territory to steer the course of its action upstream of its projects (country diagnosis or diagnoses on intervention territories, where appropriate).

Lastly, over and above the development of analytic capabilities, the fact that biodiversity-related development aid interventions are highly dependent on the terrain means that particular attention has to be paid to the organisational aspects of the intervention. We therefore focus the last two sections of this conclusion on two organisational concerns whose importance is highlighted by the studies contained in this book: the importance of the player or players promoting the environmental concerns and the importance of the public development aid organisations' internal organisational concerns.

The key role of the players defending biodiversity concerns against other players and concerns

To take the first of the two points made above, the effectiveness of biodiversity action plays out in an arena of tensions between the environment and development, between the public development aid organisations' general policy and dependence on the terrain. These tensions are complex and specific to each case. They have to be addressed strategically in a constantly negotiated decision process if they are to be handled with environmental efficiency.

Where a concern hinges on a complex and uncertain series of negotiations, knowing who is defending this concern against the other negotiating players and

the other concerns defended in these negotiations is key to understanding and taking action. Who is/are the player(s) for whom the promotion of this concern is the central stake in the negotiations? How are these players organised? What means do they have? Where are they placed on the playing field? What are or might be their strategies? And so on. If we lose sight of these questions, we risk losing sight in our analysis and our action of concerns that, if undefended or inadequately defended, will most likely fall by the wayside.

Biodiversity is just such a case in point. Any realistic biodiversity strategy calls for particular attention to be paid (in both analysis and action) to those players who make biodiversity their central concern on the many stages where the environment and development play out. To be more specific, we should spotlight those players who would not of their own will subordinate their biodiversity concern to another concern, who speak out for biodiversity in negotiations, and who organise their action in such a way as to give it the best possible chance of effectively being taken up in the outcomes of the bargaining and negotiations that shape development action.

A first example of this is given here by Karine Belna's research (Chapter 3.3) into biodiversity mainstreaming in the implementation of the FCPF, a fund that finances forest policy measures.[100] This mechanism is designed mainly for climate change action, but has also been assigned biodiversity goals in an entirely logical move considering how vitally important deforestation mitigation and forest policy are to biodiversity. The fund's implementation is supervised by a Participants Committee, a multilateral body made up mainly of the representatives of countries taking part in the mechanism. It is administered by the World Bank, which provides the committee's secretariat and manages the financial support decided on by the committee. Yet a detailed analysis of the way this system works shows that there are considerable forces pushing for the circumvention of these biodiversity issues and commitments at each step of the way (e.g. for laxer biodiversity criteria and for approval for inadequate studies and action programmes with highly negative impacts on biodiversity). If the FCPF's workings do not totally crowd out biodiversity or water it down past all recognition, it is only because a few specialised biodiversity defenders (mainly international NGOs in this case) negotiate with grim determination at each stage, in each meeting, for each study and for each evaluation to ensure that the biodiversity commitments are actually addressed, often with great difficulty and not fully. An examination of the situations they face and the expertise and strategies they use again gauges the tension in relations between biodiversity conservation and other

[100] See also Belna, 2014, and Belna *et al.*, 2012.

environmental and development considerations as well as the disconnect between international intentions and national action programmes in practice. If we are to prevent biodiversity from simply falling by the wayside, we need to have dedicated players with adequate capabilities working at all geographic levels and stages of the design and implementation of action.

This same need is echoed in the research conducted by Delphine King and her colleagues on complementarity between protected areas in Kenya (Chapter 2.1).[101] It focuses more specifically on complementarity between the three types of protected area (public, private and community) that form the main tools for the protection of natural habitats, especially in Southern countries. Traditionally, these different tools jostle for position in controversies where each argues that it is best based solely on a blinkered view of its own advantages. In a break with these repeated clashes, this grassroots research shows just how far and where these tools are complementary, since none can replace the others and each one underpins the implementation of the others. Yet the main role in this complementarity is played by the respective strengths and weaknesses of the players managing these tools (e.g. the communities' local social legitimacy and the flexibility of their action on the ground are complementary to the State's longevity and its ability to define and enforce rules to prevent such practices as poaching and illegal land use). You could say that the strengths and weaknesses that we are so quick to ascribe the tools are actually the strengths and weaknesses of the players using them. Another important point turned up by this research is the fact that the effectiveness of biodiversity conservation in Kenya relies on the existence and strength of biodiversity conservation as a fully-fledged activity sector. Conservation project players each play a key role in themselves and, as with the other areas of official development assistance agency intervention, their involvement in an organised public policy sector, here biodiversity conservation, helps clarify their profile and builds their capacity to form efficient partners and team members for the agencies.

The key role of biodiversity defenders can also be seen from the research by Yann Laurans and his team on payments for ecosystem services (Chapter 2.2).[102] In the economic literature, environmental service payers are users of these services (e.g. water consumers who benefit from the capacity of a wetland for water treatment or limiting the risk of flooding) who decide, because it is in their interest, to pay other players through whom these services are "provided" (in our example, farmers

[101] See also Eliott *et al.*, 2014, and Leménager *et al.*, 2014.

[102] See also Laurans *et al.*, 2011.

applying extensive production systems as guardians of the two environmental services mentioned). However, many case studies in the literature and made by this research show that the situation is far from as simple and straightforward as that. Payers are not always the service users. They may, for example, be public administrations or third parties interested in conserving the ecosystem that produces the environmental services without actually using these services. Elsewhere, aside from in a handful of cases, the buyer of the environmental services is always an organisation commissioned by the end clients (users or not) to manage their interest in the conservation (or restoration) of the ecosystem concerned: a water board, an environmental NGO, etc. Payments for environmental services consist of paying for an environmental concern and this concern is promoted by an organisation (or coalition) that is dedicated to managing the concern in the operation (and the payment that will operationalise it). Yet the story does not end here. The same case studies show that, far from being a direct transaction between environmental service "buyer" and "supplier", intermediaries nearly always play an extremely important role in setting up the PES system. Here again, these are generally players specialised in biodiversity action (or, more broadly, the environment).

These three studies confirm that if dedicated biodiversity tools (here deforestation mitigation funds, protected areas and PES) are to be biodiversity effective, they have to be implemented by players who are both clearly focused on obtaining tangible biodiversity results and have suitable resources (human, organisational, financial, expertise, etc.) to do so. The critical analysis of "sustainable forest management" by Maya Leroy and her team (Chapter 1.4) [103] adds to the demonstration by showing what happens when such dedicated players are too thin on the ground or do not have enough influence. This research shows that the sustainable forest management doctrine has been designed and promoted mainly by forestry sector operators. When the analysis dissects the principles, recommendations and proposals for implementation put forward by the literature that promotes sustainable forest management, it finds that conservation concerns come down mainly to maintaining forest cover and the sustainability of forest harvesting resources – which are the forestry sector's traditional concerns. Conversely, many vital biodiversity concerns (such as fauna, old-growth forests, and complementarities between protected forest areas and harvested forests) are sidestepped for the most part when they are supposed to be core focuses of forest management intervention strategies that take biodiversity concerns seriously.

[103] See also Leroy *et al.*, 2013.

If we are underscoring these observations, it is because they form a striking common thread in the findings of a number of this book's studies of very different issues, scales of action and terrains. However, it is also because, in both the literature and French public debate on the environment, the role of operators who specifically promote biodiversity concerns is played down immensely, denied and even turned on its head in a systematic critique of their action. Yet reticence and resistance to action by these players is an important element of the problems involved in establishing a new environmental deal for biodiversity. Conversely, the work presented here shows that public development aid agencies seeking to scale up their biodiversity action need to make support for biodiversity defenders and the dedicated biodiversity sector a key element of their strategies. Fanny Guillet's research on the strategic implications of relations between official development assistance agencies and environmental NGOs working on biodiversity (Chapter 1.3)[104] clearly shows the diversity and importance of these relations in this respect, whether in the form of partnerships, sub-contracting or critical dialogue. This latter type of relationship is identified as a key role for ENGOs, since it is one of the surest and only ways of refraining from the above-condemned temptation to sweep under the carpet the antagonism and needs for arbitration intrinsic in many biodiversity problems. For this reason, and for many others, this research highlights the merits of partially re-orientating them and developing them more to build development agencies' capacities for biodiversity action and help them overcome certain obstacles to the environmental turning point.

It is key to any public development agency's biodiversity strategy to identify and understand the intervention sectors and terrains and the players working on biodiversity in the different countries as potential drivers of dedicated projects and vital participants to truly incorporate biodiversity into alternative development (green production type) projects and really curb classic projects' negative impacts. Yet as detailed by the research headed by Laurent Mermet (Chapter 1.2),[105] this calls for specific analyses of a complex field and often-fragile players themselves caught up in thorny action frames. An assertive effort to identify these players and form partnerships is probably one of the most important drivers to scale up development agency involvement in biodiversity.

[104] See also Guillet & Leménager, 2013.

[105] See also Mermet, 1992; Mermet *et al.*, 2005, and Mermet, 2011.

The internal organisation implications of the environmental turning point for public development aid organisations

When an organisation talks about its official line on its commitments, general policy and so on, it respects procedures and forms that enable it to "speak with one voice" as if it were a uniform decision-making and action-taking unit. Yet the reality of the decision and action process reveals an entirely different picture. Decades of research on organisations and strategy have examined the structure and dynamics of the organisations. These studies have produced a multitude of conceptual frameworks that are particularly useful to analysing how organisations differ in a number of their components and how these components interact in practice to develop decisions and take action. Any focus on the implementation of strategies, whether to understand or steer action, needs to pay attention to theses issues and processes of the organisation's internal workings. This is what the authors do in the research presented in this section. This is self-evident for the research focused mainly on these internal processes (Chapters 3.1, 3.4 and, to a certain extent, 1.1). Yet it is also the case when the studies analyse the terrains concerned. A number of chapters are therefore attentive to internal organisational determinants, mainly in the public development aid agencies: organisation of intervention teams, distribution of roles among the organisation's different components, internal management, evaluation procedures and criteria, etc.

The first observation is that the tensions that shape the public development aid agencies' action are reflected in their structure and their organisational dynamics. The tension between the environment and development is addressed by the somewhat complex assignment of environmental responsibilities in the organisation chart, by dedicated components, and rules and procedures that can be seen in play and whose importance can be gauged in practice (Leménager *et al.*, 2012). Karine Belna (Chapter 3.3) shows, for example, the pivotal role played by the World Bank's social and environmental safeguards in the negotiations to prevent biodiversity from being ejected from the implementation of the FCPF. Similarly, the distance between general development assistance policy and contingencies on the ground is written into the public development aid agencies' matrix organisation (described in Chapter 3.1), which has separate geographic units and sector intervention units supported by more cross-cutting units. The details on how these structures are actually set up and run are crucial to understanding and improving the amount, quality and content of action to address biodiversity problems. They therefore call for close attention in the analysis and implementation of a development aid agency's biodiversity strategies.

The research by Yann Laurans and Alexander Haddad (Chapter 3.1)[106] shows the utility of this. It looks into the use of the monetary valuation of environmental services (ESV) provided by biodiversity in the public development aid agencies: how much are ESVs used today? How much more could they be used and in what way? The study shows that the main use intended by economic theory, i.e. to help a decision-making centre weigh up the costs and benefits of different action options in order to decide between them, is never found in practice. This intended use is, in fact, hugely at odds with the actual, and now highly sophisticated, procedures and processes used to make decisions in official development assistance agencies. As found with cost-benefit analysis in general, the only role ESV can play in these procedures is as a formal guarantee in the latter stages of decision-making. It is therefore improbable that ESV will be seen in use in decisive choices in coming years. However, looking at the fundamental characteristics of these monetary valuations (especially the huge amount of biodiversity issue identification work they do and the fact that a hard-and-fast part of them is based on subjective interpretative choices underlying the choice of method and calculation) and the actual decision-making dynamics in development aid agencies, the authors show that there are possible new uses for ESVs. They demonstrate their potential contribution to discussions of ideas in the development agencies, either regarding general strategies or in the most upstream phases of project set-up where it is neither possible nor meaningful to have detailed figures, but where discussion of differing arguments on the relevance, feasibility, and social and political acceptability of a project conditions the launch of project appraisal. Once the project appraisal procedure has been launched, it is actually very rare to find any major change made to the decision. This is why the many assessment steps in the project appraisal procedure are really essentially a formality, which might be expected to indirectly improve the substance of the decisions made, but will probably have no direct effect.

A further example of the attention to be paid to the internal organisation is given in Chapter 3.4 on AFD's biodiversity expenditure accounting. This chronicle of the gradual development of the accounting method used today shows how the methodological choices that determine the figures found are driven by internal methods and negotiations. Indeed, they are so dependent on these internal factors that it would be fair to say that expenditure accounting is a steering and stabilisation tool for intra-organisational negotiations on biodiversity actions.[107] Conversely, it is

[106] See also Haddad (2011), Laurans *et al.* (2013) and Laurans and Mermet (2013).

[107] The exercise obviously also steers and stabilises inter-organisational negotiations between bodies such as the development agency and its administrative authorities or with environmental NGOs, but this aspect developed in Chapter 3.4 is beyond the scope of this cross-cutting conclusion.

just as true that internal negotiations are needed to steer technical compliance, in the form of accounting tables, with the political commitment to render public the sum of biodiversity spending. Here, we find a striking demonstration of the principle announced in the introduction to this book as its main thread: if biodiversity action is to be successful, it needs to be based not only on relevant scientific, technical and financial reasoning, but also on the organisations' political systems (internal and external to all public development aid agencies) and actual ways of working. Progress with biodiversity action cannot come from trying to dispense with one or the other of these aspects, but from losing sight of none, especially the internal organisational implications of the public development aid agencies embarking on or setting their sights on the environmental turning point.

Another important aspect of the internal organisational implications addressed in this book is the weight of internal performance assessment criteria in the development of biodiversity projects and innovations. Biodiversity projects often account for a relatively small weight in terms of funding, and their success depends to a large extent on negotiation and consultation processes that take a great deal of time. This aspect is highlighted by all the literature on biodiversity action, cooperation, participation by local populations in conservation and so on: change takes time. Yet these crucial practical considerations clash with the internal evaluation criteria used by the development aid agencies' project heads and managers. These criteria prioritise making the financial commitments (contract signature) and then the disbursements in a relatively short or at least scheduled timeframe. Projects with long negotiation phases before a financial agreement is signed and disbursements held up by processes with timeframes that are hard to control result in evaluations that can penalise these project heads and their managers. This creates an incentive not to develop innovations for biodiversity. This factor emerges in AFD head office interviews in the research conducted by Aurélie Ahmim-Richard (Chapter 1.1). It is also found in Damien Krichewsky's research on environmental credit lines in Egypt (Chapter 2.2). In this case, environmental effectiveness was secured by the project technical team's firm positions to guarantee that the funding brought real environmental benefits. These negotiations sometimes made for longer negotiations upstream of contract signature and slowed down disbursements. These longer timelines were negotiated with the development agencies funding the credit line to obtain a certain amount of decisional flexibility. In AFD in-house assessments, project heads highlighted the project's environmental result and the development of a promising tool in a complicated landscape to counterbalance the fact that the commitment and disbursement criteria were behind schedule.

It is especially important to explicitly analyse and discuss internal organisational considerations in that their huge influence over decisions and action is often implicit and discreet in the way it silently manoeuvres the decisions and actions of the staff in charge of steering and implementing the biodiversity strategy. The idea is obviously not to conduct a wild analysis in a spate of critical invective, which would be counterproductive. Yet if we want to take change forward, to set a clearer course for the environmental turning point, we have to find – and this is the fourth point of this conclusion – the means to overcome (we could also say "displace") the implicit and the routine with incisive, respectful, ambitious and diplomatic discussions.

Thinking on the type of internal public development aid funding agency organisation that would further biodiversity action could be based on the other three conclusions drawn from the studies presented in this book:

(1) Internal organisational design and operation are to be considered from the point of view of how best they can manage the tensions between the environment and development to get them to produce wise choices and the most constructive and ambitious actions possible for biodiversity.

(2) Following the huge efforts made over the last two to three decades to build biodiversity mainstreaming capacities among development agency staff and support services, attention should now turn to how biodiversity is addressed on the ground in the operational management of projects, dedicated or not, and in the public development aid organisations' geographic divisions.

(3) The internal players handling biodiversity concerns within the organisation obviously play crucial roles. They form a key resource for the environmental turning point and call for particular attention and support by any realistic strategy to reach this point.

Conclusion

To conclude, in addition to our four central conclusions developed above, we would like to look back over the guiding principles that drove, steered and unified the research presented in this book. We believe they have produced a wealth of findings: detailed, informative returns on experience (Chapters 1.5, 2.1 and 2.2 in particular), useful clarification of ambiguous and unrealistic notions and doctrines (Chapters 1.4, 1.5 and 3.2 in particular), concrete takes on the real usability and action potential of innovative biodiversity action tools (Chapters 2.3, 2.4 and 3.1 for example), and conceptual frameworks, observations and analyses providing food for thought for a general biodiversity strategy for official development assistance

funding agencies (Chapters 1.1, 1.2, 1.3, 3.3 and 3.4). We feel that these results make a case for further research in the directions taken here, scaled up past the exploratory approaches taken by some of this research with more case studies in areas where a more systematic and concrete understanding of the ground is needed to take action to the next level. At the point we are today with biodiversity, looking at an environmental turning point already set in motion, especially by the development agencies, but that has not yet picked up enough steam, it is important to shift focus from the general issues of principle (commitments, doctrines and types of tools) to there where biodiversity and development are now really playing out: on the ground where the action is taken, in the implementation of the commitments, doctrines and tools, and their realities.

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Author biographies

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Karine Belna trained as an agronomist engineer and a water and forestry engineer. From 2009 to 2014, she prepared a PhD dissertation in environmental science at the International Centre for Research on the Environment and Development (CIRED) on tropical forest deforestation and climate change. In 2013, she joined the French Ministry for Agriculture where she works on European and international environmental strategy.

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Raphaël Billé holds a PhD in environmental management. He coordinates the Resccue project (Restoration of Ecosystem Services against Climate Change Unfavourable Effects) for the Secretariat of the Pacific Community (SPC) in Noumea. Before joining the SPC in January 2014, he was Director of the Biodiversity and Climate Change Adaptation programmes (funded by AFD and FGEF) at the Institute for Sustainable Development and International Relations (Iddri) for seven years.

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Véra Ehrenstein works at the Department of Sociology, Goldsmiths, University of London, where she is studying the Global Alliance for Vaccines and Immunization (GAVI) and the vaccines market for developing countries. She defended her dissertation in 2014 on "Carbon geopolitics: International climate action and the problem of tropical deforestation", which she completed at the Centre de Sociologie de l'Innovation (CSI), *École des Mines*, Paris. Her work focuses on collective action to address global problems.

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Helen GIBBONS

Helen Gibbons first started working in the Masai Mara region of south-west Kenya, in 2001. At that time she was the Director for an NGO, called Friends of Conservation that focused their work across the Mara ecosystem and its communities. Since then she has pursued her interest in environmental issues and conservation by working for a number of international and African not-for-profit organisations, from Greenpeace to the Kenya Wildlife Trust. After some years developing her experience and skills outside of Africa, Helen returned to Kenya to continue her work in conservation in 2011, undertaking a number of consultancies relating to protected areas and in particular the Masai Mara region once more. She recently accepted the position of CEO with the Maasai Mara Wildlife Conservancies Association, not least to take forward her findings and research in the Masai Mara Protected Area case study.

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Fanny Guillet joined the Center of Ecology and Sciences of COnservation (CESCO), National Museum of Natural History, Paris, as a post-doc in 2011. She is author of a dissertation defended in 2011 on NGO nature conservation strategies. She works on the strategy and sociology of collective biodiversity action. More recently, she has shifted focus to the clash of environmental actions with development dynamics (international development, territorial development and ecological offset policies for development projects).

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Alexander Haddad is an agronomist engineer with a dual specialisation in environmental economics and development policy. He is currently technical cooperation project coordinator for Africa and the Near East at the German National Metrology Institute (PTB). Prior to this, he conducted research in liaison with the French Institute for Sustainable Development and International Relations (Iddri) in 2011 and worked at the UN Economic and Social Commission regional headquarters in Beirut on the team coordinating the implementation of the Rio+20 Summit decisions in the Arab world.

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Delphine Malleret-King studied development economics in France, and then carried out her postgraduate studies in coastal management in the UK. Her PhD researched socioeconomic impacts of marine protected areas, especially from a food security perspective in the context of tropical reef fisheries. Delphine has 17 years' experience as a Socioeconomist and professional conservationist, based in Laikipia, Kenya for the last 9 years. She has worked as a freelance consultant across Africa, specialising in natural resource management, marine and terrestrial conservation, community engagement and socio-economic impact monitoring for local, national and international organisations. In 2014, she joined the Long Run Initiative, supporting the private sector to positively contribute to the global sustainability movement.

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Damien Krichewsky, a sociologist specialised in corporate social responsibility (CSR) and environmental governance, is currently a Postdoctoral Fellow at the Forum Internationale Wissenschaft (University of Bonn). Taking mainly the case of India, he analyses how the CSR phenomenon builds large corporations' capacities to control the dynamics underlying the political regulation of their activities at corporate organisational level, in the public regulatory policy development arenas and as fully fledged players of public-private governance systems. Damien Krichewsky is also associate researcher at the Centre de Sociologie des Organisations (Sciences Po-CNRS), the Centre d'Études de l'Inde et de l'Asie du Sud (EHESS-CNRS) and the Centre for Human Science in New Delhi (MAE-CNRS).

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Tiphaine Leménager is an agronomist engineer with a PhD in environmental management. She joined AFD at the beginning of 2008 to work on her main concern of how to balance development issues with environmental conservation. From 2009 to 2014, she developed and headed the Agency's Biodiversity Research Programme, conducting many studies on how to further environmental mainstreaming in development models. A number of these studies are reported in this book.

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Laurent Mermet is Professor of Environmental Management at AgroParisTech (French Institute of Forestry, Agricultural and Environmental Engineering) and researcher at the Center of Ecology and Sciences of COnservation (CESCO), National Museum of Natural History, Paris. His research and teaching revolve around strategic environmental management. The key question is who can act, and how, to resolve an environmental problem. In this, he works with his team to develop strategic environmental management analysis of action by public bodies and within organisations.

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Abbreviations and acronyms

Abbreviations and acronyms

AFD	Agence Française de Développement
AGRA	Alliance for a Green Revolution in Africa
AWF	African Wildlife Foundation
CAS	Centre d'Analyse Stratégique
CBA	Cost-benefit analysis
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CEO	Camp Extensionist Officer
CF	Conservation farming
CFU	Conservation Farming Unit
CI	Conservation International
CIB	Commercial International Bank
CIFOR	Center for International Forestry Research
CIRAD	Agricultural Research Centre for International Development
CONAFOR	Comisión Nacional Forestal
COP	Conference of the Parties
CSD	Commission of Sustainable Development
DAC	Development Assistance Committee
DAO	Development assistance organisation
DFID	Department for International Development
ECL	Environmental credit line
EEAA	Egyptian Environmental Affairs Agency
EIB	European Investment Bank

EIS	Environmental impact study
ENGO	Environmental Non-Governmental Organisation
EPAP	Egyptian Pollution Abatement Project
ERR	Economic Rate of Return
ES	Environmental service
ESV	Ecosystem service valuation
ETB	Economic tool for biodiversity
EU	European Union
FCPF	Forest Carbon Partnership Facility
FGEF	French Global Environment Facility
FINNIDA	Finnish International Development Agency
FISP	Fertilizer Input Support Programme
FRA	Food Reserve Agency
GDP	Gross domestic product
GEF	Global Environment Facility
GEF	Global Environment Fund
IAPRI	Indaba Agriculture Research Policy Research Institute
IDB	Inter-American Development Bank
INRA	French National Institute for Agricultural Research
IRR	Internal rate of return
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
IWRM	Integrated water resources management
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
KTC	Kasisi Training Center
KWS	Kenya Wildlife Service
LWF	Laikipia Wildlife Forum

MAE	French Ministry of Foreign Affairs
MDG	Millennium Development Goals
MEA	Millennium Ecosystem Assessment
MP	Member of Parliament
NBE	National Bank of Egypt
NFP	National forest programme
NGO	Non-Governmental Organisation
NPV	Net present value
NSGB	National Société Générale Bank
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OF	Organic farming
OPPAZ	Organic Producer and Processor Association of Zambia
PA	Protected area
PCI	Principles, Criteria and Indicators
PES	Payments for ecosystem services
RIL	Reduced-impact logging
SEA	Strategic environmental assessment
SEMA	Strategic environmental management analysis
SER	Social and environmental responsibility
SFM	Sustainable forest management
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States Dollar
WCS	Wildlife Conservation Society
WWF	World WildLife Fund
ZNFU	Zambian National Farming Unit

What is AFD?

Agence Française de Développement (AFD), a public financial institution that implements the policy defined by the French Government, works to combat poverty and promote sustainable development.

AFD operates on four continents via a network of 72 offices and finances and supports projects that improve living conditions for populations, boost economic growth and protect the planet.

In 2014, AFD earmarked EUR 8.1bn to finance projects in developing countries and for overseas France.

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Development and biodiversity:
Navigating the environmental turning point

Governments and the international community have pledged to curb biodiversity loss. Yet there is nothing to say that we are stopping or even putting a sharp brake on it. The challenge is no longer to identify the problem, to understand its causes and repercussions or even to decide in principle that action is needed to solve it. What we now need is to take work to the next level, to clearly steer the activity sectors responsible for the most biodiversity loss in a new direction. It is this ambitious step change with its much-needed – and sometimes radical – changes of course that we have summed up here under the name of the "environmental turning point".

Working toward the environmental turning point means undertaking to change certain trends and development policies on which the state of biodiversity is highly dependent. It is a huge challenge given the complexity of the situations and the resistance to change and inertia encountered. The research presented in this book analyses this challenge in detail from its strategic and organisational angles based on studies of the many terrains where development and biodiversity interact. It draws a series of conclusions for all those today who are seeking, especially in official development assistance, to make the decisive changes needed to conserve and restore biodiversity.

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