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INTERNATIONAL WORKSHOP ON THE REMOVAL AND MITIGATION OF PERVERSE, AND THE PROMOTION OF POSITIVE, INCENTIVE MEASURES
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ANALYSIS OF RELEVANT INFORMATION ON THE IMPACTS OF POSITIVE AND PERVERSE INCENTIVES

Note by the Executive Secretary

I. INTRODUCTION

1. In paragraph 6 of decision IX/6, on incentive measures, the Conference of the Parties requested the Executive Secretary to convene an international workshop on the removal and mitigation of perverse, and the promotion of positive, incentive measures, consisting of government-nominated practitioners with balanced regional representation, as well as experts from relevant organizations and stakeholders. The mandate of the workshop is:

(a) To collect, exchange and analyse information, including case-studies on, good practices for, and lessons learned from, concrete and practical experiences in identifying and removing or mitigating perverse incentive measures, and in promoting positive incentive measures; and

(b) To identify a limited number of good-practice cases from different regions, for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting prior to the tenth meeting of the Conference of the Parties, and for review by the Conference of the Parties at its tenth meeting.

2. In paragraph 7 of the same decision, the Conference of the Parties requested the Executive Secretary to compile and analyse relevant information, including analyses and studies from relevant international organizations, such as the Organisation for Economic Co-operation and Development (OECD), on the impacts of positive and perverse incentive measures, to disseminate this information through the clearing-house mechanism of the Convention, and to make it available to the workshop.

* UNEP/CBD/WS-Incentives/3/1.

3. The present note provides an analysis of the relevant information that was compiled pursuant to this request. By notifications 2009-045 of 1 May 2009 and 2009-070 of 30 June 2009, the Executive Secretary invited Parties, relevant international organizations and stakeholders to submit any relevant information, including analyses and studies, which would be of use for the work of the experts. Submissions were subsequently received from Cuba, Egypt, the European Commission and India as well as from the Food and Agriculture Organization of the United Nations (FAO), the Organisation for Economic Cooperation and Development (OECD), the initiative "The Economics of Ecosystems and Biodiversity" (TEEB), the German League for Nature and Environment, and the Institute for Environmental Decisions of the Swiss Federal Institute of Technology (ETH) Zurich. These submissions are reflected in the present analysis.

4. The complete compilation of relevant information is being provided on a dedicated website at www.cbd.int/incentives/. The website provides a link to the online database on incentive measures, which provides relevant information, collected over the past years, on the reform of perverse incentives and the application of positive incentive measures. The database also contains earlier submissions received from Parties and relevant organizations and initiatives on these topics. Synthesis reports on these earlier submissions were prepared for various meetings of the Subsidiary Body on Scientific, Technical and Technological Advice, and of the Conference of the Parties, and are available at http://www.cbd.int/incentives/documents.shtml.

II. PAST WORK UNDER THE CONVENTION

5. According to Article 11 of the Convention, on incentive measures, each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biodiversity. The Conference of the Parties at its fifth meeting, in 2000, adopted a programme of work on incentive measures which included work on the identification and removal or mitigation of perverse incentives, as well as on positive incentive measures.[1] In 2008, the Conference of the Parties undertook an in-depth review of the programme of work at its ninth meeting, and, in paragraph 1 of its decision IX/6, recognized its ongoing relevance. The decision emphasizes that incentive measures should:

(a) Contribute to the conservation of biological diversity and the sustainable use of its components and not negatively affect biodiversity and livelihoods of other countries;

(b) Contribute to sustainable development and the eradication of poverty;

(c) Take into account national and local conditions and circumstances;

(d) Be consistent and in harmony with the Convention and other relevant international obligations.

6. In paragraph 4 of the same decision, the Conference of the Parties decided to put more emphasis on, *inter alia*, amongst others, on methods for assessing the effectiveness of incentive measures, including positive incentive measures and the removal of perverse incentive measures.

A. Perverse incentives

7. In past work under the Convention,[2] perverse incentives were conceptualized to emanate from policies or practices that induce unsustainable behaviour that destroys biodiversity, often as unanticipated side-effects of policies designed to attain other objectives. Environmentally harmful subsidies are a prime

[1] Decision V/15.
[2] UNEP/CBD/COP/5/15.

example.[3] According to the OECD, an environmentally harmful subsidy can be defined as the result of a government action that confers an advantage to consumers or producers, in order to supplement their income or lower their costs, but in doing so, discriminates against sound environmental practices.[4]

8. Perverse incentives may also emanate from some laws or regulations governing resources uses. For instance, many countries had, or still have, "beneficial use" rules that require land holders to make productive use of resources such as water or forests. Such rules may under certain circumstances – for instance, an increasing fragility of the resource due to changing climate patterns or a loss of resilience because of biodiversity loss – generate a perverse incentive to continue using the resource in a non-sustainable manner instead of switching to more adapted use patterns.[5] Moreover, perverse incentives may sometimes also emanate from environmental regulations, or from measures that were introduced to act as a positive incentive for the conservation and sustainable use of components of biodiversity.

9. At its fourth meeting, in 1998, the Conference of the Parties encouraged Parties, Governments and international organizations to identify perverse incentives and consider the removal or mitigation of their negative effects on biological diversity.[6] At its sixth meeting, in 2002, the Conference of the Parties endorsed proposals for the design and implementation of incentive measures as far as they are consistent with Parties' national policies and legislation as well as their international obligations.[7] The proposals contain guidelines for selecting appropriate and complementary incentive measures. The guidelines recognize:

(a) That the removal of perverse incentives eases pressure on the environment;

(b) That the identification of both internal and external perverse incentives and other threats to biodiversity conservation and to the promotion of sustainable use, is essential to the selection and design of incentive measures; and

(c) That the removal of perverse incentives may improve economic efficiency and reduce fiscal expenditures.

B. Positive incentive measures

10. A positive incentive measure is an economic, legal or institutional measure designed to encourage beneficial activities. [8] Further to a request expressed by the Conference of the Parties at its seventh meeting, the Executive Secretary prepared an analysis of existing and new instruments that provide positive incentives, their interaction with other policy measures, and their effectiveness, including their requirements for successful application, possible limitations and shortcomings. [9]

11. At its eighth meeting, the Conference of the Parties recognized that positive incentive measures can influence decision-making by recognizing and rewarding activities that are carried out for the conservation and sustainable use of biological diversity, and are important in achieving the objectives of the Convention and the 2010 biodiversity target, when such positive incentive measures are targeted, flexible, transparent, appropriately monitored and adapted to local conditions. [10]

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[3] See already UNEP/CBD/COP/5/15.
[4] See TEEB (2009), adapted from OECD (1998) and OECD (2005).
[5] UNEP/CBD/COP/5/15, paragraph 26.
[6] Decision IV/10 A, paragraph 1 (f).
[7] Decision VI/15, paragraph 1 and annex I.
[8] UNEP/CBD/COP/5/15, paragraph 5.
[9] Document UNEP/CBD/SBSTTA/11/INF/11.
[10] Decision VIII/26, preamble to the second section of the decision.

12. The Conference of the Parties encouraged relevant national, regional and international organizations and initiatives to strengthen mechanisms that build capacity and extend research and training on the design, implementation and review of positive incentive measures for the conservation and sustainable use of biodiversity, in accordance with domestic needs and priorities, taking into account the need to understand the risks of perverse effects on livelihoods, sustainable development or the biodiversity of third parties.[11]

13. At its ninth meeting, the Conference of the Parties decided to put more emphasis on, *inter alia*, "studies on approaches to develop markets and payment schemes for ecosystem services at local, national and international levels, their advantages as well as limitations and risks, and their potential implications for biodiversity and indigenous and local communities. [12]"

III. IDENTIFICATION AND REMOVAL OR MITIGATION OF PERVERSE INCENTIVES

A. Environmentally harmful subsidies

14. Spurred by a number of early studies of major international and non-governmental organizations published in the 1990s,[13] considerable analytical work has been undertaken in the last decade, in particular by the Organization for Economic Cooperation and Development (OECD)[14] on the implications of subsidy programmes for the cost-effectiveness of government expenditures, for social objectives and for the environment. Conceptual guidance was developed on how to best identify environmental harmful subsidies and on how to phase them out, or reform them, in light of various constraints and challenges. In parallel, efforts for subsidy removal or reform were made in various countries.

15. Despite a declining trend in some sectors, reflecting reform progress, and although global estimates are, for most sectors, still riddled with conceptual and data deficiencies, the existing data point to a three-digit US$ billion annual figure of subsidies provided globally to various economic sectors. For instance, according to the OECD, agricultural subsidies in OECD countries amounted in 2006-2008 to US$ 261 billion per year (OECD 2009). Global fisheries subsidies are estimated in the range of US$ 15-35 billion (UNEP, 2008), while energy subsidies amounted to US$ 220 billion in the 20 largest non-OECD countries in 2005 (UNEP 2008b).

16. Subsidies may generate environmentally harmful effects through two general mechanisms: (i) production subsidies which reduce input costs or increase revenue, such as the majority of agricultural support measures provided by OECD countries; (ii) consumer subsidies which imply the below-cost pricing for the use of natural resources. Both mechanisms provide incentives for the increased use of subsidized resources for increased production and consumption levels, resulting in increased environmental damage. According to TEEB (2009), agricultural and fisheries subsidies continue to be of particular concern in this regard, and existing analyses of other sectoral subsidies also point to a substantial potential for environmental gains by their reform.[15] For example:

(a) *Agriculture*. Agricultural subsidies that provide incentives to produce can lead to increased environmental damage through intensification, or through land-use change. Since the 1990s, many OECD countries have increasingly re-designed their support policies towards measures which are

[11] Ibid., paragraph 5.
[12] Decision IX/6, paragraph 1 (d).
[13] See for instance, FAO (1992), Larsson and Shaw (1992), OECD (1998); de Moor and Calamai (1997), Myers and Kent (1998), WWF (1998).
[14] See OECD publications in the compilation.
[15] See TEEB (2009) for concise summaries of sectoral subsidies.

more 'decoupled' from production. As more 'decoupled' support is less environmentally harmful than production-increasing support, progress can be recognized; however, more than half of all support in OECD countries is still directly increasing production.[16] A number of developing countries have also undertaken reforms of agricultural subsidies; e.g. by removing or reducing input subsidies for fertilizer use. For OECD countries, OECD notes that the better targeting of policies to specific income objectives or market failures remains a major challenge of ongoing policy reforms, and stresses that both decoupling and targeting are among the policy principles that have shown to improve effectiveness, efficiency and equity of policies (OECD 2009);

(b) *Fisheries.* Some fisheries subsidies can have the effect of increasing fishing capacity, and excessive capacity or catching power of global fishing fleets has been identified as a main cause of unsustainable fishing levels (UNEP 2004; FAO 2009). Capacity-enhancing subsidies are therefore viewed as potentially environmentally harmful (ibid.; UNEP 2008a);

(c) *Transport.* Land-use change that results from subsidies to transport infrastructure threatens biodiversity through habitat destruction and fragmentation, with significant impacts on the viability of ecosystems and species populations. According to a recent study published by the Center for International Forestry Research (CIFOR), transport infrastructure extension is a dominant proximate cause of deforestation;[17]

(d) *Water.* The below-cost pricing of water has lead in many cases to water over-use and wastage, which in turn has led to falling water tables, reduced availability for other user groups, needs for additional investment for water provision (e.g. wells by farmers and households) and in some cases damage to the aquifer itself (salt-water intrusion and increased pollution), while frequently not targeting the poorest (Komives et al. 2005);

(e) *Energy.* Among energy subsidies, subsidies to fossil fuels are of particular concern. According to the International Energy Agency (IEA), the fossil-fuel industry is among the most heavily subsidized economic sectors (IEA 2008). In OECD countries, production subsidies are most common, coming in the form of direct payments and tax breaks to producers, or support for research and development. In developing countries, electricity and household heating and cooking fuels are usually most heavily subsidized, and a number of countries subsidize road-transport fuels (GSI 2009). Analyses suggest that energy subsidy reform could not only significantly reduce greenhouse-gas emissions and air pollution, but also improve their cost-effectiveness against stated social objectives (Komives et al. 2005). [18]

17. Some environmental subsidies, such as some incentive programmes for the conservation and sustainable use of components of biodiversity, may unintentionally also generate perverse incentives. A classical, frequently quoted case relates to the eradication of invasive species. In Hanoi, under French colonial rule, a programme paying people a bounty for each rat pelt handed in was intended to exterminate rats – but instead, it led to the farming of rats (Vann 2003).

18. Such perverse incentives can arise already during the design stage of positive incentive measures; for instance, planning to offer payments for reforestation could generate increased deforestation if a baseline date is not properly defined early in the process. Programmes that strongly stress additionality are particularly at risk of creating perverse incentives: if payments are offered only when there are clear

[16] For agricultural policy in the European Union, see EC (2004) and Alliance Environnement (2007). See also TEBB (2009) for a brief summary.

[17] Kanninen et al. 2007, quoting Chomitz et al (2007).

[18] See also OECD (2008b) and FAO (2008) calling for a review of current biofuel support policies in OECD countries.

threats of degradation, then potential applicants may be induced to create such threats (Wunder et al 2008).

19. According to OECD, "subsidies are often inefficient, expensive, socially inequitable and environmentally harmful, imposing a burden on government budgets and taxpayers — all strong arguments for reforming the existing subsidy policies" (OECD 2005). It is noteworthy that environmentally harmful effects are only one item on this list – as OECD identifies a need for reform also for those subsidies which do not target their stated objectives, or are not cost-effective. The OECD has developed a range of useful analytical tools that help to identify subsidies which offer potential benefits from reform, and assess the likely benefits, including for the environment (see TEEB 2009 for a summary). [19]

20. Over the last decade, a series of OECD workshops on environmentally harmful subsidies identified a number of critical obstacles to subsidy reform as well as ways and means to overcome them.[20] These obstacles are rooted in the political economy of subsidy reform, and are in some important cases combined with technological and institutional barriers (OECD 2006):

(a) Subsidies tend to create a culture of entitlement;

(b) The benefits of subsidies tend to be concentrated in the hands of specific well organized groups, while their costs are spread widely across (poorly organized) taxpayers (and sometimes consumers);

(c) While reform can generate new economic opportunities in the long run, individuals may find it difficult in the short run to re-orient economic decisions and livelihoods. Identifying and understanding the very real short-run social impacts of dismantling subsidies is one of the most difficult aspects of reform;

(d) Subsidy impacts, their interactions with other policy tools, and the potential benefits from reform are often complex, and assessments which disentangle these complexities are often not readily available.[21]

21. Experience with existing reforms, analysed at OECD workshops, shows that the design of the reform process is a critical success factor. It needs to take the political economy and other barriers into consideration, and often hinges on five important conditions: (i) the policy objectives must be defined transparently and rigorously; (ii) the distribution of benefits and costs must be transparently identified; (iii) government must engage broadly with stakeholders; (iv) government should set ambitious endpoints, but, depending on circumstances, timetables for reform may be cautious; and (v) fiscal transfers are often required to facilitate the transition process (OECD 2007).

22. In the OECD report on implementation of the OECD Council recommendation on the use of economic instruments in biodiversity policies, only a few cases of subsidy reforms designed to reduce pressures on biodiversity were reported by OECD countries; only six examples were listed as subsidy-reform cases implemented since the adoption of the recommendation in 2004. According to OECD, this lack of reporting on subsidy reforms or removals seems in part to come from the fact that it is not easy to identify clearly those subsidies which constitute a perverse effect on biodiversity, since an effect on biodiversity is sometimes not anticipated at all (OECD 2008a).

[19] See also UNEP and WWF (2007) for such tools in the context of fisheries subsidies.
[20] OECD (2003), (2005) and (2007).
[21] The importance of such studies was also recognized by India in its submission to the Executive Secretary of the Convention on Biological Diversity.

B. Perverse incentives emanating from laws governing resources use

23. A number of policies and associated laws have been identified as generating perverse incentives for the conservation and sustainable use of components of biodiversity, and in particular of forest ecosystems.[22] Many of those relate to land and tenure systems; for instance:

(a) A requirement to remove the forest cover has frequently been a precondition for receiving land title. Such requirements have been shown to be a major factor in land conversion in a number of countries;[23]

(b) Laws that threaten "idle" lands with expropriation or higher taxes have in the past also encouraged deforestation and subsequent economic activities even when market forces would dictate otherwise;

(c) Legal provisions that separate ownership of forest resources from the land, unless properly monitored and enforced, promote the clearing of private lands. In particular when forest resources are formally owned by the State, deficient monitoring and enforcement capacities turn State-owned forests on private lands into an open-access resource.

24. Perverse incentives may also be associated with some environmental policies and/or regulations:

(a) The establishment of protected forest areas without effective monitoring and enforcement may generate perverse results because adjacent land users or owners – who have no possibilities of acquiring legal titles – have greater incentives to mine the forest resource;[24]

(b) Assigning protection status to species whose habitat is on private land may create no incentive to use the habitat of the species in a sustainable manner and may even create an incentive to (illegally) remove the species itself – which will pre-empt enforcement of the law or, at least, make its enforcement more costly. Similarly, assigning protection status to nuisance wildlife will generate a perverse incentive to "shoot, shovel and shut up", for clandestinely killing nuisance wildlife.

25. In a number of countries, considerable efforts have been made to remove these perverse incentives, especially with regard to land-clearing requirements. However, commentators have underlined the need to combine such efforts with the reform of traditional macro-economic and sectoral policies that have encouraged the unsustainable use of biodiversity resources, and/or the conversion into agricultural land of areas without agricultural value.[25]

26. In order to address the perverse incentives associated with some environmental policies and regulations in combination with weak monitoring and enforcements capacities, many countries developed policies which strengthened community involvement and capacity in managing natural resources, in particular in protected-area management. In a number of instances, incentive programmes were also implemented which, for instance, compensated for the loss of revenue associated with species protection programmes or which compensate the loss of harvest due to nuisance wildlife. [26] Such measures will be addressed in the next section.

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[22] See Jaramillo and Kelly (1999) for a summary.
[23] See, with additional references, Contreras-Hermosilla (2000).
[24] Jaramillo and Kelly (1999).
[25] Ibid.
[26] See document UNEP/CBD/COP/9/12/Add.1.

IV. PROMOTION OF POSITIVE INCENTIVE MEASURES

27. Positive incentive measures encourage the achievement of biodiversity-friendly outcomes or support activities that promote the conservation and sustainable use of biodiversity. In many countries, such incentives are also generated through the use of breaks on governmental levies such as taxes, fees or tariffs that grant advantages or exemptions for activities that are beneficial for conservation and/or sustainable use.

28. Positive incentive measures can be further differentiated into direct and indirect approaches. [27] Direct approaches generally involve paying relevant actors to achieve biodiversity-friendly outcomes or, conversely, to not achieve biodiversity-harmful outcomes. Indirect approaches seek to support activities or projects that are not designed exclusively to conserve or promote the sustainable use of biodiversity, but also have the effect of contributing to these objectives.

A. Direct approaches

29. Because of their financial and institutional capacity requirements, payment-based measures tended to be applied almost exclusively by, and are presumably still most common in, developed countries. A prominent example is the multitude of payments provided to farmers under the agri-environmental programmes of most OECD countries, some of which are going back to the 1980s (FAO 2006). However, with the recent advent in popularity of 'payments for ecosystem services' (PES) schemes, an increasing number of developing countries are also applying such monetary incentive measures, frequently with the support of multilateral and bilateral donor organizations. Such direct approaches typically involve the acquisition, based on a voluntary programme offered by private or public actors, of certain or all use and development rights of an area in exchange for a payment.[28]

30. The first PES programmes implemented in developing countries formed part of forest conservation initiatives in Latin America, and FAO notes that PES schemes in developing countries are still focused on forest-related ecosystem services.[29] Both globally as well as in OECD countries, positive incentive measures are one of the most frequently used economic instruments in biodiversity management.[30] While they are used extensively across all policy areas and almost all responding countries, they are mostly applied in agriculture and forestry. In agriculture for instance, many OECD countries have increased payments under agri-environmental programmes in recent years and, according to OECD, this illustrates that reforming agricultural policy towards more environmentally friendly practices is a common trend in OECD countries, and gives an example of the potential for integrating biodiversity concerns into a broader policy context (OECD 2009).

31. The broad application of these schemes can be explained by, *inter alia*, high enforcement and monitoring costs of regulations and access restrictions (OECD 2008). Engel et al. (2008) also note that land users cooperate more easily when they are offered carrots rather than threatened with sticks. However, payments tend to be expensive for tax payers (OECD 2008), and Engel et al (2008) identify a number of other risks and limitations: (i) they can suffer from A lack of additionality (i.e., paying for

[27] See for instance Ferraro and Kiss (2002), Ferraro and Simpson (2002).

[28] See the 'classical' definition by Wunder (2005): payments for ecosystem services are (a) a voluntary transaction where (b) a well-defined environmental service (ES) or a land use likely to secure that service (c) is being 'bought' by a (minimum one) service buyer (d) from a (minimum one) service provider (e) if and only if the service provider secures service provision (conditionality).

[29] FAO (2006), quoting Landell-Mills and Porras (2002). For instance, one of the most notable early programmes, initiated in Costa Rica in 1996, was designed to enhance various forest environmental services.

[30] See UNEP/CBD/COP/9/12/Add.1 for an analysis of information on positive incentive measures provided by Parties in their third national reports, as well as OECD (2008) for an analysis of OECD countries.

activities that would have been conducted anyway); (ii) they can suffer from leakage (i.e., shifting environmentally-damaging activities elsewhere); (iii) they can also create perverse incentives (e.g., inducing an expansion of environmentally destructive activities to obtain higher payments later on); (iv) they may be misused for protectionist purposes.

32. Positive incentives are frequently provided in combination with use-restricting regulatory approaches, such as the assignment of protection status to species or areas, thus helping to alleviate enforcement challenges. Examples include payments for wildlife and wildlife-habitat conservation such as the compensation of losses in crop or lifestock due to wildlife, or conservation leases for wildlife-migration corridors. Other examples of positive measures include: performance payments for sustainable agricultural practices regarding endangered species or ecosystem restoration;[31] payments for the use of endangered local varieties;[32] or payments for the improved provision of ecosystem services such as for instance the hydrological services provided by forests.

33. For most of those payment programmes, targets are defined in the form of a specific farming practice rather than a specific (measurable) environmental outcome. While the use of such 'proxy indicators' is sometimes more practical and easier to monitor, in particular in light of existing deficiencies in biodiversity indicators and associated data sets,[33] it may give rise to a certain lack of effectiveness and also risks to lock-in practices or technologies rather than encouraging innovation and new management techniques (OECD 2008a). In general terms, OECD notes that better targeting of agricultural policies to specific income objectives or market failures (including environmental objectives) remains a major challenge of ongoing policy reforms in OECD countries (OECD 2009).

34. The need for better targeting is a recurrent theme in the literature. For instance, a 2005 analysis of agri-environmental payments in the European Union presented a mixed picture – it noted generally positive effects of the measures on habitat preservation, but also observed that measures in most Member States are insufficient in preventing the decline of the number of endangered breeds. It also called for the development of impact-oriented monitoring and evaluation procedures and better targeting to farms and other environmentally sensitive areas (Oréade-Brèche 2005).

35. Wunder et al (2008) provide an analysis of the effectiveness and cost-efficiency of PES programmes. They also observe that payments are typically based – implicitly or explicitly – on the cost of ecosystem service provision, rather than on the value of the ecosystem service itself. Accordingly, they note that the targeting of payments and of tailoring programmes to local conditions and needs is difficult for government-funded programmes.[34] On the other hand, they also note that government-financed programmes, as they are typically much larger than programmes directly funded by end-users, often benefit from significant economies of scale, and that some government-financed programmes are moving towards mobilizing additional financing sources from individual ecosystem service users to complement their public financing, as well as to more differentiated and targeted payments. It can be concluded that cost-effective PES programmes require careful design based on the characteristics of the service and the biophysical and socio-economic context (FAO 2006).

[31] Submission from Cuba to the Executive Secretary of the Convention on Biological Diversity.

[32] Submission from India to the Executive Secretary of the Convention on Biological Diversity. See also Almekinder (2002) and Köhler-Rollefson (2004) on incentive measures for agro-biodiversity in South Africa.

[33] Cuba, in its submission, also pointed to the lack of economic data on the values of biodiversity and environmental damage as a barrier for the implementation of positive incentive measures.

[34] Securing effective monitoring and the willingness to enforce conditionality are other challenges identified.

36. The sustainable funding of incentive payments is an important issue.[35] Environmental funds are used in many countries to fund payments on an ongoing basis.[36] Taxes or fees that generate disincentives towards environmentally harmful activities can be used to source the funds. In Cuba for instance, the forestry tax and the Havana Bay user tax are channelled into funds which provide support, respectively, for reforestation and the cleanup of Havana Bay.[37] In India, developers were obliged by a ruling of the Supreme Court to pay compensation for biodiversity lost as a result of development activities. Receipts of these payments, which are based on a mandatory assessment of the net present value of the biodiversity asset under threat, are then used to implement the respective State Biodiversity Action Plan.[38]

37. Wunder et al (2008) note that some programmes suffer from limited enrolment due to low payments, which clearly hampers the effectiveness of these programmes. On the other hand, avoiding the over-compensation of recipients is an important means to ensure that payments are cost-efficient and that the funding needs for payment programmes are minimized. Avoiding overcompensation is also important as payments, in particular if higher than necessary to meet the environmental objective, will give a competitive advantage to recipients in domestic or international markets.[39] According to the literature, auctioning mechanisms are useful tools to increase the cost-efficiency of payment programmes and to avoid overcompensation,[40] if some conditions are met.[41] In the context of the management of environmental funds, competitive mechanisms for assigning grants can also be useful.[42]

38. As regards poverty alleviation objectives, FAO notes that the poor normally gain access to PES programmes in developing countries, and become better off from their participation. Depending on the design of the programme, this may happen even without explicit pro-poor targeting. For instance, even if poor farmers are not being targeted, they may end up being over-represented in the contracts if the programme caters to marginal lands at the edge of profitability (FAO 2006). In general terms, FAO concludes that, even while payments for environmental services are not primarily a poverty reduction tool, the poor are likely to be affected and implications for them must be considered. PES programmes if properly designed have been shown to be potentially accessible and beneficial to the poor.

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[35] Their funding requirements need to be compared not only with those of other measures, but also with the costs of inaction with respect to biodiversity loss. Loss of biodiversity is often irreversible. The longer decision-makers wait to act, the greater the costs societies will ultimately have to pay. See OECD (2005).

[36] In India, local governments were empowered to set up 'Local Biodiversity Funds' by collecting levies on the use of local biological resources for commercial purposes, with a view to promote conservation, including the provision of fiscal incentives to individuals or communities. See submission of India to the Executive Secretary of the Convention on Biological Diversity. In Australia, revolving funds are used as a mechanism to reduce the level of monies that need to be available on a permanent, long-term basis. See UNEP/CBD/SBSTTA/11/INF/15 for details. Funds to support conservation efforts on private land are also under in New Zealand; see http://www.biodiversity.govt.nz/land/nzbs/pvtland/index.html .

[37] Submission of Cuba to the Executive Secretary of the Convention on Biological Diversity.

[38] Submission of India to the Executive Secretary of the Convention on Biological Diversity.

[39] See OECD 2000, Latacz-Lohmann 2000.

[40] Information asymmetries between landowners and regulators as regards the (opportunity) costs of procuring the ecosystem services risk to lead to informational rents for landowners in form of overcompensation under payment programmes. Auctions can help to alleviate this problem and thus contribute to cost savings. See Latacz-Lohmann and van der Hamsvoort (1997), Ferraro (2005), Engel et al. (2007). Such mechanisms are for instance used in Australia's BushTender programme, described in UNEP/CBD/SBSTTA/11/INF/11.

[41] They include: (i) a geographical scope which includes a sufficient amount of bidders, thereby avoiding a problem of "thin" markets and subsequent poor competition, and (ii) tenders that are awarded, to the extent feasible, on the basis of outcomes instead of concrete activities, because basing awards on concrete activities will lead to inefficiencies if similar activities generate different conservation benefits in different geographical areas.

[42] Submission from Cuba to the Executive Secretary of the Convention on Biological Diversity.

39. Discussions are currently taking place on whether and how to scale payments for ecosystem services up to the international level. An international expert workshop on such a global financial mechanism, hosted in Amsterdam in January 2009 by the Netherland Government in cooperation with the International Finance Corporation (IFC), IUCN, the United Nations Environment Programme (UNEP), and the Secretariat of the Convention on Biological Diversity, made the case for such a global mechanism and identified a number of options for its development.[43]

40. The current discussions under the United Nations Framework Convention on Climate Change (UNFCCC) on mechanisms for reducing emissions from deforestation and forest degradation (REDD) are also relevant. According to the draft findings of the second Ad Hoc Technical Expert Group on Biodiversity and Climate Change, implementing REDD activities in identified areas of high carbon stocks and high biodiversity values can promote co-benefits for climate change mitigation and biodiversity conservation and complement the aims and objective of UNFCCC and other international conventions, including the Convention on Biological Diversity. However, the specific design of potential REDD mechanisms (e.g., carbon-accounting schemes, definition of reference scenarios, time-frames, etc.) can have important impacts on biodiversity conservation. For instance, addressing forest degradation is important because degradation leads to loss of carbon and biodiversity, decreases forest resilience to fire and drought, and often leads to deforestation. Furthermore, both intra- and inter-national displacement of emissions ('leakage') under REDD can have important consequences for both carbon and biodiversity, and therefore require consideration for achieving mutual benefits.[44]

B. Indirect approaches

41. A number of countries use measures which support activities or projects that are not designed exclusively to conserve or promote the sustainable use of biodiversity, but have the side-effect of contributing to these objectives, for instance, in the context of the generation of markets for biodiversity-related goods and services, or of community-based natural resource management programmes. [45]

42. The concrete performance of an indirect mechanism will depend on a number of factors, such as the programme design and implementation as well as the ecological, climate and socio-economic peculiarities of the target region, as well as the general policy framework in place and the political will to address biodiversity decline. It has been argued that indirect approaches may be less cost effective than the direct approaches discussed above. [46] However, financial sustainability is also to be considered—from this perspective, successful market-creation may fare better than, for instance, programmes that rely on ongoing payments.

43. Examples of measures provided include support to the development and promotion of markets for biodiversity-based products or services, such as the development of sustainable tourism or eco-tourism in specific biodiversity-rich regions, or the marketing of other biodiversity-related goods and services such as, for instance, non-timber forest resources. Market creation often occurs through non-monetary means, such as the removal of barriers to trading, the provision of consumer information through e.g. eco-labelling, and/or the assignment of well-defined and stable property rights. [47] For

[43] See Mullan and Swanson (2009).

[44] See document UNEP/CBD/AHTEG/BD-CC-2/2/5, annex III; available on www.cbd.int.

[45] See UNEP/CBD/COP/9/12/Add.1 for an overview of information on such indirect measures provided by Parties in their Third National Reports.

[46] Ferraro and Simpson (2002), Kiss (2001), Ferraro and Kiss (2002). See also the Millennium Ecosystem Assessment, volume three, chapter 5.

[47] OECD (2003).

instance, the assignment of property rights has been employed in connection with the management of commercial fish stocks in the form of individually transferable quotas (ITQs).[48]

44. Community-based natural resource management programmes typically rely on the involvement of local communities in, for instance, wildlife conservation or sustainable forestry management. In the pertinent literature, the generation or sharing of revenue for these local communities is recognized as a key element in these programmes.[49] For example, the Indian Joint Forestry Management System emphasizes the sharing of benefits with the communities. Although details differ among states, committees in almost all states hold full rights over most non-timber forest products, and are entitled to receive a share of receipts for those exempt from full entitlement. Moreover, 25 to 50 per cent of the receipts from timber sales by the Forest Department go to the committees. Positive changes in livelihood conditions of those communities have been observed accordingly.[50]

45. The sharing of benefits may also be implemented in the context of the use and commercialization of genetic resources or traditional knowledge, for instance associated with traditional medicinal plants. Both Egypt and India, in their submissions, pointed to such benefit-sharing with local communities in the context of the use and commercialization of medicinal plants.

46. Programmes generating indirect incentives are often implemented in the context of protected-area management. In India and in Egypt, for example, revenues and livelihoods are generated for local communities adjacent to protected areas through the promotion of eco-tourism in the protected area. This may include the training of locals as eco-guides (paid at least in part by entry fees), the provision of food and lodging, the promotion of local arts and crafts, etc.[51] Egypt concludes that the effective integration of tourism, local economic development and protected-area management through the expansion of nature-based tourism can direct economic benefits to remote rural areas and increase conservation incentives. Important lessons learned include: (i) community participation needs to start early on and as a long-term commitment; (ii) inputs have to be sustained to gain the trust and confidence of local people; (iii) benefits must be tangible, tailored and appropriately scaled; (iv) the responsibility of local people as traditional resource managers must be acknowledged and used.

47. At the international level, a number of programmes provide monetary support to developing countries for the creation and promotion of markets for biodiversity-based products. One example is the UNCTAD Biotrade Initiative, which seeks to promote trade in goods and services derived from the sustainable use of biodiversity. Country programmes exist in Bolivia, Colombia, Ecuador, Peru and Venezuela. In addition, regional programmes promote the dissemination of national experiences and knowledge at the regional level, develop regional activities, and support regional cooperation. Currently, UNCTAD Biotrade is cooperating in two regional programmes: the Andean Biotrade Programme with the Andean Development Corporation and the Andean Community, as well as the Programme Bolsa Amazonia with the Brazilian non-governmental organization Programme Poverty and Environment in Amazonia (POEMA).[52]

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[48] Under the wetlands mitigation system in the United States, incentives were generated for private actors to establish or restore wetland areas that can be used for mitigation banking purposes. Demand for these wetlands is generated by a legal requirement for developers to offset the biodiversity damage of their project. For work on such biodiversity offsets, see also http://bbop.forest-trends.org/ .

[49] See Mogaka et al. (2001) for an analysis of such programmes in Central and Eastern Africa, and Emerton (2001) for case studies.

[50] Submission from India to the Executive Secretary of the Convention on Biological Diversity.

[51] Submissions from India and Egypt to the Executive Secretary of the Convention on Biological Diversity.

[52] See http://www.biotrade.org.

V. LINKAGES BETWEEN THE REMOVAL OR MITIGATION OF PERVERSE, AND THE PROMOTION OF POSITIVE, INCENTIVE MEASURES

48. In accordance with decision IX/6, the workshop will address both "the removal and mitigation of perverse, and the promotion of positive, incentive measures". This wording suggests putting emphasis, in the envisaged work of the workshop, on the linkages between the former and the latter.

A. Linkages between the removal or mitigation of perverse subsidies and the provision of positive incentive measures

49. An important interrelationship arises in the context of reforming environmentally harmful subsidies and the provision of monetary positive incentive measures for the conservation and sustainable use of biodiversity. It has been a recurring theme in the international debate on environmentally harmful subsidies, and in particular in the work of OECD, that introducing such positive incentive measures without the simultaneous or prior reduction or removal of environmentally harmful subsidies would lead to incoherent and inefficient policies – because they would effectively pull into opposite directions. [53] The simultaneous or prior reduction or removal of input-linked or production-linked subsidies would increase efficiency in two regards:

(a) First, their reduction or removal would free up scarce public funds, which could be used, *inter alia*, for the provision of the positive incentive measures;

(b) Second, their reduction or removal, by alleviating the emanating perverse incentive, will already make a positive environmental contribution. Accordingly, the amount of the positive incentive measure which is needed to attain a given environmental target will be smaller, because it no longer needs to offset the damaging effects of the harmful subsidy (OECD 2009).

50. The OECD notes that in OECD countries, the coherence of agricultural, agri-environmental and environmental policies (policy coherence) has generally improved in the past two decades. Some OECD countries have taken steps to streamline agri-environmental policies measures within over-arching frameworks or action plans addressing environmental or rural development objectives (OECD 2009). As regards biodiversity policies more specifically, the OECD points however to generally uneven progress: "the most commonly noted economic instrument in use for biodiversity conservation or sustainable use is positive subsidies for biodiversity-friendly behaviour, with a number of countries also noting the use of biodiversity-related fees, charges and taxes. Less progress is noted, however, in the reform of perverse incentives" (OECD 2008). [54]

B. Using positive incentive measures to mitigate perverse effects emanating from some laws governing resource use

51. Under certain circumstances, positive incentive measures could be applied for mitigating some perverse incentives – not for those emanating from environmentally harmful subsidies, as this would lead to incoherent and inefficient policies, as explained in the previous sub-section, but for some laws

[53] See, e.g., OECD (2003) and OECD (2009).

[54] The observation that countries are more advanced in designing and implementing incentive programmes than in removing or mitigating perverse incentives is confirmed at the global level by the information provided by Parties in their third national reports.. As of September 2009, 65% of reporting Parties indicated in general that they had some or comprehensive incentive programmes in place, but only 40% of Parties had made progress in identifying and removing or mitigating perverse incentives, and only 5% said that relevant perverse incentives were identified and removed or mitigated in their entirety. See http://www.cbd.int/reports/analyzer.shtml .

governing resource use. As explained above, indirect positive-incentive measures are frequently encountered in the context of protected-area management, in order to alleviate limited enforcement capacities. Likewise, laws that mandate species protection or that assign protection status to nuisance wildlife will generate a perverse incentive for clandestinely killing nuisance wildlife, and the provision of compensatory payments, for instance for loss of harvest or livestock due to foraging wildlife, may help to mitigate this perverse incentive.

C. Avoiding perverse incentives to result from positive incentive measures

52. Finally, as explained above, programmes that offer positive incentives need to be designed carefully so as to avoid the generation of perverse incentives; for instance, by defining eligibility and baseline dates early in the design process (see Wunder et al 2008).

VI. CRITERIA FOR IDENTIFYING GOOD PRACTICE CASES

53. According to decision IX/6, the task of the workshop is to "identify a limited number of good practice cases from different regions." A review was undertaken of some existing collections of good practice cases in other areas, [55] in order to identify criteria for what constitutes a good practice case. Based on this review, the following criteria are suggested for the identification of good practice cases:

(a) The case should present a policy or policy reform with a substantial contribution to the conservation and sustainable use of biological diversity;

(b) The case should present examples of positive practice and innovation, creative ways of overcoming barriers and resistance to change, and/or ways of making better use of resources;

(c) The case should present a good possibility of replication at least within the region, possibly with some adaptation or modification; at the minimum, it should provide a useful reference when searching ideas for own initiatives.

54. The annex to this note provides a tentative and non-comprehensive list of country cases, referred to in recent contributions or recent submissions, on the removal or mitigation of perverse incentives, and/or the promotion of positive incentive measures for the conservation and sustainable use of biodiversity. No claim is made that all or any of those represent "good practice cases". Instead, the objective of this tentative list is to provide a starting point for the work of experts in delivering on the second part of the mandate, that is, the identification of a limited number of good practice cases from different regions.

[55] This following approaches were reviewed: the online collection of good practice cases for energy efficiency and the use of renewable energy of the European Union's ManagEnery programme (www.managenergy.net), the 2006 publication of the Asian Development Bank "Urbanization and Sustainability in Asia: Good Practice Approaches in Urban Region Development", and the online collection of good practice cases of the Audit Commission of the United Kingdom of Great Britain and Northern Ireland (www.audit-commission.gov.uk/housing/goodpractice/).

REFERENCES

Alliance Environnement (2007): *Evaluation of the Application of Cross-compliance under Regulation 1782/2003. Executive Summary*.

Almekinders, C.J.M. (Comp.) (2002): *Incentive measures for sustainable use and conservation of agrobiodiversity. Experiences and lessons from Southern Africa*. Proceedings of a Workshop, Lusaka, Zambia, 11-14 September 2001.

Australia (2004): *Biodiversity Stewardship Payments in Australia*. Submission to the Executive Secretary of the Convention on Biological Diversity.

Egypt: "Promotion of positive incentive measures in Egypt", submitted to the Executive Secretary of the Convetion on Biological Diversity.

Asquith, N. M., M. T. Vargas, S. Wunder (2008): "Selling two environmental services: In-kind payments for bird habitat and watershed protection in Los Negros, Bolivia". *Ecological Economics* 65.4 (2008): 675-684.

Bacon, R. and M. Kojima (2006): *Phasing Out Subsidies. Recent Experiences with Fuel in Developing Countries.* World Bank Group, Financial and Private Sector Development Vice Presidency, Note 310.

Bennett, Michael T (2008): "China's sloping land conversion program: Institutional Innovation or Business as Usual?" *Ecological Economics* 65.4 (2008): 699-711.

Colombia (2004): Information on incentive measures for the conservation and sustainable use of biodiversity in Colombia. Submission to the Executive Secretary of the Convetion on biological Diversity.

Contreras-Hermosilla, A. (2000): *The Underlying Causes of Forest Decline*. Center for International Forestry Research (CIFOR) Occasional Paper No.30.

Chomitz, K.M., P. Buys, G. de Luca, T.S. Thomas and S. Wertz-Kanounnikoff (2007): *At Loggerheads? Agricultural Expansion, Poverty Reduction, and Environment in the Tropical Forests*. World Bank, Jakarta, Indonesia. 284p.

Cornish, G.; B. Bosworth; C. Perry (2004): *Water charging in irrigated agriculture. An analysis of international experience.* Food and Agriculture Organization of the United Nations. Rome.

Cuba (2009): (2009): "The Cuban Environmental Policy: Experiences on Positive Measures for Biodiversity", by Raul Garrido Vasquez. Submission to the Executive Secretary of the Convention on Biological Diversity.

De Moor, A.P.G. and P. Calamai (1997): *Subsidizing Unsustainable Development: Undermining the Earth with Public Funds*, The Earth Council, San Jose, Costa Rica.

DFID (2000): Target Strategy Paper, Department for International Development, London, UK (2000)

ECLAC/UNDP (2001): "Financing for Sustainable Development in Latin America and the Caribbean." Paper prepared for the Regional Preparatory Conference of the Latin America and the Caribbean for the World Conference on Sustainable Development, Economic Commission for Latin America and the Caribbean, and the United Nations Development Programme.

Emerton, L. (2001): *Community-based incentives for nature conservation*. IUCN – The World Conservation Union, Eastern Africa Regional Office.

Engel, S., S. Pagiola, S. Wunder (2008): "Designing payments for environmental services in theory and practice: An overview of the issues". *Ecological Economics* 65, pp. 663 – 674.

Engel, S., T. Wünscher, S. Wunder (2007): "Increasing the Efficiency of Conservation Spending: The case of Payments for Environmental Services in Costa Rica". In: C.B. Schmitt, T. Pistorius and G. Winkel (eds.) . *A Global Network of Forest Protected Areas under the CBD: Opportunities and Challenges.* Freiburg Schriften zur Forst- und Umweltpolitk 16. Remagen.

European Community (2004): Incentive measures in the European Union and some of its Member States. Submission to the Executive Secretary of the Convention on Biological Diversity.

FAO (1992), "Marine fisheries and the Law of the Sea: a decade of change", FAO Fisheries Circular No. 853 (FID/C853), Food and Agriculture Organization of the United Nations, Rome.

FAO (2006): *Paying Farmers for Environmental Services*. The State of Food and Agriculture 2006. Food and Agriculture Organization of the United Nations, Rome.

FAO (2008): *Biofuels: prospects, risks and opportunities.*.

FAO (2009): *State of World Fisheries and Aquaculture 2009.* Food and Agriculture Organization of the United Nations, Rome.

Ferraro, P. J. (2005): Asymmetric Information and Contract Design for Payments for Environment Services. Paper presented at the workshop on "Payments for environmental services – methods and design in developed and developing countries", CIFOR and Center for Development Research, University of Bonn, Titisee, Germany, 15-18 June 2005.

Ferraro, P.J.; A. Kiss (2002): "Direct Payments to Conserve Biodiversity". *Science* 298, 1718-1719.

Ferraro, Paul J. and R. David Simpson. 2002. "The Cost-Effectiveness of Conservation Payments." *Land Economics 78 (3)*, 339-53.

Frost, Peter G.H., Ivan Bond. "The CAMPFIRE programme in Zimbabwe: Payments for wildlife services". Ecological Economics 65.4 (2008): 776-787.

GHK, IEEP, Ecolas and Cambridge Econometrics (2006): *Strategic evaluation on environment and risk prevention under Structural and Cohesion Funds for the period 2007-2013.*

India (2004): "Case-study on incentive based mechanisms for watershed management", Submission to the Executive Secretary of the Convention on Biological Diversity.

India (2009): "Implementation of Article 11 of CBD" Submission to the Executive Secretary of the Convention on Biological Diversity.

GSI (2009): Energy page of the website of the Global Subsidies Initiative, International Institute for Sustainable Development (IISD), www.globalsubsidies.org/ .

IEA (2008), *World Energy Outlook 2008*, International Energy Agency. OECD Publications, Paris.

IEEP et al. (2007): *Reforming Environmentally Harmful Subsidies - a report to the European Commission's DG Environment.* Institute for European Environmental Policy, Ecologic, FEEM, and IVIEA.

IMF (2000): "The IMF and Environmental Issues." Issues Brief, International Monetary Fund, Washington, D.C.

Interagency Report on Environmental Fiscal Reform (2005): *What should be done and How to Achieve it.* Government of Denmark, GTZ, DFID, EC, Ministry for Foreign Affairs Finland, BMZ Germany, SIDA, Swiss Ministry of Foreign Affairs, UNDP, UNEP, WB).

Jaramillo, C. F. and T. J. Kelly (1999): "Deforestation and Property Rights in Latin America." In: Keipi, K. (ed.): *Forest Resource Policy in Latin America*. Inter-American Development Bank, Washington, D.C.

Kanninen, M.; D. Murdiyarso; F. Seymour; A. Angelsen; S. Wunder; L. German (2007): *Do trees grow on money? The implications of deforestation research for policies to promote REDD*. Center for International Forestry Research (CIFOR), Bogor, Indonesia.

Kiss, A. 2001. Making Biodiversity Conservation and Land Use Priority. Presented at the CGIS/WWF Workshop on Integrated Conservation and Development Projects. 9 October, Moreges, Switzerland.

Kloezen, W.H. (2002): *Accounting for water. Institutional viability and impacts of market-oriented irrigation interventions in Central Mexico*. University of Wageningen, The Netherlands.

Koehler-Rollefson (2004): Farm Animal Genetic Resources: Safeguarding National Assets for Food Security and Trade. Food and Agriculture Organization of the United Nations, Rome.

Komives, K.; V. Foster; J. Halpern and Q. Wodon (2005): *Water, Electricity, and the Poor: Who Benefits from Utility Subsidies?* World Bank, Washington, D.C.

Landell-Mills, N. and I.T. Porras (2002): *Silver bullet or fools' gold? A global review of markets for forest environmental services and their impact on the poor*. International Institute for Environment and Development: London.

Larson, B. and A. Shah (1992), "World energy subsidies and global carbon dioxide emissions", World Development Report 1992 (Background Paper No. 25), World Bank, Washington, D.C.

Latacz-Lohmann, U.; C. P. van der Hamsvoort (1997): "Auctioning Conservation Contracts: A theoretical Analysis and an Application." *American Journal of Agricultural Economics 79*, 407-18.

Millennium Ecosystem Assessment (2005): *Ecosystems and Human Well-being:* World Resources Institute,Washington,DC.

Millennium Ecosystem Assessment, volume three, chapter 5.

Mogaka, Hezron, Gacheke Simons, Jane Turpie, Lucy Emerton and Francis Karanja (2001): "Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa." IUCN – The World Conservation Union and Natural Resources International. March 2001.

Muñoz-Piña, Carlos, Alejandro Guevarab, Juan Manuel Torresc, Josefina Braña. "Paying for the hydrological services of Mexico's forests: Analysis, negotiations and results". Ecological Economics 65.4 (2008): 725-736.

Mullan, K., T. Swanson (2009): *An international market-based instrument to finance biodiversity conservation: towards a Green Development Mechanism. Report of an expert workshop*, Amsterdam, 9 – 10 February 2009.

Myers, N., with J. Kent (1998): *Perverse Subsidies — Tax Dollars Undercutting our Economies and Environments Alike.* International Institute for Sustainable Development, Winnipeg, Manitoba, Canada.

Nichols, P (2003): "A Developing Country Puts a Halt to Foreign Over-fishing" *Economic Perspectives*, U.S. Department of State.

OECD (1998): *Improving the Environment through Reducing Subsidies*. OECD, Paris.

OECD (1999): *Handbook of Incentive Measures for Biodiversity.* OECD, Paris.

OECD (2003): *Subsidy Reform and Sustainable Development: Economic, Environmental and Social Aspects.* OECD, Paris.

OECD (2005): *Environmentally Harmful Subsidies: Challenges for Reform.* OECD, Paris.

OECD (2006): *"Subsidy Reform and Sustainable Development: Economic, Environmental and Social Aspects". OECD Sustainable Development Studies*.

OECD (2007): *Subsidy Reform and Sustainable Development: Political economy aspects.* OECD, Paris.

OECD (2008a): *Implementation of the 2004 OECD Council recommendation on the use of economic instruments in promoting the conservation and sustainable use of biodiversity*. OECD, Paris.

OECD (2008b): *Biofuel Support Policies. An Economic Assessment.* OECD, Paris.

OECD (2009): *Agricultural Policies in OECD Countries. Monitoring and Evaluation.* OECD, Paris.

Oréade-Brèche (2005): *Evaluation of Agri-environmental Measures in the European Union. Executive Summary.*

Pagiola, Stefano (2008): *"Payments for environmental services in Costa Rica". Ecological Economics 65.4 (2008)*

St. Lucia: Adjusting to a new Way of Life – Management Areas and Fishers. By D. Pierre. Submiaaion of St. Lucia to the Executive Secretary of the Convetion on Biological Diversity.

TEEB (2009): "Reforming Subsidies". *Draft chapter 7 of the TEEB Report for Policy Makers.* The Economics of Ecosystems and Biodiversity.

UNEP (2004): *Analyzing the Resource Impact of Fisheries Subsidies: A Matrix Approach.* UNEP, Geneva.

UNEP (2008a): *Fisheries Subsidies: A Critical Issue for Trade and Sustainable Development at the WTO: An Introductory Guide.* UNEP, Geneva.

UNEP (2008b): *Reforming Energy Subsidies - Opportunities to Contribute to the Climate Change Agenda.* UNEP, Geneva.

UNEP and WWF (2007) *Sustainability Criteria for Fisheries Subsidies: Options for the WTO and beyond.* UNEP, Geneva.

Vann, Michael G. (2003): *Of Rats, Rice, and Race: The Great Hanoi Rat Massacre, an Episode in French Colonial History.* French Colonial History 4, pp. 191-203.

Vasquez, Raul Garrido (2009): "The Cuban Environmental Policy: Experiences on Positive Measures for Biodiversity". Submission to the Executive Secretary of the Convention on Biological Diversity.

World Bank (2005): *Environmental Fiscal Reform. What Should be Done and How to Achieve It.* International Bank for Reconstruction and Development, Washington, D.C.

Wunder, S. (2005): *Payments for Environmental Services: Some Nuts and Bolts*. Occasional Paper No. 42. CIFOR, Bogor.

Wunder, S., S. Engel, S. Pagiola (2008): Taking stock: A comparative analysis of payments for environmental services programs in developed and developing countries. *Ecological Economics* 65.4 (2008): 834 – 852.

Wunder, S., M. Albán (2008): "Decentralized payments for environmental services: The cases of Pimampiro and PROFAFOR in Ecuador". Ecological Economics 65.4 (2008): 685-698.

WWF International, Endangered Seas Campaign (1998), *The Footprint of Distant Water Fleets on World Fisheries*, WWF International, Godalming, Surrey, United Kingdom.

Zulu, Edward Dalitso (2002). "Seed legislation in Zambia and possible incentives for use and conservation of agrobiodiversity". In: Almekinders, C.J.M. (Comp.), 2002. Op. cit.

Annex

A TENTATIVE LIST OF CASE-STUDIES ON THE REMOVAL OR MITIGATION OF PERVERSE INCENTIVES AND THE PROMOTION OF POSITIVE INCENTIVE MEASURES

Africa

Seed Banks in Ethiopia

To combat the effects of weather related crop failure, a number of community seed banks (CSBs) in Ethiopia serve as a community-based system of seed security, as a germplasm reposity and as a grain reserve.

Source: Feyissa (2001)

Fuel subsidy reform in Ghana

The success of Ghana's fuel subsidy reform was based on an assessment of the social and poverty impacts of fuel subsidies and their reform which involved relevant stakeholders, and a number of transparent measures to mitigate the social impacts of the subsequent price increases, including the elimination of school fees and improvements in public transport.

Source: Bacon, R. and M. Kojima (2006), quoted in TEEB (2009).

Namibia's Sustainable Fishing Practices

After reform, Namibia's coastal waters are subject to quota fees, based on a total allowable catch for major species, with a bias towards Namibian vessels. Infrastructure was improved, patrols at sea and an integrated inspection programme were implemented, resulting in higher incentives to fish in a sustainable manner.

Source: Nichols (2003), quoted in World Bank (2005)

Zimbabwe's CAMPFIRE Programme

In 1989, Zimbabwe implemented the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), a community-based natural resource management program. Despite minor problems, the programme has been emulated throughout southern and eastern Africa.

Source: Frost and Bond (2005), quoted in *Ecological Economics* 65 (2008)

Egypt's Community-Based Tourism Development

Egypt has developed community-based eco-tourism adjacent to important protected areas.

Sources: Egypt (2009)

Asia and the Pacific

China's Sloping Land Conversion Programme (SLCP)

The SLCP is the largest land retirement/reforestation programme in the developing world. It aims to convert 14.67 million hectares of cropland into forest by 2010. Studies show that significant problems in implementation exist, and these should be noted for the sake of future policy-making.

Source: Bennett (2005), quoted in *Ecological Economics* 65 (2008)

Reforming Cambodia's Forestry Policy

The Cambodian Government raised the royalty level on forestry from US$ 14 to 54 per cubic metre. A stable amount of GDP now comes from forestry, further government concessions have been cut, protected forests enjoy increased restrictions on logging, and the system of concessions management has been improved.

Source: IMF (2000), quoted in World Bank (2005)

Incentives for Watershed Management in India

The governments of India have implemented various incentives for the cooperative use of watersheds by both upstream and downstream community users.

Source: India (2009)

Joint Forestry Management in India

The Indian Joint Forestry Management system involves local communities in the protection of the forest, in afforestation and the development of degraded areas, and foresees the sharing of benefits with the communities. The impact of joint forest management in the restoration of forests and the sharing of benefits has been variable but impressive, with the benefits from NTFP having changed livelihood conditions.

Source: India (2009).

Removing Pesticide Subsidies in Indonesia

After US$ 1.5 billion worth of rice was destroyed by rapidly breeding brown rice planthoppers, the Indonesian Government abolished pesticide subsidies in 1986. Since then, pesticide applications have plummeted, while government savings and rice production have increased.

Source: de Moor and Calamai (1997), quoted in World Bank (2005)

Removing Fuel Subsidies in Indonesia

Before raising fuel prices in October 2005, the Government of Indonesia put into place a cash transfer scheme targeting 15.5 million poor and near-poor households. After initial difficulties such as moderate mistargeting, the programme was expected to prevent an increase in poverty due to the price increase.

Source: Bacon, R. and M. Kojima (2006), quoted in TEEB (2009).

Central and Eastern Europe

Reform of Water Subsidies in the Czech Republic

Before 1990 in the Czech Republic, the pricing of water covered only a fraction of its cost, which resulted in an indirect subsidization of water extraction, treatment, and distribution. After the subsidy was removed in the 1990s, water withdrawals decreased significantly in public water mains, industry and agriculture.

Source: IEEP et al (2007), quoted in TEEB (2009)

Latin America and the Caribbean

Selling Environmental Services in Bolivia

The Bolivian Government has organized a programme in which local farmers are paid to protect wildlife resources. While the programme has been largely successful, it has initially been difficult to establish trust between organizations and local communities.

Source: Asquith, Vargas and Wunder (2006), quoted in *Ecological Economics* 65 (2008)

Colombia's Water Pollution Tax and Forestry Incentives Certificates

Colombia's charge on water pollution, which differs by region, has been successful in generating funds for environmental protection and in providing incentives for reducing water pollution.

Source: ECLAC/UNDP (2001), quoted in World Bank (2005)

Under the Forestry Incentives Certificates programme, forest owners that undertake reforestation with protective character can receive a partial reimbursement of reforestation costs (75% of costs for local species, 50% for introduced species.

Source: Colombia (2004)

Costa Rica's Environmental Payment Plan

Costa Rica pioneered the use of the payments for environmental services approach by developing a formal, country-wide approach to payments, the PSA programme. It has made substantial progress in charging water users, but more limited progress in charging biodiversity and carbon sequestration users.

Source: Pagiano (2007), quoted in *Ecological Economics* 65 (2008)

Cuba's Environmental Funds for Coastal Restoration and Reforestation

Cuba implemented environmental funds which leverage funds for coastal restoration and reforestation, combining the use of disincentives (taxes and fees) with the provision of positive incentives. Other measures providing positive incentives range from its investment plan for the environment to tariff allowances on the import of environmentally preferable technologies.

Source: Submission of Cuba

Ecuador's Decentralized Environmental Payments

Ecuador's two decentralized environmental payment programs are the five-year old Pimampiro (a municipal watershed scheme) and the twelve-year old PROFAFOR (a carbon-sequestration program). Both schemes have been relatively effective in reaching their environmental objectives.

Source: Wunder and Albán (2005), quoted in *Ecological Economics* (2008)

Water Preservation in Mexico

To cope with its water scarcity and severe deforestation, the Mexican Government pays participating forest owners for the benefits of watershed protection and aquifer recharge in areas where commercial forestry is not currently competitive. The programme is called The Payment for Hydrological Environmental Services (PSAH) Programme.

Source: Muñoz-Piña, Guevara, Torres and Braña (2005), quoted in *Ecological Economics* (2008)

Soufriere Marine Management Area, Saint Lucia

A number of transitional measures were taken when the Soufriere Marine Management Area (SMMA) was officially established in 1995 to ease the transition for fishermen from using the traditional, prime reef fishing areas to the spillover effects that were anticipated from the protected area, such as the granting, during periods of special hardships, of temporary stipends and of limited fishing rights, the establishment of a gillnet buy-back scheme, the provision of training and funds to assist fishermen in engaging in activities other than coastal fishing.

Source: St. Lucia (2002)

Western Europe and Others (WEOG)

Australia's National Water Initiative

Australia's National Water Initiative transformed subsidized water consumption into water markets and effective price signals for water. This has resulted in Australia's scarce water resources starting to be allocated to their highest value uses, including for ecosystem services.

Source: OECD (2006)

Australia's BushTender Programme

Under the BushTender programme conducted by the Victorian State Government, reverse auctions were used as an efficient way of disbursing incentive payments. Bids were sought from landholders for entering into contracts to undertake a range of vegetation management actions. The bids were evaluated using a 'biodiversity benefits index' and accepted on the basis of best value for money.

Source: Australia (2004)

European Community and its Member States

Recent reforms to the Common Agriculture Policy (CAP) and the Common Fisheries Policy (CFP) have shifted the respective policies towards more environmentally-friendly measures, and therefore provide increased positive incentives for the protection and conservation of agricultural and marine biodiversity. Since 2008, EU regulation requires member States to publicly disclose the recipients of all EU funds including agricultural subsidies, which has generated a number of web-based watchdog initiatives.

Source: EC 2004; see also TEEB (2009).

Incentive Measures to Support Protected Area Management in Austria

Incentive measures were introduced to support the management of the Neusiedler See National Park, established in 1983, including: the removal of government subsidies for the drainage of wetlands for agricultural cultivation, the provision of compensation to land-owners ceding their lands to the National Park, restricting the access of hunters to the area (with compensation for entitled hunters), the possible ceasing of the stocking of the lake with non-native fish species (again with potential compensation), and the banning of reed-burning while allowing the continued, sustainable harvesting of the reeds.

Source: OECD (1999).

Economic Incentives for the Transformation of Private Forest into Forest Reserves in Denmark

The 1994 Danish National Strategy for Natural Forests mandated the increase in forest reserves on public lands, provided grants for reforestation, and offered economic compensation for the voluntary conversion of private forests to strict reserves. An adverse incentive in the form of a regulation that made it illegal to leave major productive forest areas unproductive was also reformed to allow exceptions.

Source: OECD 1999.

Malta's Water Pricing and Social Aspects

Malta implemented a pricing system for water that rewards lower levels of consumption. Rates also differ across economic sectors, where higher grossing sectors are charged higher water consumption prices.

Source: GHK et al (2006), quoted in TEEB (2009).

New Zealand's Farming Subsidy Reform

Removal of agricultural subsidies reform had an unintended but largely positive impact on New Zealand's environment. As a result of the legislation, wasteful resource consumption in the farming industry drastically reduced, as did the harmful effect of pesticides and fertilizers. The social impact was far less than previously anticipated.

Source: OECD (2006), quoted in TEEB 2009.

New Zealand's Fishery Reform

New Zealand undertook a major reform of its fisheries policy in the early 1990s in which subsidies were eliminated virtually overnight. The policy was combined with a major change in the management regime.

Source: OECD (2007), quoted in TEEB (2009)

Removing Fishing Subsidies in Norway

After experiencing a steep decrease in fishing populations and marine biodiversity, the Norwegian Government successfully reduced subsidies to fisheries without devastating the industry.

Source: OECD (2006), quoted in TEEB (2009)
