CBD

UNEP

CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/COP/6/12/Add.3
14 February 2002

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Sixth meeting
The Hague, 7-19 April 2002
Item 17.6 of the provisional agenda*

INCENTIVE MEASURES

Synthesis report on case-studies and best practices on incentive measures as well as information on perverse incentives received from Parties and relevant organizations

Note by the Executive Secretary

I. INTRODUCTION

1. In paragraph 6 of its recommendation VII/9, on incentive measures, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) called upon the Executive Secretary to make information gathered on perverse incentives available to the Conference of the Party at its sixth meeting. In paragraph 9 of the same recommendation, SBSTTA invited:

> "Parties to submit case-studies and best practices on incentive measures and their implementation before the sixth meeting of the Conference of the Parties. This important information on social, legal and economic incentive measures should be made available by the Executive Secretary before the sixth meeting of the Conference of the Parties."

2. The present document provides an overview of the information and case-studies on incentive measures, including perverse incentives, provided to the Secretariat by Parties and relevant organizations pursuant to these requests of SBSTTA. The information on case-studies and best practices is contained in section II, while the information submitted on perverse incentives is summarized in section III.

3. At its third and fourth meetings, the Conference of the Parties called upon Parties to provide case-studies on incentive measures. In response to this call, 44 case-studies were provided to the Executive Secretary by Parties, Governments, and organizations prior to the fifth meeting of the Conference of the Parties. These case-studies were summarized in an information document prepared by the Executive Secretary for the fifth meeting of the Conference of the Parties (UNEP/CBD/COP/5/INF/14). Furthermore, information on perverse incentives, that is, on ways and means to identify them and to remove or mitigate their negative impacts on biological diversity, was

* UNEP/CBD/COP/6/1 and Corr.1/Rev.1.

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summarized in the note by the Executive Secretary on further analysis of the design and implementation of incentive measures prepared for the fifth meeting of the Conference of the Parties (UNEP/CBD/COP/5/15).

4. In addition, in its decision V/15, the Conference of the Parties requested the Executive Secretary to collaborate with relevant organizations and to undertake through such an effort, as a first phase, to gather and disseminate additional information on instruments in support of positive incentives and their performance, and to continue gathering information on perverse incentive measures, and on ways and means to remove or mitigate their negative impacts on biological diversity, through case-studies and lessons learned. The information submitted by organizations in response to a letter sent by the Executive Secretary in September 2000 are summarized in a note by the Executive Secretary on proposals for the design and implementation of incentive measures prepared for the seventh meeting of SBSTTA (UNEP/CBD/SBSTTA/7/11).

II. COMPILATION OF INFORMATION RECEIVED FROM PARTIES AND ORGANIZATIONS: CASE STUDIES AND BEST PRACTICES

A. Information received from Parties

1. Submission by Canada

5. Canada submitted a document entitled *Incentive Measures: Examples of case-studies, guidelines and best practices*, summarizing Canada's plans and accomplishments in regard to the use of incentive measures. The document reports that, in Canada, various levels of government and non-governmental organizations have created incentive programs for agricultural-habitat conservation, which provide incentives and technical assistance to promote practical farming techniques that benefit wildlife and the landowner. Examples given include the Ontario land CARE* and prairie CARE programmes the Ontario environmental farm plan programme, and the Ontario land stewardship programme. Incentives to convert marginal lands under cultivation to permanent forage or tree cover were given under the "permanent cover" programme of British Columbia. 1/

6. Provinces and territories offer a wide range of incentive programmes to protect land qualifying as important wildlife habitat. Examples given include the Alberta Buck for Wildlife Program, the Manitoba Critical Wildlife Habitat Program, 2/ The Saskatchewan Fish and Wildlife Development Fund, the Nova Scotia Habitat Conservation Fund 3/ and the Quebec Act Respecting Nature Reserves on Private Land, which will promote landowner contributions to biodiversity conservation.

7. In Ontario, several programmes provide tax incentives (tax credits or exemptions) for land conservation to eligible participants. For example, the Ontario Conservation Land Tax Incentive Program (CLTIP) 4/ offers 100 per cent tax exemption on the eligible portion of the property. Other programmes

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* CARE means "Conservation of Agriculture, Resources and the Environment"

1/ Additional information can been found at: www.ducks.ca/habitat/pcare.html and www.agr.ca/policy/environment/eb/public_html/pdfs/biodiversity/bioinit_cap.pdf

2/ See www.gov.mb.ca/natres/wildlife/managing/cwhp.html.

3/ See www.gov.ns.ca/natr/wildlife/habfund/.

4/ See www.mnr.gov.on.ca/mnr/cltip/.

include the Ontario Managed Forest Tax Incentive Program (MFTIP) 5/ and the Ontario Farmland Taxation Policy Program. Under the Ecological Fiscal Reform Program of the National Round Table on the Environment and the Economy, options are explored to redirect government taxation and expenditure programs to support the goal of sustainable development, including issues such as biodiversity loss and protection of ecological landscapes. In 1999, recommendations from the NRTEE Greening the Budget Committee to the Minister of Finance included a recommendation for protecting and conserving natural space by reducing capital gains taxation on ecological gifts by 50 per cent and establishing a stewardship fund for habitat conservation. 6/

8. Many Canadian conservation groups hold conservation agreements with private landowners. The agreements usually hand a portion of a willing landowner's property rights over to a conservation group, giving it a right to restrict development according to the terms of the agreement. If there is a drop in the value of the land as a result of the agreement, the property owner can receive a charitable tax deduction equal to the drop.

9. Donations by private landowners of ecologically sensitive land is emerging as an important tool in conserving sensitive ecosystems and biodiversity. Two-thirds of the tax on deemed capital gains associated with any ecological gift are exempt from income. To date, over 300 gifts have been donated, totalling over $35 million in value. 7/

10. By endorsing the Canadian Code of Conduct for Responsible Fishing Operations, fish harvesters volunteer to take appropriate measures to ensure fisheries are harvested and managed responsibly to safeguard sustainable use of Canada's freshwater and marine resources, and to pursue the ecological sustainability of Canadian fisheries. The Code has now been ratified by fisheries fleets and organizations that account for over 80 per cent of Canada's commercial fish harvest.

11. Under the Habitat Stewardship Program, the federal Government aims to enhance existing and encourage new conservation activities that foster land and resource use practices that maintain habitat critical to the survival and recovery of identified species at risk. In the spring of 2000, the federal Government announced new funding of $45 million over five years for the Habitat Stewardship Program. 8/

2. Submission by the European Community

12. The European Community submitted the European Community biodiversity strategy and thematic action plans (on natural resources, agriculture, fisheries, and development and economic cooperation). 9/ The action plans analyse the existing European Community instruments, their negative and positive impact on biodiversity, reforms already undertaken and further reforms or actions to be promoted or implemented to better integrate biodiversity concerns into sectoral European Community policies. For example, the action plan on the conservation of natural resources covers a wide range of areas and regulatory or incentive measures, classified under four main objectives, with an analysis of existing tools, and further change or action needed to better achieve positive results. Among many other social, economic and legal

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5/ See www.mnr.gov.on.ca/MNR/forests/mftip/home.htm.

6/ More information is to be found under www.nrtee-trnee.gc.ca.

7/ More information can be obtained at: www.cws-scf.ec.gc.ca/ecogifts/.

8/ More information on the programme is available at http://www.speciesatrisk.gc.ca/sar/media/back2_e.htm.

9/ These can be found at http://biodiversity-chm.eea.eu.int/convention/cbd_ec/strategy/BAP_html.

measures, liability mechanisms, the action plan addresses ecolabelling and eco-audit, whose potential role as incentives should not be forgotten.

13. In the case of the action plan on agriculture, the main provisions of the Common Agricultural Policy are discussed that may be used in favour of biodiversity. Threats to biodiversity and the rationale for agri-environment measures are identified, and targets and time-tables for the implementation of measures necessary for the achievement of the action plan priorities are given. The other two documents (the fisheries and co-operation action plans) include a similar type of analysis and proposals for change or adaptation of instruments to increase the incentive to protect or restore biodiversity.

3. Submission by Saint Lucia

14. Saint Lucia submitted four documents:

(a) *Incentive Measures*, which, as an introduction, enumerates several examples for perverse incentives measures and then proceeds to present a case-study on benefit-sharing arrangements in the Mankote Mangrove (see paras. 15-16 below);

(b) *Incentive Measures used in Protected Areas by the St. Lucia National Trust*, presenting information on positive incentives used in the Management of the Praslin Protected Landscape (see para. 17 below);

(c) *Adjusting to a New Way of Life – Marine Management Areas and Fishers* (by Dawn D. Pierre), presenting a case-study on the Soufriere Marine Management Area (see paras. 18-19 below); and

(d) As a background document to *Incentive Measures used in Protected Areas by the St. Lucia National Trust*, referred to in subparagraph (b) above, a *National Report for Saint Lucia*, originally submitted to the First CITES Wider Caribbean Hawksbill Turtle Dialogue Meeting, Mexico City, 15-17 May, 2001, presenting a summary of St Lucia's National Management Plan and Recovery Efforts for Marine Turtles.

Case Study: Benefit-sharing arrangements in the Mankote mangrove

15. The Mankote Mangrove had been used for charcoal production from 1960. When Mankote was declared a protected area in 1986 as the largest contiguous tract of mangrove, an initiative was launched to save the mangrove and maintain the incomes of charcoal producers. A management plan for the mangrove was adopted which attempts to respect existing popular uses and attitudes, while fully involving users in the decision–making process. As a result of an extensive dialogue, a set of rules for the sustainable use of the mangrove have been agreed upon by the informal cooperative of the charcoal producers and the relevant governmental agencies. The presence of the cooperative has allowed authorities to manage the area cost-effectively through a strategy of user participation rather than direct involvement. The group's participation in the project has been directly linked to the benefits they have been able to reap as individuals through their involvement, including an increased and more secure supply of wood for charcoal.

16. Due to this collaborative effort, by the 1980s the overall trend of degradation of the tree cover had been reversed. The conditions behind this reversal are ascribed to the shift from an open-access policy to a communal property regime. Indeed, the management plan represents a recognition of the stakeholder rights of subsistence users, even those without legal rights to the resources being exploited. The major lesson from the case-study is that integrated conservation-development projects have good potential to be

effective if they can lead to the avoidance of open-access conditions, and to specification of property rights.

Case-study: Praslin Protected Landscape

17. Partnership arrangements have been concluded with one private landowner and the community development group in the adjacent village to the Praslin Protected Landscape. Proceeds from visitors' fees are shared with the community development group and the landowner based on an agreed formula. Furthermore, project funds were used to develop the capacity and capability of community groups to manage resources in a sustainable manner and in so doing develop a good-neighbour culture between the protected area and the community. It is also the policy of the Trust to give first priority to nearby communities when it comes to employment, both at the project development stage (trail engineering etc.) and during the management phase (tour guides; maintenance staff; site management; boatmen, etc.). Other forms of positive incentives emerge out of environmental education programmes and frequent community meetings.

Case-study: The Soufriere Marine Management Area

18. When the Soufriere Marine Management Area (SMMA) was officially established in 1995, local fishers lost many of their prime reef fishing areas. They will need to wait several years in order to benefit significantly from the formation of new, actively protected reserve areas as a "spill-over" effect is anticipated. To alleviate the constraints faced in the meantime by Soufriere fishers and to help reduce subsequent fishing pressure on the nearshore resources, several initiatives were devised. These included the granting, during periods of special hardships, of temporary stipends and of limited fishing rights. A gill-net buy-back scheme was installed after gill-nets were identified as accounting for significant damage to coral reefs within the SMMA. Training capacities and an Investment Fund were devised so as to assist fishermen in engaging in activities other than coastal fishing. The increased use of the SMMA by yachters and divers generated income for the SMMA (through user permits) and for the Soufriere community at large (through tourism). The generation of user fees led to a nearly self-sufficient financing of the marine management area.

19. In the case of the SMMA, the increase in fish stocks is already evident within the unfished populations but does not yet appear evident within fish landings from fished zones. Thus, the gains made to date are still weak and are heavily dependent on a complete lack of fishing in reserves. The further development of Marine Management Areas, designed to solve resource degradation and user conflicts through co-management arrangements and consultation among stakeholders, is envisaged in St. Lucia's National Management Plan and Recovery Efforts for Marine Turtles.

B. Information from organizations

1. IUCN–The World Conservation Union

20. IUCN submitted a list of documents related to the use of incentive measures in biodiversity conservation, including information on perverse incentives, and also submitted a compilation of 31 case-studies on incentives, disincentives and perverse incentives.

21. The compilation of case-studies on incentives, disincentives and perverse incentives is annexed to the present document.

2. Organisation for Economic Development and Co-operation (OECD)

22. From the OECD, the Executive Secretary received a *Handbook of Biodiversity Valuation: A Guide for Policy Makers*, which focuses on the nature of values associated to biological diversity and the methodological approaches that can be adopted to assign values for policy purposes. Valuation was identified to be an incentive measure in the OECD *Handbook of Incentive Measures for Biodiversity. Design and Implementation*. (OECD 1999). The new handbook adopts a variety of case-studies to illustrate the valuation process in OECD countries:

(a) Australia: Valuing environmental flows for wetland rehabilitation: an application of choice modelling in the Macquarie Valley;

(b) Austria: Biodiversity, landscapes and ecosystem services of agriculture and forestry in the Austrian alpine region - an approach to economic valuation;

(c) Canada: Application of environmental damage assessment and resource valuation processes in Atlantic Canada;

(d) Czech Republic: Applied evaluation of biodiversity;

(e) Hungary: Loss of value of the Szigetköz wetland due to the Gab Ikovo-Nagymaros barrage system development: application of benefit transfer in Hungary;

(f) Norway: The Norwegian master plan for water resources – a national coordinated plan for non-developed hydropower sources: applied evaluation of biodiversity;

(g) Switzerland: Direct payments for biodiversity provided by Swiss farmers: An economic interpretation of direct democratic decision;

(h) United Kingdom: Valuing management for biodiversity in British forests at the Forestry Commission;

(i) United Kingdom: Integrated estates management – valuation of conservation and recreation benefits.

III. COMPILATION OF INFORMATION RECEIVED FROM PARTIES AND ORGANIZATIONS: PERVERSE INCENTIVES

A. Information received from Parties

1. Submission by Canada

23. Under the Canada National Forest Strategy 1998-2003, a pressing need to remove disincentives and create incentives to sustainable management of woodlots is identified. The Framework for Action, *inter alia*, envisages the use of incentives to invest in woodlot management including appropriate taxation and woodlot management programmes. Furthermore, the implementation of suitable changes to the Federal Income Tax Act and to provincial and municipal taxation will contribute in a constructive way to investments in and fair returns from the sustainable development of woodlots. 10/

10/ For more information, visit: http://nrcan.gc.ca/cfs/nfs/strateg/control_e.html.

24. In the submission from Canada, reference is also made to the document Using the Income Tax Act of Canada to Promote Biodiversity and Sensitive Lands Conservation: Canadian Case Study on a National Tax Incentive Measures for Biodiversity Conservation (invited case-study for OECD Expert Group on Economics of Biodiversity). This study is described as case 26 in the information document prepared for the fifth meeting of the Conference of the Parties (UNEP/CBD/COP/5/INF/14).

2. Submission by Saint Lucia

25. Several provisions of the Saint Lucia Forest, Soil and Water Conservation Ordinance (the use of a girth–limit and of royalty rates for timber prices) are identified to have contributed to the loss of forest biodiversity and impacted negatively on the various forest ecosystems and watersheds. Subsequent reforms undertaken in 1987 have led to a tremendous reduction of the purchase of local timber and as such have enhanced the management of the forest biological resources.

B. Information from organizations

1. IUCN

26. At a workshop convened by IUCN Gland, Switzerland, the 22 - 26 April 1996 on "using economics to attack biodiversity loss", a number of case-studies and background papers were presented dealing with the issue of perverse subsidies and biodiversity loss, including:

(a) Norman Myers (1996): *Perverse Subsidies*; 11/

(b) George Oyer and Juan Carlos Belausteguigoitia (1996): *Structural Adjustment, Market and Policy Failures: The Case of Maize*; 12/

(c) Timothy Swanson (1996): *The Underlying Causes of Biodiversity Decline: An Economic Analysis*. 13

27. *Perverse Subsidies* addresses the question which subsidies are detrimental to society's overall and long-term interests, by studying the case of subsidies for marine fisheries in detail. The author states that all major marine fisheries are considered to be over-exploited and that, while world-wide harvest has increased almost fivefold since 1950, the catch has been declining since 1989. Subsidies, aimed at preserving the fishermen's jobs, aggravate the situation by allowing the fishing industry to continue over-exploiting the fisheries in spite of the declining annual catch. As a result, there is now an excessive extractive capacity in the fishing industry. Several policy responses are proposed, such as using the subsidies to retrain fishermen who are put out of work through reduced catches — whether reduced through declining stocks or through policy shifts, and to introduce a limited number of tradeable fishing rights to individual fishermen.

28. *Structural Adjustment, Market and Policy Failures: The Case of Maize* analyses the effects of structural adjustment policies in agriculture on crop diversity by addressing the specific case of maize in Mexico. The Mexican government has introduced high yielding varieties (HYVs) of maize into the agricultural sector in an attempt to increase productivity. In terms of biodiversity impact, the result has been a shift from traditional varieties of maize to HYVs and consequently a loss of maize diversity. The

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11/ See http://biodiversityeconomics.org/pdf/960401-18.pdf.

12/ See http://biodiversityeconomics.org/pdf/960401-15.pdf.

13/ See http://biodiversityeconomics.org/pdf/960401-08.pdf.

main problem is that the benefits from crop diversity are not internalised in the market system and are therefore not taken into account by national policy-makers. In future, policy-making must take place more at the local level and be conducted in consultation with local peasants. Structural adjustment policies in agriculture too often fail to consider effects at the micro-economic level. One of these effects can be, as in the case of maize in Mexico, biodiversity loss.

29. *The Underlying Causes of Biodiversity Decline: An Economic Analysis* argues that economic forces drive biodiversity losses which implies the conclusion that the assessment of biodiversity decline requires an understanding and assessment of these economic forces. In order to redress the decline of diversity it will be necessary to reshape the economic incentives that cause human societies to choose systematically to reshape the living world in the way that they do.

30. The web site of IUCN Economics Unit http://biodiversityeconomics.org/ contains a number of additional documents, including:

(a) Ronald Steenblik (1998): *Subsidy reform: doing more to help the environment by spending less on activities that harm*; 14/

(b) Ronald Steenblick, Gordon Munro (1999): *International Work on Fishing Subsidies — an Update*; 15/

(c) Andrea Bagri, Jill Blockhus, and Frank Vorhies (2000): *Perverse Subsidies and Biodiversity Loss*; 16

31. *Subsidy reform: doing more to help the environment by spending less on activities that harm* underlines the importance of continuing the reform of government policies and programmes that generate "biodiversity-perverse" subsidies, and to encourage the conservation community to further develop their capacity to speak authoritatively on the issue. The paper reviews the inefficiencies created by subsidies, and the effects they have on the environment in general and biodiversity in particular. It then turns to the current multilateral mechanisms being applied to discipline subsidies to resource-based sectors, with a view to identifying areas in need of further strengthening. Most of the mechanisms used to date reflect attempts to deal with the trade and budgetary effects of subsidies. The application of these disciplines can be expected, in general, to reduce or even eliminate many of the policy-driven incentives to farm intensively, overfish and burn dirty fuels. But Governments usually have considerable discretion in how they interpret such disciplines; large variations in the incidence of subsidies within nations can have important implications for their effects on particular ecosystems. It is in identifying such links, this paper suggests, that civil society, particularly environmental non-governmental organizations, can make the greatest contribution to the process of subsidy reform.

32. *International Work on Fishing Subsidies — an Update* surveys recent international work in the area of subsidies to the fisheries sector, with particular reference to ongoing activities in the OECD, the Food and Agriculture Organization of the United Nations (FAO), the Commission on Sustainable Development, Asia-Pacific Economic Cooperation (APEC) and the World Trade Organization (WTO).

14/ See http://biodiversityeconomics.org/pdf/topics-35-02.pdf

15/ See http://biodiversityeconomics.org/pdf/topics-35-04.pdf

16/ See http://biodiversityeconomics.org/pdf/topics-35-01.pdf.

33. *Perverse Subsidies and Biodiversity Loss* examines the impact of public subsidies on biodiversity. It proposes an 'ecosystem approach' to assessing the perverse impacts of subsidies, and presents a preliminary survey of relevant literature and issues from an ecosystem approach. It then proposes a programme of work on perverse subsidies and biodiversity loss which could be implemented by IUCN.

34. Other information on perverse incentives is available at the IUCN biodiversity-economics site. 17/ Specifically, this site also contains a link to the OECD project "Transition to Responsible Fisheries". 18/ A series of free documents containing supporting case-study material is available and downloadable. Countries included in the case-studies series are Australia, Canada, Germany, Iceland, Japan and New Zealand.

35. A series of case-studies relating to the provision of economic incentives for local community biodiversity conservation have been produced by the IUCN Eastern Asia Regional Office, including:

(a) *Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa* (2001); 19/

(b) Lucy Emerton (1999): *The Nature of Benefits and the Benefits of Nature: Why Wildlife Conservation has not Economically Benefited Communities in Africa*; 20/

36. *Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa* investigates the extent to which communities have been provided with economic incentives to become involved in sustainable forest management in Eastern and Southern Africa. It finds that sustainable forest management must tangibly generate local economic benefits to sufficient levels and in appropriate forms to counterbalance the opportunity costs incurred by sustainable forest management. There is generally little recognition by either economic or forest sector decision-makers and planners of the high economic value of forest resources for communities, or the potentially high local economic costs of sustainable forest management. Because the forest sector has such a low recorded value throughout all the countries studied, it has been accorded little priority in economic policies and development strategies. In many cases, economic policies in eastern and southern Africa have actually provided economic disincentives to communities in sustainable forest management. However, national forest policies have now moved away from a focus on strict protection and commercial production to approaches geared towards using forest resources in pursuit of sustainable development goals, and to the economic benefit of local communities. In this regard, the study underlines that there is an urgent need to provide economic incentives for communities to become involved in sustainable forest management, including identifying, and dismantling, the economic disincentives and perverse incentives that macroeconomic and sectoral economic policies provide and that hinder community involvement in sustainable forest management.

37. According to *The Nature of Benefits and the Benefits of Nature*, community-oriented approaches to wildlife conservation are typically based on the premise that if local people participate in wildlife management and economically benefit from this participation, then a "win-win" situation will arise

17/ http://biodiversityeconomics.org/incentives/topics-35-00.pdf.

18/ http://www.oecd.org/oecd/pages/home/displaygeneral/0,3380,EN-document-159-4-no-10-6610-0,FF.html.

19/ See http://biodiversityeconomics.org/pdf/topics-337-00.pdf.

20/ See http://www.biodiversityeconomics.org/pdf/topics-334-00.PDF.

whereby wildlife is conserved at the same time as community welfare improves. Most attempts to conserve wildlife carried out in East and southern Africa over the last decade have followed a common approach to provide benefits by returning a proportion of the revenues earned by the state from wildlife back to communities, through indirect benefit-sharing arrangements and grass-roots development activities - mainly the provision of social infrastructure such as schools, water supplies and health facilities. The paper argues that such benefit-based models are based on an incomplete understanding of the economics of community conservation and of the nature of wildlife benefits. Whether or not communities have economic incentives to conserve wildlife, and whether or not they are economically better off in the presence of wildlife, goes far beyond ensuring that a proportion of wildlife revenues are returned to them as broad development or social infrastructure benefits. It also depends on the economic costs that wildlife incurs, on the form in which wildlife benefits are received, on the costs and benefits of other economic activities which compete with wildlife and on a range of external factors which all limit the extent to which communities are able to appropriate wildlife benefits as real livelihood gains. The paper concludes that additional economic considerations need to be incorporated into community approaches to wildlife.

38. The IUCN Asia Regional Environmental Economics Programme has recently produced two publications, dealing with economic; incentives and biodiversity planning (to be made available at the sixth meeting of the Conference of the Parties):

(a) *An Annotated Bibliography of Biodiversity Economics: Methods, Experiences and Lessons Learned* (2001);

(b) *The Use of Economics in National Biodiversity Strategies and Action Plans: A Review of Experiences, Lessons Learned and Ways Forward* (2002).

39. These studies were carried out under the Biodiversity Planning Support Programme (BPSP), a project funded by GEF and jointly implemented by the UNDP and UNEP. Under the thematic study, five country studies were carried out on the use of economic measures in national biodiversity strategies and action plans, comparing the country with the respective regional experience: Zimbabwe (Southern Africa), Uganda (Eastern Africa), Viet Nam (South-East Asia), Pakistan (South Asia) and Ecuador (Andean Region).

40. The compilation of case-studies submitted by IUCN, to be found in the annex, contains several examples of perverse incentives and of their removal:

(a) Seychelles Forest Act;

(b) Mangrove protection in Tanzania;

(c) Land tenure in Trinidad and Tobago;

(d) Land tenure in Myanmar;

(e) Provisions for land-clearing in Australia;

(f) Regulation of water projects in the United States;

(g) Fostering local enterprise in Tanzania;

(h) Enforcement of natural resource laws in Viet Nam;

(i) Penalty-setting policy in the United States.

2. Greenpeace International

41. Greenpeace International submitted two studies (commissioned by Greenpeace) on perverse incentives:

(a) *Fueling Global Warming: Federal Subsidies to Oil in the United States* (Douglas Koplow and Aaron Martin, Industrial Economics, Inc., 1998); 21/

(b) *Energy Subsidies in Europe. How Governments use taxpayers' money to promote climate change and nuclear risk* (Elisabeth Ruijgrok, Frans Oosterhuis, Institute for Environmental Studies, Vrije Universiteit, Amsterdam 1997).

42. Greenpeace International also pointed to an additional document published by the World Bank: *Subsidies in World Fisheries, A Reexamination*. (Matteo Milazzo, World Bank Technical Paper No. 406, 1998); 22/

43. *Fueling Global Warming: Federal Subsidies to Oil in the United States* examines United States federal subsidies to oil, including policies directly targeted to the oil sector and a pro-rated share of more generally-targeted provisions. By highlighting and quantifying this support, the authors demonstrate that subsidies continue to play a substantial role in the United States economy and identify logical areas for reforms. The analysis includes a broad array of subsidy areas, including tax breaks, research and development support, subsidized credit programs, defence of oil supplies, below-market sale of public oil resources, subsidized oil transport, and private sector liabilities that are shifted to the public. The authors have also analysed federal levies on oil and deducted these from our subsidy values as appropriate to obtain our net subsidy estimate. Where available data did not permit specific subsidies to be quantified, they were described qualitatively.

44. *Energy Subsidies in Europe. How Governments use taxpayers' money to promote climate change and nuclear risk* seeks to quantify the direct subsidies to differing energy industries from 1990 to 1995 in Western Europe: The European Union and its member states, plus Norway and Switzerland. Direct subsidies are defined as direct payments for production, consumption, conservation and research and development, as well as tax reductions/exemptions. Subsidies to fossil fuels (coal, oil and gas) plus nuclear energy (fusion and fission) are compared to subsidies to renewable energy and energy conservation. The report does not attempt to quantify indirect subsidies, such a "soft" loans, the free provision of infrastructure, and limitation of liability to energy firms in the case of nuclear accident, although a qualitative assessment of key indirect subsidies is provided which indicates that these are considerable. The authors conclude that, if the competitive position of renewables and energy saving is to be improved, a substantial shift of subsidy flows from fossil fuels and nuclear energy in their favour seems indispensable.(Matteo Milazzo, World Bank Technical Paper No. 406, 1998)

45. The third study, *Subsidies in World Fisheries, A Reexamination*, argues that many of the traditional most highly valued fish stocks are fully or overexploited in a biological sense, and that in economic terms most fisheries employ excessive fishing effort to reach current levels of production.

21/ See http://www.greenpeace.org/%7Eclimate/oil/fdsuboil.pdf.

22/ See http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/1998/04/01/000009265_3980624143705/Rendered/PDF/multi_page.pdf.

Ineffective management is identified to be the fundamental cause for this over-fishing and the excessive use of inputs. Fisheries management effectiveness is undermined by the very subsidies that are provided to maintain fisheries sector income. The report examines the role of subsidies in explaining the mismatch between fishing effort and biological production capacity, based on case-studies for Japan, the European Union, Norway, the United States, Russia and China. The aggregate level of subsidies to fisheries in the World is estimated to $14-20 billion annually, depending on the extrapolation method from the cases studied. Compared to other food products, total support levels for fish production (including global trade protection) are high; they compare with global support levels for beef, pork and lamb. The author concludes that subsidies are a significant factor in undermining the sustainable use of the wild fish resource in many parts of the world.

Annex

SUBMISSION BY IUCN

To: Hamdallah Zedan
Executive Secretary
Convention on Biological Diversity
393 Saint-Jacques, Suite 300 Montréal, Quebec, Canada H2Y IN9

From: Environmental Law Center
IUCN - The World Conservation Union
Godesberger Allee 108-112 D-53175 Bonn, Germany
Tomme Young, Senior Legal Officer

Date: 19 February, 2002

Re: Examples of Various Kinds of Incentives and Disincentives

The following memorandum is offered in response to a general request for some examples of various kinds of law-related and/or legislatively-created incentives and disincentives used in the context of environmental protection, conservation and sustainable use. It comprises only an initial summary of several examples, and should be expanded and explained in more detail when time and funding allows.

The examples may rightly appear, to some extent, to be a random list, since few incentives are catalogued or indexed as "incentives." In fact, in many cases, laws that operate as very strong incentives, disincentives or perverse incentives in the realm of environment and biodiversity are created for reasons entirely separate from their incentive impact.

In each listed example the following are highlighted:

- the ***benefit*** offered (or *"anti-**benefit**"* for disincentives; ***"feared detriment"*** for some *perverse incentives.)*
- the ***behavior*** that is encouraged, and
- the ***objective*** that the government wishes to promote (or, in the case of *perverse incentives*, the undesired ***impact*** that occurs as a result of the incentive.)

Definitional note: There is a distinct difference between a "disincentive" and a penalty, but it is sometimes difficult to define. As used below, "disincentive" refers to a measure which imposes an additional financial (or other) burden on person who either

- takes an undesirable action that is not illegal, or
- fails to take a desirable action that is not mandatory.

I. Incentive Mechanisms Directed at Promoting Conservation

A. International

Where: Convention on Biological Diversity

Legislative topic: Access and benefit-sharing provisions
Brief Description: These provisions are intended to offer the possibility of financial return or other concrete return to developing or highly-biodiverse countries. This **benefit** is obtained where some other country or commercial or research enterprise has unleashed special value from the biodiverse country's species or ecosystems. This benefit is intended to encourage conservation and sustainable development of biodiversity (the ***behavior***) by making those activities appear profitable and beneficial to the countries (and more especially to the local communities who are most closely aligned with the reality of biodiversity use and conservation.) The ***objective***, of course, is to slow or reverse habitat losses and the extinction crisis.

Early on, these provisions were seen to be a possible perverse incentive, as well – they were thought to encourage an increase in the number of people trampling through important habitat areas and collecting samples (the ***impact.***) As a result, in the early years following UNCED, major steps were taken to develop guidelines for collecting specimens and samples.

Where: FAO and International Plant Protection Convention Secretariat
Legislative topic: International Standards for Phytosanitary Measures (ISPMs)
Brief Description: International Standards for Measures (ISPMs) are designed to encourage international harmonization of phytosanitary measures (the ***behavior***) which will, it is hoped both facilitate safe trade and avoid the use of unjustified measures as barriers to trade (the ***objectives***.) These standards are recognized under the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement, see further 2.5 below) as the reference point for international harmonization. Governments that adopt phytosanitary measures based on IPPC standards do not need to justify their measures with risk analysis and are protected from challenge by their trading partners (the ***benefit***.)

Where: *GEF*
Brief comment: National authorities frequently indicate that they feel they **must** develop Biodiversity laws and agencies (the ***behavior***), because only if they do so will they be considered for GEF-funded projects (the ***benefit***.).

B. National and Sub-national Measures

1. Access to Natural and Genetic Resources

Where: Costa Rica
Legislative Topic: Access contract
Brief Description: Contract between Merck, an American pharmaceutical company and InBio, a parastatal, for the acquisition of samples of biological and genetic resources to be used commercially (for pharmaceutical research). Merck agreed to pay InBio to supply them with samples and extracts from Costa Rican forest species and share with the country the royalties from any drug produced from those samples (the ***benefit.)*** The expectation was that the Costa Ricans would take a more sustainable/conservation-oriented approach to the use of biodiversity (the ***behavior)*** if they were receiving financial value from their biodiversity. The basic ***objective***, of course was conservation, which was further strengthened by a requirement that the 90% of the initial access payment (to InBio) must be used to fund conservation projects.

Source: "Merck-InBio Agreement (Merck) ***www.american.edu/ted/Merck.htm*** 8-11-00); *see also,* Pernille Tranberg, 1996, "Unique biodiversity program in Costa Rica". Earth Times News Service. *http://csf.colorado.edu.elan/96/Feb96/0075.html* (8-11-00)

2. Land-Use and Resource-Management Oriented Incentives

Where: Seychelles
Legislative topic: Forests
Brief Description: A Seychelles law requires a permit for the cutting of any trees anywhere on the islands, specifically including trees on private lands, no matter how such lands are zoned, and regardless of whether the tree species is indigenous to the islands or not. This has operated as a *disincentive* to minimize the impact of continued tree loss (the ***objective***) by imposing a time-consuming regulatory requirement (the ***"anti-benefit"***) which must be met before any cutting of trees, (the ***behavior***).

Source: Seychelles, Forest Act (as it appeared in 1992.)

Where: South Africa
Legislative topic: Protected Areas
Brief Description: In South Africa, governmental right to protect or even evaluate conservation- and natural-resource-related conditions on private property is extremely limited. To maximize conservation and sustainable management on large private landholdings (the ***objective***), a law was proposed which would allow the landowner to declare a forest area to be "protected" under the law. In return for this declaration, which permits such land to be managed as a protected area and would permit government a greater level of involvement in such management (the ***behaviors***), the landowner receives tax benefits and special designation under land-use statutes.

Source: National Forests Act (as it existed in 1998), §§ 18, 51.

Where: United States (California)
Legislative topic: Agricultural Open Space Preservation
Brief Description: Under California law, the state's goal of preserving agricultural uses against the incursion of industrial, commercial, and other development (the ***objective***) is promoted through the use of a long-term easement. Landowners grant to the government a 40-year easement under which the land will not be converted from agricultural use (the ***behavior***). In return, the government agrees to a specific (very low) valuation of the land for purposes of assessing property taxes (the ***benefit.***)

Source: California Government Code, § 65864, *et seq.* (the "Williamson Act.")

Where: Ghana
Legislative topic: Protected Areas
Brief Description: A proposal to revise Ghanaian law is intended to curb persistent problems of government exploitation of local forest lands, and to encourage local participation in the management and protection of these lands (the ***objectives.***) Under the revised law, landowners and local communities may declare "dedicated forests" – for purposes including protection of sacred or traditional areas, as well as, in some cases, creation of community forests. This declaration must be accompanied by commitments to protecting such areas, and to being primarily responsible for their oversight and management. Because local people have strong social and cultural ties to these areas, the authority to manage the forest is considered a ***benefit.*** However, their right to do so is condition on the local community's agreement to apply technical forestry principles and

sustainable management practices (the ***behaviors.***) If the forest quality declines, the community will lose those rights.

Source: Draft Revised Forest Act, *appended to* Cirelli, MT, *Legal Due Diligence—Ghana Forest Plantation Project (FAO draft, Sept. 1998)*

Where: United States (Federal legislative documents)
Legislative topic: "Brownfields" development
Brief description: Land use incentives can also have positive conservation and environmental impact, in some situations. In the United States, for instance, a law (discussed in another context below) provided that an owner of contaminated land might be held responsible for the (sometimes extremely costly) cleanup of that contamination, even if he was not the cause of it, or even aware of its existence. As a result, over time, land purchasers and developers (even developers of industrial facilities) avoided the purchase of possibly contaminated lands out of fear of acquiring a hidden liability. This resulted in a situation in which previously unused lands (so-called "greenfields") were being used for all types of land development, while possibly contaminated lands ("brownfields") would lie unused, even if there was no certain evidence of contamination on those lands. A federal program seeks to prevent this undue destruction of greenfields (the ***objective.***) The mechanism it utilizes is a specific kind of legal protection. It provides tax credits, a waiver of future liability, etc. (the ***benefits***), to developers who utilize brownfields for their development project (the ***behavior***), so long as they meet certain safety and notice requirements with regard to that development. Another advantage to the developer in these situations arises from the fact that property thought to be "potentially contaminated" can often be obtained for a much cheaper price than many greenfields, and was usually located closer to necessary services and utility connections.

Source: Although additional legislation may have been passed since then, a good source of discussion of this program is USEPA Publication No. 500-F-97-090 (1997); and see 40 CFR, Part 7, subpart f (January, 1997)

Where: Tanzania
Legislative topic: Mangroves
Brief Description: In East Africa (and elsewhere), mangrove trees are vital to the health and existence of coastal wetlands which are the main breeding grounds for many marine and terrestrial species. Several legislative provisions in Tanzania seek to promote mangrove protection (the ***objective***), and have had a strong, but sometimes negative, impact. These provisions stress the importance of mangrove protection, and of finding substitutes for the use of mangrove poles and other products. However, faulty popular understanding of the law has led many to believe that any land which contains even one mangrove tree will automatically become a "protected area" under Tanzanian law. This belief engendered a high level of fear, arising out of recent Tanzanian history because, in the past, the creation of protected areas occurred by displacing all residents from those areas. As thus understood, Tanzania's mangrove protection provisions constituted a *perverse incentive* under which landowners and users felt it was vital to cut down any mangrove trees found on lands they own or use (the ***impact***), to avoid losing their rights in the affected lands (the ***feared detriment.***)

Source: Samesi, Studies on Mangroves in Southern and Eastern Tanzania (exact title unavailable) (University of Dar Es Salaam, 1989).)

Where: Trinidad & Tobago
Legislative topic: Land Tenure

Brief Description: Land tenure issues in Trinidad & Tobago are an example of a rather common *perverse incentive* situation. Arising out of a combination of factors, the Trinidadian law on illegal occupation of government lands is very protective of the infringing individuals ("squatters.") In a number of instances, it affords the squatters a claim to the illegally occupied government lands (including government forests and protected areas), if they have cleared and planted them, built a structure thereon, and occupied them for a specified time period. In order to evict such squatters, the government would have to pay them compensation under *eminent domain* laws. The ***objective*** of this provision is obviously protection of the squatters – some of the country's poorest citizens. In ***impact***, however, it is essentially an incentive to clear and plant government forests and other lands, since they will thereby obtain either compensation or outright possessory rights in the land (the *unintended* ***benefit***).

Source: Regularization of Tenure (State Lands) Act; *and see* Land Acquisition Act; Agricultural Small Holdings Act. *See also* Young, T., *Evaluation of Commercial Forest Plantation Resources and Legal Regimes of Trinidad and Tobago* (FAO 1994.)

Where: Myanmar
Legislative topic: Land Tenure
Brief Description: Even stronger *perverse incentives* for land clearing exist in Myanmar, where rights in land can still be acquired (the ***benefit***) by putting that land to productive use (the ***behavior***). The law essentially promotes forest clearing (the ***impact.***) This situation arises from the fact that the basic land law in Myanmar is nearly 100 years old. Although land officials work very hard at adopting regulations and other directives to develop a workable modern system under this law, serious reform is necessary, given that the direct language of the statute specifically provides the perverse incentive, which must then be given effect.

Source: Notification: Duties and Rights of the Central Committee for Management of Culturable Land, Fallow Land and Waste Land and Conferring the Right to Cultivate Land/Right to Utilize Land (Notification 44/91) (13 November, 1991.)

Where: Canada
Legislative Topic: Donation of land or land rights for conservation purposes
Brief Description:. Recent tax legislation increased the tax benefit from donation of land for conservation purposes (formerly limited to 20% of value) and now allows land donors to spread their deduction over up to 5 years. These provisions have a significant financial impact (the ***benefit***) for high- and middle-income landowners and increases the likelihood of donation of lands for conservation purposes (the ***behavior***), potentially increasing the amount of land dedicated to conservation (the ***objective.***) These provisions are further supported by provisions which impose stiff penalties if the land use is later changed again.

Source: 1996 Amendments to Income Tax Act 1995 under Ecological Gifts Program (*discussed in* Rubec, C. "Using the Income Tax Act of Canada to promote Biodiversity and Sensitivity Lands Conservation" *found at http://www.oecd.org/env/* (1997)

Where: Australia
Legislative Topic: Land-clearing
Brief Description: Australia's provisions concerning land-clearing for agricultural purposes operates as a *perverse incentive*, encouraging the clearing of wildlands (the

impact.) Under that law, any taxpayer who incurs expenditure in the "destruction and removal of timber, scrub or undergrowth indigenous to the land…draining of swamp or low-lying lands where that operation improves the agriculture…" (the ***behavior***) will be entitled to claim a reimbursement for these expenditures (the ***benefit***).

Source: Income Tax Assessment Act 1936 s74 (a). *See also* Carter, M. "A Revolving Fund For Biodiversity Conservation in Australia" (1998) at *http://www.oecd.org*

Where: Australia
Legislative Topic: Land management practices (tax exemption)
Brief Description: Under this Act, landowners who conclude "heritage agreements" with the competent nature conservation authority to protect native vegetation will be eligible for tax exemptions. Under a heritage agreement, the owner agrees not to clear native vegetation or erect buildings or carry out any activity that might harm the fauna and flora on his land without the written consent of the Minister (the ***behavior***), in return for certain tax benefits (the ***benefit***). If he chooses to sell the land, the successor in title is also bound by the agreement. If the landowner breaches the agreement and fails to remedy the breach, he will have to repay all the exempted taxes with interest.

Source: Native Vegetation Management Act, 1985, *and see* de Klemm, C, and C. Shine, Wetlands, Water and the Law: Using Law to advance wetland conservation and wise use. (1999, IUCN Environmental Policy and Law Paper No. 38 pg. 180 and 251)

2. Avoiding Harm to Natural Resources

Where: United States
Legislative topic: Environmental Liability
Brief Description: Addressing the need to prevent and/or remedy damage to natural resources, the law creates disincentives, in the form of long-term liability risks. Under a major "polluter-pays" law, financial responsibility for contamination-caused harms (and for remedying both the harm and the contamination) must be borne by

(1) the persons who originally released or deposited the contaminating substances (no matter when that occurred),

(2) the current owner of the site on which the contamination is located, and

(3) others who have owned the property since the contaminating event.

In these provisions it does not matter when the contaminating event occurred – the parties are not protected by any statute of limitations. With regard to natural resources, this responsibility is extended to include a further obligation to pay the government office designated as trustee for particular natural resource (including protected areas) for all damage to such resources.

This law was enacted to create a disincentive for contaminating actions, and an incentive to clean-up or remedy contamination before it affected any other individuals, and especially before it caused harm to natural resources or the lands of indigenous peoples. Although most contaminating discharges are illegal, in many cases, the activities which cause them are not.

These liability provisions seriously increase the cost to the person causing contamination (the loss of a ***benefit***), creating an imperative to either

(i) cease activities which are associated with the risk of contamination;

(ii) conduct those activities in a manner that alleviates that risk; or

(iii) at least remedy contamination which occurs before it can have any potential impact on others.

All three are acceptable ***behaviors,*** leading to a decrease in the number and severity of latent contamination risks (the ***objective.***)

Source: Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S. Code §§ 9607(a)(C), and (f)(1).

Where: USA (federal)
Legislative topic: Agricultural practices
Brief Description: A legislative disincentive is found in US provisions which assess penalties (the ***anti-benefit***) against farmers whose agricultural practices prove inimical to wetland conservation or cause soil erosion (the ***behavior*** *to be curtailed*.) By withholding a wide range of federal agricultural financial assistance to farmers who convert wetlands for agricultural purposes or who produce agricultural commodities on converted wetland, the government seeks to ensure that agricultural practices are appropriately protective of wetlands (the ***objective.***)

Source: Federal Food Security Act of 1985 (including Farm Bill amendments of 1990), Title 16 sec. 3821; *see also* de Klemm, C. and C. Shine Wetlands, Water and the Law: Using Law to advance wetland conservation and wise use (1999, IUCN Environmental Policy and Law Paper No. 38 pg. 252)

Where: South Africa
Legislative topic: Water Conservation and Water Rights/Alien Invasive Species
Brief Description: A new law reportedly passed in South Africa addresses liability for alien invasives, in three ways, two of which are incentives:

First, the law recognizes that some invading alien plants (particularly those whose "feet are in the water") can use up to 2-3 times as much water as the same species in a well-managed plantation. To encourage landowners to control such species and prevent their spread from managed beds (the ***objective***), the law allows the application of criteria by which land-owners can be charge for the stream-flow reduction caused by invading alien plants on their land. This user-pays charge (the *anti-**benefit***) will be applied to fund the clearing of the invading alien plants in the affected catchment. its greater impact, however, may be as an incentive, (i) encouraging agriculturists to control alien species; (ii) ensuring that they are cultivated only after careful study and precautions, and (iii) providing landowners a strong impetus to root out and destroy any that migrate outside of controlled areas (the ***behavior.***)

Source: National Water Act, §§ 21, 26 (esp. (1)(m)), 36 *and see* Ministry of Water and Forest website, at *http://www-dwaf.pwv.gov.za/projects/wfw/Legislation.htm.*

The law creates a *second* incentive, toward the same ***objective.*** It allows the water catchment management agency to impose responsibility on land-owners for the costs of remedying the conditions caused by invasive alien plants, and for the "seed pollution" occurring on the land of others, as a result of species introduction and/or failure to prevent them from spreading. These provisions create a "strict liability" system which is expected to deter landowners from the same ***behaviors*** listed above, out of their desire to avoid these charges and liabilities (the *"anti-**benefits."***)

Source: National Water Act, § 19, *and see* Ministry of Water and Forests website at *http://www-dwaf.pwv.gov.za/projects/wfw/Legislation.htm.*

Where: United States (but could be anywhere depending on whether the company is international)
Legislative topic: Insurance Policies as Incentives to Avoid Harm from Commercial or other Activities
Brief Description: (Disincentive.) Insurance policies, if written to do so, can provide a major incentive for commercial enterprises to exhibit good environmental citizenship. Some such provisions might require an acceptable environmental auditing policy as a prerequisite to any claim under the policy. More commonly, a provision in the policy will limit coverage to claims which were "sudden and accidental" – *i.e.,* to claims which arose from unforeseen circumstances which occurred so quickly that they could not be mitigated before damage had been done. These provisions contrast with general policies that would otherwise grant recovery for claims that arose as a result of some long-standing condition, such as ongoing dumping of pollutants, for example. Such a policy might pay claims or even remedial costs, when that condition finally results in harm by seeping into the drinking water aquifer and polluting nearby drinking water wells. By refusing to cover non-sudden environmental harms, the insurer essentially places the risks and costs of claims for harm from those actions (the ***feared detriment***) on the enterprise or individual. This encourages him to discover and abate non-sudden environmental conditions (the ***behavior***), and should result in environmental safety for people and the environment, while also saving the insurer from being held responsible for larger and more costly cleanups of long-accumulated pollution (the ***objective.***)

Source: See, *e.g.,* Textron Inc., v Aetna Casualty and Surety Company, 754 A. 2d 742 (Rhode Island, June, 2000)

I. Incentives Directed at Encouraging Other Environment-Protection, Research, etc.

A. International

Where: UNFCCC
Legislative topic: Development of Emissions-credit and –trading system
Brief description: This convention is rife with incentives and proposals for incentives, including some which can have a quite clear impact on conservation and biodiversity. Most prominent are the provisions dealing with the planting and restoration of forests whose physical existence sequesters carbon – a greenhouse gas progenitor – under the soil. Some of these proposals would give) emission-reduction credits (the ***benefit***) for carbon sequestration activities such as tree-planting (the ***behaviors***). It is still being debated whether these provisions create a positive or perverse incentive. Some think that a carbon sequestration program will help combat the problems caused by carbon emissions (the ***objective***), while others think that the existence of such a program will cause numerous harms

- to the natural ecosystems (including a proliferation of monocrop tree plantations and other activities that negatively affect biodiversity),
- to local residents (restriction from using forests on which they depend, limitations on local lifestyles and opportunities), and
- to the environment (by giving countries whose emissions levels are very high the ability to avoid actual emissions reduction) (the ***impacts***),

without bringing about any lasting improvement in the climate scenario.

B. Domestic

Where: United States
Legislative topic: Tax credits for research and development
Brief description: The mechanism of taxation and tax credit can be an effective incentive in many situations, including where a credit (the ***benefit***) is offered for expenses from "research and development" (the ***behavior***.) This tool can be of conservation value, where access to the credit is limited to certain types of research and development (*e.g.,* tools for conservation and sustainable development.)

Source: Tax and Accounting Software Corporation v. United States, 111 F. Supp. 2d 1153 (N.D. Okla., July 31, 2000) (general example of the principle only. In this case the R&D credit was not limited to conservation uses.)

I. Sectoral Incentives (Sustainable Development)

1. Afforestation and Reforestation

Where: The Gambia
Legislative topic: Ownership of Trees
Brief Description: In many countries, ownership of trees on private and other property is a difficult question. Even where the property owner/user planted the trees himself, he may not have an unrestricted right to their use/management. Proposed law in the Gambia seeks to encourage tree planting (the ***objective***) by stating specifically that anyone who, possessing a lawful right to do so, plants a tree (the ***behavior***), is thereafter the owner of that tree (the ***benefit.***)

Source: Forest Bill, §§ 6 and 7. Similar provisions are found in law in Malawi (Forestry Act, § 37), Sudan (Forestry Act, § 8(2) and Zanzibar (Draft Forestry Act, § 67.)

Where: Nepal
Legislative topic: Community Forest Management
Brief Description: Like many countries, Nepal has developed a detailed program for Community Forest Management, to address a number of competing problems. Hoping to make positive strides in poverty alleviation, elimination of non-sustainable forest harvesting practices, reversal of deforestation and the loss of forest habitats, and enhanced effectiveness of protected areas (the ***objectives***), the law provides special forest use rights and priorities to local communities. Qualifying communities have the right to harvest and sell forest produce and timber according to set standards (the ***benefits.***) To qualify, a community must organize into a legally recognized "users group" and undertake management and reforestation of their assigned forest area (the ***behavior.***)*1*

Source: Forest Act 2049 (1993), §§ 30, 41-43; Forest Regulations 2051 (1995) §§ 39, *et seq.;* Buffer Zone Management Regulations 2052.

1 Complaints have arisen that only the most degraded forest lands are made available under this program.

NOTE: Many countries are developing incentive and other programs focused on community involvement, and community participation in financial benefits of forests, protected areas and/or particular species or ecosystems. (*See, e.g., discussions in* Gurung, C.P., *People and their Participation: New Approaches to Resolving Conflicts and Promoting Cooperation* (World Congress on National Parks, 1992); Kern, E. and T. Young, *Trends in Forestry Law – Asia and the Pacific* (FAO 1998) at 112-117; Lindsay, J.M., *Designing Legal Space: Law as an Enabling Tool in Community-based Natural Resource Management*, (Paper presented at the World Bank, International Workshop on Community-based Natural Resources Management, Washington, D.C., 1998); Young, T., *Trends in Forestry Law – Anglophone Africa* (FAO 1999); .)

(A number of other countries utilize more direct methods, including authorizing direct payments for reforestation activities and forest or protected area management services. As this appears to be simply hiring these services, rather than any incentive system, those provisions are not discussed beyond this mention.)

Where: China
Legislative topic: Community and Private Forest Management

Brief Description: In trying to utilize incentives to encourage reforestation, China has been stymied by history. Like most incentives for reforestation, China's program turns on relatively little current benefit, offering instead the promise of profit from the sale of timber and non-wood forest products in future. Although culturally the Chinese people tend to recognize the value of long-term benefits, the government's past actions, such as land reallocations, have left many citizens somewhat wary of government incentives, particularly where there is a long cycle between investment (of the time and effort of reforestation) and the recoupment of profits. Forestry is a classic example of such a long turnaround investment; in some areas, and for some species, the growing cycle can be 50-90 years.

Several ideas have been proposed to address this problem and encourage reforestation at the local level (the ***objective.***) One, for example, would use financial mechanisms (contracts, guarantees, etc.) which would be entered into between the community groups/private individuals/etc. and a separate, legally-created institution or guarantor. Such a mechanism could provide financial or other binding assurance to groups or individuals undertaking private and community forestry. They would be assured that the property rights and interests they receive will continue in force for a specified period (long enough that they will be able to reap a reasonable amount of benefit from their afforestation and reforestation efforts, without straying from sustainable management principles.) This guarantee or assurance (the ***benefit***), it is hoped, will encourage entry into private and community forest management programs (the ***behavior.***)

Source: *See* Young, T., *China, Mongolia, Myanmar, Vietnam: Legislative Support for the Transition of Forestry Activities to Market-oriented Operation* (FAO, 1998.)

Where: Mongolia
Legislative topic: Investor Confidence in Private Forest Management
Brief Description: A problem arising in the transition of former "planned economies" to market operation relates to the problem of investor confidence. In many cases, under the planned systems, farmers and foresters had a certainty that the government would purchase all of their output of crops, timber and forest produce, so long as the output amounts were within the central plan. The conversion to market orientation has seen

these assurances increasingly phased out (or, in some countries peremptorily discontinued) in whole or in part, as a part of the conversion to market economy. As a result, the forest users have little or no guarantee when or whether they will receive any profits or even a return of their investment. In general, new investors from within the participant countries have very limited capital to invest, and need to be able to plan on receiving some return on their investment within a known period.

While the need for investor confidence is not generally a problem which can be solved by legislation, a legislative basis can be developed and publicized in a way that supports the goal of developing a private forest sector, utilizing sustainable forestry principles (the ***objective***.) One proposal, for example, would create limited statutory guarantees, repurchase covenants and other legal programs to provide some assurance of, at least a minimal return (the ***benefit.***) Guarantees are expected to encourage individuals, communities and nascent corporate entities to enter into the business of sustainable forest management. One component of the use of this type of guarantee is the forest-holder's commitment to restoration of forests and ecosystems and sustainable practices (the ***behavior***).

Source: *See* Young, T., *China, Mongolia, Myanmar, Vietnam: Legislative Support for the Transition of Forestry Activities to Market-oriented Operation* (FAO, 1998.)

1. Other Forest issues

Where: Trinidad & Tobago
Legislative topic: Forest harvesting and concessions
Brief Summary: Proposed changes to the administrative and regulatory structure in Trinidad and Tobago would address certain problems with that country's government-owned forest plantation system. Under the existing system, commercial forestry operators (including especially a parastatal corporation)*2* were given special license to harvest teakwood, so long as they comply with numerous requirements, including (i) cutting only marked trees within a designated area; (ii) paying for the trees that are cut, and (iii) complying with regulations specifying environmentally protective harvesting and removal practices. Many of these requirements were not met at all, and most were met only a fraction of the time. In particular, trees were often taken without being marked, measured and/or recorded in the records (thus not even being added to the invoice), most harvesting entities were well behind in payments, prices paid for the cut timber were inappropriately low, and few harvesting operations complied with all of the environmental requirements (leading to widespread erosion and other environmental problems.) The ***objective*** of new legislation was to compel compliance with these requirements.

New proposals focused on the inability of forest officers to control illegal harvesting both before and during the licensed harvesting period, and the ineffectiveness of legal mechanisms to compel environmentally appropriate harvesting techniques. The result was a complete revision to the system by which rights to harvest teak were obtained and enforced.

The proposal would replace the system by which forest officers must be on hand to mark, measure and record trees taken (i.e., a system in which the government owns the trees until they are cut.) Under the new proposal the government would, through open

2 This paper does not discuss the various incentive impacts of the use of parastatal bodies.

competitive auctions, sell all of the trees in a specific area (the "coup") to the would-be concession holder, well before they reach harvesting size. The concession owner would receive his concession (the ***benefit***), on condition of the following (the ***behaviors***):

(i) he would be responsible for management of the forest until he was authorized to harvest. This would specifically include patrolling the coup and preventing illegal harvesting by others (this would be in his interest, both to comply with (ii), but also to avoid loss (theft) of his own property);

(ii) he could only begin harvesting if he had already paid all money owed on his purchase of the concession;

(iii) he would harvest only on a schedule approved by the government (maximizing the profit from the trees (another ***benefit***) but also ensuring appropriate forest cover and silvicultural decision-making (a component of the ***objective***)); and

(iv) he must comply with environmental harvesting requirements.

The proposal would also provide a strong disincentive. It was important to combat the old practice of ignoring harvesting requirements – a practice which was facilitated by the fact that those requirements came into play at a time when the concession holder was able to quickly obtain money for his trees (*i.e.,* to "grab the profits.") Under the new proposal, any concession holder who has failed to meet the requirements listed in (ii), (iii), and (iv), above (the ***behaviors***), will be forbidden to participate in coup auctions for a period of years (withdrawal of a future ***benefit***).

Source: Young, T., *Evaluation of Commercial Forest Plantation Resources of Trinidad and Tobago* (FAO 1994.)

I. Other Laws and Purposes

1. **Participation in Natural-resource and Biodiversity Inventorying, and the Reporting and Monitoring of Sustainable Management Activities**

Where: Trinidad & Tobago
Legislative topic: Monitoring sustainable harvesting
Brief Summary: To combat the sawmill's tendency to under-report quantities of timber processed (the ***objective***), proposed legislation in Trinidad and Tobago would give each sawmiller a right to a percentage of the coming year's teak milling work and consequent receipt of special equipment for working teak properly. Given that teak-milling is the most profitable timber-related activity in the country, a share in this government-controlled market would be a major ***benefit.*** The calculation of each sawmiller's percentage would be based on that mill's percentage of the total amount of timber processing reported in the prior year. Sawmillers would be thereby encouraged to report (and pay tax on) the full amount of timber processed, in order to ensure that their percentage of the total reporting is maximized.

Source: Young, T., *Evaluation of Commercial Forest Plantation Resources of Trinidad and Tobago* (FAO 1994.)

2. **Incentives Affecting Biodiversity and Sustainable Development**

Where: United States (Colorado)
Legislative topic: Water Projects
Brief Summary: *Perverse incentive.* State governments are authorized to condition the long-term grant of water rights (the benefit) on the right-holder's commitment to and ongoing action toward development of a water project or dam. This provision was intended to provide an incentive for timely completion of large-scale water projects (the ***behavior.***) Here the incentive was directly at odds with environmental objectives, in that it did not take into account the needs of the riverine and riparian ecosystems, which could be lost by such projects (the ***impact.***)

Source: 10 Colo. Rev. Stat § 37-92-305.

Where: Tanzania
Legislative topic: Fostering local enterprise
Brief Summary: *Perverse incentive.* When Tanzania's government authorized the building of a new runway at Dar es Salaam airport, its primary focus of concern was that this activity should benefit local workforces and enterprises to the greatest degree possible (the ***objective***.) Part of this effort was to identify services and commodities that could be purchased locally, and advertise for them in local media. One such commodity was lime, to be used in the concrete. It was discovered that this was produced and sold domestically by individual rural dwellers, and the decision was made to solicit them to fill the large demand in connection with the airport project. The offer of purchase (the ***benefit***) stimulated these independent producers to maximize their production (the ***behavior***.) This was a situation of *indirect* conflict between development and environmental objectives. The Ministry of Industry was not aware of the methods used by rural lime producers, who burned coral to create lime. The increase in production increased stresses on coral reefs in coastal waters off Tanzania (the ***impact.***)

Source: Young, T., *Legislative Assistance Regarding the Management of Marine Resources and the Proposal to Establish the Mafia Island Marine Reserve and Legislation for Future Additional Reserves* (FAO, 1992).

Where: United States (California)
Legislative topic: Alternative Energy
Brief Summary: The California Public Resources Code specifically mandates that public utility companies must give preference to energy derived from alternative sources, and must purchase the outputs of small producers of such energy at a very favorable rate (the ***benefit***.) The intent (***objective***) of this provision is to decrease dependence on water-generated energy and other sources that are not beneficial to the environment. It should be noted that the net impact of such incentives depends on the rate structure used to implement them. Hence if a rate structure is changed, the incentives and impacts may be radically altered. (*See* Metropolitan Water District of Southern California v. Imperial Irrigation District, 80 Cal. App. 4th 1403 (30 May, 2000).)

Source: Cal.Pub.Res.Code § 25008 (see also Cal.Pub.Res.Code D. 16, Ch. 1, Art. 1, for discussion of other incentives (special loan programs, etc) offered for alternative energy.)

3. **Criminal Enforcement Incentives**

Where: Vietnam
Legislative topic: Enforcement of natural resource laws
Brief Summary: *Perverse incentive.* In Vietnam, for a variety of reasons, forest monitoring, inspection, and enforcement activities at the local level were sometimes thought to be half-hearted. There was a need to do something, as effective enforcement was thought necessary in order to improve reforestation, forest conservation and sustainable development (the ***objective.***)

To this end, the government provided that a share of all penalties collected by the inspectors would go directly to the local inspectorate, to be used for equipment and other commodities that improve the working conditions and allow them to do their job better (the ***benefit***.) The unstated intent of this provision was to foster and encourage forest officers and other enforcement personnel to undertake more enforcement actions (the ***behavior.***)

This incentive has had an unfortunate (perverse) effect. Although it did lead to an increase in offenders caught and penalized, this increase was not as expected. Apparently, district forest inspectors felt that large-scale illegal logging operators seeking commercial gain are too difficult or dangerous to apprehend. As a result, the inspectors focused their efforts on the citation of small householders at the poverty level for cutting the firewood essential for survival or poles for maintenance or construction of their own homes and crofts. Thus, the incentive caused no particular change in the level of the most harmful illegal forest activity, or the damage to the forest it causes, but did place additional stresses on some of the country's poorest citizens.

Source: (Specific citation unavailable) *see* Young, T., *China, Mongolia, Myanmar, Vietnam: Legislative Support for the Transition of Forestry Activities to Market-oriented Operation* (FAO, 1998.)

Where: United States
Legislative topic: Penalty-setting policy
Brief Description: US law which imposes stiff penalties on polluters whose actions cause releases of hazardous waste, also requires companies and others to *report* any release which they know of or discover, even when it was caused by the reporting company. This is necessary, because the polluter himself is often the only person who knows that a potentially harmful release has happened, in time to remedy it or prevent harm. But these reporting policies place the polluter in a difficult situation, because if he reports he will be liable to penalties for the pollution. It is generally recognized that, if he does not report, he will be liable for much more (harms to people and property caused by the hazardous discharge. However, many polluters take this risk by failing to report, and hoping not to be caught.

Many polluters justify failure to report by saying that they are only required to report pollution *that they know of or discover*. As a result, they may engage in a conscious policy to avoid any action that might cause them to discover the pollution. The resulting situation is a very negative one for all

– the local residents and biodiversity suffer because they might unknowingly be exposed to harmful pollutants;

– the government suffers, because it does not find out about contamination and related problems in sufficient time to do something about them, and to limit the amount of harm caused; and

– the pollution-causing company suffers because not only is it taking the risk of liability for penalties for causing the release of hazardous substances, but if the release is discovered (which is nearly inevitable eventually), the company will also be liable

  - for penalties for failure to report,
  - for damage and harm to other people and the environment caused by leaving the hazardous substances where they could affect waters and groundwater and other media, and
  - for the increased costs of remedying the contamination.

To avoid this situation, to decrease the number of unreported releases of hazardous waste, to increase the speed with which releases are reported and responded to (the ***objectives***), the US Environmental Protection Agency has adopted an "enforcement policy," which provides that, if a company conducts regular environmental audits designed to evaluate whether they are complying with environmental laws and to discover hazardous waste releases that might have occurred (the ***behavior***), then any penalties for releases that are discovered will be reduced or eliminated (the ***benefit***) according to a series of standards.

Source: USEPA, *Incentive for Self-policing: Discovery, Disclosure, Correction and Preventive Violations, Final Policy Statement*, 60 Fed. Reg. 66706 (Dec. 22, 1995).)

The foregoing list does not include any examples of investment incentives, only because we did not have access to the specific information regarding investment incentives that operated in a manner beneficial to conservation. We suspect that such examples do exist, however. These can be found, as can other (non-incentive) conservation-related uses of financial instruments for conservation. A broader range of incentive can be examined, in greater depth, in the event that the CBD chooses to broaden the scope of this assignment.
