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### CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY

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Item 6.8 of the provisional agenda\*

#### **INCENTIVE MEASURES (ARTICLE 11): INFORMATION AND GOOD-PRACTICE CASES FROM DIFFERENT REGIONS ON THE IDENTIFICATION AND REMOVAL OR MITIGATION OF PERVERSE, AND THE PROMOTION OF POSITIVE, INCENTIVE MEASURES**

*Note by the Executive Secretary*

#### **I. INTRODUCTION**

1. Pursuant to its in-depth review of the programme of work on incentive measures, the Conference of the Parties at its ninth meeting decided to put more emphasis on the implementation of the programme of work through enhanced sharing of information on good practices, lessons learned, difficulties encountered, and other practical experience on its implementation, and 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 (decision IX/6, paragraphs 2 and 6). The workshop was tasked 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 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 its fourteenth meeting and review by the Conference of the Parties at its tenth meeting.

2. Preparations were undertaken as requested in the decision<sup>1</sup> and the workshop was held from 6 to 8 October 2009, with financial assistance from the Government of Spain and hosted by the Division of Technology, Industry and Economics of the United National Environment Programme (UNEP-DTIE) in Paris. The participants in the Workshop were selected from among government-nominated practitioners, taking into account their expertise and the need to ensure balanced geographical distribution, and with due regard to gender balance. Representatives of stakeholder organizations and international organizations and initiatives were also attending the meeting. The report of the meeting was submitted to the Subsidiary Body on Scientific, Technical and Technological Advice at its fourteenth meeting as information

\* UNEP/CBD/COP/10/1.

<sup>1</sup> See document UNEP/CBD/SBSTTA/14/17 for details.

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document UNEP/CBD/SBSTTA/14/INF/26 and a condensed version of the report was submitted as document UNEP/CBD/SBSTTA/14/17.

3. In considering the item, SBSTTA-14 adopted recommendation XIV/15, in paragraph 16 of which it requested the Executive Secretary, “in collaboration with relevant partners and taking into account the findings of the TEEB initiative, to complement the report of the Paris expert workshop with information that was not fully taken up in the report, including case examples and lessons learned on the removal or mitigation of perverse incentives other than harmful subsidies and on the promotion of positive incentives other than the creation of markets, and make this information available for review by the Conference of the Parties at its tenth meeting.”

4. In response to this request, the Executive Secretary prepared an information document, which, based on the report of the expert workshop, presents information, including case examples and lessons learnt, on the removal or mitigation of perverse incentives and the promotion of positive incentive measures. In this document, the information identified by the expert workshop was amended to also reflect perverse incentives other than harmful subsidies and positive incentives other than the creation of markets.

5. The present note provides a summary of the information document. The next two sections summarize important observations on the topics as well as conclusions and consolidated lessons learnt on, respectively, the identification and removal or mitigation of perverse incentives and the promotion of positive incentive measures. Brief summaries of the case examples, including good practice cases, are presented in the annex.

6. The support provided by the International Union for Conservation of Nature (IUCN) and the financial support provided by the United Nations Environment Programme in preparing the information document and the present note is gratefully acknowledged.

## **II. INFORMATION ON, INCLUDING LESSONS LEARNED FROM, CONCRETE AND PRACTICAL EXPERIENCES IN IDENTIFYING AND REMOVING OR MITIGATING PERVERSE INCENTIVES**

### *Important observations*

7. Perverse incentives emanate from policies or practices that induce unsustainable behaviour that destroys biodiversity, often as unanticipated side-effects of policies designed to attain other objectives. Subsidies with harmful effects on biodiversity are an important example of such perverse incentives. Moreover, 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, which may under certain circumstances generate a perverse incentive to continue using the resource in a non-sustainable manner instead of switching to more adapted use patterns. Furthermore, 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.

8. As regards environmentally harmful subsidies, it is noteworthy that subsidies provided and their effects, including the possible perverse effects for biodiversity conservation and sustainable use, differ largely between countries. It is important to recognize the regionally uneven distribution of subsidies and their effects, particularly regarding developed countries and developing countries. During the workshop, reference was made in this regard to the overexploitation of fish stocks resulting from agreements for foreign fleets, and to the problem of illegal fishing, problems which would be exacerbated by changing fish migration pattern due to climate change. In terrestrial ecosystems, current trends in contract farming would also tend to exacerbate the impacts of subsidy regimes.

9. While it is important to not overstate or oversimplify the case of environmentally harmful subsidies, it is important to remember that there are many studies saying that world market prices are depressed because of subsidies, to the detriment of agricultural exporters from southern countries.

10. The international dimension of subsidy reform needs to be taken into account, bearing in mind that progress can only be achieved if it is helpful to all countries involved. The negotiations currently under way at the World Trade Organization, under the Doha work programme, are important in this regard, and in particular the negotiations on domestic support in the agricultural negotiations and the negotiations on fisheries subsidies.

11. Regarding the environmental harmful effects of certain subsidies, the workshop observed that similar conclusions could be drawn for many OECD and non-OECD countries. While findings would vary from sector to sector and country to country, and while there would be other resource endowments and social outcomes, there is a significant number of examples on environmentally harmful subsidies not just in OECD countries, but also in many non-OECD countries – in particular subsidies to fertilizers and irrigation water. Identifying and removing or mitigating their perverse effects are important areas for further work, and the OECD checklist is a useful tool including for addressing biodiversity impacts.

12. The assessment of subsidies and their effects should not just address environmentally harmful effects, but rather take a multi-criteria, holistic approach, which should also address the cost-effectiveness and the social effects of subsidies. The whole chain of cause and effect matters and could also be addressed through sensitivity analysis.

13. In addition to environmentally harmful subsidies, perverse incentives are sometimes also generated by other policies and associated laws, frequently related to land and tenure systems. For instance, requirements to remove the forest cover have frequently been a precondition for receiving land title, and such requirements were a major factor in land conversion in a number of countries. ‘Beneficial-use’ 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.

14. Considerable efforts have been made in a number of countries to remove these perverse incentives, especially with regard to land-clearing requirements. In order to substantially improve the state of biodiversity, commentators have underlined the frequent need to combine such efforts with the reform of traditional macro-economic and sectoral policies that encourage the unsustainable use of biodiversity resources. This is particularly true if the surrounding socio-economic environment is highly dynamic.

15. Perverse incentives may also be associated with some environmental policies and/or regulations. For instance, the establishment of protected 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 protected resource. Similarly, 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. Whenever policies use pricing instruments, for instance, in form of license or user fees, adverse effects for biodiversity may result if these fees are set to low or are not corrected against inflation.

16. In response to these perverse incentives, 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, in order to avoid the support a negative perception of wildlife as a cost, reward the presence of wild animals on private lands through public payments. Such measures are further examined in the next section.

17. Sometimes, perverse incentives are identified and removed or policies reformed but, because of other intervening factors, environmental quality is not improved, or only to a limited extent. Hence, removing or mitigating single perverse incentives may not be sufficient if further negative impacts result, for instance from macro-economic and sectoral policies that continue to encourage the unsustainable use of biodiversity resources. In these cases, further assessments are needed in order to disentangle the complex relationship between these policies.

18. Perverse incentives are frequently the un-anticipated result of policies with well-intentioned objectives – for instance, ‘beneficial-use’ laws, as referenced above, seek to promote the productive use of land as a contribution to economic development. In order to avoid adverse effects on biodiversity and ecosystem services, assessments should be extended to an analysis of the potential implications of new, proposed policies.

19. Access to, and the provision of, relevant data is often insufficient, and enhancing transparency is an important step, and critical precondition, for identifying and reforming perverse incentives, in particular environmentally harmful subsidies. The workshop welcomed initiatives taken by countries to enhance transparency. In this context, there is a need to recognize that OECD subsidy estimates are conservative ones.

20. On environmentally harmful subsidies for instance, while the results of the Green Paper on the Reform of the Common Fisheries Policy are not yet validated and turned into political action, it is useful to point to the evidence in order to generate a credible process towards subsidy reform. For instance, with regard to fish exports to the European Union and sustainability in export zones, the Green Paper notes that European stock is so overfished that imports need to come from somewhere else.

21. Ad hoc political interventions are sometimes an important barrier to the effective reform of perverse incentives.

22. The reform of policies generating perverse incentives is also an issue of scale, in particular with regard to social implications. As an example, reference was made to the need to support the livelihoods of small and artisanal fisheries. Moreover, subsidies can also be useful to protect the environment, if properly designed and targeted towards environmental objectives (see next section).

#### *Conclusions and consolidated lessons learned*

23. While support provided and its effects differ largely between countries and sectors, and while there would be other resource endowments and social outcomes, there are generally ample opportunities for identifying and removing or mitigating perverse incentives, both in developed and in developing countries. Reforming perverse incentives, in particular environmentally harmful subsidies, can release funds for positive incentives, and removing or mitigating perverse incentives can also reduce the needs for the provision of positive incentive measures in the first place.

24. Such reform of perverse incentives could make a critical contribution to reducing the current rate of biodiversity loss and it is important to pursue this work. The analytical and guidance tools developed by OECD and UNEP would be useful in this regard, including for addressing biodiversity impacts.

25. Caution needs to be exerted when assessing the effectiveness of policy reform. As other intervening factors affect ecosystem conditions simultaneously, observing only a limited environmental recovery, or even a complete lack thereof, does not necessarily indicate ineffective reform policies, but rather a need for more comprehensive assessments of all relevant policies and their interactions, and more comprehensive policy action.

26. Assessments also need to be extended to new, proposed policies in order to prevent perverse effects on biodiversity and ecosystem services.

27. A number of lessons learned can be identified on how to organize the removal or mitigation of perverse incentives, including on how to address obstacles to reform:

(a) Some sectoral policies create dependency in the targeted sector. Attention should be paid to where vested interest is. For instance, subsidies can create dependency in the subsidized sectors. The social implications of reform policies must also be taken into account; e.g., an environmentally harmful subsidy may be linked to a resource used in particular by indigenous and local communities and/or marginalized segments of society;

(b) Transparency must be improved on the impacts of the policies or regulations creating perverse incentives, including on their beneficiaries. For environmentally harmful subsidies for instance,

enhanced transparency on what amount of subsidies is given to whom can help to better assess how funding allocations affect biodiversity loss, and in order to mobilize support for subsidy reform. Increasing transparency can also assist in ensuring the policy's ongoing effectiveness against its stated objective, its cost efficiency, and in minimizing environmental impacts;

(c) A strong leadership and broad coalition, based on broad stakeholder engagement, combined with a well-managed process, is necessary to stage reform and take advantage of beneficial circumstances;

(d) Better and more complete data and analysis are needed, including more comprehensive assessments on the complex interactions between different programmes and policies. Such assessments can show for instance where reforming perverse incentives can release funds for positive incentives, or simply alleviate the need for a positive incentive;

(e) There must be better communication and coordination among policy/decision-makers, as well as between policy/decision makers and relevant stakeholders to showcase the potential benefits of identifying and removing or mitigating perverse incentives, and/or to ensure coherent implementation of reforms at governmental levels;

(f) Policy reforms are frequently more successful when the removal of the perverse incentive is embedded in a comprehensive policy package on resource management. For instance, the removal of fishery subsidies is frequently found to be coupled with the introduction of new fishery management systems.

### **III. INFORMATION ON, INCLUDING LESSONS LEARNED FROM, CONCRETE AND PRACTICAL EXPERIENCES IN PROMOTING POSITIVE INCENTIVE MEASURES**

#### *Important observations*

28. 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.

29. Positive incentive measures can be further differentiated into direct and indirect approaches. Direct approaches typically (but not always) provide monetary incentives which seek to emulate market prices – they generally involve ‘paying’ relevant actors to achieve biodiversity-friendly outcomes or, conversely, to not achieve biodiversity-harmful outcomes. Examples include long-term retirement (or set aside) schemes; conservation leases, covenants or easements; and schemes providing payments for ecosystem services. 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. Many of those incentives are non-monetary (or ‘non-market’) in nature (although they may have financial implications for the provider); for instance, the provision of community recognition in the context of community-based natural resource management programmes. Communication and education or awareness-raising tools can also play a role in this regard. Importantly, both monetary and non-monetary instruments are frequently applied within the same programme.

30. Economic instruments (taxes or user fees), possibly coupled with the establishment of funds, play a potentially important role as a source of revenue for funding the provision of positive incentive measures. However, economic instruments, even when applied in the first place, are frequently being set too low to effectively change behaviour (that is, act as disincentives) or to meet resource requirements for the provision of positive incentive measures. The calibration of economic instruments needs to be improved, both in developing and developed countries, with a view to ensure that they continue to reflect the resource's true economic value and the real cost of resource and ecosystem degradation.

31. Assessing the economic value of biodiversity and ecosystem services, and complementing existing national accounts to reflect depreciation of natural capital, can play an important role in better calibrating economic instruments and positive incentive measures for the conservation and sustainable use of biodiversity. By raising awareness about the hidden values of biodiversity and ecosystem services, it can also act as an incentive in its own right. The initiative on The Economics of Ecosystems and Biodiversity (TEEB) to promote common understanding and broader application of these tools is welcome. There is an information gap in this regard between developing and developed countries.<sup>2</sup>
32. It is important to enhance capacity in, and provide training for, the design and implementation of positive incentive measures. Recent efforts to expand university curricula on environmental economics and to build regional programmes and networks,<sup>3</sup> are welcome. Such efforts need to be broadened.
33. Gender issues need to be taken fully into account when designing and implementing positive incentive measures, for instance, the impact of community forestry programmes on rural and forest-dwelling women through the redistribution of forest resources.
34. With the recent advent of programmes implementing payments for ecosystem services (PES schemes), monetary incentive measures are increasingly applied not only in developed countries, but also in developing countries. They are most effective when seeking to cover, to the extent feasible, all ecosystem services provided by a particular ecosystem. In this context, reference was made to the requirement, implemented for instance in India, to compensate for the entire net present value of the forest ecosystem in case of forest loss or degradation.
35. In developing countries, negotiations for voluntary PES schemes are typically with the authorities (both formal and traditional), and it is very rare that all voices are heard. This may lead to equity issues as well as limited value of PES schemes for poverty alleviation objectives. While PES schemes can be designed in a pro-poor manner, it is important to recognize that PES schemes are not a poverty alleviation tool.
36. Land ownership plays an important role in designing PES schemes. The allocation of formal land titles may generate important equity effects when introducing such schemes.
37. Offset requirements can create positive incentives for biodiversity conservation on the supply side. While biodiversity offsets are generally a valuable tool for biodiversity conservation, there are important limitations which need to be taken into account. For instance, some areas should be completely off-limits for offset activities, for instance sacred areas and groves as well as areas with a high degree of endemism.
38. Another important potential limitation of offsets is the definition of equivalence, given for instance the important time lags before ecosystems are restored completely – wetland mitigation being a concrete example.
39. 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. Examples of measures provided include support to the development and commercialization of 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. Such promotion often occurs through non-monetary means, such as: the removal of barriers to trading; public policies such as procurement, education and research; and the provision of consumer information through e.g. certification and eco-labelling.

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<sup>2</sup> See paragraph **Error! Reference source not found.**

<sup>3</sup> E.g., the Latin American and Caribbean Environmental Economics Programme, or the Economy and Environment Programme for Southeast Asia.

40. Markets can also be created through the assignment of well-defined and stable property rights, and subsequent trading. For 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).

41. Community-based natural resource management programmes are another type of indirect incentive measure. They typically rely on the involvement of traditional or local communities in, for instance, wildlife conservation or sustainable forestry management, often in the context of protected-area management. In the pertinent literature, the generation or sharing of revenue with these traditional or local communities is recognized as a key element in these programmes. This may involve the generation of revenue and livelihoods for communities adjacent to protected areas, for instance through the promotion of eco-tourism in the protected area. In this case, supporting activities may include the training of locals as eco-guides (paid at least in part by entry fees), the provision of food and lodging, and the promotion of local arts and crafts. 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.

42. Community recognition can act as an important non-monetary incentive, in particular in the context of community-based natural resource management programmes. The involvement and empowerment in natural resource management alone generates awareness and a sense of responsibility with positive impacts on patterns of natural resource use. Effective communication, transparency, participation, inclusion and ownership are important factors in the effective empowerment of communities.

43. Difficult decisions arise frequently in designing and implementing community-based natural resource management in the context of establishing protected areas, in particular with regard to the role of human settlements in protected areas and potential relocation decisions. There is a need to carefully balance objectives of biodiversity conservation and sustainable use, taking into account poverty alleviation and livelihood development objectives. Reference was made to the UNESCO Man and Biosphere Programme (MAB) as an approach to reconcile protected areas and human settlements and activities in buffer zones.

44. Environmental awards can act as an important non-market incentive. They are frequently used to encourage good corporate and other governance favorable for 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.

45. Business-driven initiatives (e.g. large retail chains requiring food coming from sustainable sources, indicated by appropriate certification and eco-labelling) can play a positive role in providing incentives for conservation and sustainable use. In general, the examples of the pharmaceutical and cosmetic industries, which rely increasingly on biodiversity-based products, show that opportunities exist to understand biodiversity and ecosystem services as an emerging economic sector. However, there is a need to be aware of potential limitations – for instance, leakage may occur, resulting in more harmful effects from products that are not covered by certified products.

#### *Conclusions and consolidated lessons learned*

46. There is a wide range of positive incentive measures available and applied to encourage the conservation and sustainable use of biodiversity. They need to be applied in a flexible manner and be tailored to local conditions. One size does not fit all.

47. 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 eligibility of receiving the monetary or non-monetary incentive, as they reduce the risk of unexpected reactions by the target actors of the programme, with possibly adverse consequences for biodiversity and ecosystem services.

48. The provision of positive incentive measures, whether monetary in nature or not, requires adequate funding. Economic instruments (taxes or user fees) need to be calibrated carefully so that they can play their role, whenever planned, as a source of revenue for funding the provision of positive incentive measures, while not generating too strong incentives for evasion and illegal resource exploitation. In any case, the effective monitoring of resource use remains essential even when incentives for sustainable management are provided.

49. A long-term commitment to providing positive incentives is important. Securing the long-term financial sustainability of providing positive incentives is critical, since positive effects on biodiversity will require time to take effect and since maintaining these positive effects will often require the ongoing provision of positive incentives.

50. Positive incentive measures are typically complex undertakings and require the building of institutions and trust. The different mandates and interests, and subsequent dynamics among and between government representatives and stakeholders must be taken into account.

51. Establishing property rights can provide incentives to manage natural resources in a sustainable manner. Procedures for allocating property rights need to be open and transparent. Their performance will be thwarted if their allocation is merely based on political considerations. Allowing tradability can improve efficiency if clearly defined property rights can be established and upheld, transaction costs are low, and interested Parties are numerous enough to allow for regular trade.

52. Designers of positive incentive measures have to understand the life-choices of the target groups. If the design of positive incentives does not reflect a deep understanding of the traditional or local communities and the relationship between the users of natural resources and the resources themselves, they run the risk of not achieving their goals and harming already sensitive bonds of trust between communities and formal institutions.

53. In some cases, incentives in kind are more acceptable than cash payments as the perception of a sale of a good or service is avoided. Community or society recognition, for instance by environmental awards, and the raising of awareness of the importance of biodiversity and ecosystem services can act as important incentives in their own right.

54. The incentive provided must ensure no loss of income, as this could impact the trust built between actors. More generally, equity and gender considerations need to be carefully taken into account, since high poverty and widespread inequality are often part of the barrier to biodiversity conservation in the first place. In particular, there is a need to recognize that measures such as payments for ecosystem services are not a poverty alleviation tool and synergy with overarching social objectives will not result automatically. Poverty alleviation measures will however often generate additional benefits for biodiversity conservation and sustainable use.

55. Some positive incentive measures can generate additionality issues and leakage, which must be taken into account during the design stage to ensure that positive incentives are cost-efficient and effective.

56. The important relationship between the provision of positive incentives and the removal of perverse incentives must be taken into account. The prior removal of perverse incentives will make positive incentives more effective, and can even reduce the need for providing positive incentives.

57. Positive incentive measures can generate perverse effects when not properly designed and implemented. Understanding the relationship between perverse and positive incentives is also important in this context.

58. For these reasons, there needs to be effective monitoring and a regular review of positive incentive measures. Positive incentive measures should be reviewed regularly to ensure that they have generated the intended impacts in a cost-effective manner and within a reasonable amount of time.



59. Many positive incentive measures are based on the active involvement of traditional or local communities, in particular in the context of community-based natural resource management. In these cases, it can be further noted that:

(a) Community participation needs to start early on and be a long-term commitment. This ensures that positive incentives can be monitored for effectiveness, and that the programme gains credibility;

(b) Inputs, whether monetary or non-monetary, have to be sustained to gain the trust and confidence of local people, and build credibility;

(c) Benefits do not necessarily need to be monetary – they must though be tangible, tailored and appropriately scaled, so that stakeholder enthusiasm does not wane, and that communities remain committed to the projects;

(d) The responsibility of local people as traditional resource managers must be acknowledged and used, as these communities often have a deeper understanding of how to maintain biodiversity and use it in a sustainable manner;

(e) The devolution of power can pose practical challenges. Local participatory decision-making institutions can be fragile and external safeguards to maintain good governance and adequate capacity may be required, as well as possibly continuing external support;

(f) Sustaining the effectiveness of co-management institutions and mechanisms in a high-growth environment, resulting in an ever-increasing pressure on the resource, can amount to a considerable challenge.

#### *Annex*

### **CASE-STUDIES INCLUDING GOOD-PRACTICE CASES FROM DIFFERENTS REGIONS ON THE REMOVAL OR MITIGATION OF PERVERSE INCENTIVES AND THE PROMOTION OF POSITIVE INCENTIVE MEASURES**

In light of the request of the Conference of the Parties to identify “*a limited number*” of good-practice cases, the following list is by necessity not comprehensive. The absence of a particular case from the compilation below does not imply that such a case could not also be considered good practice.

#### ***A. Identification and removal or mitigation of perverse incentives***

- **Austria: removal of subsidies for wetland drainage** – To establish and run the National Park Neusiedler See, Austria used a package of incentive measures to support protected areas management, including the removal of subsidies for the drainage of wetlands for agricultural cultivation. The use of a combination of economic incentives, information dissemination and paying individuals compensation for restricting land use proved to be successful. The policy reform was innovative in that it combined a range of instruments to address competing uses and interests in the area. Establishment of the national park affected over 1500 land owners and negotiations had to address the competing interests/uses of multiple stakeholders. As this situation is relatively common in Europe, the scope to replicate this case seems good.
- **Cambodia: correcting perverse incentives for unsustainable logging** – Cambodia has a long history of conflict and political instability which has had adverse impacts on forests. Forest concessions were reintroduced in Cambodia in the early 1990s in order to (i) bring larger forest areas under active management, and reduce illegal logging; (ii) speed growth of value-added wood processing domestically; and (iii) increase government timber royalty revenues, while maintaining the ban on export of logs. The Government undertook further reforms in 2000 including by raising royalty fees from 14 to 54 US\$ per cubic metre of timber. Furthermore, a number of concessions were cancelled and improved management of other concessions required. Logging in protected areas was

restricted, and elements of community-based forestry management were introduced. Despite continued impacts resulting from illegal logging, the introduction of community-based forestry has been successful in both improving the livelihoods of forest communities and of protecting forest biodiversity.

- **Denmark: removal of adverse incentives in the forest sector** – To increase the national forested area, the Government combined grants for reforestation and compensation for voluntary conversion of private forests into reserves. To eliminate perverse incentives leading to forest degradation, Denmark reformed a regulation which made it illegal to leave unproductive major potentially productive forest areas – with the aim to allow exemptions. Success was linked to the fact that the scheme was voluntary for landowners and that compensation was offered for avoided land-use change. This case should be replicable in countries where there is significant private ownership of forest resources, a national commitment to maintain or increase forest cover and financial resources available for compensation.
- **European Union: enhanced transparency on subsidy measures in the European Union and its member States**- A recent European Union financial regulation, agreed in December 2006, requires ‘adequate ex-post disclosure’ of the recipients of all European Union funds, with agricultural spending transparency to begin in the 2008 budget. While compliance of Member States with the regulation is still uneven, the initiative seems to be important for promoting transparency of subsidy programmes, which has been recognized as an important precondition for successful reforms. In fact, the regulation spurred important watchdog initiatives such as [farmsubsidy.org](http://farmsubsidy.org), [caphealthcheck.eu](http://caphealthcheck.eu) or [fishsubsidy.org](http://fishsubsidy.org), which seek to closely monitor compliance by EU member States and assess the quality of the released data.
- **Ghana: removal of fuel subsidies.** Faced with persistently high oil prices, in 2004, Ghana was unable due to fiscal constraints to continue subsidizing petroleum products. The Government launched a poverty and social impact assessment (PSIA), including all stakeholders, and found that price subsidies predominantly benefitted the better-off in society. When the Government eliminated fuel subsidies in 2005, leading to a 50 per cent price increase in fuel, the Government launched a campaign explaining the need for price rises and announcing mitigation measures. Mitigation measure included elimination of school fees and a programme to improve public transport. While benefits for biodiversity resulting from the removal of fossil fuel subsidies are presumably rather indirect, the case points to important general lessons with regard to increasing the social acceptability of reform measures. Due to the compensation measures, the transparency of the reform process, and the public information campaign, the public generally accepted the measures.
- **India: reform of subsidy for chemical fertilizer** - The Indian Government decided in April 2009 to reform the subsidy for chemical fertilizer. Large areas of farmland had become barren due to excessive use of a single fertilizer, urea, which, due to high subsidies, was cheaper than other fertilizers. The new policy provides more leeway to fertilizer manufacturers to mix nutrients needed for different kinds of soil and to sell them as separate products, and subsidies are based on the ingredients in each nutrient mix. This will lead to reduced overall nutrient levels and more adapted composition, which will augment biological resources in agricultural soils (e.g. bacteria, earthworm, micro-arthropods etc.). The increased efficiency of nutrient use is expected to compensate the reduced subsidy. In the transition of subsidy reform, all farmers will receive the new type of subsidy. While further consideration is given to reduce eligibility in the future to more targeted recipient, that is, small and marginal farmers.
- **Indonesia: removal of pesticide subsidies.** After 1984, Indonesia reduced its support to agriculture including removal of pesticide subsidies and a ban on the import of broad spectrum pesticides in 1986 and removal of fertilizer subsidies in 1998. Overuse of pesticides had wiped out the natural enemies of the brown rice planthopper resulting in US\$ 1.5 billion of damage to the rice sector. Following subsidy removal, pesticide applications halved while rice production grew by three million tons over

four years. A well-funded national programme of Integrated Pest Management (IPM) was a critical factor in the maintenance of rice production and farm incomes. An additional benefit was the US\$ 100 million fiscal saving resulting from subsidy elimination. The reduced use of agricultural inputs was positive for both agro-biodiversity and biodiversity in general.

- **Namibia: introducing sustainable fisheries management** – Prior to independence, Namibia's coastal waters were heavily overfished due to uncontrolled access allowing distant water fleets (DWF) to fish beyond catch limits. At independence in 1990, a system of fishing rights was introduced to limit entry to the fisheries sector within the Exclusive Economic Zone, with all vessels having to obtain a license to fish within the EEZ and Total Allowable Catches (TAC) being set annually based on best available scientific evidence. The TAC was distributed among rights-holders in the form of non-transferable quotas. Implementation was effective – foreign trawlers were prosecuted for illegal fishing and illegal, unreported and unregulated fishing (IUU) has declined accordingly. Revenue from licences and quotas is used to finance a state of the art monitoring, control and surveillance (MCS) system which is complemented by inspection and patrols at sea and on land. The recovery of fish stocks has been variable with some stocks recovering well (hake and horse mackerel) while others (sardines), despite reduced fishing pressures, remaining adversely affected by other environmental factors.
- **New Zealand: removal of agricultural and fisheries subsidies** – Prior to 1984, agriculture in New Zealand was highly protected via subsidies, and price and income support. This led to market distortions, over-production and degradation of marginal lands. Facing a serious fiscal crisis, the Government removed all agricultural subsidies (price and income support, fertilizer, transport and land development subsidies) and fishery subsidies, devalued the currency and liberalized capital markets. Sectoral adjustment took some time, but the Government supported the farming sector through the transition with loan restructuring and social welfare payments. Approximately 1 per cent of farmers left farming. Today, the agriculture sector is larger than it was when it was heavily supported, more profitable, efficient and innovative. Reform had a positive impact on biodiversity by reducing the use of fertilizers and pesticides, decreasing pollution levels in rivers and reducing the farming of marginal land. As regards the fishery sector, subsidy removal was combined with a major change in fishery management regime including the introduction of a system of individual transferable quotas (ITQs). As a result, fish stocks were managed more effectively and in some cases recovered from overexploitation. The involvement and support of farmers' and fishers' organizations and consumer groups contributed greatly to reform success. The fact that New Zealand is a small, relatively homogeneous, well-educated and affluent society suggests that a careful analysis for the reasons for success is required, and points to potential limitations for replicability.
- **Norway: significant reduction of fisheries subsidies** – Norway reduced subsidies to fisheries by 85 per cent between 1981 and 1994 (from US\$ 150 million to US\$ 30 million). More effective management measures were adopted simultaneously and as a result the sector is now self-supporting and fish stocks have shown signs of recovery. The case shows that a gradual transition combined with an improved management regime promotes successful reform. The reduction in subsidies occurred at a time when Norway was under financial pressure from falling oil prices and significant external political pressure associated with multilateral agreements, i.e., the 1990 European Economic Space (EES) agreement to reduce direct price support to fisheries. Compensation in the form of optional employment opportunities allowed the sector to downsize without significant negative impact on local livelihoods. This case is similar to the New Zealand case (although a more gradual approach was taken) which suggests that the scope for replication is good when the aforementioned conditions are met.
- **Uganda: correcting the undervaluation of property rights in fisheries**- For over thirty years, Lake George was severely overfished resulting in decreasing volume of catch and falling catch size. Illegal fishing was widespread; limited monitoring and enforcement capacity resulting from insufficient revenue collected via the license fee was worsened by the lack of institutional mechanisms for the

local communities to support in enforcement initiatives. A reform in 1998 introduced the co-management of local fishing communities, and a significant increase in licenses. The higher revenue from the licenses and the landing fees allowed more effective monitoring and enforcement. Together with the co-management implemented, this temporarily reduced the number of illegal fishermen operating on the lake and created incentives for legally licensed fishermen to stop illegal fishing. However, against the dramatic growth of the fisheries sector in the last decade, ensuring the sustainable management of Uganda's fisheries remains a challenge.

### ***B. Positive incentives measures***

- **Australia: Bush Tender Programme** – In Australia voluntary, market-based incentive programmes have become an increasingly important tool to achieve environmental objectives. Several state governments and the Commonwealth government now use a mix of incentive approaches to secure targeted management actions that retain and improve biodiversity conservation on private lands. Biodiversity stewardship payments are used in situations where managing threats to biodiversity requires monitoring and management effort from private landholders and outcomes are difficult/costly to monitor, e.g., the restoration and management of habitat for threatened species and the implementation of environmentally beneficial burning and grazing regimes. The state government of Victoria disburses payments to landowners to enter into contracts to adopt a range of vegetation management practices. Reverse auctions are held to minimize the cost of conservation actions. Bids by landholders are evaluated using a biodiversity benefits index and those that are most cost effective (best value) are accepted. The use of reverse auctions is receiving increasing attention as a promising method to obtain biodiversity conservation at least cost, and was subsequently expanded and scaled up to other programmes. The careful assessment of area and quality of conservation implies that there are significantly positive impacts on biodiversity.
- **Bolivia: selling environmental services** – In the Los Negros valley, 46 farmers are paid to protect 2,774 ha of watershed containing threatened cloud-forest habitat of 11 species of migratory birds. The scheme is financed by two service buyers: the US Fish and Wildlife Service, interested in biodiversity conservation, and the municipality representing downstream irrigators who benefit from stabilized dry season water flows. Payments are made in kind (bee hives, apiculture training and barbed wire). An unintended consequence has been the reduced colonization by landless people; the formal contracts with maps and demarcation for the scheme helped institutionalize de facto land-tenure security and raised local ability to resist invasions. Overall, the threat level after PES was much reduced with positive conservation effects in some cases and negligible conservation effects in others.
- **Botswana: community-based wildlife management** – In order to address the issue of conflict between local communities and wildlife, the Community Based Natural Resource Management (CBNRM) policy was designed and approved by Parliament in 2007. Community Boards, Technical Advisory Committees and the Kgotla (a place where everyone in the village has a voice) are used to implement the CBNRM policy. The village of Sankuyo stands out as a good practice case for CBNRM as the community derives a significant amount of benefits from their biodiversity-based activities. Local communities operate a lodge (Santawani) and a camp site (Kaziikini) and they derive additional revenue from safari drives, basket weaving and game walks. As a result, the community now has a different view of elephants and predators which used to destroy their crops and prey on their livestock. Today, the community relies on wildlife for local livelihoods and views wildlife as a resource rather than an enemy.
- **Cameroon: Cane-rat domestication and green Sahel reforestation programmes** - The bush meat trade in Central and West Africa is threatening regional biodiversity as harvest levels are unsustainable and threatened/endangered species (mountain gorillas, monkeys) are killed for food. The Government of Cameroun has initiated support for the commercial production of cane rats in order to provide a substitute for bush meat. Farmers are trained in cane rat raising, animal health and marketing. The objective is to protect wildlife, provide a substitute source of protein in a region

where bushmeat is an important source of food and income, and to alleviate rural poverty and promote self-employment by providing alternative sources of livelihoods.

In the Lake Chad region, reforestation activities are undertaken in order to raise water levels and to encourage sustainable agro-pastoral activities, and conserve dwindling biodiversity. The Lake Chad basin area has decreased from 26,000 km<sup>2</sup> in 1963 to barely 1,500 km<sup>2</sup> in 2001. The main activities are encouraging local production of tree seedlings, buying seedlings from farmers and employing local communities and organizing labour for afforestation/reforestation programmes by youths and NGOs. By financing ecosystem restoration, the Government is in effect paying for ecosystem services and restoring biodiversity (e.g. fish, fauna, flora) to create optimal conditions for agro-pastoral production and human habitation and to ensure food security.

- **Colombia: Forestry project for the basin of Chinchina river (PROCUENCA)** – This PES scheme involves the provision of support for the reforestation in a critical watershed to support the supply of water, promote biodiversity conservation and carbon sequestration. Participants included 232 rural land owners (covering 3,427 ha) and the costs were met by the Manizales Municipality Water Supply Company (mixed public/private). ‘Payments’ were contingent on improvements in farmers’ cattle ranching methods and were actually in kind – in form of supply of seedlings, planting and technical support. The environmental outcome was positive with an increase in area under native forest, reduced pressure on natural forests, and reduced erosion. This scheme has expanded into a Clean Development Mechanism (CDM) carbon sequestration project and will be able to issue certified emissions reductions (CERs) and benefit from the revenue from the sale of CERs (which will be shared).
- **Costa Rica: PSA programme** – The PSA programme is a national payment programme for carbon offsets and storage, hydrological services and the protection of biodiversity and landscapes. Between 1997 and 2004, approx. US\$ 200 million has been invested in PES to protect over 460,000 hectares of forests and forestry plantations and to provide additional income to more than 8,000 forest owners. In the past it has been predominantly financed by a sales tax on fossil fuels, but the objective is that all beneficiaries of environmental services pay for the services they receive. The PES scheme has helped slow deforestation, added monetary value to forests and biodiversity, and increased understanding of the economic and social contribution of natural ecosystems.
- **Cuba: Havana Bay user tax-** To promote conservation in Havana Bay, the Government of Cuba applied a tax on users (tourism, recreation, harbour activities). The revenue was earmarked for an environmental fund for cleanup activities. Following implementation of the tax, hydrocarbon concentrations in the bay were reduced as industry effluent emissions were cut by 50 per cent. Signs of the recovery of the ecosystem include the reappearance of fish and phytoplankton species thought to be lost. A high level of coordination between economic and environmental policy-makers enabled the introduction of the tax. This experience with environmental taxation has been so positive that the Government is replicating the scheme in three other bay areas in Cuba.
- **Ecuador: Decentralized environmental payments-** The programme of environmental payments includes Pimampiro, a municipal watershed protection scheme and PROFAFOR, a carbon sequestration programme. These programmes have both been effective in reaching their environmental objectives and have shown high levels of additionality and low leakage effects. This success has been attributed to a focus on a targeted environmental services and strict conditionality. Both schemes have improved the welfare of participants, mostly through higher incomes. The model is being replicated throughout Ecuador.
- **Egypt: Development of community-based eco-tourism-** The Government of Egypt has identified opportunities to enhance the quality of tourism and increase revenue streams by promoting Bedouin-managed tourism enterprises in pristine wilderness areas inside protected areas. Sustainable tourism in St. Katherine Protectorate is intended to conserve natural and cultural resources and provide benefits to local communities. The programme includes reconstruction of a Bedouin

habitation into an eco-lodge, establishing nature trails, revitalizing traditional craft skills, constructing a visitor centre, publishing tourist maps and nature guidebooks, etc. The programme is based on local stakeholder participation, collects entry fees to protected areas and promotes eco-tourism businesses via training and technical support, providing local incentives to conserve the wildlife base of these revenues.

- **France: Payments for improved watershed management practices** - Vittel, a French mineral water company, made payments to livestock farmers in the catchment above its source aquifer to adopt more sustainable farming practices. Water quality was threatened by the increasing use of fertiliser and pesticides in maize production used to feed increasing intensively farmed livestock. Changes in farming practices were required to reduce nitrate run-off and maintain water quality in the aquifer. The scheme was effective in achieving its environmental objective – maintenance of water quality. The process included an extensive local research programme, establishment of an intermediary institution based and staffed in the farming community, effective communication, and continuous efforts to build trust. Similar schemes were implemented by other companies to ensure water quality as a critical input into commercial products.
- **India: Joint Forest Management and National Biodiversity Acts** – India’s Forest Policy of 1988 ensured a process of Joint Forest Management (JFM) by forming Forest Protection Committees (FPC) with participation of the local community. As a result, between 7-9 million ha. were being jointly managed by communities and the forest department in 2000, with 35,000 community committees existing. Although details differ from state to state, 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. Positive changes to local livelihoods have been observed accordingly; for example, benefit-sharing has increased the income from sale of forest products to its members and the revenue re-invested into forest management.

The Biodiversity Act of 2002 and 2004 also devised a legal framework for access and benefit-sharing (ABS). At the local level, biodiversity management committees (BMCs), consisting of seven representatives from the respective local community, determine the amount of levy to be charged for any biological resource to be utilized commercially; and the funds thus collected will be deposited to the local biodiversity fund, which can be utilized for providing incentives to individuals or communities undertaking biodiversity conservation. The BMCs work with people’s biodiversity registers (PBRs), which are prepared by the local community in the local language.

- **Japan: Payments for forestry management financed by environmental taxes** - In Japan, since 2003, 29 prefectures have introduced forest environmental taxes. These are taxes that require payment from beneficiaries of forest ecosystem services. Part of the revenue is earmarked for direct payments to forest owners for forest management work to protect critical watershed areas. There are also privately financed PES schemes taking root. An important lesson learned is that tax rates need to be set at an adequate level in order to generate sufficient revenue for the payment schemes.
- **Mexico: payments for hydrological environmental services (PSAH) programme** – To combat problems of high deforestation and water scarcity, payments are made to forest owners to ensure watershed protection and aquifer recharge in areas where forestry is not commercially viable. The scheme was financed by increasing the federal water fee paid by users and earmarking a percentage to pay for environmental services. While evidence suggests that many payments have been in areas of low deforestation and that enhanced targeting is needed in order to attain a greater environmental impact and improve the cost-effectiveness of payments, deforestation has been reduced, and the poor were successfully involved. The scheme has since introduced a series of weights for water scarcity, deforestation risk and poverty in the application grading system to improve targeting and efficiency.
- **Nepal: Himalayan biotrade** – The Asia Network for Sustainable Agriculture and Bioresources (ANSAB) created Himalayan Biotrade to market non timber forest products (NTFPs) produced by local community enterprises in Nepal to national and international markets. Community enterprises specialize in natural and sustainably sourced NTFPs (essential oils, handmade paper, and medicinal

and aromatic plants) that hold organic and/or Forest Stewardship Council (FSC) certification. The scheme targets supply chains of multinational companies committed to sustainability and willing to pay price premiums for sustainably sourced material (Aveda, S&D Aroma, Altromercato). Local communities are responsible for protecting and monitoring resources which they are then able to harvest/sell. Additional incentives are provided further up the supply chain by linking community enterprises so they are better able to compete and obtain higher returns internationally.

- **Peru: Potato Park** – In the Andes region, the place of origin for the potato, a wide diversity of potato species and varieties is still cultivated and used, representing a gene reservoir of inestimable value for global food security. The *Parque de la Papa*, the Potato Park, was created in order to address the dramatic decline in the cultivation of traditional varieties in recent decades. It covers six Quechua communities on 12,000 ha, and contributes to preserving the 1200 different potato varieties used in the region, and to re-introduce varieties that have already disappeared from the region. For the latter purpose, the International Potato Center (CIP, part of CGIAR), under an agreement of 2004, committed to the repatriation and restoration of potato diversity. Income-generating measures are taken together with efforts to further the awareness among producers and consumers of the importance of potato diversity, such as the development of agro-tourism, a visitors' centre with a potato exhibit and restaurant, better storage options and the sale of colourful potato mixes at the local supermarket chain.
- **Philippines: environmental tax** - The Philippines has instituted a programme that requires companies to minimize pollution generated and then applies an environmental user tax for residual damage in the Laguna de Bay watershed. The tax obliges polluters to pay for the damage associated with waste water discharge. Receipts of the tax are used to provide positive incentives on the expenditure side – twenty per cent of the fee revenue are earmarked for local environmental projects such as the establishment of sewage plants – and for monitoring and enforcement of the programme. Despite some success in reducing pollution, the ongoing and dynamic immigration to the Manila agglomeration continues, and the degradation of the lake's ecosystem through pollution and siltation remains a major and ongoing challenge.
- **Saint Lucia: Soufriere Marine Management Area (SMMA)** – When the Soufriere Marine Management Area (SMMA) in Saint Lucia was officially established in 1995, local fishers lost many of their prime reef fishing areas. It takes several years for the spill-over benefits to emerge from the formation of new protected areas. To mitigate the negative impact on Soufriere fishers and to pre-empt increased fishing pressure on near shore resources, several initiatives were introduced which provide positive incentives, including temporary stipends and limited fishing rights in times of hardship, a gillnet buy-back scheme, training and investment opportunities for alternative employment opportunities, such as deep sea fishing and tourism-related activities. While fish populations within the MMA increased significantly, the gains made to date seem to be limited to areas within the MMA and depend on a complete ban on fishing in reserves.
- **Uganda: Collaborative management schemes** – Uganda promotes the use of collaborative management schemes for the conservation and sustainable use of biodiversity. In national parks and game reserves, 20 per cent of entry fee collection goes directly to communities neighboring protected areas. Since 2000, a total of US\$ 1.7 million has been collected, of which \$896,000 has been disbursed to a total of 600,000 people. In forest reserves, Community Forest Management is widespread. In the fisheries sector, beach management units (BMUs) are established and retain 25 per cent of revenue generated from trade in fish. Markets, marketing and value added processing are promoted for ecosystem-based products from wetlands (mats, baskets) that are produced in a sustainable manner. Revenues generated go to the local ecosystem stewards, providing incentives for conservation and sustainable use of ecosystems.

*Note: references are provided in an information document.*

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