

## Executive Summary

When OECD Environment Ministers met in April 2004, they drew attention to the need for more analysis of the “costs of inaction” (COI) on key environmental challenges. This report is part of the response to that request. It is important to be clear at the outset about what is meant by the terms cost and inaction. OECD countries have made significant strides in addressing many of the environmental concerns discussed in this report. The term “inaction” must therefore be interpreted in this context. While the continued implementation of existing regulatory and market-based policy instruments at their existing level of stringency can hardly be characterised as “inaction” in a strict sense, adopting such a perspective is likely to be more instructive (and easier to apply) than ignoring the existing policy framework. As such, this report uses an assumption of “no new policies beyond those which currently exist” as the basis for its analysis of “inaction”.

With respect to “costs”, both market and non-market impacts are considered in much of the literature reviewed in this report. This includes the *direct financial costs* of inaction associated with environmental degradation, such as expenditures on remediation and restoration, private and public health services costs, and private defensive expenditures. Other more *indirect costs* contain the costs of resource depletion and environmental degradation which are reflected in other associated markets (i.e. real estate and labour markets), as well as general equilibrium impacts.<sup>1</sup> In addition, costs associated with the loss of *environmental use values* which are not reflected in markets at all must be included. This comprises non-market costs associated with pain and suffering, and some aspects of environmental quality (aesthetics, visibility, etc.) And finally, a full estimate of the costs should reflect *non-use values*, such as existence values associated with biodiversity, as well as values associated with bequest and altruism.

When valuing the “costs of inaction”, several methodological issues need to be considered:

- uncertainties with regard to both environmental impacts and the economic value of those impacts (including uncertainty about technological trajectories over time);

- thresholds and irreversibilities, which can lead to “discontinuous” impact functions;
- the long-run nature of environmental problems (and thus the need for “discounting” the streams of anticipated costs);
- the degree of substitutability between environmental resources and other inputs into the economy;
- the distribution of environmental impacts, and their links to social concerns about equity; and
- the endogeneity of responses to changing environmental conditions (e.g. adaptation).

Despite these complexities associated with valuation, the literature reviewed for this report suggests that the economic costs of failing to introduce environmental policies, or of introducing policies that are not “sufficiently ambitious”,<sup>2</sup> can be considerable. For example:

- Air pollution can lead to reduced agricultural yields, degradation of physical capital, and broader impacts on ecosystem health. The costs of not introducing the EC’s “Thematic Strategy on Air Pollution” are estimated to represent about 0.35-1.0% of EU25 GDP in 2020 (CEC, 2005). Although some of the tangible health costs of pollution (lost productivity, health service costs, etc.) may be more visible, economic studies suggest that more intangible costs, such as “pain and suffering”, are very significant as well.
- In non-OECD countries, the economic impacts of inaction with respect to water pollution may be even greater. According to the WHO (Prüss-Üstün et al., 2004), 1.7 million deaths and 4.4% of the burden of disease (BoD)<sup>3</sup> are attributable to unsafe water supply, sanitation and hygiene (WSH). Ninety percent of the deaths involve children under five years old. Households devote significant resources (time and money) to securing access to clean water, in order to mitigate these health impacts.
- Estimates of the economic costs of climate change vary widely, with recent assessments generating figures as high as 14.4% in terms of per capita consumption equivalents (Stern, 2007a),<sup>4</sup> when both market and non-market impacts are included. While there is significant uncertainty about the eventual costs of inaction with respect to climate change, few would doubt that it has the potential to have very significant implications for the world economy – particularly in non-OECD countries. Reduced agricultural yields, increased sea-level rise, and greater prevalence of some infectious diseases are likely to significantly disrupt these economies.
- Environment-related industrial hazards – such as oil spills and land contamination – are already generating significant costs of inaction. For example, experience in Europe and US nevertheless indicates that the costs

of remediation of damaged ecosystems can run into billions of Euros. Moreover, due to the irreversible nature of some of the impacts that can be expected, the costs of restoration or remediation (no matter how comprehensive) will only represent a proportion of the total social costs of inaction.

- While the economic risks associated with natural disasters (*e.g.* floods, hurricanes) are only partly attributable to environmental factors, and can only be partly reduced through public policy measures (*e.g.* mitigation of climate change, flood prevention measures), the costs of inaction in these areas can also be considerable – the World Bank (2006) has estimated that the costs of natural disasters for the poorest countries can be as much as 13% of annual GDP.
- The costs of unsustainable natural resource management<sup>5</sup> – in terms of lost future benefits from resource exploitation – can be considerable. For example, Bjørndal and Brasão (2005) concluded that inefficient management of the east Atlantic bluefin tuna fishery may be resulting in reduced fishery yields with a discounted value of USD 1-3 billion. However, the costs of unsustainable fisheries management extend well beyond these direct impacts on the resources themselves, to also include indirect impacts on “downstream” sectors and ecosystems.

These results should, however, be interpreted with caution. Given the uncertainties, as well as the fundamental methodological difficulties associated with estimating the costs of inaction, it would be foolhardy to attempt to “cost” environmental policy inaction in any aggregate sense. However, it is clear that there are many environmental problems for which the costs of not taking further policy action *are* significant – and are already directly affecting OECD economies in a variety of ways.

It is also important to realise that some of these costs are already being reflected in household budgets and firms’ balance sheets. Increased costs are incurred in an effort to secure access to increasingly scarce resources, and “defensive” expenditures are incurred in order to avoid the impacts of environmental degradation. For example, expenditures incurred to secure access to clean water in developing countries can be a very significant proportion of a household’s budget.

Some of the financial costs of environmental policy inaction are also already being reflected directly in public sector budgets – *e.g.* increased public expenditures on health services due to air and water pollution, unemployment benefits and adjustment programmes for out-of-work fishers, remediation costs for contaminated sites, dikes and other measures to protect against flooding and extreme weather events. Thus, many of the costs of

environmental policy inaction are already reflected in a diffuse manner throughout the government's balance sheet.

Other components of the costs of inaction may be reflected (at least in part) in existing markets, even though they are not readily perceived as costs of environmental policy inaction *per se*. Examples include the effects of contaminated sites on adjacent property prices, the effects of air pollution on agricultural yields, or the cost of property insurance in coastal areas. All of these costs are attributable in part to environmental policy inaction.

The impacts of other elements of the costs of environmental policy inaction may not be reflected in economic variables in an identifiable manner. For example, the costs associated with the continued loss of marine and terrestrial biodiversity are likely to be very significant, but their impacts are not reflected in market prices or national accounts in an identifiable manner. This is also the case with other more intangible and subjective aspects of the costs of inaction, such as "pain and suffering" from ill-health. These impacts may impose a very significant burden associated with "inaction" (in terms of lost welfare), so they should not be neglected.

Thus, while there is significant economic and scientific uncertainty associated with the estimates in different areas, there is little question that for a number of areas such costs are already significant, affecting many markets and sectors, as well as important macroeconomic variables. Put another way, inadequately stringent environmental policies in some areas can serve as a significant brake on economic productivity and growth.

However, even if the costs of inaction are deemed to be significant, identifying those areas in which existing environmental policies should be strengthened or new environmental policy initiatives undertaken would still require a careful balancing of the marginal costs of inaction with the marginal costs of further reducing the associated impacts beyond those measures already in place. This report does not review the (vast) literature on the costs of *action*. In the absence of information about the costs of policy interventions, estimates of the (marginal) costs of inaction on their own cannot be considered as a guide to either the establishment of policy priorities or to overall economic efficiency.

### Notes

1. For instance, in the valuation of public service health costs, it is important to take into account the means by which that service is financed. If it is financed through general tax receipts, the costs of inaction will be greater, the more distortions the existing system of taxation.
2. In economic terms, this includes policies whose further strengthening would generate marginal benefits in excess of marginal costs. However, as noted below,

this paper does not assess the costs of policy interventions (i.e. benefits of inaction).

3. BOD is measured in terms of disability-adjusted life years (DALYs) – a common indicator used in cost-effectiveness studies in the health economics field.
4. The metric used in Stern (2007), which has caused some confusion, is an attempt to express a complex issue in a concise manner. Assuming future growth rates in the absence of any economic impacts from climate change, the consumption path associated with that growth rate is first calculated. Next, climate change impacts are considered, which are translated into lower future growth rates, and a correspondingly lower future consumption path. The cost of inaction is thus the difference between these two consumption trajectories [see Sterner and Persson (2007) for clarification].
5. Fisheries and groundwater abstraction were selected for review in this report. While undoubtedly important, the issue of biodiversity is not addressed directly. However, many of the areas reviewed (fisheries, climate change, air and water pollution) have direct implications for biodiversity.

### References

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