

Is the EU improving the condition of the environment and are we making progress in preserving our natural resources for future generations?

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Mr Chairman, Ladies and Gentlemen,

The question posed for this presentation is a tough challenge by any standards. As is always the case, we do not have sufficient information and analysis to give complete answers but I think we have enough evidence to provide pointers in the direction we might want to take in Europe towards a more sustainable future. And the good news is that we have plans at the Agency to deal with the "information gap" for environment in the context of sustainable development in ways which will eventually put environment on a par with the economic and social spheres, but more of that later.

I would like to start by reframing the question along the lines of "Meeting needs, consuming resources, maintaining capital", which is the essence of the sustainable development challenge, and to offer a couple of related quotes that came out around the time of the Rio Conference in 1992. The first quote comes from the World Business Council for Sustainable Development:

"The bottom line is that the human species is living more off the planet's capital and less off the interest...this is bad business...many of our attempts to make progress are simply unsustainable....fundamental change is needed".

The second quote comes from the UK Royal Society/US National Academy of Sciences in their first ever joint statement:

"the future of our planet is in the balance...The present pattern of human activity, accentuated by population growth, should make even the most optimistic about future scientific progress pause and reconsider the wisdom of ignoring these threats to our planet. Unrestrained resource consumption for energy production and other uses, especially if the developing world strives to achieve living standards based on the same level of consumption as the developed, could lead to catastrophic outcomes for the global environment."

These views of the business and scientific communities still resonate as strongly, if not more strongly, 12 years on. But the trends that underlie these views have been in evidence for much longer. We see, for example, that, prior to the industrial revolution in the mid-18th century, the world's welfare needs were largely sustained by harnessing the flows of primarily renewable resources, such as the sun, air, water, wood, animals and fish. Since then to the present day, our needs have been met increasingly through the exploitation of the stocks of mainly non-renewable resources, such as fossil fuels,

land and soil as well as the over-exploitation of renewable resources such as those mentioned earlier. So for example, non-renewable resources now account for about $\frac{3}{4}$ of total material use in industrialised countries compared with about $\frac{1}{2}$ in 1900.

I would contend that we need to rebalance the emphasis of our economic activities back towards harnessing more of the flows whilst exploiting less of the stocks of natural capital if we are truly to move towards sustainability in Europe and globally, and that this shift should be a central element of our thinking towards a new sustainable development strategy for the EU. Eco-efficiency, where we seek to get more welfare from less nature, should be a central plank of this shift in emphasis (slide 2), as well as reductions in absolute environmental loads where ecological and human capacities are being overloaded – for example, nitrogen, fish stocks and particulate air pollution.

It is not only a more sustainable balance between harnessing flows and exploiting stocks that is at issue, but the composition, extent and rate of change in economic activity that we have seen particularly in recent decades – a 7-fold increase in global GDP between 1950 and 2001 and an 18-fold increase since 1900 (OECD data). At the same time global population has grown almost $2\frac{1}{2}$ times since 1950, and four-fold since 1900 (slide 3) (source OECD 2001). Income inequality between the richest fifth of the world's population – including most of Europe – and the poorest fifth remains huge, posing challenges for Europe in meeting its global responsibilities (slide 4).

All of these trends in turn present a threat to the finite capacity of the natural environment support system that underpins the economic activities on which we depend. In addition, we can see that the economic activities are themselves generating increasing economic costs in terms of pollution clean-up and extreme events, calling into question the effectiveness of current policy design and implementation across economic, social and environmental spheres. Furthermore, such activities pose an increasing threat to our health from exposure to pollution and chemicals, particularly for our children, who will be the intellectual capital and economic driving force of future generations. Rising rates of cancer, asthma and neuro-developmental diseases are eroding this valuable stock of future wealth.

Meeting our needs with less use of natural and man-made resources and more use of people is now an imperative for sustainable development. Eco-efficiency aims at decoupling resource use and pollution releases from economic activity. We have made substantial progress in the areas of air and water in the last 25 years, but these are being more than offset by new challenges which are proving more difficult to crack. A good example is in the area of transport where we have achieved substantial reductions in emissions of air pollutants such as ozone precursors and acidifying substances, but emissions of greenhouse gases continue to rise as transport demand (freight and passenger) outstrips improvements in energy-related emissions achieved primarily through technological improvements and stricter regulations (slide 5).

A similar challenge presents itself when looking at water. A recent EEA study of selected countries on the effectiveness of urban waste water treatment (UWWT) policies shows that the main objective has been met - substantial reductions in emissions of waste water (including nitrogen) from industrial point sources and households (slide 6). This has helped to reduce nitrate concentrations in water bodies. But when we look at data for nitrate concentrations in European rivers we see that improvements have been much less than suggested by the UWWT trends (slide 7), because the point source

improvements have been largely offset by diffuse run-off of nitrate resulting from intensive agricultural practices. The nitrate picture is better for most of the new-10 EU countries but this advantage may come under pressure as the Common Agricultural Policy and other funding mechanisms come into play from 2006 onwards in these countries.

Coming back to UWWT, a further issue of concern is the relatively high cost of implementation, ranging up to 0.8% of GDP in some member states (slide 8). UWWT has accounted for more than 50% of all environmental expenditures in recent decades, thereby potentially crowding out other needs if not allocated wisely. The good news from the study is that eco-efficient practices work. When we look at the Danish and Dutch experiences we see that both countries have achieved compliance with the UWWT Directive but that the Netherlands' greater use of economic instruments to encourage pollution prevention activities has reduced the need for building treatment capacity. Denmark has about 75% more treatment capacity per capita and hence higher investment costs for effectively the same environmental outcome because of its initial focus on end of pipe treatment rather than on encouraging eco-efficiency in industrial sources of the pollution.

Another EEA study in progress, this time on packaging waste, also raises issues about eco-efficient versus end-of-pipe approaches for achieving environmental improvements, as well as issues around policy design. The overall objective of policy has been to reduce waste volumes but the targets have been directed more towards increasing reuse and recycling. Evidence shows that the overall objective is being missed while the targets are well on the way to being met (slides 9 and 10). The study also shows that eco-efficient approaches can deliver unexpected secondary benefits. For example in the UK, the Landfill Directive has been the main driver of progress on packaging waste because the landfill tax has discouraged disposal and encouraged alternative, more eco-efficient treatment options. The study also shows that there is a quite a large discrepancy in the cost-effectiveness of different approaches but we need to do more work on the data to understand if these differences are real or due to differences in methodology and coverage.

I would now like to move on to an issue which is I think the most challenging we face and which could have the greatest implications for the legacy we leave to future generations. The issue of course is climate change. We are already seeing several impacts of global climate change in Europe. Those already taking place or projected to happen over the coming decades include more frequent and more economically costly storms, floods and droughts, changing weather conditions that threaten agriculture in some areas, heatwaves that pose a lethal threat to the elderly and frail, melting glaciers and sea ice, and rising sea levels for centuries to come.

Strong evidence exists that most of the global warming over the past 50 years has been caused by human activities, in particular emissions of heat-trapping greenhouse gases, such as carbon dioxide (CO₂) from the burning of fossil fuels. Emissions in the EU fell slightly in 2002, taking the EU a small step closer to its Kyoto target.

However, the concentration of CO₂, the main greenhouse gas, in the lower atmosphere is now at its highest for at least 420,000 years - possibly even 20 million years - and stands 34% above its level before the Industrial Revolution. The rise has been accelerating since 1950 (slide 11).

The Arctic is a major area of concern which Europe needs to pay increasing attention to. The total area of Arctic sea ice shrunk by more than 7% from 1978 to 2003 (slide 12), accompanied by large reductions in ice thickness. Projections show a predominantly ice free Arctic Ocean in summer by 2100. Meanwhile glaciers in eight of the nine European glacier regions are in retreat, consistent with the global trend (slide 13). It is expected that by 2050, about 75% of the glaciers in the Swiss Alps will have disappeared.

In the marine environment, rising sea surface temperatures are causing changes in the presence and number of warm-temperate species. For example, over the past 30 years there has been a northward shift of zooplankton species by up to 1,000 km and a major reorganisation of plankton species (slide 14). This requires more emphasis to be given to managing marine ecosystems sustainably than in the past. And to addressing the fish stocks issue more broadly in relation to how such species contribute to sustaining marine ecosystems, rather than simply considering fish stocks in economic terms.

The summer floods of 2002 and last year's summer heatwave are recent examples of how destructive extreme weather can be. The serious flooding in 11 countries in August 2002 killed about 80 people, affected more than 600,000 and caused economic losses of at least 15 billion US\$ - part of an apparent trend towards higher economic losses (slide 15). In the summer 2003 heatwave western and southern Europe recorded more than 20,000 excess deaths, particularly among elderly people. Crop harvests in many southern countries were down by as much as 30%.

Tackling climate change needs adaptation strategies at European, regional, national and local levels and these should be central to future thinking on sustainable development in Europe across all sectors of society. The substantial financial costs for Europe's economy, people and ecosystems means everyone has to play a role and take account of climate change in their policy decisions. Energy is the main sector where action is needed and where we can achieve concrete progress. A shift in energy sources from stocks of fossil fuels towards flows of renewables must be a key point in our response to climate change. The 2010 renewables targets are unlikely to be met and new targets are needed to help cut greenhouse gas emissions and give energy markets long-term investment security. Harnessing the flows of natural resources like wind, water and solar energy can go a long way to achieving these goals and more needs to be done to communicate the benefits of these sources despite current high costs and resistance to planning decisions.

Biofuels from crops are being promoted as a useful means of greening the transport sector, but the overall benefits of this approach are more questionable. Depending on the options chosen, CO₂ emissions from energy and agriculture could increase, and biofuel crop production can impact on the biodiversity of farmland, adding further to losses of species and richness already seen from intensive agriculture in recent decades, for example for birds (slide 16). These side effects should be taken into account when assessing the benefits for society as a whole.

A final issue I would like to cover concerns children's health, the most important resource for future generations. Despite the lack of knowledge on many issues, it is clear there is a link between reducing environmental pollution and improving public health. Overall we believe reducing environmental pollutants and stressors could lead to reductions of perhaps 5-20% of environmentally induced deaths, diseases and disabilities in Europe's

children. Just as for climate change, action is needed across a wide range of sectors, notably transport and the chemicals industry. And just as for climate change and biodiversity, we need integrated thinking and integrated action if we are to meet the challenges we face.

I would like to finish by indicating how the Agency will contribute to sustainable development through the provision of integrated information and assessments. One tool we are implementing is the environmental accounts methodology of the United Nations, which is derived from the system of national economic accounts and which will give us a framework for integrated analysis of natural resources and in the longer term enable us to link their use to economic activities, including prices and costs. The basic accounts as such - which the Agency is now producing for Europe - contain extremely useful information on the processes that are taking place, as well as on their location from the European level down to the local level. Therefore, policies can focus on those places or conditions where problems are concentrated, without losing the overall picture. The advantages of such accounts are in the geographical breakdowns that they introduce and in the comparability of the results throughout Europe given by the use of a standard methodology. This is an important element in the development of environmental integrated spatial assessments of changes in the stocks and flows over time of natural resources and ecosystems such as land, but also soil and water. This type of assessments will allow us to support relevant policy discussions with structured and quality-assured data and analysis. We will also make the whole accounts infrastructure freely available, supported by analytical tools, so that others can do their own analysis.

Early results augur well for what we can achieve in the future, as can be seen from an analysis of the large ecological potential of Europe's land area (slide 17). We need to preserve this if we are to be able to adapt effectively to climate change, for example. We can also see the value of protecting and maintaining areas of ecological value, such as wetlands, by preserving surrounding landscapes and by providing corridors for sustaining species that rely on those areas (eg wetland birds). Ireland is a good example of management in this respect, but other parts of Europe are less so (slide 18). But when we look at Ireland more closely we see potential threats from human activities through increasing road networks and urban sprawl (slide 19). These potential threats can also be seen elsewhere in Europe, for example in France, Belgium and the Netherlands (slides 20 and 21). Interestingly, when we compare East Germany with Poland we can see stark differences (slide 22). This type of analysis I think will help bring different perspectives to the discussions between environment and other sectors that are vital in the sustainable development context.

The accounts methodology will also allow us in time to link environmental, social and economic variables and how they impact on people's health. This is a very long-term objective but we have already started work on it and I hope I will have the opportunity to come back to future events like this and present our progress.

Thank you.