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INCENTIVE MEASURES: AN ANALYSIS OF EXISTING AND NEW INSTRUMENTS THAT PROVIDE POSITIVE INCENTIVES

Note by the Executive Secretary

I. INTRODUCTION

1. In paragraph 11 of decision VII/18, on incentive measures, the Conference of the Parties requested the Executive Secretary "to prepare, in cooperation with the OECD and other relevant international organizations, an analysis of existing and new instruments that provide positive incentives, including traditional laws and practices which generate positive incentives, their interaction with other policy measures and their effectiveness, including their requirements for successful application, possible limitations and shortcomings, and to develop proposals on the application of such positive incentive measures and their integration into relevant policies, programmes or strategies, for consideration by the Subsidiary Body for Scientific, Technical and Technological Advice at a meeting prior to the eighth meeting of the Conference of the Parties".

2. The present note analyses existing and new instruments that provide positive incentives for the conservation and sustainable use of biodiversity, as requested in decision VII/18. It complements the note by the Executive Secretary prepared under this item (UNEP/CBD/SBSTTA/11/8), which presents a synopsis of the analysis as well as the proposals on the application of such positive incentive measures and their integration into relevant policies, programmes or strategies.

* UNEP/CBD/SBSTTA/11/1.

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3. By paragraph 8 of the decision VII/18, the Conference of the Parties invited Parties, Governments and international organizations to submit case-studies, best practices and other information *inter alia* on "the use of non-monetary positive incentive measures for the conservation and sustainable use of biodiversity as an initial step in the ongoing examination of incentive measures, including traditional laws and practices which generate positive incentives". The Executive Secretary communicated this invitation to Parties, Governments and relevant organizations by notifications 076/2004 and 077/2004 as well as 026/2005 and 028/2005. Pertinent submissions received further to this invitation were taken into consideration in the preparation of the present note and are synthesized in an information document. 1/

4. Parties and Governments as well as relevant international organizations and experts were invited, by notification 2005-063, to review the first drafts of this note as well as of document UNEP/CBD/SBSTTA/11/8. Further to this invitation, the following Parties provided reviews: Argentina, Canada (two reviews), Czech Republic, European Community and its member States, Kenya, and the Netherlands.

5. Moreover, comments were also provided by the United Nations Food and Agriculture Organization (FAO) and from the Organisation for Economic Co-operation and Development (OECD). Reviews were also provided Prof. Paul J. Ferraro, Department of Economics, Georgia State University, Atlanta, USA; and by Dr. Renat Perelet, Institute for Systems Analysis, Russian Academy of Sciences, Moscow, Russian Federation. 2/

6. Like other types of incentive measures, positive incentive measures seek to address a fundamental underlying cause of biodiversity loss – the fact that those in a position to preserve biodiversity and use biodiversity resource in a sustainable manner often lack sufficient incentives to do so. This lack of incentives is exacerbated by the fact that the benefits of activities that destroy or degrade biodiversity tend to be short-term, direct, and easily captured by individuals while the benefits of conserving biodiversity tend to be long-term, indirect and diffuse, accruing not only to individuals but also to societies-at-large. 3/

7. In this context, the proposals for the design and implementation of incentive measures, endorsed by the Conference of the Parties at its sixth meeting, as far as they are consistent with Parties' national policies and legislation as well as their international obligations, already underline that positive incentives can influence decision-making by recognizing and rewarding activities that are carried out for conservation and sustainable use biodiversity, 4/ and that public financing is applicable in situations where desirable activities would not be undertaken without support, or to create a differential in favour of such activities where it is not feasible to discourage the undesirable alternatives 5/ (that is, through measures acting as disincentives such as taxes or charges). 6/

8. The review of the submissions received and of the literature shows that there is a wide range of positive incentive measures available and applied to encourage the conservation and sustainable use of biodiversity. One important insight of the analysis is that, while it is useful to share experiences and learn

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1/ The full submissions can be found on the website of the Convention, under "programmes and issues", "economics, trade and incentive measures", at www.biodiv.org .

2/ The Secretariat gratefully acknowledges the valuable support of Ms. Sarah Richardson in the preparation of this note.

3/ Kiss, A. 2001.

4/ Decision Vi/15, annex I, paragraph (36) (h).

5/ Ibid, paragraph 37 and the table referred to.

6/ The Millennium Ecosystem Assessment, in its Biodiversity Synthesis Report, has also recognized that positive incentive measures such as payments and markets for biodiversity and ecosystem services have been partly successful and could be further strengthened. See Millennium Ecosystem Assessment (2005), page 11.

Box 1: A tax incentive for protected areas and water supply areas in Brazil

Some states in Brazil have large-scale land-use restrictions due to protected areas and water supply areas, and are at an economic disadvantage because of the constraint on development. Furthermore, the federal Government in Brazil redistributes the ICMS (value-added tax) to the country's 26 states on the basis of valued added generated. As a result, states with many protected areas receiver lesser allocation from the federal government, despite the environmental benefits they provide.

In response, an Ecological ICMS was introduced in four states, providing extra fiscal compensation for protected areas and/or water supply sources. The initiative for the Ecological ICMS came from the Parana state, and its implementation involved participation by a range of organizations including federal, state and municipal bodies and non-governmental organizations.

The results of the measure include an increase in the number and size of protected areas, an increase in revenue for participating states, reinvestment of revenue into protected areas and the adoption of the Ecological ICMS by other states. The initiative is subject to an annual review to ensure that it is meeting its objectives and to suggest any improvements.

Source: UNEP/CBD/COP/3/24.

from those of other countries and regions, positive incentive measures need to be applied in a flexible manner and be adapted to local conditions. One size does not fit all.

9. In accordance with paragraph 8 of decision VII/18, the note is divided into two sections, which deal with monetary and non-monetary incentive measures, respectively. It has to be noted however that in many cases, the distinction between monetary and non-monetary measures is blurred. For instance, both monetary and non-monetary incentives are typically generated under community-base natural resource management programmes. Based on the descriptions and analyses provided in these sections, section IV considers possible requirements for the successful application of positive incentive measures.

II. MONETARY INCENTIVE MEASURES: OVERVIEW AND ANALYSIS OF EFFECTIVENESS, POSSIBLE LIMITATIONS AND SHORTCOMINGS

10. Positive monetary incentives involve the use of funds to reward the achievement of biodiversity-friendly outcomes or to support activities that promote the conservation and sustainable use of biodiversity. In many countries, monetary 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 (see box 1 for an example from Brazil).

11. Because of their financial and institutional capacity requirements, payment-based measures are most common in developed countries. 7/ However, there are also recent initiatives to apply monetary positive incentive measures in a number of developing countries. These initiatives typically focus on establishing payments for environmental amenities including the services that are provided by biodiversity resources and functions (see box 2 for World Bank activities in a number of Latin American countries, and box 3 for a case from India). 8/ Different terms are used interchangeably in the literature to describe this concept: "payments for environmental services", "payments for ecological services", or "payments for ecosystem services". 9/ Sometimes, the term "compensation" instead of "payments" is also proposed. 10/

7/ OECD 1996.

8/ See also the case study information provided by Colombia and Thailand and summarized in UNEP/CBD/SBSTTA/11/INF/15.

9/ On the concept of ecosystem services see in particular the recent work of the Millennium Ecosystem Assessment.

10/ See Prisma 2003.

Box 2: Current World Bank work on payments for environmental services

The World Bank is working with several clients to develop systems of payments for environmental services, in particular in Central and South America. Bank-supported operational work on payments for environmental services includes:

- The *Ecomarkets Project*, which supports **Costa Rica**'s system of payments for environmental services. This project includes a US $32.6 million loan from the World Bank to help the government ensure current levels of environmental service contracts, and US$8 million grant from GEF for the biodiversity services provided through the program.
- The *Regional Integrated Silvopastoral Ecosystem Management Project*, which is piloting the use of payments for environmental services as a means of encouraging a shift from unsustainable agricultural practices to sustainable silvopastoral practices in **Colombia**, **Costa Rica**, and **Nicaragua**.
- On-going project preparation work in **El Salvador**, **Ecuador**, and the **Dominican Republic** aimed at developing pilot programmes on payments for environmental services.
- Assistance to **Mexico** in carrying out a survey of land management practices in the *ejido* sector (which includes most of the remaining forest area) to help design a system of payments for environmental services and provide a baseline to monitor its implementation.

According to the World Bank, the process of designing a system of payments for environmental services can be broken into several steps:

1. **Identifying and quantifying environmental services** - What environmental services does a given land use generate? How much of that service is generated? And how much is the service worth?
2. **Developing systems of environmental services payments that work** - How are payments actually to be made in order to achieve the desired change in land use sustainability efficiently?
3. **Paying for systems of environmental service payments** - How can payment systems be financed?
4. **Institutional issues** - What are the institutional preconditions for the payments to be possible?
5. **Political economy issues** - How do we deal with the political economy implications (i.e. winners and losers) of setting up and enforcing payments?

Source: World Bank home page, http://www.worldbank.org/

12. These programmes are generally based on the observation that different forms of resource use can generate a variety of ecosystem services, but that users typically do not receive any compensation for such services. As a result, they usually ignore them in making their use decisions. Often, this can lead to use decisions that are socially sub-optimal. Recognition of this problem has led to efforts to develop systems in which users are compensated for the ecosystem services they generate. In this way, users would have a direct incentive to include these services in their use decisions, resulting in more socially optimal uses. 11/

13. Monetary incentive measures can be further differentiated into direct and indirect approaches. 12/ Direct approaches generally involves 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.

11/ See the presentation of the work of the World Bank on payments for environmental services, at http://www.worldbank.org/.

12/ See for instance Ferraro and Kiss 2002, Ferraro and Simpson 2002.

Box 3: Incentive based mechanisms for watershed management in India

A project in the Changar region, Himachal Pradesh, seeks to develop compensatory mechanisms for watershed protection services and improved livelihoods. In the Kuhan catchment, upstream residents, who are the stewards of the watershed, depend predominantly on open grazing and animal husbandry while downstream residents depend predominantly on agriculture. High rates of siltation have been observed in downstream irrigation systems, which could be reduced by reduced grazing, protection of common lands and increasing vegetation cover in the upland catchment. While downstream users could benefit from these ecosystem services, upstream communities do not have an incentive to provide them to the extent necessary because they do not contribute to the management of the upstream areas.

In this situation, the project seeks to develop – through intra- and inter-village facilitation – a transaction-based mechanism by which receivers of the service can compensate upstream residents for changes in land use and management practices to secure watershed protection services.

Source: Submission of the Government of India to the Secretariat of the Convention on Biological Diversity

A. Direct approaches

Conservation instruments

14. 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. A number of instruments seek to move areas out of productive use: 13/

(a) The *outright purchase* of the land through government funds or by non-governmental organizations, or in combination, with the aim of conservation, is one option;

(b) *Long-term retirement (or set aside) schemes* involve payments by Governments to farmers who agree to remove environmentally sensitive or important habitat farmland from production, for instance, by returning farmed or converted wetland back into a functional wetland environment;

(c) *Conservation leases, covenants or easements* are contractual agreements between private landowners and public or non-governmental organizations that typically involve some restrictions to an owner's existing property rights with regard to land use.

15. The biodiversity-related benefits of such programmes clearly increase with the length of time land is removed from productive uses, a feature that may limit the effectiveness of some programmes. Additional nature management strategies that take the context of the specific ecosystem fully into account will be needed in order to restore the areas in a targeted and effective way. A careful selection of eligible areas in target regions will often be necessary to avoid the designation of tiny, fragmented land set-asides scattered among highly intensified agricultural lands. 14/

16. Substantial monitoring and enforcement costs are associated to ensure compliance in particular with easements and covenants once they are established, in particular if payments are frontloaded into the first few years of the easement. 15/ Ongoing payments, however, may need a substantial administrative overhead, which is why it is suggested that, when diverting agricultural land from certain intensive uses, the outright purchase may be more cost-effective than payments in perpetuity. 16/ On the other hand, the

13/ OECD 1996.

14/ OECD 1996. For instance, it is under discussion whether the period envisaged for long-term land set-asides under the European Common Agricultural Policy (20 years) is sufficient to generate substantial environmental benefits.

15/ Millennium Ecosystem Assessment, volume three, chapter 5. It has to be borne in mind, however, that other initiatives will also imply costly monitoring.

16/ OECD, 1996.

Box 4: Biodiversity stewardship payments: The Bush Tender Trial in Australia

An example of voluntary payment programmes as a tool to achieve environmental objectives is the Bush Tender Trial, conducted in Australia by the Government in the State of Victoria. In this programme, 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. The Government of Australia has identified the following benefits of voluntary payment programmes:

- Provide private landholders with the financial resources to undertake conservation activity
- Contracts may be varied to match different environmental and economic contexts, increasing the economic efficiency of the incentive instrument;
- Preserve landholder autonomy are likely to be perceived as fair, thereby lowering any enforcement costs.
- Biodiversity stewardship payments may be particularly well suited to managing threats to biodiversity that require active and ongoing monitoring and managements efforts from landholders, particularly in relation to outcomes that are difficult and costly to monitor.

Other programmes are being developed including a national initiative modelled on Bush Tender with payments being made to private landholders for agreeing to undertake biodiversity conservation activities. The Australian Government is developing principles to guide the design and implementation of biodiversity stewardship programs and to ensure the efficiency and cost-effectiveness of public funding, including:

- Allocation of biodiversity stewardship payments on the basis of best value for money, assessed in terms of the contribution of the landholders' actions towards achieving public good biodiversity objectives.
- Avoiding payments for actions that are likely to be of net benefit to landholders, individually or as a group, or that are otherwise part of landholders' legal obligations;
- Allocating payments on a competitive basis, by auctioning mechanisms, with all landholders who can contribute to the desired outcomes being eligible to participate in the program.

The submission states that the competitive conditions associated with the tender mechanisms help ensure that no unwarranted economic benefit is conferred on one production sector to the detriment of competing producers, either in Australia or overseas.

Source: Submission by the Government of Australia to the Executive Secretary of the Convention on Biological Diversity.

challenge of ensuring the envisaged land management will sometimes remain irrespective of ownership. For instance, when some extensive farming is needed to attain the biodiversity objective (such as for instance the maintenance of traditional crops), authorities may wish to abstain from engaging in "state farming". Moreover, shorter-term contract will preserve the option of adapting the "conservation portfolio" in accordance with new information on the ecological value of the land.

17. The funding of monetary positive incentive measures is an important issue. 17/ Australia reported on the use of *revolving funds* as an innovative mechanism to reduce the level of monies that need to be available on a permanent, long-term basis to purchase and protect biodiversity-rich lands and important habitats. 18/ In addition, taxes or fees that generate disincentives towards environmentally harmful activities could also be used.

Improving the environment performance of resource use

18. Payments can also be made part of policies and programmes that seek to improve the environmental performance in sectors such as agriculture, forestry, or fisheries. *Incentive payments under direct approaches* typically involve cost-sharing and management agreements, whereby payments are made to reimburse landholders for the incremental cost of providing non-marketable biodiversity-related services. In return for the payment, users of the biodiversity resource agree to contribute to the

17/ 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).

18/ See UNEP/CBD/SBSTTA/11/INF/15 for details.

maintenance of biodiversity. 19/ Such incentive payments are used in many developed countries, but also to some extent used in developing countries, possibly under the "payments for environmental/ecological/ecosystem services" approach explained earlier. Examples include: payments for wildlife and wildlife habitat conservation, such as compensation of crop losses due to foraging wildlife, conservation leases for wildlife migration corridors, performance payments for endangered species; payments for the use of endangered local varieties; payments for the improved provision of ecosystem services such as for instance the hydrological services provided by forests. 20/

19. Ensuring the cost-effectiveness of payments by avoiding the over-compensation of recipients is another means to reduce the funding needs for payment programmes. 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. 21/ According to the literature, *auctioning mechanisms* are useful tools to increase the cost-efficiency of payment programmes and to avoid overcompensation, 22/ if some conditions are met. 23/ Such an auctioning mechanism is for instance used in the Bush Tender Trial programme in Australia (see box 4).

20. The World Bank observes that an undifferentiated payment system that pays everyone the same will be much more expensive than a targeted scheme and will also make it difficult to tailor interventions to the particular requirements of given situations. 24/ Hence, defining *clear "terms of reference*", that is, a system of specific, measurable and time-driven objectives and targets and associated indicators, as well as baseline standards or benchmarks for the eligibility of payments, will also contribute to the cost-effectiveness of the measure. For instance, it has been pointed out that deadweight effects might result in particular from programmes that seek to maintain existing environmentally-friendly practices, because it is difficult to identify the cases in which users would indeed switch to less environmentally-friendly practices without the programme, that is, to distinguish these cases from the cases in which users merely threaten to do so in order to receive payments (the so-called rent-seeking behaviour). Stringent but realistic baseline standards would help to alleviate this problem. A comprehensive set of specific, measurable and time-driven targets and associated indicators would also minimize the risk of unexpected reactions by the target actors of the programme, with possibly adverse consequences for biodiversity ("you get what you pay for").

21. A low take up by relevant actors under voluntary incentive programmes may also result if maintaining their current biodiversity-harmful practices is artificially made attractive for them by other governmental policies and programmes. The *removal of policies and programmes that generate perverse incentives* will therefore be an important element to ensure policy coherence and increase the effectiveness and cost-efficiency of monetary incentive programmes.

22. In the case of agriculture, for instance, a recent OECD report notes that, in a number of OECD countries, agri-environmental policies and agricultural policies can be found to be pulling in opposite

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19/ Kiss, A. 2001.

20/ See Ferraro and Kiss (2002) for a more extensive discussion and examples.

21/ See OECD 2000, Latacz-Lohmann 2000.

22/ 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.

23/ 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.

24/ The Bank cautions that there is a trade-off between the benefits of a targeted scheme and its administrative costs. See *Developing Systems of Environmental Services Payments That Work*, at http://www.worldbank.org/.

Box 5: Agri-environmental measures in the European Community

Agri-environmental measures are a compulsory element of the rural development plan of member States of the European Community. Support for agri-environmental measures represents by far the biggest share of the European Community's rural development expenditure, that is, 30% of the total of the European Agriculture Guidance and Guarantee Fund (EAGGF). According to monitoring data provided by the Member States, the share of agricultural land enrolled in agri-environmental measures in total utilised agricultural area has increased from approximately 15% in 1998 to 27% in 2001. In the year 2001, this share varied considerably between member States, ranging from less than 10% of the total agricultural area for Greece, Spain and the Netherlands to more than 75% for Finland, Luxembourg, Austria and Sweden.

The objective of the measures is to support agricultural production methods designated to protect and improve the environment, maintain the countryside, promote environmentally favourable extensification of farming and conserve nigh nature-value farmed environments. Biodiversity-oriented scheme may address for example: grassland management by mowing, hedgerow maintenance and creation of mixed-species hedgerows, establishment of buffer zones, management of semi-natural habitats, crop rotation stabilisations etc.

The member States have defined codes of good farming practice in their rural development plans that act as baseline for agri-environmental measures and payments for less-favoured areas. According to the European Community, the codes, which refer to Community environmental legislation and set standards based on it, have proven to be a valuable tool for minimising potential negative environmental effects of the agricultural activity and ensuring that agri-environmental support delivers more environmental benefits.

Source: Submission of the European Community to the Executive Secretary of the CBD

directions. 25/ Policies to redress environmental damage are sometimes implemented in the context of production and input-linked support measures that contribute to environmental damage. The report notes that "the coexistence of such policies can make the attainment of environmental objectives less certain and more costly that would otherwise be the case" and concludes that "the reform of agricultural policies would assist the achievement of environmental objectives by correcting the government failures that can complicate agri-environmental management". 26/

23. Monetary positive incentive measures generally entail a wide range of environmental objectives and an equally wide range of possible designs, which is why it is very difficult to give a general assessment of the effectiveness and cost-efficiency of payment programmes. For instance, in the context of agriculture, the performance of *agri-environmental programmes* in terms of the gains for biodiversity, the cost to achieve those gains, and the distribution of such costs, are said to largely depend on the programme design and implementation as well as on the peculiarities of the agricultural regions targeted by the programme and the general policy framework in place (see box 5 for agri-environmental measures in the European Union). The difficulties in assessing the performance of agri-environmental programmes for the conservation and improvement of biological diversity are also underlined. 27/

25/ The OECD notes that "the effectiveness of payments has been compromised when they have been implemented together with more production-linked support policies associated with environmental problems." See OECD (2003c), 71.

26/ OECD (2003c), 76. According to the European Community, there are ongoing efforts to minimize this lack of coherence in the member States of the Community.

27/ Such methodological problems include: ill-defined biological goals, lack of scientific reference material on the relationship between biological processes and farming practices, the complexity of ecological workings and their resistance to change, the only partial influence of agriculture on these workings, and the difficulty of correlating agricultural and biological data on different scales. See Rougier (2002), 8, 15, EEA/UNEP (2004). The NAFTA Commission for Environment Cooperation (CEC) concludes that "progress in honing non-pollution indicators capable of showing changes in biodiversity, forest cover, habitats and ecosystems remains less developed and certainly less quantitative than pollution-related indicators" (CEC 2002).

24. Some empirical studies note positive results for biodiversity of agri-environmental programmes. 28/ A recent review of 62 evaluation studies from European Union countries and Switzerland notes however that not all existing evaluation studies have been carried out to the highest level of scientific rigor, particularly in the area of biodiversity impacts, which are often particularly costly to measure; and that more monitoring would be generally desirable. 29/ The authors conclude that a general judgement of the effectiveness of agri-environment schemes is not possible because of a lack of sufficiently rigorous studies, and call for: (i) updated and refined indicators and data; (ii) improved monitoring; and (iii) comparative analyses of the effectiveness of individual agri-environment schemes. 30/

International incentive measures and mechanisms

25. The implementation of positive incentive measures on the local or national level may have international effects. For instance, it was noted in paragraph 19 above that excessive payments risk conferring an unwarranted competitive advantage to the recipients. However, there is also another important dimension. Biodiversity resources and functions, as well as successful policies and programmes that protect or enhance these resources and functions, often provide ecosystem services of regional or global importance. Put otherwise, policies and programmes that seek to stop and reverse the rampant biodiversity loss often generate substantial positive spillovers on the regional or global level. 31/ They provide therefore important entry points for international cooperation and/or finance, such as through *biodiversity-related official development assistance* (ODA) 32/ and through the *Global Environment Facility* (GEF). 33/

26. Furthermore, they also provide entry points for the design and implementation of innovative *international positive incentive mechanisms*, with a view to reward the provision of these ecosystem services. 34/ It has been said that traditional markets fail to adequately handle exchanges of ecosystem services and money, and that it would be useful to study practical international measures regarding the exchange of ecosystem services. 35/ As concrete examples, reference is frequently made to the mechanisms promoted by the Kyoto Protocol to the United Nations Framework Convention on Climate Change. 36/ The Conference of the Parties to the Convention on Biological Diversity has already recognized that international incentive measures should be considered, 37/ and that the Kyoto mechanisms can serve as a model for the Convention on Biological Diversity: In paragraph 6 of decision V/15, on incentive measures, the Conference of the Parties urged Parties and other Governments

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28/ The European Commission's Evaluation of Agri-Environmental Programmes, undertaken in 1998 and based on 150 evaluations, recorded highly positive results for reduced input measures, especially organic farming, nature protection measures and maintenance of landscapes, but some difficulties with extensification, set-aside for 20 years, and public access, resulting in low take up (EC 1998).

29/ See Kleijn and Sutherland 2003.

30/ EEA/UNEP (2004) concur. This study also recommends improving the geographical targeting of payments with regard to high nature value farmland.

31/ Benefits include for example the existence value attributed, by the population in developed countries, to many species in developing countries, or the contribution of genetic information incorporated in traditional landraces to the breeding of modern crop varieties.

32/ See UNEP/CBD/SBSTTA/10/INF/22 for a more extensive discussion.

33/ Since its operation as the financial mechanism in 1994, the GEF has allocated US$1.551 billion to biodiversity with a co-financing of US$3.66 billion.

34/ The *Proposals for the Design and Implementation of Incentive Measures* provide a list of existing instruments, but also caution that the list is not comprehensive and that *inter alia* international incentive measures should also be considered in a similar fashion. See decision VI/15, annex 1, paragraph 37.

35/ Perelet 2005.

36/ ibid.

37/ Decision VI/15, Annex 1, paragraph 37.

to explore possible ways and means by which incentive measures promoted through the Kyoto Protocol can support the objectives of the Convention on Biological Diversity.

B. Indirect approaches

27. *Payments under indirect approaches* are given in a number of countries to 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*, which have been established for instance in a number of eastern and southern African countries. 38/ Examples of measures provided include support to the conversion to organic farming or programmes for the development of 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. 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. 39/

28. Some argue that such indirect approaches may be less cost effective than the direct approaches discussed above. 40/ However, financial sustainability is also to be considered—from this perspective, successful market-creation many fare better than, for instance, programmes that rely on ongoing payments.

29. The concrete performance of an indirect mechanism will again 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.

30. For instance, with regard to the promotion of organic farming by agri-environmental payments, undertaken by a number of countries, the OECD cautions that "sweeping generalizations need to be avoided" as regards the impacts of organic agriculture on the environment. 41/ Recent literature reviews generally indicate that organically managed fields and farms have greater biological diversity than conventionally managed sites, and that organic farming generally shows superior environment performance. 42/ However, critics argue that it may often be more cost-effective to provide relevant public goods by conventional agriculture plus other agri-environmental measures, than by supporting organic farming. Furthermore, the reduced productivity of organic farming is also said to potentially contribute to further pressure for land conversion for agricultural purposes. 43/ In consequence, the need for robust, scientifically-based indicators is frequently underlined to enable the assessment of impacts and the evaluation of tradeoffs between different kinds of production systems. 44/ With regard to support payments, the OECD concludes that "while such payments may mean the difference between converting or not, there is a risk that such payments will increase production of some organic foods above the level

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38/ See Mogaka et all 2001. The publication reviews such programmes in the following countries: Angola, Botswana, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Namibia, Somaliland, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe.

39/ See Mogaka et al. 2001, Pagiola et al. 2002, Landell-Mills, N. and I.T. Porras (2002).

40/ Ferraro and Simpson 2002, Kiss, A., 2001, Ferraro and Kiss 2002. See also the Millennium Ecosystem Assessment, volume three, chapter 5.

41 OECD 2003b.

42/ See Dabbert (2003), Bartram and Perkins (2003); Curry Report (2002), 88-89.

43/ See Bruulsema (2003).

44/ Vetterli et al (2003).

of demand, leading to surpluses and a reduction of the market premium. Some policies may also reduce the competitiveness of organic producers in other countries, constraining the development of organic agriculture there." 45/

International aspects

31. In the context of indirect approaches and market creation, the negotiations within the World Trade Organization (WTO) on paragraph 31 (iii) of the Doha Development Agenda may generally become relevant for the marketing and international trade of biodiversity-related goods and services in particular from developing countries. Under this mandate, WTO members are currently negotiating "on the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.' 46/ Depending on the definition of environmental goods and services that will eventually be adopted by the WTO, these negotiations may also contribute to foster markets in biodiversity-related goods. Hence, the *removal or reduction of trade tariffs for biodiversity-related goods* may act as a monetary positive incentive measure for conservation and sustainable use of the associated biodiversity resources.

32. An important element of the discussion is whether and how to include environmentally preferable goods (EPP) into a definition of environmental goods and services. Their trade liberalization would create more important export opportunities for many developing countries (when compared for instance with the liberalization of trade of high-tech clean-air technologies). As biodiversity-related goods would also qualify as EPP, this discussion is of special interest to the Convention on Biological Diversity. One important problem is however how to distinguish EPP from other, very similar products.

33. A number of international programmes provide monetary support to the more indirect approach of *creating and fostering biodiversity-related markets in developing countries.* 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 are being developed 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). 47/

34. Equator Ventures, an investment programme based on blended finance and capacity development for biodiversity enterprises in the most biodiversity rich locations of the world, under the Equator Initiative, also provides support. 48/

45/ OECD 2003b. In this context, the FAO notes that conversion is often hampered by high start-up costs, conversion requirements, high costs of inputs or difficulties in obtaining organic certification. See FAO 2003.

46/ It has to be borne in mind that this mandate, as phrased by the Doha Ministerial Declaration, is not necessarily related to the concept of "payment for environmental services" described above.

47/ See http://www.biotrade.org.

48/ The "Equator Initiative" is a partnership that brings together the United Nations, civil society, business, governments and communities to help build the capacity and raise the profile of grassroots efforts to reduce poverty through the conservation and sustainable use of biodiversity.

Box 6: Examples of non-monetary positive incentives for the conservation and sustainable use of biodiversity in some member States of the European Community

Czech Republic

- **Environmental education and public awareness**. Carried out through the National Programme and the following Action Plan for 2004-2006.
- **Environmental Awards**. "Award of the Minister of the Environment" awarded annually for a special contribution to the environment. The "Award Josef Vavrousek" awarded for the best University diploma thesis with an environmental focus. President's award – State Decoration for merit in the field of the environment. An anti-environment award "Ropak" given to the man or company with the most environmentally unfriendly behaviour in the pervious year.
- **Certification** – ISO certificates, especially ISO 14000 series.

The Netherlands

- **Covenants** within the food chain (e.g., supermarkets, food industry and farmers' associations) of organic foods, promoting certification systems.
- **Procurement**. The Dutch Government is preparing a policy on sustainable procurement which may result in better market share of certified production.

Spain

- **Certification.** Coupled with environmental indicators for the promotion of responsible markets.

Source: Submission of the European Community (EC) and its member States to the Executive Secretary of the Convention on Biological Diversity.

III. NON-MONETARY INCENTIVE MEASURES: OVERVIEW AND ANALYSIS OF EFFECTIVENESS, POSSIBLE LIMITATIONS AND SHORTCOMINGS

35. Measures that are frequently identified to provide non-monetary incentives for conservation and sustainable use of biodiversity include, *inter alia*:

(a) Public policies such as procurement, education and research;

(b) Community recognition, possibly through community-based natural resource management, and environmental awards;

(c) The creation of markets for biodiversity-related goods and services including through the establishment of certification and labelling schemes.

(d) In many instances traditional laws and practices also generate non-monetary incentives for the conservation and sustainable use of biodiversity.

36. Policies that put in place so-called *green procurement* take environmental aspects into consideration in public and institutional procurement. However, the experience of the European Community in this area suggests that it may be difficult to introduce biodiversity issues in a contract for buying goods services or works and that the most efficient way may be to require compliance with relevant legislation or with the need to protect biodiversity when executing a contract. 49/ It notes also that there are challenges associated with the fact that the contracting authorities often lack the necessary environmental knowledge to include environmental elements into their procurement procedures, and, moreover, that "green" products/services may still be more expensive. 50/

49/ See UNEP/CBD/SBSTTA/11/INF/15.

50/ ibid.

Box 7: Joint forest management (JFM) in India as an example of non-monetary positive incentives

JFM is a co-management approach, which recognizes the dependence of local communities on the forests and involves them in the sustainable management of the resource. The system lays out broad guidelines for an institutional arrangement involving the local people to jointly protect and manage forest resources in return for the benefits from it. By 1996 there were 84,632 JFM committees covering 28 States in India and involving around 83 million families.

According to the government of India, this approach, which plays a crucial role in the successful implementation of sustainable forest management practices, can help to identify the value of non-monetary positive incentives as well as lessons learnt. These include the following:

- ***Institutionalization of peoples' involvement***: institutionalizing peoples' involvement in sustainable natural resource management has encouraged a process of reform of local policy for the protection and sustainable management of forests.
- ***Empowerment at the local level***: villagers participate through the village council on the Executive Committee of JFM and villagers have developed a stake in utilizing the forest produce.
- ***Awareness of the need to manage environmental resources***: to be successful, JFM should be preceded by attempts to generate awareness about the need to manage the environmental resource base.
- ***Accrual of benefits***: degraded forests have been rehabilitated, biodiversity has been improved and the quality and quantity of forest produce has also been increasing.
- ***Learning experience for governance***: JFM is a learning experience for governance in natural resource management.
- ***Adaptive approach***: several objectives that extend beyond forest management are achieved through JFM through the involvement of local communities.

Source: submission of the Government of India to the Executive Secretary of the Convention on Biological Diversity.

37. *Community recognition and environmental awards* are designed to encourage good corporate and other governance favorable for the conservation and sustainable use of biodiversity. A number of Parties to the Convention notified the Secretariat that they use awards to reward environmental-friendly activities [51]/ The Equator Initiative, referred to above, also includes the Equator Prize, which is a prestigious international award that recognizes outstanding local efforts to reduce poverty through the conservation and sustainable use of biodiversity. While awards usually have a monetary component, the formal recognition by the community or society alone is an important non-monetary incentive for the conservation and sustainable use of biodiversity.

38. Community-based natural resource management programmes, mentioned in paragraph 27 above, also generate non-monetary incentives (see box 7 for a case from India). The involvement and empowerment in natural resource management alone generates awareness and a sense of responsibility with positive impacts on patterns on natural resource use. Transparency, participation, inclusion and ownership are important factors in the effective empowerment of communities. [52]/

39. *Creating markets* to promote conservation and sustainable use is an important tool. [53]/ While market creation typically aims to create financial incentives for the prospective market participants, in form of the revenue that can be earned for instance through the sale of biodiversity-related goods, market creation often occurs through non-monetary means such as the removal of barriers to trading and the assignment of well-defined and stable property rights. See box 8 for some important aspects identified by the OECD.

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[51]/ See UNEP/CBD/SBSTTA/11/INF/15.

[52]/ See also the submission from Thailand in UNEP/CBD/SBSTTA/11/INF/15.

[53]/ OECD, 2003.

Box 8: Facts about market creation

Description:	Markets can be created through the clear definition of property rights over resources or their use, and the allowance of trading in these rights.
Advantages:	Result in the most efficient allocation of resources between competing users, and generates appropriate prices for them; low monitoring requirements.
Disadvantages:	May be imperfect where there are (large) external effects and/or monopolies.
Applicability:	When clearly defined property rights can be established and upheld for easily identifiable goods and services, transaction costs are low enough and interested parties are numerous enough to allow regular trade.

Source: OECD 1999: 80.

40. This instrument is based on the premise that rational holders of these property rights will maximize the value of their resources over time and their conservation would be better assured than under open-access regimes, where users often resort to short-term exploitation on a first-come, first-served basis. This reasoning is most easily applied to biodiversity resources that contain private market value, such as commercially valuable fish-stocks, or other biodiversity resources, such as timber and non-timber forest products. In fact, open-access problems and/or poor regulation have often meant that in the past, these markets were often associated with a decline rather than the salvation of biodiversity. In the case of development of markets for eco-tourism or nature tourism, which relies on the health of complete ecosystems as a vital input, there is a long-term commercial interest in the conservation and sustainable use of biodiversity resources.

41. *Certification and labelling* are important non-monetary incentives from the perspective of providing consumers with biodiversity information, and may in many cases be a key element in the development of markets for biodiversity-related goods and services that are produced in a sustainable way. However, the fact that many of these markets remain relatively small-niche markets for the moment, 54/ and the fact that there is in many cases a confusing proliferation of labels 55/ puts limitations to the effectiveness of this approach. UNCTAD underlines that these instruments should not erect new hurdles for market access for or producers of biodiversity-related goods and services, in particular in developing countries. Certification costs should not put an onerous burden on these producers. 56/

42. In a number of cases governments have used market mechanisms in the management of open-access resources. By granting specific use rights and, by permitting the trade of these rights, they created markets on the allowed resource uses that enhanced cost-efficiency. For instance, the assignment of well-defined property rights has been employed in connection with the management of commercial fish stocks in the form of *individually transferable quotas* (ITQs) as well as private ownership of forested lands. ITQs in fisheries can be used to mitigate the impacts of commercial fishing on the fish stock and in marine ecosystems (see box 11). 57/

43. 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. This concept could provide a model to promote the conservation of biodiversity, whereby developers of sensitive lands or habitat, in addition to their general obligation to avoid and mitigate environmental

54/ For example, while eco-labelled goods will typically achieve premiums of between 1% and 4%, organic foods, which are perceived by consumers as delivering health benefits, can achieve premiums of up to 15% in the United States and Europe. Vangelis, 2002.

55/ OECD, 2003.

56/ See *UNCTAD's Work on Environmental Goods and Services: Briefing Note*. WTO document TN/TE/INF/7.

57/ See also UNEP/CBD/SBSTTA/11/INF/15 for a scoping paper on how to apply the concept in a CITES context.

Box 9: A new Tweed from "Forest Sheep" Wool: Quality production and the use of sheep genetic resources for extensive pasturing

In the Mühlviertel region of Austria, a market creation project was initiated to preserve valuable pastures which were home to the Bohemian gentian (*Gentianella Bohemica*), a highly endangered plant, over 300 species of butterflies and over 200 species of grasses and herbs, most threatened with extinction. The best way to preserve such habitats is to use the pastures as grazing lands. However, in the past 50 years sheep husbandry has been almost completely abandoned in favour of diary and dual-usage cattle, and the pastures are used extensively for recreation, afforestation, and intensive agriculture. The project sought out a suitable breed of sheep to reclaim the pastures, itself endangered – the "Forest Sheep". In order to make it worthwhile for breeders to invest in breeding these sheep the project sought to market their wool, which is of a high quality, tweedy nature. After nearly 10 years of the project, the Boehemian gentian has begun to return to the grazed areas and the numbers of breeders of "Forest Sheep" has grown from 30 to 60.

A number of lessons can be drawn from the success of this project:

- The value of the wool as a product is critical to changing the attitudes of the breeders with respect to gene conservation
- Subsidies alone will not prevent the extinction of a breed. Besides a coherent breeding programme to maintain genetic diversity, a market for the products, however small and regional, has to be created.
- Funding for animal breeding gene conservation schemes has to be planned in breeding generations. A minimum of five breeding generations (in this case 3.6 years each) is considered necessary to save a breed from extinction.
- Gene conservation is effectively built around *in situ* conservation.
- There must be good dissemination of information among interested parties including government and NGOs. Governments have a key role to play in encouraging relevant parties, facilitating technical and financial support serving as a coordinator and a clearing-house for information.

Source: Berger, Beate. 2003. "A new Tweed from "Forest Sheep" Wool: Quality production and the use of a sheep genetic resource for extensive pasturing". Department for Biodiversity of the Institute for Organic Farming and Biodiversity. Federal Research Institute for Agriculture in Alpine Regions. Austria; submission of the Government of Austria.

damage, would also have the option to biodiversity credits (created through conservation activities) from intermediaries such as "biodiversity banks" (see box 12).

44. While market creation has often proved to be an effective means for the conservation and sustainable use of biodiversity, a number of crucial conditions need to be met, and limitations also exist (see box 10 for some lessons learned from practical experiences). 58/ In particular, the incentive for the owners to sustainably manage their resources extends only to the privately appropriable elements of biodiversity. As many of the benefits of biodiversity are not privately appropriable, and these benefits often represent significant public goods, full benefits for conservation and sustainable use are often not achieved without the application of additional regulations or other types of incentive measures. 59/

Traditional laws and practices that generate positive incentives

45. Traditional laws and practices that generate positive incentives is a broad topic considering there are over 370 million indigenous peoples and thousands of different groups with different laws and customs. It is very difficult, therefore, to generalize about the impacts of traditional laws and practices on the conservation and sustainable use of biodiversity.

46. The ***survival of traditional practices*** can contribute to the conservation and sustainable use of biodiversity. This is illustrated by the case of the Peruvian "Potato Park" in the Pisac Cusco region of the

58/ OECD 2004.

59/ The Millennium Ecosystem Assessment, in its synthesis report on biodiversity, recognizes that more market-oriented approaches show considerable promise, but that many challenges remain. Millennium Ecosystem Assessment (2005), page 11.

Box 10: Market creation: some lessons from experience

- One size does not fit all.
- Identify the benefits being provided clearly.
- Understand the links between ecosystems and services.
- Begin from the demand side, not the supply side.
- Monitor effectiveness.
- Design flexible business models.
- Ensure that the poor can participate.
- Secure property rights.
- Support co-operative institutions.
- Identify products that the poor can sell.
- Provide access to start-up finance.

Source: Submission by IUCN – The World Conservation Union to the Executive Secretary of the Convention on Biological Diversity..

country, a recognized micro-centre of crop diversity for potatoes and other important Andean crops. The "potato park" initiative is a community-based agri-biodiversity project dedicated to ensuring the survival of the region's genetic heritage. It helps farmers maintain their traditional potato harvesting practices while preserving the genetic integrity of their local varieties of potatoes. 60/

47. There are many examples where traditional laws and practices include behaviour that inherently contributes to the conservation or sustainable use of biodiversity. Many of the areas in the world with highest biodiversity are inhabited by indigenous and local communities embodying traditional lifestyles who typically view themselves as guardians and stewards of nature. 61/

48. Traditional law and practices may have applications that directly promote the conservation and sustainable use of biodiversity. For example, sacred sites act as conservation areas for vital water sources and also for individual species by restricting access and behaviour. Moreover, traditional technologies such as fire use were part of extremely sophisticated systems that shaped and maintained the balance of vegetation and wildlife. In many arid regions, the decline of fire management and the loss of sacred sites that resulted when aboriginal peoples were centralized into settlements led to the rapid decline of mammals. 62/

49. Another concrete case is the totems that are assigned to individual clan group of Australian aboriginal peoples. A totem is usually a species living in the tribal territory. As an Australian clan cannot eat their totem, it is protected in their area of territorial responsibility. In consequence, the tribal territory constitutes a web of protected areas for the different totem species assigned to the individual clans of the tribe. It has to be borne in mind, however, that this incentive effect does not exist for all indigenous peoples knowing similar concepts of totems. In North America, for instance, clans are often allowed to eat their totem animals and other forms of sustainable use are put in place.

50. As with landholders generally, local communities are more likely to employ environmentally sustainable practices when they enjoy territorial security and local autonomy. 63/ Conversely, insecure property and use rights may act as limitations for traditional law and practices to generate positive incentives for conservation and sustainable use of biodiversity.

60/ IUCN 2003.

61/ Posey, Darrell Addison. 1999. *Cultural and Spiritual Values of Biodiversity*. A Complementary Contribution to the Global Biodiversity Assessment. United Nations Environment Programme. Intermediate Technology Publications.

62/ Sultan, Craig and Ross 1997 in Posey 1999.

63/ Posey, 1999.

IV. REQUIREMENTS FOR SUCCESSFUL APPLICATION OF POSITIVE INCENTIVE MEASURES

51. The evidence presented in the previous sections suggests that the application of positive incentive measures often requires the complementary application of regulations or other instruments in order to operate in an effective and cost-efficient manner that maximizes synergies between the different instruments. Hence, they need to be embedded in a coherent overall policy framework providing a *mix of measures*.

52. Defining *priorities* is necessary for effectively using monetary incentive measures for the conservation and sustainable use of biodiversity. The top priority for any positive incentive measure is to slow, halt or reverse the process of loss of biodiversity. Given that it is not possible to apply them everywhere biodiversity is being degraded, direct payments should in general be targeted so as to achieve most value from a biodiversity perspective. 64/

53. *Tailored approaches* are needed to encourage and reward holders and/or users of biodiversity resources for achieving conservation and sustainable use under varying local circumstances. The review of the previous sections has shown that there is a wide range of conceivable measures. The choice of the measures will depend on local circumstances. One size does not fit all.

54. Particular attention needs to be given to *defining clear terms of reference including objectives, measurable targets, associated indicators as well as baseline standards or benchmarks* for the eligibility of payments. They minimize the risk of unexpected reactions by the target actors of the programme, with possibly adverse consequences ("you get what you pay for"). 65/

55. Effective *monitoring* was identified as an important precondition for the timely and thorough evaluation of the performance of positive incentive measures. This evaluation can contribute to ensure that successful measures are more widely applied and that unsuccessful measures are improved or, if this appears to be not possible, no longer applied.

64/ OECD 1996, Kiss, A. 2001.

65/ Real-world examples of efforts that seek to meet this condition are the Codes for Good Farming Practice defined by the Member States of the European Community or the biodiversity benefits index defined in the Australian Bush Tender Trial.

Box 11: Individual Transferable Quotas (ITQs) for fisheries management

Fisheries are often open-access resources where the social costs of over-fishing are not internalized in the fishing activity. Under open access, fishing will tend to increase past the point of maximizing fishing income to the point where all positive profits to be garnered as rent from the resource are dissipated. As this may not occur until a harvest level above the maximum sustainable yield, this can lead to over-fishing of the target species and even the collapse of the commercial industry. Therefore, measures to restrict fishing activities are often necessary.

The essential cause of this pressure is the non-existence of property rights over fisheries resources, but assigning property rights over marine areas is generally not feasible (except with stationary species such as shellfish beds). However, rights can be assigned over the harvesting of the commercial species, in form a quota which guarantee the holder the right to harvest a certain percentage of the total allowable catch for the season. If quotas are made tradeable, fishermen can trade them in accordance with their individual preferences and costs, which will minimize the cost of reducing the allowable catch to sustainable levels. The mechanism of defining a total allowable catch and splitting it into tradable quota is also sometimes referred to as a "cap-and-trade" approach. In order to avoid the creation of rents and speculation, the initial distribution of ITQs can be undertaken by an auction mechanism.

A case study on ITQs produced for the OECD found that while the allocation of individual, tradable quota for the use of fish stocks can be an effective measure for managing the target species, ITQs by themselves might not be sufficient to protect other species or the surrounding ecosystem. Complementary measures are often necessary.

Thus while ITQs can provide valuable incentives by increasing fishery profits while ensuring the harvesting sustainable levels of particular fish species, they are most effective when accompanied by other enforcement and regulatory measures, such as limits of days at se, number of size of gear until, and conditions on gear and vessels – to ensure their social and environmental compatibility.

Source: Adapted from OECD 1999, based on Gudmundsson et al., 1998.

56. The successful application in particular of monetary incentives measures requires *appropriate institutional structures* that can ensure adequate monitoring of the performance of the measure, set priorities, resolve conflict, coordinate individual behaviour, and allocate and enforce rights and responsibilities. 66/.

57. Institutional *capacity building and training* would be needed in developing countries where existing institutions prove to be deficient and the expertise in designing and implementing incentive measures in accordance with local conditions is weak.

58. The successful design, application and implementation of positive incentive measures requires the *effective cooperation among all relevant stakeholders*, including not only the owners and/or current users of biodiversity resources, but also the beneficiaries of ecosystem services, the private sector, non-governmental organisations, and local communities including indigenous and traditional communities. Cooperation among relevant governmental agencies at all levels can enhance synergy between positive incentive measures for the conservation and sustainable use of biodiversity and other governmental policies and programmes, and will therefore be an important contribution to successful *policy integration*. Cooperation can also enhance synergy between different governmental and non-governmental policies and programmes as well as between governmental policies and programmes and traditional laws and practices, and can also contribute to the mobilization of funding.

59. People are more willing to take voluntary action, and are willing to pay more for conservation when they have an improved understanding of the biodiversity resources under threat and why their existence may be important. 67/ Furthermore, such an understanding needs to be rooted in society's

66/ Ferraro and Simpson 2002.

67/ OECD, 1996.

values and beliefs in order to use community or society recognition as a tool for rewarding environmentally-friendly activities. In consequence, *raising awareness and disseminating information* is one important component associated in particular with the success of non-monetary positive incentives for the conservation and sustainable use of biodiversity.

60. New policies and programmes for the conservation and sustainable use of biodiversity, including positive incentive measure, need to take into account *the existing value and belief systems* of resource users and owners including local communities. In particular, the traditional laws and practices of local and indigenous communities may in many cases generate important non-monetary incentives for conservation and sustainable use of biodiversity. In these cases, new policies and programmes should build upon these traditional laws and practices and seek to foster the incentives generated by them, rather than implementing redundant or, worse, contradictory measures which generate perverse incentives.

61. Assessing the values of the targeted biodiversity resource by applying *valuation tools* or *strategic impact assessment methodologies* may also contribute to raising awareness and thereby improve the effectiveness of non-monetary-positive incentive measures. Their application would also improve decision-making by providing critical information for the calibration and fine-tuning in particular of monetary positive incentive measures. *Capacity-building* to this end should be undertaken as appropriate.

62. *Voluntary certification and labelling schemes* are possible tools to increase awareness and foster decision-making that prioritizes biodiversity-friendly goods and services. The unnecessary proliferation of certification and labelling schemes should be avoided. *Capacity-building* should be undertaken for small and medium-sized producers in particular in developing countries with a view make them aware of, and enable them to take advantage of, potential market opportunities that support the conservation and sustainable use of biodiversity.

63. Sufficient *funding* is arguably the most straightforward precondition for the effective implementation of monetary positive incentive measures. It has frequently been noted that voluntary programmes suffered from poor take up because the payments under the programme were too low to substantially change the incentives of target actors. 68/ Policy measures and mechanisms that increase the effectiveness as well as cost-efficiency of positive incentive measures can also contribute to minimizing the funds needed for an effective implementation of monetary programmes.

64. A low take-up by relevant actors under voluntary incentive programmes may also result if maintaining their current biodiversity-harmful practices is artificially made attractive for them by other governmental policies and programmes. The *removal of policies and programmes that generate perverse incentives* will therefore be an important element to ensure policy coherence and increase the effectiveness and cost-efficiency of monetary incentive programmes.

68/ See, e.g., EC (1998).

Box 12: Wetlands mitigation banks in the United States

Under federal environment law in the United States, land owners needing to mitigate or compensate for authorized impacts to wetlands associated with development activities may have the option of purchasing credits from an approved mitigation bank rather than restoring or creating wetlands on or near the development site. A wetland mitigation bank is a wetland area that has been restored, created, enhanced or (in exceptional circumstances) preserved, which is then set aside to compensate for future conversions of wetlands for development activities.

Wetlands mitigation banking may be pursued by a government agency, a corporation or a non-profit organization under formal agreement with the relevant regulatory agency. As of March 2005, approximately 100 mitigation banks were in operation or were proposed for construction in 34 states across the country, including the first private entrepreneurial banks.

According to the United States Environmental Protection Agency (EPA), the following benefits of mitigation banking can de identified:

- Banking can provide more cost effective mitigation and reduce uncertainty and delays for qualified projects, especially when the project is associated with a comprehensive planning effort.
- Successful mitigation can be ensured since the wetlands can be functional in advance of project impacts
- Banking eliminates the temporal losses of wetland values that typically occur when mitigation is initiated during or after the development impacts occur
- Consolidation of numerous small, isolated or fragmented mitigation projects into a single large parcel may have greater ecological benefit
- A mitigation bank can bring scientific and planning expertise and financial resources together, thereby increasing the likelihood of success in a way not practical for individual mitigation efforts.

Source: EPA homepage.

65. The use of *economic instruments* such as competitive bidding procedures is another important tool to increase the cost-efficiency of payment programmes and to avoid overcompensation, provided that the conditions for their successful application are met.

66. In a number of cases, the *direct beneficiaries of specific ecological services* can be clearly identified and can then possibly be mobilized as a funding source.

67. The effective application of some monetary incentives requires that *property rights* in land—not necessarily private rights—are clearly established. Covenants and conservation easements are a more appropriate tool where land is privately owned, either by individuals or by corporations, than when it is held communally and/or without legal title. In communal settings there must first be a reasonably effective, legally recognized organization structure to negotiate and implement contractual arrangements.

68. In some cases the implementation of the incentive measure may be unintended social or other consequences. 69/ In general, *distributional effects* need to be fully taken into account when designing and implementing incentive programmes, and, in particular in developing countries, synergies with the objective of *poverty alleviation* should be maximized.

69. The substantial global benefits that result from the successful implementation of policies and programmes for the conservation and sustainable use of biodiversity in developing countries provide important entry points for international cooperation and/or finance, as well as for the design and implementation of innovative *international positive incentive measures*, with a view to reward the provision of these positive spill-overs. In line with a previous decision of the Conference of the Parties, it could for instance be explored whether similar incentive measures than those applied under the Kyoto Protocol could also be used to support the objectives of the Convention on Biological Diversity.

70. Dependent of their design, positive incentive measures, and in particular monetary positive incentive measures, may risk conveying a competitive advantage on recipients in domestic and

69/ Kiss, A. 2001.

international markets. Governments that design and implement incentive measures for the conservation and sustainable use of biodiversity therefore need to carefully assess their international impacts and ensure their *consistency with international obligations*. For instance, as applicable, they may need to ensure that tax breaks are granted in a non-discriminatory manner. As regards payments under agri-environment programmes, they may need to ensure consistency, as applicable, with the WTO Agreement on Agriculture. The Agreement disciplines the so-called domestic support provided to agricultural producers while also granting exemptions to the reduction commitments for domestic agricultural policies that provide support for specific goals, provided they meet certain criteria in the Agreement. Under the Agreement's so-called "green box" for domestic support, payments under environmental programmes are considered to have no, or at most minimally, trade distorting effects or effects on production, and are therefore exempt from reduction commitments, provided that: (i) the eligibility for such payments shall be determined as part of a clearly defined government environmental or conservation programme and be dependent on the fulfilment of specific conditions under the government programme, including conditions related to production methods or inputs; and (ii) the amount of payment shall be limited to the extra costs or loss of income involved in complying with the government programme. 70/

V. CONCLUSIONS

71. The present note has explored a range of new and existing monetary and non-monetary positive incentive measures for the conservation and sustainable use of biodiversity with a view to illustrate their application and to derive elements that contribute to the success and or limitations of these measures. The analysis feeds into the note by the Executive Secretary on the proposals on the application of positive incentives and their integration into relevant policies, programmes or strategies (UNEP/CBD/SBSTTA/11/8).

72. The note frequently underlined that positive incentives will often not be effective if implemented in isolation. As with incentive measures generally, they are most usefully applied to address the underlying causes of biodiversity loss when combined with traditional regulations and/or economic instruments. They should be flexible and tailored to specific capacities and priorities, and should be applied in a context that includes an appropriate legal framework as well as an institutional context that supports policy integration and the active participation of all relevant stakeholders. There is a need for capacity building in cases where the institutional framework is deficient.

73. Moreover, it is important in the context of this note to develop a comprehensive understanding of biodiversity values. This is important in terms of raising awareness, setting priorities, and also in terms of identifying and calibrating the most cost-effective mechanisms to employ.

70/ See SCBD 2005 for details. Mandated by Article 20 of the Agreement and reconfirmed by the Declaration of Trade Ministers in Doha, in 2001, agricultural negotiations are now under way at the WTO. See WTO document WT/L/579 for further information on the framework for these negotiations that was agreed on by WTO Members in July 2004; in particular Annex A, paragraph 16.

BIBLIOGRAPHY

Bartram, H.; A. Perkins (2003): "The Biodiversity Benefits of Organic Farming". In: OECD (2003b), ibid

Bruuselma, T. (2003): "Productivity of Organic and Conventional Cropping Systems". In: OECD (2003b), ibid.

CEC (2002): Free Trade and the Environment. The Picture Becomes Clearer. Secretariat of the Commission for Environment Cooperation in North America, Montreal.

Claasen, R. et al. (2001): Agri-environmental Policy at the Crossroads: Guideposts on as Changing Landscape. Agricultural Economic Report 794, USDA Economic Research Service, Washington, D.C.

Conrad, Jon M. and Paul J. Ferraro. (2001) "Habitat Conservation: the dynamics of direct and indirect payments."

Curry Report (2002): Farming and Food. A Sustainable Future. Report of the Policy Commission on the Future of Farming and Food, chaired by Sir Donald Curry. United Kingdom.

Dabbert, S. (2003): "Organic Agriculture and Sustainability: Environment Aspects" In: OECD (2003b), ibid.

EEA/UNEP (2004): *High nature value farmland: Characteristics, trends and policy challenges*. Joint report by the European Environment Agency and the United Nations Environment Programme.

FAO (2003): WTO Agreement on Agriculture: The Implementation Experience – Developing Country Case Studies. 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, Paul J. and R. David Simpson. 2002. "The Cost-Effectiveness of Conservation Payments." *Land Economics 78 (3)*, 339-53.

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

IUCN (2003): "A 'Potato Park' Aims to Help Save Genetic Resources in Peru". The World Parks Congress 2003, Durban. IUCN: Gland, Switzerland. 10 April.

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.

Kleijn, D.; W. J. Sutherland (2003): "How effective are European agri-environment schemes in conserving and promoting biodiversity**?"** *Journal of Applied Ecology* 40/6, p 947ff.

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.

Latacz-Lohmann, U. (2000): "Beyond the Green Box: The Economics of Agri-Environmental Policy and Free Trade" *Agrarwirtschaft 49/9-10*, p. 343-348.

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, volume three, chapter 5.

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

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.

OECD. 1996. *Saving Biological Diversity: Economic Incentives*. Paris: OECD.

OECD. 1998. *Future Liberalisation of Trade in Environmental Goods and Services: Ensuring Environmental Protection as well as Economic Benefits*. Working paper of the Joint Working Party on Trade and Environment. COM/TD/ENV(98)37/FINAL. Paris: OECD

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

OECD 2000: *Production Effects of Agri-environment Policy Measures: Reconciling Trade and Environmental Objectives*. OECD, Paris.

OECD. 2001. *Environmental Goods and Services: The Benefits of Further Global Trade Liberalisation.* Paris: OECD.

OECD. 2003. *Harnessing Markets for Biodiversity: Towards Conservation and Sustainable Use*. Paris: OECD.

OECD (2003b): *Organic Agriculture: Sustainability, Markets and Policies.* Proceedings of the OECD Workshop on Organic Agriculture. OECD, Paris.

OECD (2003c): *Agricultural Policies in OECD Countries*. Monitoring and Evaluation. OECD, Paris.

OECD. 2004. *Handbook for Market Creation for Biodiversity: Issues for Implementation*. Paris: OECD.

OECD (2005): *The Costs of Inaction with Regard to Biodiversity Loss.* Prepared by G. Heal. OECD, Paris.

Pagiola, S., J. Bishop and N. Landell-Mills (eds.) (2002): *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development*. Earthscan: London.

Perelet, R. (2005): "New Economic Tools to Conserve Biodiversity – The Perspective of the Newly Independent States." *IUCN Regional Office for Europe Newsletter on Economic Inputs of Biodiversity*, vol. 7, p. 12-13.

Posey, Darrell Addison. 1999. *Cultural and Spiritual Values of Biodiversity*. A Complementary Contribution to the Global Biodiversity Assessment. United Nations Environment Programme. Intermediate Technology Publications.

Potter, C.A. and Ervin, D., (1999). "Freedom to Farm: The political economy and agricultural liberalisation." In Redclift, M. and Lekakis, J. (eds) *Agricultural and World Trade Liberalisation*. CAB International.

Prisma (2003): Compensation for Environmental Services and Rural Communities - Lessons from the Americas and Key Issues for Strenghtening Community Strategies. Salvadoran Research Program on Development and Environment (Programa Salvadoreño de Investigación sobre Desarrollo y Medio Ambiente – PRISMA), San Salvador.

Rougier, N. (2002): Agri-environmental programmes: Community framework and French practice. High-level Pan-European Conference on Agriculture and Biodiversity: towards integrating biological and landscape diversity for sustainable agriculture in Europe. Strasbourg, France.

Secretariat of the Convention on Biological Diversity (SCBD). 2005. *The Impact of Trade Liberalisation on Agricultural Biological Diversity: Domestic support measures and their effects on agricultural biological diversity.* CBD Technical Series No. 16. Montreal: SCBD.

UNCTAD. 1995. Environmental Preferable Products (EPPs) as a Trade Opportunity for Developing Countries. Report by the UNCTAD Secretariat, UNCTAD.COM.70, Geneva. December.

UNEP. 2004. *Analyzing the Resource Impact of Fisheries Subsidies: A Matrix Approach*. Economics and Trade Branch (ETB), Division of Trade, Industry and Economic (DTIE).

Vasavada, U.; S. Warmerdam (1998): "Environmental Policy and the WTO: Unresolved Questions". Agricultural Outlook, November 1998, Economic Research Services, USDA, Washington, D.C, 12-14.

Vetterli, W. et al. (2003): "Organic Farming and Nature Conservation". In: OECD (2003b), ibid.

Vitalis, Vangelis. 2002. Private Voluntary Eco-labels: Trade Distorting, Discriminatory and Environmentally Disappointing. Background paper prepared for the Round Table on Sustainable Development meeting, "Eco-Labelling and Sustainable Development" 6 December 2002.

WTO. Committee on Trade and Environment Special Session. 2004. "UNCTAD's Work on Environmental Goods and Services: Briefing Note (Paragraph 31(iii))." TN/TE/INF/7. 5 October.

WTO. 2001. Doha Ministerial Declaration.

WTO Secretariat. 2003. *WTO Agreement Series 3: Agriculture*. Geneva: WTO.
