



The Convention on Biological Diversity as a legal framework for safeguarding ecosystem services



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ABSTRACT

Biodiversity underpins ecosystem services. The UN Convention on Biological Diversity (CBD) has adopted an ecosystem services approach as a framework for biodiversity management at the national level. Protection of ecosystem services requires far more than traditional nature conservation measures like the designation and management of protected areas. The economic sectors that affect biodiversity and ecosystem services must be involved, to address not merely the symptoms but the root causes of the degradation of biodiversity and ecosystem services. Achieving coherence in policies and actions across economic sectors and the changes involved in values, decision-making and practices, requires legal approaches to ensure buy-in and accountability. Ideally, such approaches should be included in National Biodiversity Strategies and Action Plans (NBSAPs), the key instrument for translating the CBD into national action. A review of 20 revised NBSAPs shows that such measures have been introduced only to a very limited extent with many countries still in the earliest stages of preparing measures to protect ecosystem services. Thus, there is a need for further research and practical guidance regarding legal approaches to ecosystem services.

1. Introduction

The concept of *ecosystem services* (ES) expresses the ‘usefulness’ of nature in terms of providing for basic human needs, like food, fuel and medicines, clean water, flood control and climate regulation. ES are essential to human well-being. As their continued degradation has a disproportionate effect on poor people, ES is a key concept in the context of sustainable development.

The concept was brought into widespread use by the UN initiative *the Millennium Ecosystem Assessment* (MA) published in 2005. The MA also points to the importance of biodiversity for the provision of ES. This has led to the integration of the ES concept in many policies and initiatives to protect biodiversity at the national and international levels. Most notable here is the UN [Convention on Biological Diversity](#) (CBD) which in 2010 adopted the following Vision for its Strategic Plan: ‘By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people’; and the following Mission: ‘to take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet’s variety of life, and contributing to human well-being, and poverty eradication’ (Decision CBD/COP/X/2). This makes the CBD a global framework for national-level action to protect not only biodiversity *per se* but also ES.

This again raises the question of what the legal implications are of such an ‘expanded’ scope of the CBD - implications that may be far-reaching given the holistic, cross-cutting character of ES protection compared to a more traditional nature conservation approach. The aim of the article is to explore and raise attention on this issue that has remained largely unaddressed by the CBD, national governments and legal scholars. In doing so, the article will address the following questions:

- What is the relation between biodiversity and ecosystem services? ([Section 2](#))
- In what way has the CBD embraced the concept of ecosystem services? ([Section 3](#))
- What legal approaches to the ecosystem services approach can be identified? ([Section 4](#))
- In what way and to what extent have CBD state parties addressed legal approaches to ecosystem services in their national implementation of the CBD? ([Section 5](#)).

[Section 6](#) concludes on and discusses the findings. Throughout, the article deals with the gaps in knowledge on the exact relation between biodiversity and ES, and concerns for linking the two concepts, as possible obstacles to applying an ES approach to biodiversity management.

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2. What is the relation between biodiversity and ecosystem services?

The 2005 UN Millennium Ecosystem Assessment (MA) identified ecosystem services as the benefits people obtain from what nature can provide, (Millennium Ecosystem Assessment, 2005) and divided such services into four categories:

1. *Provisioning services*: products obtained from ecosystems, such as food, fresh water, fuelwood, fiber, biochemical and genetic resources.
2. *Regulating services*: benefits obtained from regulation of ecosystem processes, such as regulation of floods, drought, disease, land degradation and water purification.
3. *Supporting services*: services necessary for the production of all other ecosystem services, such as soil formation, nutrient cycling and primary production.
4. *Cultural services*: non-material benefits from ecosystems, such as esthetic enjoyment, recreation and tourism, inspiration for culture art and design, and spiritual experience.

The concept of ecosystem services has increasingly been seen in close connection with biodiversity widely described as *underpinning* ecosystem services. Biodiversity is seen as contributing as a regulator of ecosystem processes (e.g., the role of insect species as pollinators and a large variety of predator species to reduce outbreaks of pests), (Lucas et al., 2014) as a final ecosystem service *per se* (e.g., varieties and breeds within the major species used for food and fiber that contain high levels of genetic diversity) and as a good to be valued in itself for its spiritual, educational, religious and recreational value (Gasparatos and Stevens, 2015). When elements of biodiversity are lost, ecosystems become less resilient: that is the prevailing view. Hence, the continued loss of biodiversity is assumed to have important implications for ecosystem services and thereby for current and future human well-being (Harrison et al., 2014).

The interlinkage between ES and biodiversity was further emphasized already in the title of the international initiative ‘The Economics of Ecosystems and Biodiversity’ (TEEB) launched in 2007 to draw attention to the global benefits of ecosystem services and biodiversity and the consequent costs of ecosystem degradation and biodiversity loss (TEEB website). Its principal objective is to mainstream the values of biodiversity and ecosystem services into decision-making at all levels. This is to be achieved through a structured approach to valuation that helps decision-makers recognize the wide range of benefits provided by ecosystems and biodiversity, demonstrating their values in economic terms and, where appropriate, suggesting how to capture those values in decision-making (TEEB website). TEEB has attracted considerable attention, and many countries have begun conducting TEEB-based assessments and studies of ecosystems and their services (TEEB, 2013). The establishment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) in 2012 - often referred to as the IPCC for biodiversity and ecosystem services - further emphasizes the tandem relationship.

The close interlinkage between ecosystem services and biodiversity – sometimes leading to interchangeable use of the two terms – has come about even though this relationship is far from fully researched and understood. While research into the links increasingly demonstrates the vital role of biodiversity for ecosystems functioning, and thereby to the services they deliver, it also shows that the links are not always obvious and that there is a great variation in the exact relationship between biodiversity and each individual ecosystem service.

However, the interlinkage is also contested for on several grounds. One is ethical: the ecosystem services approach is criticized for its anthropocentric focus and ‘commodification’ of nature, perceived to be

at the expense of the intrinsic value of nature above and beyond human needs (Schröter et al., 2014). Some see inconclusive evidence of a ‘win-win’ scenario for ES and biodiversity protection, and fear that a conservation approach based on ES will not safeguard biodiversity, but merely divert attention and interest (Science for Environment Policy, 2015). This concern can be seen in connection with the views of some scholars who see the ES approach as a way for better identifying what aspects of biodiversity are needed for human well-being, so that priority can be given to components of biodiversity with clear ecosystem services benefits, above biodiversity components where conservation is justified solely on the basis of ethical and/or cultural values (Willis and Kirby, 2015). In the same vein, it has been argued that an ecosystem services approach should be a tool for balancing ‘pure’ conservation concerns against social and economic concerns so as to better reflect the three components of sustainable development (Kistenkas, 2014). Still, the prevailing view among scholars is that an ES approach should and need not undermine policies designed to protect biodiversity for its own sake, and that the two approaches can be applied synergistically (Science for Environment Policy, 2015). Attention is drawn to the fact that the definition of ecosystem services also covers non-utilitarian cultural services such as the spiritual and esthetic value of a landscape.

In any case, as reflected above, biodiversity and ecosystem services are widely and increasingly viewed in conjunction. One reason is that the Convention on Biological Diversity has adopted an ES approach as a powerful human well-being rationale for protecting biodiversity, as further elaborated below.

3. In what way has the Convention on Biological Diversity (CBD) embraced the concept of ecosystem services?

The term ‘ecosystem services’ was not in use when the CBD was endorsed by heads of State at the UN Conference on Environment and Development in Rio de Janeiro in 1992, entering into force the year after. Still, the concept is implicitly covered in the text of this comprehensive convention.

In the negotiations leading to the CBD, representatives of developed countries argued for an instrument with a clear conservation strategy to protect species and habitats, using the same approach as earlier global nature conservation conventions. In contrast, representatives of developing countries sought – successfully – a focus on biodiversity as a prerequisite for meeting basic human needs and to ensure that the convention would not hinder their development and sovereignty (Nebhöver et al., 2015). This anthropocentric and utilitarian approach is reflected in the objectives of the CBD, which, in addition to the conservation of biodiversity, are the sustainable use of its components and the fair and equitable sharing of benefits arising from the utilization of genetic resources (Art 1). This is also reflected in the first preambular paragraph in which Parties declare they are conscious of the ‘ecological, genetic, social, economic, scientific, educational, cultural, recreational and esthetic values of biological diversity and its components.’ Articles 6(b) and 10(a) call on Parties to integrate conservation and sustainable use concerns into national sectoral and cross-sectoral plans, programs and policies (later referred to as ‘mainstreaming’), a further indication that the CBD is moving beyond a classical nature conservation – often site-specific – approach to a more holistic, cross-cutting approach. With this approach, and with its adoption at the Rio Summit alongside the adoption of the Climate Change Convention, Agenda 21 and the Rio Principles, the CBD has its roots in the global sustainability discourse (Nebhöver et al., 2015).

The CBD in 2000 adopted the ‘Ecosystem Approach’ (EA) as a strategy for the integrated management of land, water and living resources and as its primary framework for action (CBD/COP/V/6.). The approach is an integrated management approach to achieve the three objectives of the CBD and maintain healthy ecosystems as such - not only for their value for human livelihoods. Still, the EA has a strong

link to ES. The conceptual framework of the Millennium Ecosystem Assessment states that it ‘provides a useful assessment structure that can contribute to the implementation of the CBD’s ecosystem approach’ (MA, 2003, p. 52.). Among the 12 overarching principles of the EA, Principle 4 specifies that, in order to recognize the potential gains from biodiversity management, there is a need to understand and manage the relevant economic context while Principle 5 states that ‘conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach’ (Decision CBD/COP/V/6).

The CBD was quick to embrace the MA when it was released in 2005 and to mainstream the term ‘ecosystem services’ across future CBD decisions.¹ The trend was reinforced with the launch of the TEEB initiative in 2007 (see above). The MA and TEEB induced new momentum within the CBD (and beyond) for making explicit the benefits that human beings receive directly and indirectly from nature (Neßhöver et al., 2015). This is prominently reflected in the CBD Strategic Plan 2011–2020 adopted in 2010 with its 20 ‘Aichi Targets’ (Decision CBD/COP/X/2) which have become an important framework for action to halt the loss of biodiversity not only for the CBD but also for other global conventions in the ‘biodiversity cluster’² The importance of ES is reflected already in the vision and mission of the Strategic Plan as referred to above.

Some of the Aichi targets go beyond the direct pressures on biodiversity and address the underlying causes of biodiversity loss. Strategic Goal A reads: ‘Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society’. It includes the following 4 targets:

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: 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, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Ecosystem services are also directly addressed by Strategic Goal D, ‘Enhance the benefits to all from biodiversity and ecosystem services’ which includes Target 14: ‘By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into

¹ See for example Decision CBD/COP/VIII/9 from COP8 in 2006 on Implications of the findings of the Millennium Ecosystem Assessment. This decision requests the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and invites Parties to make use as appropriate of the MA conceptual framework in further developing the Ecosystem Approach.

² Seven global conventions are seen as forming a biodiversity-related cluster: the Convention on Biological Diversity (CBD), the Convention on Conservation of Migratory Species (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the Ramsar Convention on Wetlands, the World Heritage Convention (WHC) and the International Plant Protection Convention (IPPC). All of them except the IPPC Convention have recognized or supported the Strategic Plan (CMS Resolution 10.18; CITES Resolution 16.4; Ramsar Convention Resolution XI.6; ITPGRFA Resolution 8/2011; WHC Decision: 37 COM 5A).

account the needs of women, indigenous and local communities, and the poor and vulnerable.’

In the CBD context, the value of ecosystem services has also been dealt with in relation to resource mobilization for biodiversity conservation. Since the adoption of a CBD strategy for resource mobilization in 2008, (Decision CBD/COP/IX/11) ‘innovative financial mechanisms’ have been discussed as potential funding sources. These include payment for ecosystem services alongside with other economic instruments such as biodiversity offset mechanisms, fiscal reforms, the creation of markets for green products, integration of biodiversity concerns in climate funding and biodiversity in international development finance (OECD, 2013).

The notion of innovative financial mechanisms has been a contested topic in the CBD, rejected by the developing countries as an attempt on the part of the developed countries to avoid their obligations under CBD Article 20 to provide new and additional funds for biodiversity. In addition, a grouping of socialist-oriented Latin American countries (Bolivia, Cuba, Ecuador, Nicaragua and Venezuela) has strongly rejected the ecosystem services approach as such, seeing it as a ‘capitalist conception that seeks only to guarantee benefit for those few who wield economic power’ (Declaration of the Ministerial Committee for the Defense of Nature of ALBA-TCP, 2010). This resistance ‘to putting a price tag on nature’ is also reflected in statements by indigenous peoples’ groups in the CBD context.

Despite this contestation, the ecosystem services approach seems to be widely accepted by the CBD Parties as a key element in biodiversity management.³ The discussion among some scholars on the actual importance of biodiversity for the provision of ecosystem services, as referred to above, has been largely absent from CBD discussions. Neither has the notion of potential conflicts and trade-offs between an ‘ecocentric’ and an anthropocentric approach to biodiversity been problematized in the CBD context, except for the contestation by a few countries and some indigenous groups as mentioned above.

With the emerging strong pairing of biodiversity and ecosystem services by the CBD, the Convention can be considered a global legal framework for action to protect ecosystem services at the national level. Before discussing the extent to which countries implement the CBD with that view, some possible law-based approaches to the protection of ecosystem services will be examined.

4. What legal approaches to the ecosystem services approach can be identified?

Given the attention that ecosystem services have gained as an important concern for the management of land, water and living resources generally as well as in relation to important economic sectors like agriculture, forestry and fishery, it seems remarkable how little attention has been paid to the legal aspects of ecosystem services, in practice and in the literature.

To return to the close relations between biodiversity and ecosystems services acknowledged by the CBD: much of the legal focus in terms of biodiversity has been on command and control regulation in the narrow sense of biodiversity conservation under the auspices of national ministries of the environment or equivalent. This includes hunting regulations and other types of regulation to protect species, the regulation of protected areas, as well as the regulation of single sources of pollution. Explicitly and implicitly, such regulations may benefit ecosystem services. However, since their main objective is often to protect threatened species and habitats – frequently with a narrow geographic scope that does not necessarily underpin ecosystem services – additional types of legal approaches of a more cross-cutting nature are needed.

³ The CBD has been ratified by all states of the world except the United States of America and the Holy See.

The CBD focus on sustainable use, ecosystem management and mainstreaming of biodiversity concerns across sectors represents an interconnected approach to establishing that halting the loss of biodiversity is not only a matter of protecting threatened species and habitats, but also of preserving an important prerequisite for human well-being. Thus, legal tools for this cross-cutting approach to implementing the CBD are also legal tools for promoting ecosystem services. As will be shown below, such tools have not been developed to any great extent at the national level.

The cross-cutting nature of ES with an integrated focus on environmental, economic and social considerations implies that a discourse on legal approaches may have similarities to the more advanced discourse on legal approaches to sustainable development (Mauerhofer, 2016).

An overall objective of legal frameworks in this area could be to create an *enabling* framework. That means establishing coherence and defining clear roles, responsibilities and accountability for an integrated approach – one that may well require transformative changes involving many sectors, stakeholders and legal acts that have not previously acted coherently. The law can act as an empowering tool by creating incentives and recognizing rights and responsibilities to engage individuals, indigenous peoples and local communities, entrepreneurs, businesses and others in taking action for biodiversity and ES. Moreover, legal approaches provide for enforcement by administrative and judiciary bodies – a factor important in ensuring implementation and holding governments accountable for results.

Environmental Impact Assessment (EIA) is probably the best-established legal tool for mainstreaming biodiversity and ecosystem services concerns, widely incorporated into national legislation throughout the world. It provides a set of procedures for a participatory process to balance economic, social and environmental concerns in decision-making. While EIA is meant to evaluate the environmental impact of a specific project, *Strategic Environmental Assessment (SEA)* is about evaluation further ‘upstream’ in the planning process of plans, programs and policies – and is thus an obvious tool for policy coherence as regards ES. However, SEA is not as widely applied as EIA (Prip et al., 2010).

Legislation to enable *spatial planning* at landscape and seascape levels is also a suitable tool for protecting biodiversity and ES at the ecosystem level, and thus with close ties to the Ecosystem Approach. Spatial plans can induce changes in the quality or quantity of ES by identifying development options and how those options translate in a given territory (Mascarenhas et al., 2014).

Enabling legislation for various *economic and market-based instruments* is a tool for addressing the underlying causes of biodiversity and ES loss, and represents an application of a Green Economy approach. Such legislation would be in line with Aichi Targets 2, 3 and 4. This could include legislation on certification schemes and other positive incentives, green taxation, schemes for payments for ecosystem services and other types of equitable benefit sharing from the use of biological resources, as well as the removal of perverse incentives.

Biodiversity loss often occurs at the local level, where it is also felt most directly. The CBD and many of its work programs stress the close dependence of indigenous peoples and local communities and their role as biodiversity custodians. Well-defined *tenure arrangements and user rights* to biological resources could be efficient legal tools for incentivizing community-based management of biodiversity and ES.

The above examples of legal approaches are by no means exhaustive. Safeguarding ES will require a broad mix of policy and legal approaches, depending on national and local conditions.

5. In what way and to what extent have CBD state parties addressed ecosystem services in their national implementation of the CBD? (Section 5)

First, it would be relevant to recall some main findings of the

Millennium Ecosystem Assessment (MA) on ES:

Over 60% (15 out of 24) of the ecosystem services examined were found to be degraded or used unsustainably: this includes fresh water, capture fisheries, air and water purification, and the regulation of regional and local climate, natural hazards, and pests. Changes undertaken in ecosystems are increasing the likelihood of nonlinear changes in ecosystems, such as disease emergence, abrupt alterations in water quality, the creation of ‘dead zones’ in coastal waters, the collapse of fisheries, and shifts in regional climate. The degradation of ecosystem services is borne disproportionately by the poor, which contributes to growing inequities and disparities across groups of people, and is sometimes the principal factor behind poverty and social conflict (Millennium Ecosystem Assessment, 2005).

More than one decade after the MA, little progress seems to have been made in reversing the negative trends. In 2014, the CBD Secretariat issued the Global Biodiversity Outlook, a mid-term evaluation of the Strategic Plan for Biodiversity 2011–2020 with its 20 Aichi Biodiversity Targets. To a large extent, these have now become the CBD implementation framework. As regards the targets particularly relevant for ES, targets 2, 3 and 4 on addressing the underlying causes of biodiversity loss by mainstreaming and Target 14 on restoring and safeguarding ecosystems that provide essential services, progress is reported to be either insufficient and insignificant, or even retrograde (pp. 18–22).

Article 6(a) of the CBD requires Parties to develop National Biodiversity Strategies (NBSAPs) or equivalent instruments. The location of this requirement in the same Article as the biodiversity integration requirement (6(b)) indicates that this integration should be a key element of NBSAPs. Ideally, NBSAPs should include plans for developing means for implementation, including legal frameworks.

NBSAPs have increasingly been viewed as a key instrument for translating the CBD into national action. According to Aichi Target 17: ‘By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.’ The revised and updated NBSAPs are meant to include national targets using the Aichi Targets as a flexible framework (CBD Decision X/2, Para. 3(b) and (c)). While nearly all CBD Parties have developed NBSAPs, a little more than half of them have developed updated and/or revised NBSAPs in light of the Aichi Targets (CBD website, NBSAPs).

A review of revised and updated NBSAPs was carried out by the CBD Secretariat in 2016, especially as regards responses to the Aichi Targets. The review found that the Aichi Targets noted above as particularly important to ecosystem services were among the *least* reflected in the NBSAPs in terms of adoption of supporting national targets or other commitments (CBD document, UNEP COP/13/8/Rev1).

In addition, this author in 2016 conducted a review of how 20 post-2010 NBSAPs reflect biodiversity mainstreaming, and the degree to which they provide for legal and policy frameworks to operationalize mainstreaming for the International Development Law Organization (IDLO).⁴ For the purposes of the present article that study has been extended to the coverage of ecosystem services, including the provision of legal approaches for such. The 20 countries selected represent different geographical regions and include 10 countries that are least developed. The other 10 countries represent a mix of developed and developing countries.

The study reveals that ecosystem services are prominently reflected in nearly all of the assessed NBSAPs in the same way as in many CBD COP decisions over the past 10 years: by widely referring to biodiversity and ES in connection, thereby indicating that measures to safe-

⁴ The 20 countries whose NBSAPs were assessed are Afghanistan, Denmark, Dominica, El Salvador, Georgia, Guyana, India, Japan, Jordan, Kyrgyzstan, Mauritania, Myanmar, Nepal, Peru, Sudan Timor Leste, Togo, Tuvalu, Uganda and United Republic of Tanzania.

guard and restore biodiversity will also safeguard and restore ES. Concerns for ES are generally reflected upfront in recent NBSAPs such as in their overall missions, visions and guiding principles.⁵ Where ES stand alone in NBSAPs, it is mostly in relation to goals and targets for mapping and valuation of ES for which nearly all of the reviewed NBSAPs include goals and targets. Less often NBSAPs include considerations for payment for ecosystem services⁶ and equitable sharing of benefits from ES.⁷ Concerns for ES are reflected in broad and aspirational terms, with little specification of which measures are needed to realize goals and targets.

Mainstreaming has already been identified as a prerequisite for safeguarding ES, and nearly all NBSAPs mention biodiversity mainstreaming as an overall objective, often referring to ES. Again, however, the concrete policy and legal measures for achieving such mainstreaming goals and targets are not clearly spelled out. Experience has shown that it is not easy to build buy-in from the economic sectors to protect biodiversity and ES, and recognize that this is a contribution to development and not an obstacle. This is very much a political process of give and take, and the NBSAPs reveal that many countries are yet to begin this political process across sectors and ministries.

As regards legal approaches, most of the NBSAPs reviewed call for legal reforms of some kind, either through direct commitments to take legal measures under specified subject areas or sectors, or by calling for subsequent reviews and gap analysis of existing legal frameworks against NBSAP goals and targets. Insufficient legislation is often mentioned as an impediment to implementation of first-generation NBSAPs. However, as noted, NBSAPs are generally not very specific as to which legal measures are needed to translate goals and targets on biodiversity and ES into action.

Of the legal approaches identified above as particularly relevant for ES, *Environmental Impact Assessment (EIA)* is reflected in many NBSAPs. This instrument is widely incorporated into national legal frameworks, but some NBSAPs (such as the ones of Georgia, Tuvalu and Jordan) call for a stronger stand on biodiversity concerns in EIA. These also provide for Strategic Environmental Assessment (SEA) as a tool to enhance biodiversity mainstreaming.

Very few NBSAPs address *spatial planning* and not in legal terms. These include Myanmar, Togo, Sudan and Georgia.

Widely taken on board, as mentioned above, are goals and targets for valuating ES and for removing negative while promoting positive incentives such as payment for ES. Again, however, the NBSAPs do not provide much clarity as to which tools, including legal ones, are needed to implement these complex, cross-cutting policy objectives.⁸

Notably, the revised NBSAPs generally pay more attention to the need for 'vertical mainstreaming' – devolution of biodiversity and ES

⁵ See for example the Mission of the NBSAP of Georgia: *By 2030, the people of Georgia will be living in a harmonious relationship with nature, whereby biodiversity is valued, conserved, restored and wisely used, ecosystem processes and services are maintained, a healthy environment is sustained and benefits essential for the society are delivered.* See also Guiding principle 2 of the NBSAP of Uganda: *The NBSAPII will highlight and seek to maintain the contribution of biodiversity and ecosystem services to human wellbeing, poverty eradication, gender equality and national development as well as the economic, social, cultural and other values of biodiversity.*

⁶ One example is the NBSAP of Guyana which under its Resource Mobilization Plan (Annex III) includes the following measure: *Promote the development and use of innovative financing mechanisms such as the Guiana Shield Facility, including market-based instruments. Payments for Ecosystem Services schemes could reward public and private goods from agricultural, forest and marine ecosystems.*

⁷ The NBSAP of Kyrgyzstan includes the following action (4.1.2): *Increase the share of the local community in income generation from ecosystem services.*

⁸ While many NBSAPs address valuation of and economic instruments in broad, vague terms, the NBSAP of Peru includes concrete targets including: *By the end of 2016:- To establish mechanisms to incorporate a proper valuation of biodiversity and ecosystem services in national accounts;- To formulate projects of public and private investment for at least ten new products of biodiversity with potential for development of competitive bio-businesses prioritizing initiatives undertaken by indigenous peoples; By the end of 2017:- To establish an intergovernmental coordination mechanism to promote the appreciation and dissemination of ecosystem services.*

management to local levels and the legal means to effectuate this. Several NBSAPs call for legal reforms to provide incentives for local people to protect biodiversity, such as strengthening smallholder and customary tenure rights.⁹

6. Conclusions and discussion

Conservation and the sustainable use of biodiversity are means not only for protecting biodiversity *per se*, but also for maintaining and restoring the ecosystem services essential to human well-being and poverty eradication. This is the approach taken by the CBD. Besides including the ES concept in many of its decisions, the CBD has adopted the Aichi Biodiversity Targets, specifying an essential point: the importance of addressing not only the direct causes of biodiversity loss but also the underlying causes, and of mainstreaming biodiversity and ES concerns across sectoral and cross-sectoral plans and policies. The Aichi Targets have been acknowledged by other global conventions concerning biodiversity. Also the third objective of the CBD – the fair and equitable sharing of benefits derived from genetic resources – is relevant in this context, as it is increasingly perceived as a type of payment for ES (Subramanian, 2009). The strong focus on ES places CBD as a key global regime in the implementation of the UN Sustainable Development Goals (UN General Assembly Resolution, 2015. A/RES/70/1)).

Applying an ecosystem services approach as a national management tool for biodiversity requires cross-cutting policy and legal approaches beyond traditional nature conservation approaches. This will often require a political process, to sort out complex issues of buy-in and responsibilities of the main sectors and stakeholders involved. The revision of National Biodiversity Strategies and Action Plans in light of the Aichi Targets, as called for by the CBD, has provided a good opportunity for this exercise. However, an assessment of several revised NBSAP indicates that this opportunity has not been fully realized. Many countries appear to be in the earliest stages of the process, where mapping and valuation of ES are often first steps before policies and legal frameworks can be developed. Consequently, the NBSAPs assessed have little to offer in terms of new legal approaches to safeguarding ES – indeed, they generally offer only limited reflections on legal approaches.

This lack of reflection in NBSAPs on legal approaches for ES may also be a result of the overall lack of attention to such legal approaches at international level – within and outside the CBD. Thus, more research is needed in this field to provide legal guidance.

Finally, the limited reflection in NBSAPs on ES beyond general policy statements could be due to gaps in our understanding of the vaunted biodiversity–ES relationship, combined with a reluctant attitude to this relationship on the part of many conservation-oriented practitioners traditionally responsible for biodiversity management. They view the ES approach to biodiversity management as leading to conflicts and trade-offs between the economic and the intrinsic values of biodiversity, where the latter are likely to lose. Thus more research is also needed on the relationship between biodiversity and ecosystem services.

⁹ Myanmar, for example, has set as a target that, by 2020, the national legal framework on tenure encourages conservation and sustainable management. To achieve this, rules and regulations that recognize smallholder and customary tenure of land, freshwater, and marine resources shall be developed. Another target is that by 2020 sub-national biodiversity strategies and action plans are under preparation in at least three states/regions. (<https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf>). Sudan intends to clarify land tenure and resource rights to strengthen policy and legislation towards local management of resources. Moreover, Sudan will issue national legislation regulating access to plant genetic resources and associated traditional knowledge that recognize farmers' and local communities' rights. (<https://www.cbd.int/doc/world/sd/sd-nbsap-v2-en.pdf>).

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