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**Overview Session**

Introduction to the Sustainable Finance Stream and the Policy Context for  
Protected Area Financing

**Panel B**

Policy and Management Approaches

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**Perverse Subsidies and the Implications for  
Biodiversity:  
A review of recent findings and the status of policy reforms**

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**1. Introduction**

The persistence of vast expenditures of public funds on environmentally perverse subsidies<sup>4</sup> is a significant policy constraint to conservation. These subsidies, implemented within and across a range of economic sectors, nations and ecoregions can induce production and consumption behaviour which exacerbate biodiversity destruction and often directly discourage effective conservation. Global spending on subsidies is estimated at a combined \$500 billion a year for agriculture, fishing, logging, energy production and water (Steenblik, 1998a). Removing these perverse subsidies has the potential to decrease the rate of biodiversity loss, promote sustainable resource use, and create further revenue generating capacities that can be targeted toward activities that promote conservation. Reallocating a minor fraction of total expenditures on subsidies would cover the funding needs of an effective protected area network (James et al., 1999).

Based on a review of current literature, this paper explores the environmental impacts of agricultural and fishing subsidies, reports on the progress made to reform these policies, and offers recommendations for subsidy removal.

**2. Subsidies: Motivations and Consequences**

A subsidy can be defined as “a government-directed, market distorting intervention which decreases the cost of producing a specific good or service or increases the price which may be charged for it” (Barg, 1996: 29). Governments provide financial support through subsidies to various economic sectors, including fisheries, forestry, agriculture, energy, and water. For the purposes of this paper, subsidies will be discussed in terms of their *perverse* effects, where they have an adverse impact on the environment and on biodiversity specifically. These can also be

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<sup>4</sup> A perverse subsidy lowers resource prices to below market levels, leading to overuse and to adverse effects on the environment.

termed *implicit* subsidies that arise when a negative externality results from the production of a good (Porter, 1998).

Subsidies are provided in order to achieve a variety of objectives. Direct expenditures and tax subsidies are targeted to certain industries with the objective of increasing productivity and, in many cases, fostering economic gains through trade expansion. These payments are typically transferred to producers during cyclical downturns and once instituted are difficult to remove. Some governments also use subsidies to stabilize production levels over time and thus provide goods and services at prices below production costs.

While subsidies may benefit certain groups in the short term, they ultimately cause distortions that lead to economic inefficiency and prevent environmental costs from being internalized. Subsidies create distortions that cause prices to reflect neither the resource scarcity nor the cost of consumption and production (de Moor, 1997). As Steenblik (1998a) notes, subsidies that are targeted at specific economic sectors "...divert resources from more productive to less productive uses, interfere with price signals, and in so doing reduce efficiency: at best they are a waste of money" (4). At worse, they entrench harmful practices which damage the environment, transferring the mitigation and restoration costs to society as a whole. While the impacts on biodiversity arising from subsidies are largely the result of unintended consequences, they nonetheless need to be better accounted for by policymakers (OECD, 2003).

Subsidies also represent significant expenditures by governments, draining scarce public finances. These funds could be used in other areas that would benefit larger segments of society rather than specific interest groups. This spending is especially ineffective where subsidies are not meeting their intended objectives and are resulting in economic inefficiencies and causing harm to the environment and to biodiversity.

While not the focus of this paper, subsidies also create unfair trade advantages at the peril of developing countries whose economies are further weakened. These policies perpetuate the polarization of development between the North and South.

### **3. Subsidies in the Natural Resource Sectors: Examining Agricultural and Fisheries' Subsidies**

#### **3.1 Agricultural Subsidies**

Government support to the agricultural sector dates back to the early 19<sup>th</sup> century and continues to be significant today. In 1998, net transfers to agriculture in OECD countries amounted to \$362 billion per year, approximately three-quarters of which were in the form of producer supports (OECD, 1999). These expenditures are less in non-OECD countries where total spending is about \$25 billion a year. Myers and Kent (2001) estimate that the environmental externalities arising from subsidized agricultural practices add an additional \$250 billion per year since they are effectively hidden subsidies from society to agriculture.

While agricultural subsidies are often defended on the grounds that they are helping farmers to maintain their livelihoods, in reality the majority are primarily benefiting large agrobusinesses rather than small family farms. Since these farm payments continue to be tied to outputs or inputs, they favour larger producing units rather than small scale farmers (Steenblik, 1998; Myers and Kent, 2001). In the U.S. almost 30 percent of subsidies go to the top 2 percent of farm operators. Myers and Kent (2001) estimate that the U.S. government could save at least \$8 billion a year if it were to shift its target to the bottom 70 percent of farmers.

There are different types of agricultural subsidies, some of which are more efficient and/or effective than others. Many subsidies encourage the use of inputs such as fertilizers, pesticides, irrigation, and infrastructure. These production supports are intended to ensure stable supplies

and prices for crops and other products and as a safeguard to farmers. There are also price supports that raise the income levels of farmers. Direct payments to producers are less distortionary since they are transferred to the intended recipients (at least initially). On the other hand, subsidies to products or inputs 'leak away' to other activities; only 20 percent of the gross transfers created reach the target group (Steenblik, 1998a). Policies that support inputs for intensive farming often act as incentives for unsustainable agricultural practices that are detrimental to the environment and can lead to biodiversity loss. There is some progress being made to move away from production based subsidies toward income support programs, with recent reforms to the European Union's Common Agricultural Policy.

Subsidies ultimately exacerbate the negative impacts of modern agricultural practices on the environment. Some of the main biodiversity-related impacts of agriculture affect soil quality, water quality, diversity of plant and indigenous animals, and habitats for plants and animals (OECD, 2001; Portugal, 2002). Agricultural intensification has negative effects on wild plants, animal species, and natural habitats from pollution of water and soils (Scherr, 2003). Intensive cropping and livestock production have contributed to nutrient deposition in waterways and water supplies, through synthetic fertilizers, animal manures and organic waste materials (*ibid*, 2003). Furthermore, high-yielding monocultures are causing genetic wipe-out among old varieties of food plants (Myers and Kent, 2001), resulting in biodiversity loss. Poor agricultural practices have resulted in the degradation of approximately one-quarter of the world's soil (de Moor, 1997). Soil quality has further effects on carbon storage and cycling, water retention and drought resistance, among others.

Subsidies that encourage the extension of agricultural lands are having the most significant impact on biodiversity and protected areas, encouraging the conversion of forests, rainforests, and wetlands into agricultural production (OECD, 2003). Production subsidies that encourage more intensive forms of agriculture are also threatening the environment by encouraging intensive use of fertilizers and pesticides that can lead to loss of soil productivity and can permanently impact the ecosystem (Leeboard, 2002; in OECD, 2003). Yield based subsidization - where the farmer's income is based on a multi year running average of yield per hectare - can essentially force a producer to adopt highly intensive practices such as continuous cropping and tillage, and excessive nutrient and pesticide applications.

For example, the sugar industry in the United States is heavily subsidized (as is the case in a number of developed countries) resulting in environmental problems. The U.S. government provides price supports to sugar growers which in Florida, has resulted in the diversion of water away from the Everglades and returning it with fertilizers that cause eutrophication. Furthermore, the subsidy program costs taxpayers \$1.4 billion a year (Myers and Kent, 2001).

While the removal of subsidies alone will not correct the environmental problems arising from modern industrial agriculture, it would certainly realign the incentive structure toward less intensive practices and limit the encroachment of agricultural activities onto biodiversity-rich lands.

### **3.2 Fisheries Subsidies**

While in absolute terms there are fewer subsidies in the fisheries sector than in agriculture, they are actually quite large relative to the size of the industry. A report by the World Wildlife Fund (2001) estimates that subsidies in this sector are at least \$15 billion - about 20 percent of the value of global fish catches - if not substantially more. This WWF report finds that recent studies of fishing subsidies by the Organization for Economic Cooperation and Development (OECD) and the Asian-Pacific Economic Cooperation (APEC) are under-estimating the amount of subsidies since most governments are not adequately disclosing the full range of subsidies they provide to the sector and are often failing to comply with World Trade Organization (WTO) reporting requirements.

There are a number of programs that classify as subsidies to the fisheries sector, including: direct assistance to fishers; loan support programs; tax preferences and insurance support; capital and infrastructure programs; marketing and price support programs; and fisheries management, research, and conservation programs (WWF, 2001). Many of these subsidies are having negative effects on marine fisheries. Tax benefits that result in expanding fishing fleets and supply larger and longer nets, direct payments to fishers, and provision of infrastructure contribute to bigger yields in an already unsustainable industry. Fishing subsidies reduce fixed and variable costs associated with production, increase revenues and mitigate risks, encouraging more investments in overfished and depleted fisheries (Porter, 1998).

There are major problems of biodiversity loss in the fisheries sector due to overcapacity of fishing fleet and overfishing resulting in severe deterioration of fishing stocks. Approximately 75 percent of the world's major fisheries are overexploited, fully exploited, or recovering from depletion (WWF, 2002). While this is a complex problem tied to inadequacies in resource management, massive government subsidies to marine fisheries are contributing to overcapitalization and overfishing (Mattice, 2003; WWF, 2002). Subsidies are perpetuating overfishing in a number of regions, such as the 1997 collapse of the hake fishery off Argentina, the near depletion of the cod stocks in the North Atlantic and along the coasts of West Africa where industrial fleets are replacing artisanal, small-scale fishing (WWF, 2002).

## **4. Relevance to Protected Areas**

Since perverse subsidies induce environmentally destructive behavior they are, by inference damaging to protected areas (PAs) where high concentrations of biodiversity exist. While substantial research documents multiple threats to protected areas, it does not sufficiently link such threats to perverse subsidies.

Subsidies to agriculture encourage the conversion of land to crop and rangeland, decreasing the size and altering the composition of protected areas. Subsidies to agricultural inputs result in intensified use of land that is already under production, and frequently have detrimental effects on neighbouring protected areas. Where governments provide subsidies to shoreline reconfiguration to accommodate aquaculture activities, this reduces the marginal cost of production, thus inducing excess entrants into the market. Such excess production results in further and potentially more damaging clearance of endemic wild plants and wildlife habitats.

Expenditures on subsidies also divert government resources away from other priorities precluding the potential for effective conservation investments in and around PAs. James et al. (1999) calculate that protecting existing nature reserves at a global scale would require only 2 percent of the amount governments currently spend on environmentally perverse subsidies. Therefore, the adverse effects of perverse subsidies on biodiversity are further compounded by government spending priorities that favour subsidies over meeting the modest funding requirements for effective conservation.

## **5. Reforming Subsidies**

### **5.1 Unilateral Reforms**

Some countries have already taken steps to reform, reduce or eliminate perverse subsidies. New Zealand is the most noteworthy example. In the early 1980s, New Zealand began phasing out its agricultural subsidies, as part of an overall strategy to deregulate and otherwise reform public policies affecting key economic sectors (Myers and Kent, 2001). While there were initial fears of the economic consequences of subsidy removal, farming productivity has actually been growing faster than before subsidy removal (Humphreys et al., 2003). The environmental effects have

also been positive with the reduction of inputs including the use of fertilizers, a decline in farming on marginal land, the halting of land clearing, and increased reforestation (Humphreys et al., 2003; Sheppard, 1996). In 1984, the total area of private planted forest area was 500,000 hectares while by 2001 this reached 1.7 million hectares (Humphreys et al., 2003). This tandem of environmental and economic results demonstrates the feasibility of unilateral subsidy reform across a range of economic sectors. Australia is implementing reforms similar to its neighbour yet at a more moderate pace.

Subsidy reform has been more modest in other countries. In the U.S. there were some positive steps taken with the Farm Bill for the 1996-2002 period, showing progress toward lowering subsidies to farmers' incomes and increasing spending on conservation of soil, water, and on-farm wetlands (Myers and Kent, 2001). However, with the passage of the 2002 farm bill the U.S. government has reversed course on subsidy reform, increasing farm spending by 10 percent to around \$20 billion a year. Most destructively, however, the U.S. has reverted to pre reform policy, strengthening the link between subsidies and production levels (WB Press Review; 19-Nov-02).

## 5.2 Multilateral Agreements

There is potential for more significant subsidy reform through trade related multilateral arrangements. The primary objective of most international trade negotiations and agreements has been to curb the trade effects of subsidies in order to remove unfair trading advantages. The effects of subsidies on the environment continues to play a secondary – yet increasing – role in these discussions.

While the subsidy reform process has been slow largely at the behest of the agro-industrial complex, there has been some progress made. At the conclusion of the GATT/WTO<sup>5</sup> Uruguay Round of trade negotiations in 1993, an Agreement on Subsidies and Countervailing Measures was adopted resulting in more detailed reporting requirements and procedures. This has allowed for greater transparency on subsidies at the international level (Steenblik, 1998a). Within the WTO, the Committee on Trade and Environment (CTE) identifies and reports on the environmental implications of trade policies. The CTE has now included agricultural and fisheries sector subsidies among those it is examining in terms of the environmental effects of trade liberalization (*ibid*, 1998). During the November 2001 Fifth Ministerial meeting of the WTO in Doha, Qatar (the Doha Round), concerns about environmental conservation and sustainable development played a major role for the first time in the trade negotiations (Mattice, 2003). Preparations are now underway for the Fifth Ministerial Conference to take place in Cancun, Mexico on September 10-14<sup>th</sup>, 2003 where countries will report on the progress made since Doha.

An important step in the reform process has been the recent policy shift in the types of agricultural subsidies in OECD countries through reforms of the European Common Agricultural Policy where direct payments to farmers are replacing market-price support. This transformation initially suggests that a broad range of social objectives, through direct income payments to farmers, can be attained while reducing adverse effects on biodiversity. These direct 'multi functional' payments are being shown to be much less market distorting and environmentally damaging than those directly tied to an input use or output level (OECD, 2003). Under the reform plan, EU farmers will no longer receive subsidies based on the amount they produce but instead will receive an annual payment based on the size of farms (WB Press Review; 30-June-03).

While there has been some progress in the reform of fisheries' subsidies, most agreements are relying on voluntary measures and reporting requirements. Such measures have not been effective. In 1999, the U.N. Food and Agricultural Organization (FAO) adopted a voluntary

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<sup>5</sup> The World Trade Organization (WTO) was established in 1995 replacing the General Agreement on Tariffs and Trade (GATT).

International Plan of Action on the Management of Fishing Capacity for FAO member countries to reduce and progressively eliminate subsidies that are contributing to overcapacity (Mattice, 2003). There were also discussions at the Doha Round, with efforts taken to improve and clarify WTO disciplines on fisheries subsidies. However, there is still concern about the effectiveness of these negotiations in disciplining environmentally harmful subsidies. Mattice (2003) argues that the WTO Agreement on Subsidies and Countervailing Measures does not adequately address those subsidies that are contributing to the depletion of fisheries. Current WTO rules are criticized as failing to consider whether subsidies contribute to excess capacity and overfishing and as not offering mechanisms for phasing out environmentally harmful subsidies (WWF, 2002). Therefore more careful analysis is required to identify those subsidies that are having the most perverse impacts on the marine environment while providing clear steps on how to phase out those subsidies that are deemed harmful.

### **5.3 The Role of Non-governmental and Inter-governmental Organizations**

There has been a recent emergence of environmental NGOs as important actors in the debate over subsidies. A number of major international environmental NGOs have addressed the issue, undertaking studies, and making subsidies reform an organizational priority (Steenblik, 1998b). The World Wildlife Fund has seen the Doha Round as a prime opportunity for the international community to address subsidies that have a negative impact on environmental sustainability, to begin developing mechanisms to phase out perverse subsidies and to implement a more comprehensive reporting and monitoring process (Yeager; 20-Mar-03). NGOs are playing a formal role in negotiations as well; during the FAO Committee on Fisheries' consultations, NGOs participated as official observers, alongside inter-governmental organizations (Steenblik, 1998b). It is expected that numerous NGO representatives will be present in Cancun for the Ministerial Meeting in September 2003. Overall, NGOs are becoming more sophisticated in their engagement and are more actively involved in negotiations.

Subsidies have also been addressed by various inter-governmental organizations including the Organization for Economic Cooperation and Development (OECD) and Asia-Pacific Economic Co-operation (APEC), focusing on developed economies and those in the Asia-Pacific respectively. In May 1982 the OECD incorporated a specific mandate to develop estimates of the sources of assistance to agriculture per commodity in OECD countries, monitoring its member countries' agricultural policies (Steenblik, 1998a). These estimates have helped form the basis for discussions around the scale of fishing subsidies. In addition, the APEC forum hosts the only active multilateral discussions aimed at improving fishery subsidy disciplines (*ibid*, 1998a).

### **5.4 Barriers and Opportunities for Subsidies Reform**

While there are some positive steps toward subsidy reform in place, significant obstacles impede more rapid change. A major barrier to subsidies reform is the powerful lobbying of influential interest groups that are benefiting from these policies. By transferring these resources, governments are further empowering these groups; "the subsidies themselves create a pool of money out of which recipients can influence the very political process that channels money to them in the first place (Steenblik, 1998a; 5)." Thus, moderate, continuous reform is the most likely prospect.

In addition to the political resistance to reforming subsidies, Porter (1998) argues that the lack of clarity over the definition of a subsidy is also a major obstacle to the creation of an effective international reform movement. In order to improve environmental outcomes, the definition of the term subsidy should be expanded upon in the multilateral negotiations process. The WTO definition of a "subsidy" is regarded as too narrow, for example certain government contributions to the fisheries sector which can be environmentally perverse are not necessarily considered

subsidies, such as government-to-government payments for fishing rights for national fleets in foreign waters (WWF, 2002)..

Further assessments of the biodiversity impacts of subsidies are also an important requisite for effective reform. Defining the specific subsidies that are harmful to the environment and to biodiversity is essential to focusing on policy reform. Pieters (2002) has developed a “checklist” to identify which subsidies are most damaging and can most easily be removed to determine whether subsidy removal is likely to benefit the environment. Such criteria should be applied to specific industries and their corresponding policies to measure relative impacts and target those subsidies that are most harmful.

Finally, there are also certain conditions that are important for achieving successful outcomes in multilateral agreements around subsidies. The parties must have sufficient motivation to enter the negotiations, there needs to be adequate means to establish targets, and the political and economic conditions need to be conducive for reaching agreements (Ross, 1996). Fostering this enabling environment is crucial to reaching positive agreements on subsidies that will benefit the environment and biodiversity.

## **6. Recommendations for Action**

*The following recommendations are targeted toward NGOs, national governments, policymakers, protected area managers, and industry leaders, all of whom have an important stake in reforming these policies.*

1. Targeted research is needed to model and measure the impacts of specific subsidies on biodiversity, and economic stability in order to target subsidies reform

Further studies should be carried out to calculate the impacts of subsidies on conservation and biodiversity. OECD (2003) suggests that quantifying subsidies is still largely incomplete and that there is still much work to be done in this area. While some studies have explained the link between perverse subsidies and their effects on the environment, a number of key WTO member countries – including Japan, Korea and, to a lesser extent, the European Union – continue to question the link between subsidies and their effects on the environment (Mattice, 2003). Therefore, more evidence is needed to convince governments of the impacts of perverse subsidies and in deciphering those subsidies that are harmful from those that are not.

2. Promoting awareness and support for a stronger constituency

The problems arising from perverse subsidies must be better communicated to a range of stakeholders, including at major environmental forums and conferences. At the World Summit on Sustainable Development, world leaders discussed the importance of eliminating harmful subsidies (Mattice, 2003). The Brundtland Report, which framed Agenda 21 of the Rio Summit, recognized that subsidies were having an immense and detrimental effect on the environment. Subsidies were also discussed at the Fifth World Parks Congress in September 2003, where governments were called to reduce and redirect those subsidies that are causing environmental degradation and biodiversity loss. Subsidies reform should continue to be part of the discussions and outputs of future environmental meetings including the World Conservation Congress in November 2004.

3. Strengthening institutional collaboration and engaging new actors

NGOs should form alliances to strengthen the cause of environmental issues in the international negotiations around subsidies. They should also coordinate their research in order to cover different aspects of the environmental implications of subsidies and in proposing strategies for reform. Having a stronger network, NGOs can more effectively influence government expenditure

policies. Strengthening communication and coordination among NGOs was among the objectives of the OECD Environmentally Harmful Subsidies Workshop on November 7-8, 2002.

#### 4. Using the CBD<sup>6</sup> process to target harmful subsidies

Member countries to the Convention on Biological Diversity (CBD) are required to identify and manage those activities that have significant adverse impacts on conservation to ensure environmentally positive outcomes. Thus reducing subsidies is a duty of member countries. Furthermore, the CBD calls for implementing financial incentives to support its objectives, and spending less on subsidies is a cost effective way to conserve biodiversity (IUCN web page; *in* Seenblik, 1998b). In allocating finances to conservation, perverse subsidies are reversing positive expenditures on the environment, therefore their removal must be part of any financing strategy. Signators to the convention must lead the way in removing harmful subsidies while also allocating new resources to conservation.

#### 5. Action by governments and policymakers

Governments need to re-evaluate their spending on subsidies and shift more expenditures toward priorities that will benefit society (rather than those that only benefit specific interest groups), including toward biodiversity conservation and more sustainable natural resource practices. In order to do so, there must be policies to ease this transition. Replacing subsidies with policies that are less harmful to the environment may be a short term alternative, such as moving away from production subsidies toward fixed income payments.

## 7. Conclusion

Governments continue to allocate subsidies to natural resource sectors despite their negative effects on the environment and on biodiversity conservation. Only recently are the environmental implications of these subsidies being explored and debated internationally. Efforts to reform subsidies must continue and intensify in order to reverse the negative consequences to the environment. NGOs, inter-governmental organizations, academic institutions and other stakeholders must continue to exert pressure on governments to reduce harmful subsidies, providing more targeted research demonstrating the effects of perverse subsidies and offering practical steps to avoid and remove those subsidies that are harmful.

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<sup>6</sup> The Convention on Biological Diversity is a formal recognition by more than 170 countries of the interdependence between the planet's biodiversity, the global economy and human societies. The objectives of the CBD are: to conserve biodiversity, to sustainably use biological resources, and to fairly and equitably distribute the benefits derived from this use (Bagri et al., 1999).



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