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COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Thematic Strategy on the sustainable use of natural resources**

**IMPACT ASSESSMENT**

**{COM (2005) 670 final}**

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## COMMISSION STAFF WORKING DOCUMENT

### Impact Assessment of the Thematic Strategy on the sustainable use of natural resources

#### 1. INTRODUCTION

This Impact Assessment is designed to explain the rationale for the Thematic Strategy on the sustainable use of natural resources ('the strategy'), the policy choices made and the impacts of these choices.

The strategy aims to underpin a process that can be faster or slower depending on Member States' capacity and readiness to implement the measures identified in the strategy. This process implies new thinking on policymaking and natural resource use. It is also a work in progress and, as such, needs regular checking to ensure that it delivers the expected results. Should different or stronger measures be needed in the coming 25 years of validity of the strategy, they will be subject to a specific assessment of their impacts.

Many of the measures necessary to ensure that the strategy's goal is reached will need to be taken in other policy areas, as and when these come up for revision over the next 25 years.<sup>1</sup> At that point, these revisions will be subject to their own impact assessments. This impact assessment will therefore confine itself to assessing the individual measures that are put in place as a direct result of the strategy.

#### 2. WHAT ISSUE/PROBLEM IS THE POLICY/PROPOSAL EXPECTED TO TACKLE?

##### 2.1. Definitions<sup>2</sup>

###### 2.1.1. *Natural resources*

Natural resources are very broad. They include:

- (1) raw materials such as minerals (including fossil energy carriers and metal ores) and biomass. Fossil energy carriers, metal ores and other minerals (e.g. gypsum, china clay) are non-renewable in the sense that they cannot be replenished within a human timeframe. Stocks are finite and are diminishing because of their use in human activities. In contrast, biomass is in principle renewable within the human timeframe. It includes quickly renewable resources, such as for example agricultural crops, and slowly renewable

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<sup>1</sup> A problem of principle still persists: while it is feasible to estimate the costs of the proposed implementing measures (which in this case are predominantly administrative costs) there exist large gaps in commonly accepted monetary quantification of environmental impacts.

<sup>2</sup> Already proposed by the Commission in COM(2003) 572.

resources, such as timber.<sup>3</sup> However, some of these resources used as raw materials can be exhausted if they are overexploited.<sup>4</sup> This is an acute threat to certain commercially fished marine species, for example.

- (2) environmental media such as air, water and soil. These resources sustain life and produce biological resources. In contrast with raw materials it is their declining quality that causes concern. It is not a question of how much there is (with the notable exception of soil), but what state they are in. For example, the total quantities of air and water on earth do not change within human time scales, but because of pollution their quality is often poor. Moreover, the biological diversity of environmental resources is of vital importance.
- (3) flow resources such as wind, geothermal, tidal and solar energy. These resources cannot be depleted, but require other resources to exploit them. For example, energy, materials and space are needed to build wind turbines or solar cells.
- (4) space, as it is obvious that physical space is required to produce or sustain all the above-mentioned resources. Land-use for human settlements, infrastructure, industry, mineral extraction, agriculture and forestry are some examples.

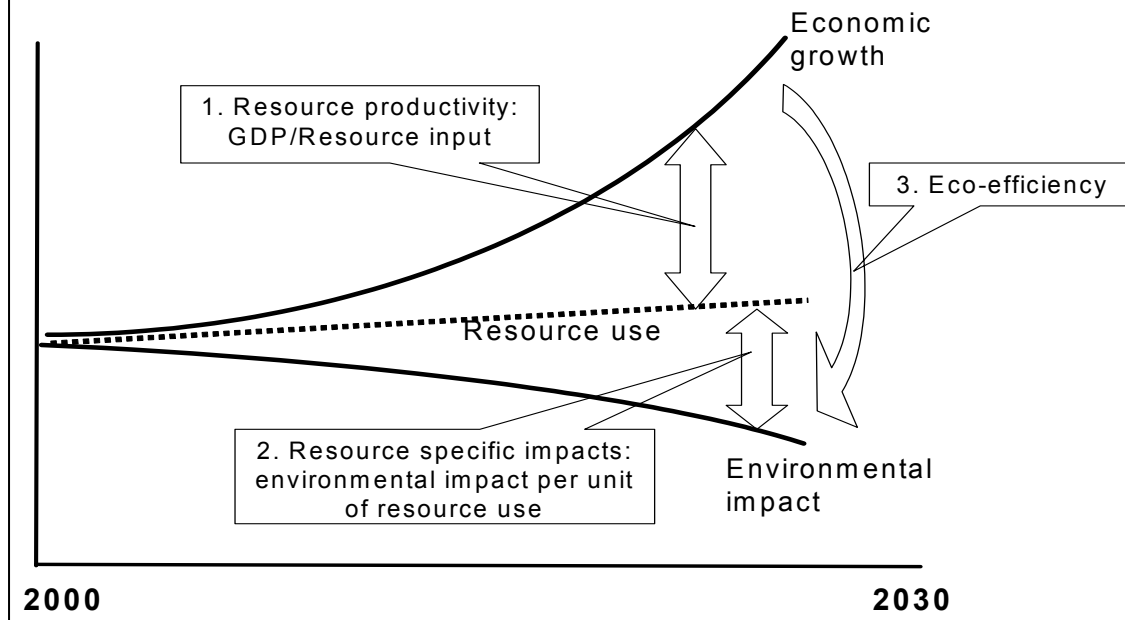
#### *2.1.2. Resource productivity*

This measures the value added per unit of resource input (€/kg). An example of resource productivity calculation on a national level is dividing the total economic activity of a country (expressed in GDP) by its total material use (DMC).

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<sup>3</sup> The meaning of “renewable resources” is different from “renewable energy resources” as defined in Directive 2001/77/EC (OJ L 283, 27.10.2001, p. 33).

<sup>4</sup> The term “biological resources” is defined under the UN Convention on Biological Diversity (CBD).



### 2.1.3. *Resource specific impact*

This measures the environmental impacts per unit of resource use. These impacts should include the entire life cycle, i.e. from extraction or harvesting upstream of the economic activity, to its final disposal to air, water and soil downstream of the economic activity, as well as recycling, re-use and energy recovery.

### 2.1.4. *Eco-efficiency*

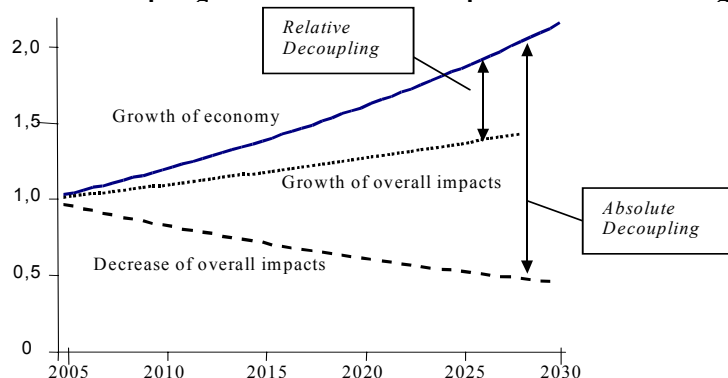
This indicator measures the added value per unit of environmental impact and can be derived by dividing resource productivity by resource specific impacts.

### 2.1.5. *Material intensity*

This is the reverse of the quotient used for resource productivity, i.e. material use divided by economic activity. If the material intensity of the economy decreases, dematerialisation is said to occur.

### 2.1.6. *Decoupling*

Decoupling refers to de-linking one parameter from another. It is absolutely essential to know what is being decoupled from what. There are two sets of parameters that are relevant in the strategy: *economic growth versus resource use* and *economic growth versus environmental impacts*. Decoupling resource use from economic growth can mean two things: 1) the economy grows faster than resource use, while the absolute quantity of resource input is still increasing; 2) the economy grows, while total resource input remains stable or decreases. These different degrees of de-linking are commonly referred to as *relative* and *absolute* decoupling respectively. Similarly, decoupling of environmental impact from economic growth means that the economy grows at a faster rate than environmental impact (relative decoupling) or while environmental impact stabilises or decreases in absolute terms (absolute decoupling). Box 1 illustrates the latter.

**Absolute and relative decoupling of environmental impact from economic growth.**

The upper growth line represents economic growth. The middle (dotted) line shows an annual growth of environmental impacts related to resource use. The lower (dashed) line shows a decrease in environmental impact.

## 2.2. What is the issue/problem expressed in economic, social and environmental terms including unsustainable trends?

Developed economies are based on flows of natural resources to produce food, materials and energy. In addition to raw materials, they need large areas of land for forestry, agriculture, buildings and transport. While generating wealth from natural resources, economic activities also exert pressures on their resource base. The resulting environmental impacts can disrupt supply chains (for example over-fishing), hamper the regenerative capacity of environmental media that are needed for economic activities (for example soil, clean water and clean air as well as a stable climate), and negatively affect biodiversity.

Increasing resource demand has meant that at least one quarter of important commercial fish stocks are over-harvested. Extraction and mining activities have led to severe water pollution and direct risks to human health in many parts of the world. The over-exploitation of tropical forests is accelerating the loss of biodiversity. From 5% to possibly 25% of global freshwater use exceeds long-term accessible supplies and is now met either through engineered water transfers or over exploitation of groundwater supplies.<sup>5</sup> Land use is accelerating in Europe, with built-up areas having expanded by 20% during the last two decades, outpacing population growth (6%). These trends are causing increasing amounts of soil being sealed, leading to losses of productive land and the fragmentation of natural areas in most of Europe.<sup>6</sup>

*Considering that the main drivers of resource use in Europe are economic activities, while at the same time economic growth is a major EU policy objective, the only way to achieve a reduction of environmental impacts is to de-link or decouple environmental impacts from its driver: resource use, and to decouple resource use from its driver: economic growth.*

<sup>5</sup> Millennium Ecosystem Assessment (<http://www.millenniumassessment.org/en/index.aspx>).

<sup>6</sup> COM(2003) 572, p. 16.

In the period 1980-2000 the resource productivity of the EU-15 economy increased from EUR 867 per tonne to EUR 1,316 per tonne, which is an increase of 52%, or 2.1% per year.<sup>7</sup> In the same period the EU-15 economy grew slightly faster, resulting in a net increase of resource use. Despite this increased use, a number of associated emissions were reduced, such as NO<sub>x</sub> and SO<sub>2</sub>. On the other hand, climate change continued and built-up areas expanded by 20% during those two decades, which is much faster than population growth (6%). There are many reasons for this, such as the decentralisation of urban land use, the demand for bigger houses and out-of-town developments (like supermarkets and leisure centres), and the provision of transport infrastructure. These trends are causing increasing amounts of soil to be sealed, leading to losses of bio-productive land and the fragmentation of natural areas in most of Europe.<sup>8</sup>

Further increases of CO<sub>2</sub> emissions will lead to changes in various natural hazards, such as increased flood/landslide/soil erosion problems, as well as increasing risks of drought and a reduction in the available amount of water. These hazards in themselves, combined with greater vulnerability due to pressures from industrial activities and urbanisation, will lead to an increase in natural disasters which will impact both the quality of life and the economy.<sup>9</sup>

If these trends continue, this will ultimately risk undermining the potential for future economic growth, as well as potentially irreversibly affecting human land use and biodiversity and endangering human health, thereby influencing social well-being and the quality of life. The recently published UN report ‘The Millennium Ecosystem Assessment’<sup>10</sup> underlines this observation. The report contains the following warnings:

- (1) Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fibre and fuel.
- (2) The changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystem services, increased risks of nonlinear changes, and the exacerbation of poverty for some groups of people. In particular, 15 out of 24 ecosystem services that provide raw materials and support life on Earth are being degraded or used unsustainably, threatening the planet.

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<sup>7</sup> EUROSTAT, “Material use in the European Union 1980-2000: indicators and analysis”, Working Papers and studies series, Office for Official Publications of the European Communities, 2000. These figures are calculated by dividing GDP by DMC (direct material consumption).

<sup>8</sup> “Environmental Signals 2002. Benchmarking the millennium”, European Environment Agency.

<sup>9</sup> Some examples are the costs due to direct damage and repairs as a consequence of the natural disasters in the Elbe-Danube floods in 2002, and those due to decreased agricultural yields as well as shipping and transport capabilities as a consequence of the summer droughts in 2003.

<sup>10</sup> <http://www.millenniumassessment.org/en/index.aspx>.



- (3) The degradation of ecosystem services could grow significantly worse during the first half of this century and is a barrier to achieving the Millennium Development Goals.

*There is therefore a need to reduce negative environmental impacts while at the same time ensuring economic growth, and to measure such progress during the strategy's life-time with adequate indicators.*

Many environmental problems are rooted in resource flows through the economy and the use of land. However, the exact nature of these flows and their potential interactions with the environment (where and how they impact on the environment) are often not well documented and require comprehensive data collection and continuously updated knowledge on material flows. Much work is already being conducted by national, European and international bodies including the OECD and the European Commission;<sup>11</sup> however, many material flows need to be examined in much more detail to support policymaking. For example, a better understanding of how materials like heavy metals are dispersed from short-lived consumer products, housing or infrastructure into the environment is needed.

*There is a need for a better knowledge-base for the policy decisions taken at European, national and regional level.*

Negative environmental impacts due to resource use can be generated not only within the EU borders, but also in third countries. Imports of, for instance, oil, timber, food crops and feedstuffs, may result in exporting “environmental externalities” to our trading partners, including developing countries, and there are negative impacts, such as climate change, which have a global impact.

*The international dimension of resource use needs to be considered at EU level and factored into European policymaking.*

Apart from environmental policies that address biodiversity, health and the state of particular environmental media, there are many others that affect the use of resources – sometimes unintentionally. These include:

- **economic policy**, where the drive for strong economic growth means that resources have to be used to support it;
- **fiscal policy**, where the traditional focus on taxing human resources (e.g. through national insurance contributions) rather than environmental impacts has favoured increasing labour productivity over eco-efficiency;
- **agricultural policy**, where the objectives of the Common Agricultural Policy are widening beyond agricultural productivity to include among other goals, the integration of environmental concerns for sustainable use of water and soil.

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<sup>11</sup> For example through EUROSTAT, the EEA and the European Topic Centre for Waste and Material Flows.

Indeed, the 2003 reform of the CAP<sup>12</sup> represents a significant step forward in further integrating environmental concerns, with on the one hand measures that integrate environmental concerns into agricultural market and income policy and on the other targeted environmental measures in rural development programmes. Moreover, agricultural support has been decoupled from production and input use. This should contribute to a more sustainable use of agricultural land. The next step is to use the new and extended policy instruments now available to Member States in the best possible way to concretely improve the environmental performance of agriculture;<sup>13</sup>

- **fisheries policy**, where the Common Fisheries Policy aims to provide for coherent measures concerning the conservation, management and exploitation of living aquatic resources. This includes limiting the environmental impact of fishing consistent with other Community policies, in particular with environmental, social, regional, development, health, and consumer protection policies;<sup>14</sup>
- **energy policy**, where the aims are to ensure security of energy supply, address energy demand management and improve energy efficiency;
- **transport policy**, where the use of land for transport infrastructure can, for example, lead to habitat fragmentation.

These policies contain instruments that can increase resource use and associated environmental impacts (e.g. subsidies), and also instruments to reduce undesired environmental impacts. Price mechanisms of functioning resource markets in which costs of environmental damage are internalised, for example, could efficiently discourage negative environmental impacts of resource use by stimulating substitution or technological innovation. The key, therefore, is to integrate resource use issues and their impacts into these policies in a coordinated way.

A central risk is that the multitude of policies that affect resource use and aim to reduce environmental impacts are less well targeted and less effective than they could be because of:

- (1) insufficient knowledge of the relationship between the use of natural resources and its negative environmental impacts;

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<sup>12</sup> Council Regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers and amending Regulations (EEC) No 2019/93, (EC) No 1452/2001, (EC) No 1453/2001, (EC) No 1454/2001, (EC) 1868/94, (EC) No 1251/1999, (EC) No 1254/1999, (EC) No 1673/2000, (EEC) No 2358/71 and (EC) No 2529/2001 (OJ L 270, 21.10.2003, p. 1) and Council Regulation (EC) No 1783/2003 of 29 September 2003 amending Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) (OJ L 270, 21.10.2003, p. 70).

<sup>13</sup> For example, the implementation of cross-compliance standards will encourage farmers to adapt their practices to environmental requirements. Also, the farm advisory service will be an important tool for improving the application of standards and use of good practice in the production process.

<sup>14</sup> Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy (OJ L 358, 31.12.2002, p. 59).

- (2) insufficient or inappropriate use of this information; and
- (3) insufficient integration of environmental concerns in many policy areas.

This means that there are potentially unseen economic, social and environmental consequences to public and private actions.

*There is a need for further integration of natural resource use issues and their environmental impacts into other policy areas, including at sectoral level (e.g. transport, energy, manufacturing industry) and at national level.*

### 2.3. What are the underlying driving forces?

In the past economic growth was a strong driver for the use of natural resources and – without adequate environmental regulation – of environmental impacts due to resource use. Relative decoupling of resource use from economic growth is now happening as the economy in certain regions is gradually shifting from manufacturing to services<sup>15</sup> and some parts of manufacturing industry have made considerable progress in relative decoupling.<sup>16</sup> The renewed Lisbon Strategy reinforces this trend: “In order to do this we must ensure that Europe is a more attractive place to invest and work; knowledge and innovation are the beating heart of European growth; we shape the policies allowing our businesses to create more and better jobs”.<sup>17</sup> However, it is likely that in the EU the absolute level of resource use will increase in the next decades and on the global level it will possibly quadruple. It was therefore concluded that “we need to decouple economic growth from environmental degradation.”<sup>18</sup> Without breaking the link between the use of resources and the associated environmental impacts (“no policy change” scenario) increased environmental degradation is inevitable, as recognised by the UN.

Population growth, particularly in the developing world, and changes in demographic patterns in industrialised countries (more single households, ageing of population) are also potential driving forces. Aside from notable exceptions, however, they are not really the subject of explicit policies and there is also evidence that the rate of population increase is reducing.

Another driving force for change is increased awareness in environmental matters shown by EU citizens. Eurobarometer surveys<sup>19</sup> show that Europeans remain consistently concerned about environmental problems: 72% of respondents consider that the “state of the environment influences their quality of life”. There is therefore considerable support for measures that seek to reduce environmental degradation.

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<sup>15</sup> Manufacturing contributes to less than 20% of GDP and the role of services has been rising to more than 70% in some OECD countries (<http://www.oecd.org/dataoecd/10/33/2090561.pdf>).

<sup>16</sup> In the very long term, this has been spectacular in some cases: according to Shell, the efficiency of steam generation has increased by a factor of 25!

<sup>17</sup> “Working together for growth and jobs: A new start for the Lisbon Strategy”, COM(2005) 24, p. 4.

<sup>18</sup> José Manuel Barroso, President of the European Commission, “Sustainable development: a strategy to do more and better”, Concluding speech to the Stakeholder Forum on Sustainable Development Brussels, 15 April 2005 (SPEECH/05/232).

<sup>19</sup> [http://europa.eu.int/comm/public\\_opinion/archives/ebs/ebs\\_217\\_sum\\_en.pdf](http://europa.eu.int/comm/public_opinion/archives/ebs/ebs_217_sum_en.pdf).

## 2.4. What would happen under a “no policy change” scenario?

Under a “no policy change” scenario (i.e. without the strategy) the measures taken to encourage growth or ensure environmental protection will be taken on the basis of insufficient knowledge of the relationship between the use of natural resources and its negative environmental impacts. This in turn will make it difficult to efficiently tackle the unsustainable trends that have already been identified at EU level, for instance in the area of biodiversity, waste management, climate change, chemicals and clean energy. There is therefore a need to ensure a better knowledge-base for policymaking at European, national and regional level.

An example of the concrete effects of the strategy’s new thinking is the Commission’s proposal to abolish the priority given to regeneration in the Waste Oils Directive.<sup>20</sup> Regeneration does not really benefit the environment, whilst it has serious consequences for public authorities in administrative terms. By waiving this obligation, the limited human and administrative resources available at Member State and EU level can then be better focused on more pressing environmental policy needs. This will, without any cost increase and without any increase in human resources improve environmental protection.

Under a “no policy change” scenario the EU will not have the means to meet the challenge of improving its resource productivity in a world where there is increasing demand for raw materials which can put some industry sectors in difficulty. Unless accessible information on global material flows, reserves of natural resources and their life-cycle impacts exist, the EU will not be able to steer research and eco-innovation in the right direction. Ultimately this will have a detrimental economic effect as the social (e.g. human health) and environmental (e.g. biodiversity) conditions on which growth depends will have been degraded. There is therefore a need for reducing environmental impacts while at the same time ensuring economic growth, and to measure such progress during the strategy’s lifetime with adequate indicators. At the same time, the international dimension of resource use needs to be considered and factored into European policymaking.

## 2.5. Who is affected by the problem?

Different actors may be affected in different ways.

### 2.5.1. *Policymakers at EU, Member State, local and international level*

Insufficient availability of knowledge of the relationship between resource use and environmental impacts forces policymakers to base policies on poor proxies of environmental impacts rather than on well-established knowledge. These result in a lack of focus, in turn leading to policies addressing problems in an inefficient way. This ultimately entails further degradation of the environment and the natural resources base as well as higher costs than necessary to the economy. Some unwillingness to take the political risk of pricing resource damage, compounded by an insufficient knowledge base, reduces the credibility of policymakers, public authorities and politics in general. The danger of turning well-meaning initiatives

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<sup>20</sup> Council Directive 75/439/EEC of 16 June 1975 on the disposal of waste oils (OJ L 194, 25.7.1975, p. 23), as amended.

into inefficient policies would also remain because the causal relationship between resource use and environmental impacts are insufficiently understood.

### 2.5.2. *The European citizen*

Eurobarometer surveys show that European citizens are concerned with the quality of the environment in which they live in want an improvement in the current situation.

Citizens are affected by poor management of natural resources in different ways. On the one hand, they may benefit from higher incomes and purchasing power, enabling them to afford better houses, domestic appliances, travelling, and so on. On the other hand, they may suffer from trade-offs such as an increasing risk of extreme weather events, or living close to motorways, airports or other areas with a low environmental quality. And although a number of indicators show positive trends these are often related to selected pollutants such as SO<sub>2</sub> or NO<sub>x</sub>; a number of other environmental impacts related to climate change, transport, fisheries and land use are still worsening, resulting in a further decrease of biodiversity, both in the EU and in other parts of the world that export natural resources.

All European citizens have a right to a healthy environment in a growing economy and therefore public decisions concerning environmental trade-offs need to be taken on an informed basis. The ultimate goal is the welfare of the population (including a high level of employment) and good public health for all.

### 2.5.3. *Industry*

Industry is also hampered by environmental problems it has contributed to. A notable example is the fisheries sector which is negatively influenced by the depletion of fish stocks. Another example is energy generation from waste, where, in many areas, the environmental impact of inadequate practices has damaged the basis for further development of this industry. Increasing public concern over the further development of traffic infrastructure would be another example, as is soil erosion, which may damage domestic producers and may result in off-site damage to rivers and hydro-electric dams.

However, it is in the best interests of industry to improve its environmental performance, for instance by finding new ways to make use of industrial waste streams. Moreover, improving resource productivity (one of the strategy's goals) not only provides environmental benefits but also makes economic sense. In the specific case of the manufacturing industries, the strategy also provides an opportunity to make sure that these industries will be able to secure their operations in Europe with accessible supplies of resources in a sustainable manner.

It is also usually more cost effective to avoid environmental problems at source than to remedy them once they accumulate. Other things being equal, a proactive approach based on better knowledge of environmental impacts and cause/effect links might help industry to avoid higher costs at a later stage.

### 3. WHAT MAIN OBJECTIVE IS THE POLICY/PROPOSAL EXPECTED TO ACHIEVE?

The policy, together with other EU policies, aims to contribute to achieving sustainable development. In operational terms, for environmental policy, this can be defined as reducing environmental impacts in a growing economy.

#### 3.1. What is the overall policy objective in terms of expected impacts?

The aim of the strategy is to reduce the environmental impacts of resource use, thus enabling growing economies to use resources efficiently, from both an economic and an environmental point of view. Its objective is to help deploy knowledge of resource use and related environmental impacts in EU policymaking, in order to set a frame for economic actors, consumers and institutions to develop and adopt sustainable production and consumption patterns.

In practical terms this means:

- Reducing *resource-specific impacts*: reducing the environmental impacts per unit of resource use. This can be supported by the knowledge-base made available by the Data Centre, complemented in its external dimension by the International Panel, and made operational by the implementation of national measures, where appropriate;
- Improving *resource productivity*: using fewer resources per unit of GDP. This can be supported by the development of sectoral actions targeting specific resources and monitored by appropriate indicators.

Both of these will contribute to an economy-wide reduction in environmental impacts as well as to the achievement of the Lisbon objectives and hence to sustainable development. By using fewer resources to create the same product or service, industry has an opportunity to become more competitive. Reducing the environmental impacts per unit of resource use should reduce overall environmental impacts and hence safeguard the natural resources on which industry depends for its supplies. Together they can result in a reduction of environmental impacts in a growing economy.

#### 3.2. Has account been taken of any previously established objectives?

The 3% growth target set out in the Lisbon Strategy has been taken as the goal to which policies should aspire, within the goal of sustainable development set by the EU treaties.<sup>21</sup> The implementation of the Resource Strategy will also benefit from the attainment of the target set at the Barcelona Council in 2002 of having 3% of GDP devoted to research and development funding. The Resource Strategy puts great emphasis on knowledge-based policies, the development of indicators and actions for achieving decoupling. Thus, an increase in research and development funding would allow a speedier implementation of these actions in the next future.

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<sup>21</sup> “The available estimates indicate that it would not be unreasonable to expect the full Lisbon Action Programme, once all its constituent components have been implemented, to increase the current EU potential growth rate bringing it closer to the 3% objective”, COM(2005) 24, p. 31.

The strategy builds on the Sixth Community Environment Action Programme (Sixth EAP),<sup>22</sup> which sets “decoupling between environmental pressures and economic growth” as one of its objectives, aiming among others “at a general improvement of the environment” and “restoring and developing the functioning of natural systems”. Internationally, in the context of sustainable production and consumption, the WSSD plan of implementation has called for a “10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable production and consumption to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, de-linking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing the resource degradation, pollution and waste”.<sup>23</sup>

The strategy will also contribute and work towards the Gothenburg goal of halting biodiversity loss and to aiding its recovery (objectives of the Sixth EAP and the Sustainable Development Strategy), the Environment and Health Strategy, the aims of air, water, soil, and climate change policies including the EU’s international commitments.

In addition it is important to underline that many ongoing initiatives will also contribute to reaching the strategy’s objective. For instance, the concrete measures in the context of Integrated Product Policy (for example, the framework directive for the eco-design of energy-using products), and those contained in the Environmental Technologies Action Plan to promote the potential of innovation will also contribute. Outside of environmental policies, land-use policies, such as on rural development and the reformed Common Agricultural Policy are also important, as are initiatives promoting fuel and energy efficiency in transport and energy policies.

Not least, the proposed strategy supports the EU’s objectives regarding economic competitiveness, given that there is increasing evidence in support of the view that strong environmental performance appears to be positively correlated with competitiveness.<sup>24</sup>

#### **4. WHAT ARE THE MAIN POLICY OPTIONS AVAILABLE TO REACH THE OBJECTIVE?**

The following are the problems identified and that need to be addressed by the strategy:

- (1) There is a need for a better knowledge base for policymaking at the European, national and regional level.
- (2) There is a need to measure progress over the strategy’s lifetime with adequate indicators.

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<sup>22</sup> Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme (OJ L 242, 10.9.2002, p. 1).

<sup>23</sup> Chapter III of the Johannesburg Plan of Implementation on Sustainable Development adopted within the framework of the United Nations at the 2002 World Summit on Sustainable Development [http://www.johannesburgsummit.org/html/documents/summit\\_docs/2309\\_planfinal.htm](http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.htm), paragraph 14.

<sup>24</sup> [http://europa.eu.int/comm/enterprise/enterprise\\_policy/competitiveness/doc/comprep\\_2004\\_en.pdf](http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/comprep_2004_en.pdf).

- (3) There is a need for further integration of natural resource use and its environmental impacts into other policy areas, including at national and sectoral (e.g. transport, energy, manufacturing industry) level.
- (4) The international dimension of resource use needs to be considered at EU level and factored into European policymaking.

#### **4.1. Ensuring a better knowledge base for policymaking**

Improving access to knowledge on natural resource use and its analysis will increase the level of awareness of current and potential environmental impacts, most particularly in the policy-making process. This will help focus policy decisions on the most significant actions necessary and feasible to achieve decoupling and, ultimately, improved environmental quality. Ideally, there would be more environmental protection for the same cost, thanks to a better focused and tailored policy that builds strongly on the analysis of cause/effect relationships. A better knowledge base for policymaking is a step in this direction.

In addition any new measure should be shaped in such a way that compliance costs are minimal and that it allows maximum scope for innovative technological solutions to the environmental problems involved. This in turn could help industry efficiently allocate financial resources, freeing up capital for other purposes, such as investment and research and development.

##### *4.1.1. What is the basic approach to reach the objective?*

The basic approach is to support policymaking by a readily available “knowledge-base” as effectively as possible. The current situation is one where:

- (1) Our knowledge of the environment is increasing: we now have considerable networks of monitoring and are better at interpreting it. This is both a response to existing problems – such as air pollution – and a response to exploiting new possibilities, such as satellite imagery.
- (2) The variety of information and interests gives rise to differing interpretations. Interpreting this information, which may often be conflicting, is not always easy and requires an awareness of the information’s limitations.
- (4) There is greater awareness of the flows of pollutants and resources around the globe. This means that, if we are to have a coherent policy response, account needs to be taken of this, which means being aware of and knowing how to make use of information from many sources.
- (5) There is greater awareness of the importance of thinking in life-cycles, instead of attempting to solve one problem by displacing it to another country or environmental medium.

However, this knowledge is often dispersed and not readily available for policy-makers. The challenge is therefore to take advantage of this improving knowledge situation to ensure that this knowledge is distilled in such a way that it can be readily consumed by policy-makers. It also means that, because much information already exists, the focus is on improving access to this information, rather than collecting



(through monitoring and reporting) new information, or even carrying out additional research. To the extent possible, existing information should be standardised, including data collection methods. The strategy will contribute to any future EU initiative on reporting and monitoring.

In the resources field, the possible areas where policymakers would require knowledge could be very broad. Examples are knowledge to:

- understand the relationship between resource production and use and their associated environmental impacts at material level. For example, aluminium can be transformed into goods as diverse as window-frames, aircraft bodies and beverage cans, and these all interact in very different ways with the environment;<sup>25</sup>
- understand the relationship between land use and environmental impacts at global, European and national level;
- be aware of the reserves, production rates and availability of resources including the productive capacity of renewable resources, such as biomass and fish (i.e. can renewable resources satisfy growing demand or is there a danger of them being ‘run down’?);
- interpret environmental accounting results to assess whether existing policies achieve the environmental policy objective of decoupling environmental impacts from economic growth.

Given the aforementioned factors, it is virtually impossible to have one overall expert for all fields; instead it is important to have access to a network that can be coordinated by individuals who can pull this information together and supply it to policymakers in an accessible way.

The knowledge provided should:

- (1) be credible;
- (2) be understandable for non-experts;
- (3) be up-to-date;
- (4) be based on best available information;
- (5) indicate the level of uncertainty of any judgements;
- (6) synthesise any methodological or scientific debates;
- (7) be comparable.

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<sup>25</sup> “The relations between resource use and environmental impact are only partially known at present. Furthermore they change with time, for example, as a result of technical or social developments. Differences in regional conditions and use patterns need also to be considered. In addition, environmental impacts related to the use of different resources vary widely”, COM(2003) 572, p. 4.

#### 4.1.2. *The proposed “Data Centre for natural resources”<sup>26</sup>*

The Data Centre will operate as a kind of “information hub” to improve policymaking by basing it on a greater level of knowledge. It will increase the efficiency of policies aiming at improving *resource productivity* by reducing wasted resources and operating more efficiently. For the same reason it will help *reducing the environmental impacts per unit of resource use* by providing greater knowledge of the likely impacts of particular decisions. Work will be closely coordinated with the data centres for Waste and Integrated Product policy (IPP).

The objective of the Data Centre would be to:

- be aware of the sources of relevant information and their limitations, taking into account the problems posed by data validation and harmonisation;
- interpret the available information to provide a rapid and as simple as possible input to policymaking;
- update this information and associated interpretations;
- support the development and implementation of the strategy’s objectives with technical and scientific expertise, in fields such as indicator development, drafting of national plans, and reporting.

#### 4.1.3. *Policy instruments considered*

Five options were considered:

- (1) doing nothing;
- (2) creating a virtual network of existing bodies, perhaps including Eurostat, the EEA, national geological services and others; its structure could be similar to the network of European Topic Centres, but with access to a large network of, for example, institutes and databanks;
- (3) giving the same task to the Commission’s Statistical Office (Eurostat) together with the Joint Research Centre (JRC) (Eurostat would take the lead on data provision, quality assurance and methodological advice; the JRC would act as scientific back-office providing required scientific expertise) and/or to the European Environment Agency (EEA), perhaps by broadening the remit of the latter’s existing network of European Topic Centres (ETCs);
- (4) establishing a new European Resources Institute to gather information on resource production and use at European and, where relevant, international level. It would be funded by the EU budget and would exploit existing

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<sup>26</sup> Eurostat, the Joint Research Centre (JRC) and the European Environment Agency (EEA), all involved in environmental reporting, will establish thematic Environmental Data Centres for “Natural Resources, Waste, Integrated Product Policy” (Eurostat), “Forestry, Soil” (JRC) and for “Air, Climate Change, Biodiversity and Land Use” (EEA).

sources of information and ensure that up-to-date knowledge is available to policymakers;

- (5) establishing a framework contract with consultants who would provide answers to questions as and when required.

<b>Option Criterion</b>	<b>(1) Do nothing</b>	<b>(2) Virtual Network</b>	<b>(3a) Eurostat/JRC</b>	<b>(3b) EEA</b>	<b>(4) European Resources Institute</b>	<b>(5) Ad-hoc consultancy services</b>
<b>Establishment costs</b>	+++ No cost	- Effort by co-ordinators; infra-structure exists	+ Eurostat MFA- network and JRC scientific networks exists, use of existing infrastructure	- Efforts by co-ordinator, most infra-structure exists	--- Considerable cost. New regulation and associated costs. All infra-structure to be purchased, personnel to be recruited	+ Efforts to manage tendering procedure.
<b>Running costs</b>	+++ No cost	-- Efforts required by co-ordinators to bring together knowledge, may be high due to informal structure.	+ 'Standing' coordination/ communication lines between JRC and ESTAT to be established, no additional administration	-- Efforts required by co-ordinators to bring together knowledge, may be high.	--- Independent structure requires own administration.	-- Management inside Commission and cost of contract itself.
<b>Establishment time</b>	+++ No time required.	+ Should be able to be up and running within 4 months	+ Should be able to be up and running at short notice	+ Should be able to be up and running within 4 months	--- Requirement for new regulation, coupled with potential discussions about set mean likely to take considerable time.	- Tendering procedures mean that likely to take at least 8 months
<b>Credibility</b>	--- Nothing to be credible	- Depends on ability to co-ordinate output and not to be hijacked by certain interests. Risks being disparate	++ Data quality assurance and scientific independence guaranteed	++ Largely independent of EU policy-makers. Independent of private interests, with growing reputation.	++ Largely independent of EU policy-makers. Independent of private interests.	+/- Independence would depend on organisation selected but this is not determinable in advance because of tendering procedures.
<b>Ability to provide knowledge</b>	--- No knowledge provided	+ Has potential, but difficult to manage and co-ordinate.	++ Has potential due to readily available data sources in ESTAT combined with scientific expertise in the JRC	++ Has existing networks of expertise and proven management capability from topic centres	++ Considerable potential.	+/- Depends on consortium's abilities.
<b>Potential response times</b>	--- No response	++ Could be rapid. Would depend on refinement of question.	++ Could be rapid, when thematic data and scientific networks are prepared, short communication lines within the Commission	++ Could be rapid. Would depend on refinement of question.	++ Could be rapid. Would depend on refinement of question.	++ Could be rapid. Would depend on refinement of question. Would also be legally enforceable due to contract.

In addition to the considerations above and after the analysis of the options, it should be underlined that experience proves that databank maintenance and updating as well as quality control and analysis of datasets cannot be carried out by networks. The analysis of data has to be performed by scientists, with enough statistical and thematic background, to give credibility to the results. Therefore the final responsibility of data quality and accessibility should be with the proposed “Data Centre for natural resources” (Eurostat).

Eurostat will pull together the scientific expertise, knowledge and networking capabilities of the European Statistical System (ESS), the JRC and the EEA’s Environmental Information and Observation Network (EIONET) to develop ways of taking this concept forward. The Intelligent Energy Executive Agency (IEEA) and the IST programme of the Information Society and Media Directorate-General of the Commission, which supports research and development activities for Information and Communication Technologies (ICT), could also contribute to the operations of the Data Centre. A particular effort should be put in establishing synergies with existing research initiatives, e.g. the Group on Earth Observation (GEO) and the Global Monitoring for Environment and Security (GMES). Once operational, the INSPIRE (INfrastructure for SPatial InfoRmation in the European Union) initiative,<sup>27</sup> to harmonise uncoordinated national approaches to mapping the EU’s geographical features, will also be of use for the Data Centre daily work.

The objective is to have the Data Centre up and running within 6-12 months from the adoption of the strategy.

#### **4.2. Measuring progress with adequate indicators**

Policymakers need to be able to assess the strategy’s effects and further steer the development of associated measures during its life-time of 25 years. Thus, indicators are necessary to show whether the objectives of the strategy are being met or not; they can also help with setting priorities for action. Without suitable indicators it will be difficult to know whether political decisions for more or less action need to be taken and hence whether the objectives of improving resource productivity and reducing resource-specific impacts will be achieved.

As suitable indicators for the strategy’s purposes do not exist,<sup>28</sup> the basic approach is to develop, in the medium to long term, a number of lead-indicators on: resource

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<sup>27</sup> [INSPIRE geo-portal at http://inspire.jrc.it/](http://inspire.jrc.it/)

<sup>28</sup> A first attempt to ranking different resources on the basis of objective criteria and using existing underlying indicators has been carried out in a project coordinated by the University of Leiden on behalf of the Environment Directorate-General of the Commission. See Ester van der Voet *et al.*, Policy Review on Decoupling: Development of indicators to assess decoupling of economic development and environmental pressure in the EU-25 and AC-3 countries, 2005 ([http://www.europa.eu.int/comm/environment/natres/pdf/fin\\_rep\\_natres.pdf](http://www.europa.eu.int/comm/environment/natres/pdf/fin_rep_natres.pdf)). In this context it should also be mentioned the work carried out for the IPTS by partner institutions of the European Science and Technology Observatory (ESTO) to identify products with the greatest environmental impact from a life cycle perspective. For this purpose a methodology for identifying the products was developed and applied in a study named Evaluation of the Environmental Impacts of Products (EIPRO) (<http://europa.eu.int/comm/environment/ipp/identifying.htm>).

productivity, resource specific impacts, and eco-efficiency, as mentioned in section 2.1.

Clearly, when developing such indicators appropriate use will be made of existing indicators that can be helpful (for instance, those included in the Sustainable Development Indicator set). Furthermore, it is unlikely that developing these new indicators will require any new monitoring or reporting, instead they will aggregate and adapt existing information. Any indicators should always be backed up by the availability of sampling methods to collect the necessary data.

The development of this set of three indicators has been estimated at EUR 450,000 over three years for supporting studies and further investigation by the Commission.

#### **4.3. Integration at national level – the High-Level Forum**

Most natural resources do not fall under exclusive Community competence, as do agriculture under the CAP, and fisheries under the CFP. Moreover, many environmental impacts of resource use are best tackled at national level as the Member States have certain policy tools at their disposal, such as economic instruments, that are difficult to deploy at Community level. Environmental externalities are not always internalised in the costs of goods and services, meaning that the prices paid by consumers do not reflect the full societal costs. The use of market-based instruments at Member State level can address this situation and provide a tailor-made solution to the problems encountered at national level. Member States also have responsibility for educational curricula and have the advantage of being closer to the citizen than the EU and so have a better idea of the action required to change behaviour.

There is therefore a need for Member States to take on their responsibility for the sustainable use of natural resources and achieving the strategy's objectives of improving resource productivity and reducing resource-specific environmental impacts.

##### *4.3.1. What is the basic approach to reach the objective?*

The basic approach is to encourage Member States to have a structured approach to resource issues within the whole of their territory, taking into account the external dimension (i.e. other Member States and international) of resource use. Indeed, there are large differences between the EU Member States in resource use, in natural resource reserves, and in economic structures. Socio-economic situations also vary and associated policies are different, depending to some extent on the country's resource base. Failure to put in place a structured approach to natural resource will have different effects in different Member States depending on the current degree of such planning.

The Commission intends to play a role in encouraging Member States to have a structured approach to resource issues. In particular, it intends to set up a High-Level Forum comprising senior Member States representatives in charge of resource policy. The objective is to ensure a coherent approach to resources and media and to avoid any duplication of efforts at Member State and Community level. Some of the measures provided for under the strategy (e.g. the Data Centre, the development of

indicators and the International Panel) will help Member States by ensuring further development of the existing knowledge base on which the measures to achieve the strategy's objective will have to be built.

In other areas of environmental policy at EU level, for instance in the development of the implementing measures under the Water Framework Directive,<sup>29</sup> the Commission has already proven the usefulness of establishing a partnership at senior level with Member States and stakeholders in what has been called a Common Implementation Strategy.<sup>30</sup>

#### 4.3.2. *The policy options considered*

Three policy options were considered:

- (1) no policy change;
- (2) stimulating the achievement of the strategy's objective by discussing at a senior level the national measures affecting resource use;
- (3) a Natural Resources Framework Directive, with mandatory plans for the sustainable use of natural resources.

The potential for reaching the strategy's goal of reducing negative environmental impacts generated by the use of resources in a growing economy will vary locally as it depends on, for example, economic growth, industrial structure, maturity of the economy, and the type of prevailing environment. Furthermore, specific information and instruments are needed to influence decisions taken at production process, management, design and consumer levels. Therefore, options based on stringent regulatory approaches such as binding targets or mandatory resource use measures were discarded at an early stage. Such options do not meet the need for natural resource policies to be flexible and adapted to local circumstances. In addition, it is important that whatever policy option is considered it encourages a focus on a selection of measures that have the highest potential to reduce negative environmental impacts associated with the use of resources.

Accordingly, the no-policy change option was discarded because it will not lead the EU to reach the strategy's goal of reducing negative environmental impacts generated by the use of resources in a growing economy. Similarly, the reduction of environmental impacts per unit of resource use and the improvements in resource productivity called for by the strategy would not be achieved.

A legislative option was also discarded. The Commission is of the opinion that an improved knowledge base will be more powerful in support of the strategy's objective at this point in time than any mandatory resource use measure that lacked a sound knowledge base.

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<sup>29</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1).

<sup>30</sup> <http://europa.eu.int/comm/environment/water/water-framework/implementation.html>.

Therefore, some form of flexible coordination among Member States was identified as the most suitable option for the time being. This could take the form of a High-Level Forum coordinated by the Commission allowing for political agreement on the common goals and a large degree of flexibility in drafting and implementing measures at the national level. The Commission will play a facilitating role, ensuring an exchange of information and best practice on natural resources within the EU. In turn, this flow of information will allow any possible threats due to a fragmentation of the Internal Market to be detected at an early stage and may highlight synergies with the sectoral initiatives proposed in the strategy.

#### 4.3.3. *What should the High-Level Forum cover?*

The High-Level Forum should work on the development of national measures to achieve the strategy's objective. These measures should present new opportunities for the different economic actors, as they should be developed in a concerted manner allowing domestic economic development to continue in line with relevant EU policies. The Commission has already indicated a number of measures that should be part of the national Lisbon Action Plans<sup>31</sup> to be developed by Member States in order to achieve the goal of the Lisbon Strategy. Measures on the sustainable use of natural resources are contained in Central Policy Area 6.

In light of the above, the High-Level Forum should cover:

- concrete actions and measures to be introduced or pursued at national or regional level, drawing on existing planning requirements at EU or national level, for instance under the national or regional sustainable development strategy, biodiversity action plan or waste management plans. This approach will bring all these aspects of resource use together, where they would otherwise risk being neglected;
- economic and market-based measures, as they are flexible, can be adapted to national conditions (provided they are consistent with any Internal Market framework), and have a high potential for sending the right “price signal” to reduce environmental impacts;
- educational programmes and awareness campaigns, as they can contribute to cultural and educational developments that have a significant influence on underlying production and consumption patterns linked to resource use;
- aspects related to the provision of adequate information to support spatial planning, which is very relevant, for example, for Cohesion Policy;
- the international dimension of sustainable use of resources (i.e. the impacts “exported” to other EU and non-EU countries, mostly in the developing world), in keeping with the life-cycle approach of the strategy. This will build on the work of

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<sup>31</sup> Lisbon Action Plan incorporating the EU Lisbon Programme and recommendations for actions to Member States for inclusion in their national Lisbon programmes, Companion document to the Communication to the Spring European Council 2005 COM(2005) 24: “Working together for growth and jobs”; SEC(2004) 192, 3.2.2005 ([http://europa.eu.int/growthandjobs/pdf/SEC2005\\_192\\_en.pdf](http://europa.eu.int/growthandjobs/pdf/SEC2005_192_en.pdf)).



the International Panel on the sustainable use of natural resources (see section 4.5).

#### **4.4. Integration at sectoral level – sectoral initiatives**

To complement action at national level (“vertical approach”), there is a need to continue to develop and implement measures based on a “horizontal approach” that take into account the particularities of different sectors involved in natural resource use across the EU within the Internal Market.

The Commission intends to develop sectoral initiatives for specific economic sectors in the context, inter alia, of the EU Strategy for Growth and Jobs<sup>32</sup> as well as the initiatives announced by the Commission in its recent Communication on “Implementing the Community Lisbon Programme: A policy framework to strengthen EU manufacturing - towards amore integrated approach for industrial policy”.<sup>33</sup> In addressing specific sectors, the Commission expects to set out concrete actions for the sector to reduce the environmental impacts of resource use while ensuring the sector’s competitiveness. These initiatives will be agreed between the Commission and the sector concerned with the possible participation of interested stakeholders (environmental NGOs, consumer organisations, trade associations, academia and researchers, etc.).

As the participation of a sector in this Commission-led initiative is voluntary, the likely costs of such an exercise are entirely dependent on the quantity and quality of the sectors willing to launch and participate in such an exercise. It is likely, however, that they would be very small and limited to some administrative expenditure, at least in an initial, exploratory phase. The benefits, on the contrary, will probably be substantial, as the inclusion of such a focused sectoral approach will make attaining the strategy’s objective of improving resource productivity and reducing resource-specific environmental impacts easier.

#### **4.5. The international dimension of resource use**

Europe is highly dependent on imported natural resources. For example, the EU is one of the world’s biggest users of metals, importing more than 95% of all metals used. About 50% of all energy consumed today is imported and it could rise to almost 70% by 2030, including 90% for oil and 80% for gas. The European livestock industry is partly dependent on imported cattle feed and much of our seafood is imported.

Many aspects of natural resource use have an extra-European dimension, in terms of the impacts of their extraction, production, transport or of their use and disposal. These need to be identified and monitored so that European policymakers can take these impacts into account when developing EU policies. This would be in line with developments outside the EU, as the attention paid to resource use is gaining ground at international level. In 2001 the OECD set the goal of decoupling environmental pressures from economic growth.<sup>34</sup> More recently, the OECD has started to explore

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<sup>32</sup> COM(2005) 141.

<sup>33</sup> COM(2005) 474.

<sup>34</sup> “Environmental Strategy for the First Decade of the 21st Century”, OECD, 16 May 2001.

the potential of different approaches to “sustainable materials management”, supported by material flow accounts.<sup>35</sup> In Japan a resolution on a plan for establishing a Recycling-Based Society was adopted in 2003, including the aim to curb the use of natural resources and reduce the environmental load as much as possible.<sup>36</sup> China is developing a concept of “Circular Economy”.<sup>37</sup> At the World Summit on Sustainable Development in 2002, all countries committed themselves to changing unsustainable patterns of consumption and production, by addressing and de-linking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste.<sup>38</sup>

Realising that the EU does not operate in a vacuum is important not only from an ethical point of view, but also because any changes over the next 25 years, for example in demographic trends, levels of economic growth and geopolitical shifts, will directly influence our resource use. Integrating these types of consideration when developing resource-specific policies will help attain the strategy’s objectives of improving resource productivity and reducing resource-specific environmental impacts.

#### 4.5.1. *What is the basic approach to reach the objective?*

The basic approach is, therefore, to ensure that the EU is provided with advice on the environmental impacts outside the EU of natural resource use. It would:

- a) advise the EU on natural resources use in a global context;
- b) monitor progress on decoupling at international level;
- c) develop sustainability benchmarks for materials and products; and
- d) build knowledge capacity on natural resources in developing countries.

#### 4.5.2. *What options were considered?*

Three options were considered:

- (1) no change;
- (2) an ad hoc network of experts that it can call upon to discuss internationally relevant problems related to the use of natural resources;

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<sup>35</sup> It is worth noting that in their approach the OECD agrees with the Commission that it is not the scarcity of non-renewable resources like metals minerals or fossil fuels that represent a threat to sustainable development. Instead, it is rather the over-exploitation of some renewable resources and the negative environmental ‘externalities’ related to the extraction, transport and use of natural resources in general that threaten sustainable development.

<sup>36</sup> <http://www.env.go.jp/en/pol/wemj/outline.pdf>.

<sup>37</sup> <http://eng.cciced.org/cn/company/Tmxxb143/card143.asp?lmid=5209&siteid=1&tmid=320&flbh=143>.

<sup>38</sup> JPOI, paragraph 15.

- (3) a multidisciplinary team with a permanent membership, analogous in intent and purpose, not necessarily in size, to the Intergovernmental Panel on Climate Change (IPCC).

The no-change option was discarded because it does not improve the situation. The ad hoc network was also discarded because it does not offer the necessary work continuity and build-up of know-how which is needed in such a vast area as international environmental impacts. The formal international panel will provide this continuity, but will have to be closely linked to existing international work on material flow analysis, fiscal instruments<sup>39</sup> and initiatives such as the Group on Earth Observation (GEO) and the Global Monitoring for Environment and Security (GMES). In particular, the panel will be able to make use of the facilities offered by the Data Centre, which in turn will profit from the specific expertise of the panel in an international context.

In cost/benefit terms, it has been estimated that the running costs of the Panel would be less than EUR 0.5m per year. Although it is much more difficult to quantify the benefits, one should consider the fact that overexploitation of global biotic resources may cause serious problems to security of supply. This in turn would result in economic problems which may be avoidable if the Panel functions well and its advice is built into European policy making.

#### **4.6. Awareness-raising**

Efforts to improve the environmental impacts of natural resources will benefit from greater awareness of the related issues within society. Awareness of the full life-cycle of resources is low amongst the general public and often also among key actors in resource use, such as those involved in land use planning, mining permits and farming.

Initially it was thought that awareness-raising measures put in place at the European level might be a way to increase public awareness and, as a result, reduce the environmental impacts of resource use. This could have been through a European newsletter and educative website, to be accompanied by supporting educational curriculum activities from Member States, through support to awareness campaigns addressed to target audiences, e.g. local authorities, producers, consumers and retailers or through a web-based exchange facility for professionals.

During the stakeholder consultations, however, it became apparent that, for various reasons, such measures were unlikely to be particularly effective, such as:

- the lack of a clear message that can be related directly to an environmental problem;

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<sup>39</sup> Concerning the latter, the Commission has contributed to the preparation of a joint agency paper on “Environmental Fiscal Reform, what should be done and how to achieve it” with OECD/DAC, World Bank, DFID and a number of other organisations. This report contains a number of recommendations on how environmental fiscal reform can contribute to a more sustainable use of natural resources by providing economic incentives to correct market failures.

- there already being too much information available to citizens, with limited evidence that they act on it;
- the need to rely on local level actors for effective delivery.

For reasons of subsidiarity and proportionality, this area for action was dropped from the final strategy, although awareness-raising is included in the list of national measures to be considered by the High-Level Forum.

## **5. HOW TO MONITOR AND EVALUATE THE RESULTS AND IMPACTS OF THE PROPOSAL AFTER IMPLEMENTATION?**

The policy will be implemented by developing each of the actions mentioned above. The Commission will monitor the actions and will submit a progress report to the Council and Parliament every five years during the life of the strategy.

## **6. STAKEHOLDER CONSULTATION**

### **6.1. Expert meetings and studies**

In preparing the Sixth EAP a number of prominent experts were invited to give their views on the issue of resource management, to explain a number of fundamental concepts and to provide suggestions for appropriate measures to improve resource efficiency. A study by GUA (Austria) was also commissioned to give an overview of the main scientific concepts in the field of resource management both from the perspectives of classical economics and alternative schools.<sup>40</sup> The main schools of thought described were: dematerialisation (eco-efficiency, factor 4/10), mass flow analysis (MIPS and rucksacks, carrying capacity, ecological footprints), thermodynamics (entropy, energy), classical and neo-classical resource economics, externality valuation, resource accounting and welfare cost-benefit analysis. The study was undertaken to provide the basis for discussion at an expert workshop held on 13 July 2000. A second expert workshop was held on 11 October 2001. The basis of this workshop was a study by COWI in which different views were presented on what should/could be done to promote sustainable resources use.

In 2002 four new studies were launched and three have now been completed:

- *Resource Use in European Countries*. This study provides the baseline data on material flows. The study was conducted by the Wuppertal Institute co-ordinated by the European Topic Center on Waste and Material Flows (ETC-WMF).
- *Public Private Interface*. This study sought to identify concrete proposals for target setting and instrumentation based on the experience of Member States. However, it could not be completed because of a poor response rate from Member States themselves.

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<sup>40</sup> For more information on this report and on all the other studies referred to in this section, please refer to: [http://www.europa.eu.int/comm/environment/natres/titles1\\_2.htm#what](http://www.europa.eu.int/comm/environment/natres/titles1_2.htm#what).

- *Resources, a dynamic view.* Through this study an attempt was made to devise a methodology which can be used to assess the dynamics of use patterns for individual resources, including the relationship between use and environmental impacts at various stages of the life cycle. The study was commissioned from Entec UK Ltd.
- *Policy review on decoupling and development of resource productivity indicators.* This study aimed to develop resource productivity indicators taking into account the environmental impacts of resource use. The study was done by the University of Leiden, CE Delft and the Wuppertal Institute.

## 6.2. Open stakeholder consultations

A first stakeholder meeting was held on 10 April 2002. The results of this fed into the Commission's Communication "Towards a Thematic Strategy on the Sustainable Use of Natural Resources".<sup>41</sup> Following this, a further meeting was held on 14 November 2003, where the Communication was discussed, as well as how to proceed with future stakeholder participation. This led to the establishment of an Advisory Forum and two Working Groups.<sup>42</sup>

Each of the Working Groups prepared a report<sup>43</sup> with in total 186 recommendations in the following categories: 1) Communication, 2) Sectoral approach, 3) Monitoring and evaluation, 4) Prioritisation, 5) Enforcement, 6) Research and innovation, 7) Knowledge gathering, 8) Policy integration, 9) Developing countries, and 10) Instruments and measures. The reports also contained recommendations on specific areas: energy, water and waste.

The Commission considered the Working Groups' recommendations and decided to consult on several of the main ideas that came up which were within the remit of the strategy. This internet consultation, which was also designed to provide a basis for this impact assessment, began on 1 December 2004 and finished on 30 January 2005.

In total, 48 responses were received: 23 from industry; 10 from governmental organisations; 7 from academia or consultants; 5 from NGOs, 2 from individuals and 1 from the trades unions. The response rate of Member States was very low, with only Finland, the Netherlands and the UK responding. In general, this consultation did not provide much new information, and that which it did provide is almost completely qualitative.

The responses showed a certain degree of misunderstanding of some of the questions. In addressing these misunderstandings, the Commission learned that:

- there is a need to explain in greater detail what is meant by decoupling, i.e. the decoupling of what from what;
- some stakeholders do not agree that current patterns of resource use are unsustainable;

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<sup>41</sup> COM(2003) 572.

<sup>42</sup> [http://www.europa.eu.int/comm/environment/natres/titles3\\_6.htm#stakeholder](http://www.europa.eu.int/comm/environment/natres/titles3_6.htm#stakeholder).

<sup>43</sup> [http://www.europa.eu.int/comm/environment/natres/titles3\\_6.htm#contribute](http://www.europa.eu.int/comm/environment/natres/titles3_6.htm#contribute).

- some stakeholders believe that decoupling is already occurring in their specific sector;
- some stakeholders do not think that the proposed actions meet the requirements of the Sixth EAP, as concrete measures, target-setting and a timetable for identifying priority areas for action are missing.

On the specific actions:

#### 6.2.1. *Knowledge gathering*

- The overwhelming majority of stakeholders from all areas confirm the need for better informed policy-making and knowledge-gathering.
- With regard to the Data Centre, national governments were all in favour of a combination of the EEA and Eurostat while industry group responses were more mixed, no group was in favour of immediately setting up a European Resources Institute.
- Most organisations that commented said that they would either participate or contribute in a virtual network.

#### 6.2.2. *Awareness-raising on resource issues*

- The environmental NGOs are sceptical of the value of communicating on the strategy as it lacks what they see as the appropriate goals and targets. Industry opinions are split, with many feeling that the consumer should take more responsibility.
- Of the three options the web-based exchange probably had most support overall and the newsletter the least, but there was general scepticism towards the options proposed.

#### 6.2.3. *Developing indicators for resource use*

- NGOs were generally supportive and wanted indicators linked to environmental impacts. Member States and industry were split.
- Concerns remain about aggregation; the integration of the whole of a material or product life cycle; the feasibility of developing environmental weightings and concern that policymakers may rely on indicators, while these may not give the full picture.
- Barriers to the development of indicators were identified as: accuracy, comparability, burdens on data suppliers, data reliability, cost, access to life-cycle inventories (LCI) data, how up-to-date information is; how to measure; weighting environmental impacts; hidden streams; confidentiality; gaps; different sectoral structures. But there were no positive suggestions as to how these could be overcome.
- Some stakeholders preferred a basket of indicators.

#### 6.2.4. *Spurring progress towards decoupling*

##### National Plans

- There is general agreement that the proposed content of the national plans is relevant; however, some stakeholders would like to see more, and many expressed concern about the possible administrative burden.
- No quantitative estimates of the cost of these or of similar plans exist.
- In general, industry and governments believe that voluntary plans will be sufficient, while NGOs consider that they are not.

##### Sectoral Plans

- Only the cement and potash industries showed specific interest. Most NGOs would be prepared to be involved. A number of sectors say that they are already involved in sectoral discussions with the Commission. There is therefore a need to link into this ongoing work.

#### 6.2.5. *International Panel on the sustainable use of natural resources*

- Generally respondents are positive and point towards an IPCC like organisation or an ad-hoc approach. They also stress the importance of working with the UN and WTO.
- Need to see what UNEP's input to such a panel could be. Whichever option is chosen there needs to be balanced stakeholder involvement, with appropriate funding arrangements.

### 7. COMMISSION DRAFT PROPOSAL AND JUSTIFICATION

Achieving the strategy's objective means putting in place a series of measures that will build the foundations for implementing the suggested approach to policymaking over its 25-year life. The expected impacts of the measures taken now are:

- improved gathering of information relevant to policymaking and its analysis;
- better assessment of the natural-resource-use implications of policy initiatives;
- improved awareness of additional policy measures necessary to reduce environmental impacts in a growing economy;
- improved awareness of the life cycles of resources;
- improved awareness of the global impacts of resource use.

The strategy identifies how the gathering and analysis of policy-relevant information on resources will be improved and integrated into the policymaking process. The strategy will emphasise the importance of integrating environmental concerns into other policies affecting the environmental impacts of natural resources use; however,

it will not attempt to implement specific initiatives in areas that are already covered by well-established policies. Likewise, the strategy will attempt to reduce the pressures on the environment by helping other policies to include cost-effective measures.

## **7.1. Expected impacts on stakeholders**

### *7.1.1. Policymakers at EU, Member State, local and international level*

The ultimate aim of the information gathered and assessed is to improve policymaking at all levels; however, initially the main benefits should be felt at the European level as the information is integrated into the policymaking process. The main costs of this information will be borne by the Commission in the initial phases.

### *7.1.2. The European citizen*

European citizens will be able to enjoy an improved environment and the improved potential for public health that it brings. They will also benefit from the social and economic opportunities presented by sustainable economic growth. Resource-related policies will become more efficient, delivering more environmental protection for their administrative and regulatory effort.

There should also be positive social impacts on governance and public participation, as one of the focuses of the strategy is on improved availability and access to information and better policy assessment. Through the awareness-raising and educational measures to be considered by the High-Level Forum, the strategy would contribute to increased consumer knowledge of resources.

### *7.1.3. Industry*

It is likely that the strategy will contribute to a policy framework that benefits frontrunners in technology development and new production and consumption patterns. It will also offer opportunities for the emergence of new technologies that are more environmental friendly and the development of new firms. Depending on the level of relative decoupling already achieved by the different industrial and service sectors, the strategy will give an impulse to further diminish environmental impacts. This will open up new perspectives in the expanding “green” technological market outside the EU.

### *7.1.4. Employment*

The direct actions set out above will create few new employment opportunities, limited, for example, to those created through the International Panel. Any further impacts on employment will result from policy decisions taken at a later date, which will be based on better evidence as to the impacts of environmental policy.

The same problem arises in any attempt to analyse the impact of the strategy on social inclusion or the quality of jobs. Again, as the strategy is largely about a better framework for policy development, it cannot be predicted in advance what the impact will be. Subsequent policies may benefit poorer communities most (as they tend to suffer most from environmental pollution) and require more training – but this is not clear.



## 7.2. Expected financial impact

Since the strategy does not provide for binding legislation, at this stage the costs are limited to the operational costs of e.g. the Data Centre, the International Panel and to the costs of developing indicators.

These costs have been estimated (rounded up estimates) as follows:

- to the EU budget: EUR 500,000 a year for setting up and running the International Panel; EUR 1.5 million a year for the first three years for setting up the Data Centre and then EUR 1 million a year to run it; EUR 300,000 for studies and expert meetings per year; EUR 800,000 administrative costs per year for Commission staff working on the follow-up to the strategy;
- to Member States' budgets: between EUR 300,000 and EUR 550,000 per year in administrative costs (staff needed for analysing existing data, gathering extra information, attending the High-Level Forum and other EU meetings devoted to the strategy, etc.) for small and big Member States respectively.

Follow-up costs, i.e. those arising from the implementation of the national measures to be considered by the High-Level Forum, cannot be evaluated at this stage. The reason is that the measures will vary from one Member State to another, depending on a number of factors (structure of the economy, prevailing environmental impacts, effectiveness and timeliness of actions, etc.) that cannot be determined a priori. However, overall and in the long run the strategy's influence on environmental policy initiatives and legislation is expected to create major savings compared to the present situation. The reason is that its approach of focusing initiatives on the most important environmental problems will enhance coherence between the different policy areas affected and cut costs related to less environmentally effective initiatives for industry, administrations and citizens.