

**The European Union 6<sup>th</sup> Environmental Action Programme**

**TOWARDS A THEMATIC STRATEGY  
ON THE SUSTAINABLE USE OF NATURAL RESOURCES**

## **Pathways through Society**

**Working Group 2 – Use of Resources**

**Final Report  
Version of 15 October 2004**

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## **INTRODUCTION**

The publication of COM(2003) 572 "Towards a Thematic Strategy on the Sustainable Use of Natural Resources" in October 2003 marked the first step in the development of the Resources Strategy under the 6<sup>th</sup> Environment Action Programme. An Advisory Forum and two stakeholder Working Groups were later established to address specific resources and key issues relevant for the policy development process. Working Group 1 has dealt with issues related to the supply of resources, while Working Group 2 has focused on the use of resources. This final report was completed on 15 October 2004.

## **BALANCE OF REPORT**

The degree of consensus between stakeholders in Working Group 2 varies from issue to issue, but there is generally a clear majority in support of most points. Minority views have been listened to and in many cases have had an impact on the report. Where opinions were polarized, brief comments have been added to indicate the principal areas where opinions diverged.

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## **AUTHORS**

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*The text of this report is the responsibility of the author. It neither necessarily reflect the views of their respective organisations, of a specific stakeholder nor of the institutions of the European Union.*

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## **ACKNOWLEDGEMENTS**

The Chair and Co-chairs of Working Group 2 wish to express their thanks to all stakeholders who invested their time in attending meetings, debating the issues at stake and providing written input to the stakeholder consultation process. They also want to extend their thanks to Frans Vollenbroek, DG Environment, Chairperson of the Steering Committee, and to the other Steering Committee representatives: Robert Goodchild and Klaus Koegler from DG Environment, Paul Anciaux, Caroline Raes, Tom Simpson and Jeremy Wall from DG Enterprise, Maria Gafo-Gomez-Zamalloa from DG TREN, Simon Le Grand from DG Development, and Antonia Buchbinder from DG ECFIN, who have also been actively involved.

## STAKEHOLDERS AND SECTORS REPRESENTED

54 associations took part in stakeholder discussions in Working Group 2.

Industry represented the biggest sector and made up 61% of stakeholders. Central government/administration and international institutional organisations made up 15% and 7.5% respectively, while 7.5% were NGOs representing civil society. 9% of stakeholders represented conservation/agriculture/fishery interests.

The mining & metals industries were dominant in the industry sector, representing 21% of industry participants, closely followed by the forest industries and primary material/energy groups with 15% each. Cross-sectoral industry associations made up 15% of this group.

The ten representatives of the Commission Steering Committee (DG Environment, Enterprise, TREN, Development and ECFIN) also contributed actively to the stakeholder discussions, but have not been included in the stakeholder statistics.

For a full list of all external stakeholders who participated in the stakeholder process please consult Annex 1.

Categories of working group participants	Number of participants	Percentage of all participants
Central government/administration	8	14.8
International institutional organisations	4	7.4
NGOs representing civil society	4	7.4
Cross-sectoral industry associations	5	9.2
Forest industries	5	9.2
Mining & Metals industries	7	12.9
Primary material or energy organisations	5	9.2
Construction	3	5.5
Food & Drink	3	5.5
Packaging	2	3.7
Waste Management	3	5.5
Conservation/Agriculture/Fisheries	5	9.2

### Stakeholder meetings

Working group 2 met twice in the spring of 2004. At the first meeting on 12 March stakeholders identified the wider issues that needed further development in order for the strategy to be comprehensive. A summary of the main points discussed at this meeting and subsequent written comments are attached in Annex 2. All individual stakeholder comments received at this stage can be found in Annex 3.

The group met again on 3 May in an attempt to identify and discuss priorities for action in the Resources strategy. A discussion paper was circulated to working group members after the meeting to try to help clarify these issues. The discussion paper as sent out by the Chair can be found in Annex 4, while Annex 5 lists all the individual responses by stakeholders.

## SCOPE OF THE REPORT

**The remit of WG 2** has been to look at:

- The use of materials & energy for production within the EU.
- The demand for, and consumption of materials & energy within the EU in support of society's needs.
- The impact of transport & distribution resulting from these production & consumption patterns.
- The recovery of materials or energy from waste.
- The qualitative aspect of materials (i.e. hazardousness) or processes (i.e. emissions) used within the EU.

The analysis was to consider: material flows, waste, emissions, environmental impacts, competitiveness, innovation, market failures, environmental harmful subsidies, taxation, trade (e.g. WTO), internalisation of external costs, market based instruments, resource productivity and equity.

The time horizon of the analysis will be 25 years.

**The core mission of WG 2 was:**

- To investigate each of these areas and, based upon collective knowledge and experience, identify target areas with the potential for reducing their environmental impact.
- To indicate possible barriers which could limit success in implementing programmes for positive change.
- To highlight specific areas where further data or analyses are available or should be developed which would facilitate a more informed assessment of the potential for reducing environmental impact.
- To consider how new policies and the use of economic instruments could be introduced which would support and ideally accelerate the achievement of decoupling over the 25 year timeframe proposed for this Strategy.

The complete mandate of the working group can be found in Annex 7.

## WG 2 – Use of Resources

### **PATHWAYS THROUGH SOCIETY**

#### **KEY CONCERNS**

##### **Pt 1**

Society's needs and aspirations call for the supply of goods & services in supporting and improving well being across the EU.

However, the use of the natural resources, raw materials and energy required to make these goods & services available has environmental impacts as well as social & economic benefits.

**How then can we continue to generate the improved level of well being we desire in Europe through economic growth without a parallel increase in the global environmental impacts.**

Some commentators would fundamentally question if economic growth was even always necessary and would argue that society might alternatively prepare for a stable zero-growth equilibrium. However, the EU's target of 3% annual GDP growth for the time span envisaged for this strategy was the baseline for consideration given by the European Commission.

WG2 was asked to consider this challenge and wishes to make the following recommendations and observations in the context of "the use of resources", that is to say from the point at which primary raw materials & resources enter society for conversion to goods, with consideration for the energy, transport & distribution inputs they require, the wastes they generate and the benefits they provide in use during their lifetime.

##### **Pt 2**

As a precondition for real commitment to the multiple and complex interlinked changes which must be made to happen if the EU is to achieve progress in improving the sustainability of its resource production and consumption patterns, the European Commission must find a way to powerfully communicate its vision of the more sustainable future we need to create, highlighting its priorities, and explaining where all these changes fit in the "big picture".

The key goals need to be understood and adopted throughout the Commission and across the Member States, then shared with all stakeholders in EU society today, and in those generations to come, if the vision is ever to become reality.

It will be important to maintain coherence among the many individual initiatives which will be proposed over time, and a real potential benefit to be drawn from consistent communication which clearly identifies and underlines the relationship of these initiatives to the key strategic goals being pursued.

### **Pt 3**

In order to be able to measure progress against strategic objectives, the group considered it essential to establish a baseline (eg the year 2000), start to develop data showing material flows into the EU and energy & raw material use within the EU, and assess the key environmental impacts associated with these across the full life cycle, regionally and globally.

Knowledge of environmental limits should be used as far as possible to guide policies, as has happened for climate change.

### **Pt 4**

The use of Total Material Requirement (TMR) was preferred as the measurement unit rather than aggregated Domestic Material Consumption (DMC), recognizing that neither provides the full picture, as TMR better reflects the overall material need including sourcing of materials from outside the EU and would allow consideration of the global environmental impacts of EU consumption.

### **Pt 5**

This strategy should be based on an input-oriented approach, aiming to progressively relieve environmental pressures in both a quantitative and qualitative way, as distinct from past environmental policies which were largely output (end of pipe) orientated.

It should encourage and reward innovation and stimulate investment in resource efficient technology and eco-efficient production processes, which can in parallel add value and enhance competitiveness across the EU.

It must also address those unsustainable consumption patterns existing and emerging in EU society today, by developing mechanisms and measures to deal with the causes, not the symptoms, of these trends and provide incentives for a shift to more sustainable practices.

### **Pt 6**

Within the broader strategic framework, this report strongly supports a sectoral approach to continuous improvement as the way forward, focusing on those sub-sectors with high potential for cost effective improvement.

A clear definition of key sectors would be built around the functions to be fulfilled in satisfying society's fundamental needs, such as for food and drink, for shelter (housing), for mobility (transport), for comfort (warmth & light) etc.

In this way the benefits of using resources can be evaluated in a specific functional context along with the environmental impacts of producing & consuming them.

### **Pt 7**

We will however need a robust link to the overall goal of decoupling environmental impact from economic growth to give direction to the sector work. This could be provided by a clear signalling of longer term priority goals for the selective reduction of environmental impacts. Without this link to drive improvement it would be easy for sectors to stall and move very slowly.

## **Pt 8**

It should not be forgotten that strategies and policies are only effective when implemented. The consistent enforcement of existing legislation should be the platform upon which we can build, using the most appropriate policy instruments and the Commission needs to demonstrate a clear and consistent determination to enforce compliance once legislation exists.

The potential role of IMPEL (an organisation of European permitting and inspection authorities) and of the EEA in assessing and communicating the effectiveness of implementation should be examined by the Commission.

## **Pt 9**

Research & Development leading to system change and innovation, perhaps particularly in the use of environmental technologies, needs to be encouraged and financial incentives offered which reflect the risks undertaken. The European Commission funding should be more focused on areas, which are a priority for improvement, and where the "business as usual" scenario is not going to deliver the breakthroughs required.

Applying research to the better take up and use of proven technologies rather than "blue sky" academic modeling would probably lead to more tangible and cost effective results.

We should make sure that not all focus is on 'hard' technology, but that also intelligent and integrated new approaches such as in the field of spatial planning, IT, housing solutions, transport & production logistics, organisation and management, receive support as well.

The current approach of the EU's 6th RTD Framework Programme needs to be revised in view of the above. Its successor programme should provide for better targeted R&D funding, yielding real benefits for Europe's citizens.

## **Pt 10**

When developing new policies for the EU, it will be increasingly important to take account of the global environment in which we operate and how this may change over the lifetime of the strategy. Competition for resources and markets, and efforts to manage impacts on the global environment between now and 2030, will undoubtedly be influenced by demographic trends, regional economic growth and geopolitical shifts outside the EU's borders.

## **Pt 11**

Security of supply is an essential ingredient both for economic growth and sustainable development.

The EU depends on imported energy for 50% of its needs. By 2030, this could grow to almost 70%, rising to 90% for oil and 80% for gas. For coal, 66% of Europe's needs would have to be imported.

The issue must remain a priority, as the EU can no longer claim that self sufficiency in energy is an option, or even desirable in a global marketplace. We need to be realistic about our interdependence with other countries – producers, transit countries and other consuming nations – and develop our policies accordingly.

### **Pt 12**

Care should be taken to create and maintain a level playing field between different actors across the EU, permitting fair competition and avoiding distortions which would raise barriers to the free circulation of goods and services within the internal market and beyond.

### **Pt 13**

Economic instruments, whether fiscal or market based, will have a role to play in encouraging changes in behaviour, where the need for change has been clearly demonstrated.

Care should be taken to monitor their implementation to ensure to the greatest extent possible that they are not disproportionate to the benefits they are intended to achieve.

We must also ensure that they do not cause undesirable distortions to competition, given that many materials and products are traded on global markets.

### **Pt 14**

Should policies be adopted to reflect the environmental impacts of resource extraction outside or inside the EU, by progressively internalising the external costs, and thereby leading to price shifts for goods or services within the E.U, then such instruments should be applied only where there is clear environmental benefit, when some consensus can be reached on quantifying the range of estimated costs, and after careful consideration of their potential impact on the EU's competitiveness in the global market.

Their introduction should be gradual, to avoid social and economic destabilization by allowing adequate time for adjustment where significant change is foreseen.

### **Pt 15**

Reconciling the goals of the Gothenburg (sustainable development) and Lisbon (economic growth) agendas will require that decisions taken on fiscal measures, levies, or other market based economic instruments are always taken with all three pillars of sustainability in mind.

### **Pt 16**

While the short and medium term goals of industry and the longer term imperative of common public interest may not always coincide precisely, efforts underway by the World Business Council for Sustainable Development and others to extend the Sustainable Development and Corporate Social Responsibility agendas should help to better align the actions of the public & private sectors over time.

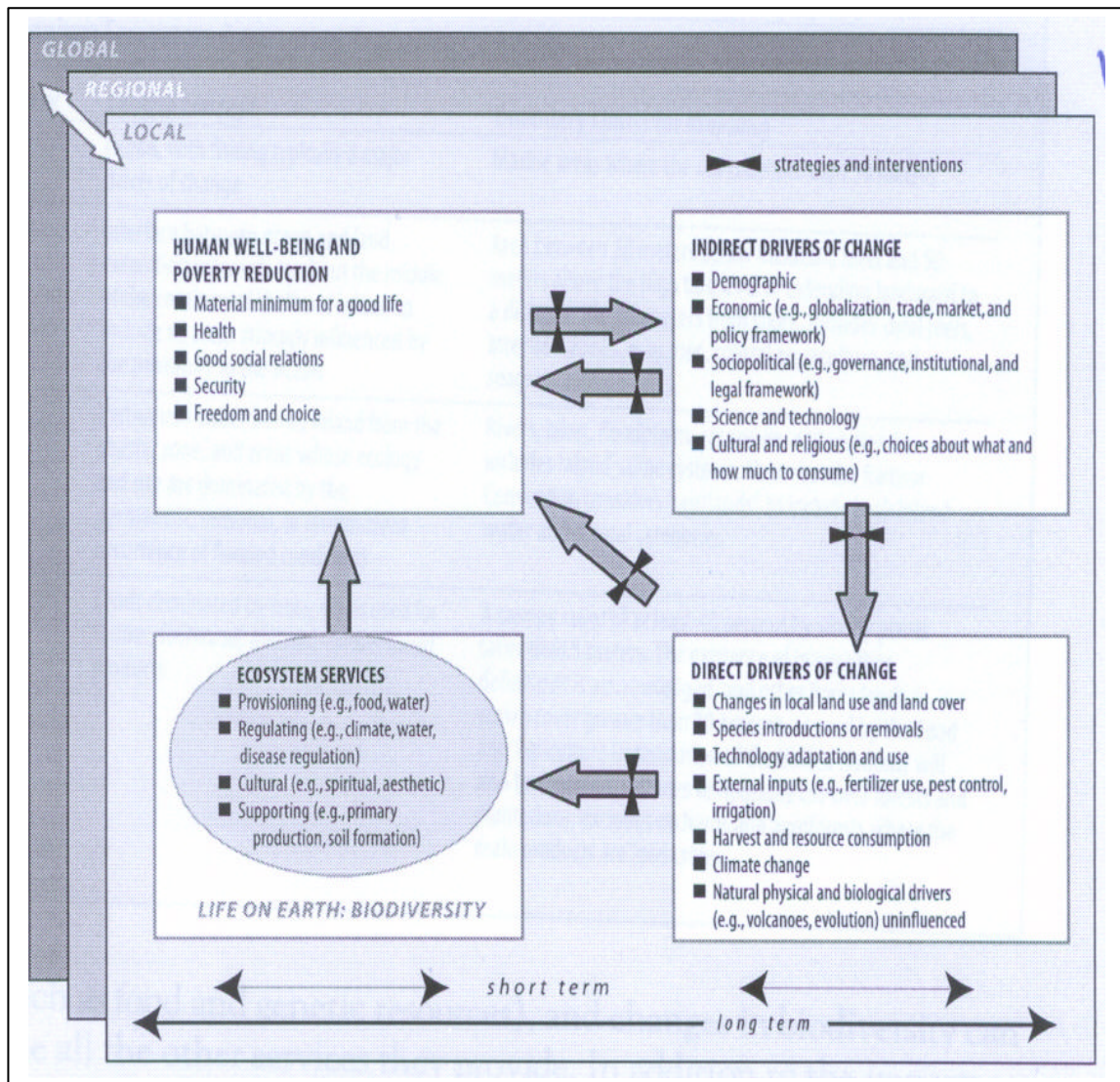
### **Pt 17**

The socio demographic and socio economic evolution of the EU will drive changes which in turn will impact the global ecosystems our society will depend on for its well being in the future.

Our contribution to the conservation of bio-diversity through encouraging and developing sustainable consumption behaviour, which recognizes and respects the regenerative capacity of renewable biotic resources, will be of great significance through the life time of this strategy

## Millennium Ecosystem Assessment Conceptual Framework

Changes in factors that indirectly affect ecosystems, such as population, technology, and lifestyle (upper right corner of figure), can lead to changes in factors directly affecting ecosystems, such as the catch of fisheries or the application of fertilizers to increase food production (lower right corner). The resulting changes in the ecosystem (lower left corner) cause the ecosystem services to change and thereby affect human well-being. These interactions can take place at more than one scale and can cross scales. For example, a global market may lead to regional loss of forest cover, which increases flood magnitude along a local stretch of a river. Similarly, the interactions can take place across different time scales. Actions can be taken either to respond to negative changes or to enhance positive changes at almost all points in this framework (black cross bars).



## **DATA AND COMMUNICATION**

### **Pt 1**

Once agreement is reached on which data will be needed and which indicators will be required to monitor progress, we must ensure systematic collection & analysis. In addition it may be desirable to establish new indicators to serve the resource strategy as it develops.

### **Pt 2**

Progress reports will need to be broadly and extensively communicated both to sophisticated and more general audiences using appropriate media & messages tailored to ensure understanding and engagement.

There should be reporting guidelines to ensure consistent standards of reporting and classification and use of data.

The EEA Signals report might perhaps provide one basis for such communication, but in any event, a targeted, key issues approach, used in a clear simple way will be needed to get the messages across with a high level of impact.

Member States should also undertake a similar effort to inform civil society on their own territories as to progress against national priorities, consistent with European objectives.

### **Pt 3**

There would be a benefit from accelerating the learning process for all economic actors across the EU. Many examples of good practice exist and much work on benchmarking best practice has been done in the last decade in many sectors and Member States, but there seem to be uptake problems.

### **Pt 4**

We need to facilitate access to knowledge, perhaps by setting up national, regional or sectoral help centres staffed by experienced practitioners and accessible by Internet, and extending training and consulting services, though SMEs will not be able to pay for expensive experts. Here sector federations could perhaps play an important role.

### **Pt 5**

Case studies from pilot sectoral initiatives to improve Sustainability could draw on real experience and hard facts which would offer a basis of "learning by doing" from which other sectors could draw lessons and accelerate their own progress towards a more sustainable future. Care will need to be exercised in extrapolating conclusions however, and a sound basis in life cycle thinking will have to be applied on a case by case basis.

## **PRODUCTION**

### **Pt 1**

Once materials & energy are used to produce goods & supply services, then a specific sector by sector approach offers the best framework in which to evaluate the impacts of these activities, since this would include the full relevant supply chain, encompass the benefits in use and the link to consumers and users, and thereby reflect the life cycle thinking dimension.

### **Pt 2**

The further development of a sector based approach once priorities have been established should focus on the collection of relevant data from the actors in the supply chain concerned, include considerations of both the production and consumption dynamics, and deepen the discussions leading to an agreed framework for action between the key actors and the Commission.

A framework of reference to determine the key data should be given for all sectors, building on existing, available data wherever possible. This key data should be the basis for determining and communicating performance trends within each sector.

### **Pt 3**

This approach lends itself to be more focused and to respond more sensitively to sector knowledge and experience in the varying circumstances at different points of the life cycle.

However, there will be a need to prioritize sectors with higher potential for improvement, and these will have to be determined on an agreed scientific basis with potential gains proportionate to the efforts & costs needed to obtain them.

### **Pt 4**

Growth prospects are also likely to vary by sectors, and markets within sectors and thereby give a specific, individual dimension to the challenge for each sub-group of actors involved in reducing the environmental impact of their activities.

For products with a longer life time (cars, buildings, machinery, and so on) the in-use phase is most often the determining phase where eco effects are concerned.

Since the use phase of products can sometimes be most significant in determining environmental impacts, the impact of trade offs of short term convenience on longer term sustainability need to be taken into account.

### **Pt 5**

Another advantage of a sector based approach would be stronger ownership of continuous improvement objectives and any targets or indicators which might be adopted by the sector to accompany these under a voluntary or mandatory regime.

In effect, the objective should be to make tangible improvements whenever this is technologically and economically feasible.

### **Pt 6**

With the potential for a multitude of specific impacts, materials and products to consider then a highly selective approach will be required, and a rigorous discipline maintained to minimize the risk of burden shifting, whether across sectors, regions or environmental media.

### **Pt 7**

Expanding the use of appropriate benchmarking on key aspects of sustainable production & consumption, within a sectoral approach, could be one tool to help actors to see where they were compared to their peers, and provide a possible incentive for them to seek improvements which would most likely support both their sustainability and their profitability, and thereby support their image and reputation.

### **Pt 8**

Working with innovators and frontrunners is crucial to developing forward looking policies with the potential for real impact. However, directly involving all strategic actors within a sector, and not just those major multinationals or trade associations normally in the spotlight, could substantially increase the effective uptake of new policies, good practices, and innovative technologies, therefore further improving eco-efficiency in the production of goods and services.

### **Pt 9**

Small to medium-sized enterprise (SMEs) form the backbone of most national economies. While an individual SME is unlikely to cause any environmental impact that would result in a country being more or less sustainable, it is the cumulation of the everyday actions that SMEs within a nation contribute that is perceived as a significant opportunity for environmental impact reductions.

### **Pt 10**

Although efficient regulations and policies MUST be considered when a sector negatively affects the environment, at the same time it is recognized that SMEs are often the source of ideas that lead to innovation. As innovation is seen as a primary driver of economic growth, it is critical that SMEs are not overwhelmed by policies & regulation.

### **Pt 11**

In order to find a pragmatic balance, we need to investigate potential ways of raising awareness of the environmental impact of their production processes within SME's as with larger companies, and triggering actions for change.

### **Pt 12**

An assessment of the relative merits of promoting a voluntary Environmental Management Systems (EMS) approach, and of a simplified SME declaration could be undertaken, recognizing that SMEs often lack the financial or administrative resources to invest in these activities themselves.

### **Pt 13**

Having an EMS does not automatically lead to "greener" products put on the market but does mean that the company has analysed its impact on the environment, and has a commitment to continuous improvement.

#### **Pt 14**

However, it may be better to engage with SMEs through hands-on training incentives rather than impose the complex requirements often stated in manuals – SME principals do not spend time reading manuals – a more practical approach may do more to raise awareness and encourage change.

#### **Pt 15**

This might lead to the need for systems to be developed which would not require labour intensive registration and costly monitoring. Smart systems should be developed and provided to SMEs and others.

#### **Pt 16**

We should not overlook the potential to combine production and service systems and to develop other so-called system changes, which could offer innovative ways to satisfy demand using a less resource intensive approach.

#### **Pt 17**

To answer the question whether or not a product or a process is sustainable, is very complex. In the construction field for example, it is agreed today that just comparing products is not sufficient, whereas an assessment on the level of a building (functional unit) is of interest. (Along these lines DG ENTR has developed a mandate for European harmonisation to CEN (framework for assessment of environmental performance of buildings and constructed assets). Construction products are a part of this series of standards.)

#### **Pt 18**

Investment & other actions for changes in eco-efficiency will have to be cost effective in the face of continuing and growing demand for materials and products and the need to be globally competitive.

#### **Pt 19**

Production eco-efficiency achieved through eco-design, smart systems, innovative production technologies, or many other drivers of improvement already being used, can be further promoted but will not provide a miracle solution on its own leading to absolute decoupling, although it is, however, a first step. A realistic approach comprising short, medium and long-term objectives is the only sustainable roadmap towards decoupling.

Any unit-based improvement will be offset by a wider use of more efficient technologies and products (rebound effect). Lifestyle and production patterns are key targets here.

It is the combination of different instruments, voluntary agreements, business initiatives, legislation, economic instruments etc., which in the end will cumulatively drive success.

## **CONSUMPTION**

### **Pt 1**

Reaching a balance between consumer benefits and environmental benefits is crucial. Consumers have to be helped to understand the importance of their role in the chain of sustainability, and increasing consumer acceptance that changing their behaviour would have a meaningful environmental impact will be crucial to achieving and maintaining decoupling.

Improving the sustainability of products put on the market should be an independent goal, and continuous process in any event.

### **Pt 2**

Recent awareness-raising initiatives have focused on waste, and comparatively marginal environmental impacts such as the Irish tax on plastic carrier bags, or the German deposit on some one way drinks packaging. Consumers need to be informed about the more significant impacts of their consumption of energy and materials so they can make more meaningful changes.

Data on the design lifetime or energy efficiency of goods would give consumers the choice to select a product that lasted longer or performed with lower impacts.

Consumers have to know that high environmental quality has a price, but need to learn that low or no attention to environmental quality will cost them more in the longer term.

### **Pt 3**

Resource consumption patterns reflect conscious and unconscious value judgements made by consumers, incorporating economic and social considerations in most cases but environmental concerns only intermittently.

Raising environmental awareness, and maintaining it at a higher level, over the medium term will require considerable and repeated efforts if meaningful change in the consumption of resources by civil society is to be achieved.

The principal responsibility for creating this change must lie squarely with Member State governments – centrally, regionally & locally.

The starting points are already different between Member States due to economic, historic & cultural differences and environmental priorities might be expected to mirror these differences as well.

### **Pt 4**

Nevertheless, a harmonized EU approach to priorities, possibly coordinated in a dedicated sustainable consumption forum, will be necessary as well to affect & redirect consumer behaviour. Furthermore, it is not ideal in the longer term to have only a few EU countries investing a lot of time and effort in raising consumer awareness if other countries do little or nothing.

### **Pt 5**

Industry's role should be to ensure the products it creates and brings to the market in order to deliver value to their customers, are progressively more sustainable. Large public and private companies should provide accessible, transparent, objective information on the sustainability of the manufacturing and distribution processes needed to get their products to market, e.g. by publishing environmental reports.

### **Pt 6**

If highly targeted, a communications approach is likely to be more successful than a general attempt to simply encourage everyone to "do better". Sound facts and clear arguments will need to be communicated frequently and consistently by credible actors in a way which informs, advises and explains which actions are most important, thereby encouraging changes in behaviour.

A focus on key messages (such as the energy efficiency of housing and transport as well as the environmental footprint of food production) is necessary to avoid an overload of information. Messages should relate to daily behavior and be positive (practice of sport or exercise as alternative to car dependency, healthy lifestyle to avoid fast-food, etc.)

### **Pt 7**

All actors in the supply chain have the potential to play a positive and educational communications role, as do local and national governments, NGO's and charitable organizations, in encouraging change towards more sustainable lifestyles.

### **Pt 8**

The adoption and implementation of the Sustainable Urban Environment Strategy should help to raise the profile of Sustainable Resource Management in the larger municipalities across the EU. Erratic development of cities in the past has had a negative impact on environment and the countryside. The rural world's needs and values have also to be taken into account here.

Rapid urbanization in the future needs to be better planned and must anticipate the impacts which can somehow be foreseen in areas such as land use, transport access, energy consumption etc.

The significance of local government's interface with the citizen has the potential to create a very powerful and complementary force for raising awareness and encouraging behaviour change for more sustainable local or regional lifestyles.

## **ENERGY**

### **Pt 1**

The goal of today's energy policies must be to establish a secure, competitive and environmentally friendlier energy supply chain.

Despite successful efforts to increase the effectiveness of energy production and improvements in the unit efficiency of energy consumption relative to GDP growth, the absolute demand for energy in the EU continues to grow.

In the face of the challenges posed by political instability in the world's oil and gas producing regions, and the need for precautionary action to protect our global climate, it will not be easy to secure the viable, diversified and increasingly clean range of energy sources we desire.

The development of strong demand side management of energy consumption would represent a critical contribution to reaching a balanced solution to this complex problem.

### **Pt 2**

The potential significance of climate change on our environmental and economic health is well documented. Notably in the energy and transport sectors, climate change relevant policy measures have been integrated in the EU sectoral policies. (see "Sustainable Transport in White Paper" and "Sustainable Energy System in Green Paper"). Several initiatives concern higher efficiency in energy use (e.g. the "buildings directive") and promotion of renewable energy sources (for more detail see annex by DG TREN)

### **Pt 3**

All actors must maintain or strengthen efforts to manage down the impact of harmful emissions, and make sure that the reduction of greenhouse gases is a central objective of their respective individual environmental management plans, aiming to meet or exceed targets set nationally where these apply.

### **Pt 4**

As non renewable fossil fuels such as oil & coal are forecast to maintain, or even slightly increase their share of the E.U. fuel mix over the next 25 years, efforts must be made to manage down the impact of their emissions by developing and applying cleaner technologies.

Efficiency improvements in coal-fired power plants are a short to medium-term approach to cover the growing EU energy demand and, at the same time, to reduce emissions. The consumption of a natural resources will be reduced as the specific consumption of fuel per unit of electricity will drop.

### **Pt 5**

Most energy forecasts indicate that, in the absence of a major technological breakthrough, the overall consumption of fossil fuels in the EU will actually increase, it is therefore imperative that more sustained efforts are made to promote the development and market penetration of cleaner technologies in all fossil fuel consuming sectors – industry, transportation, electricity generation etc.

The measures should inter alia focus on the further development of Clean Coal, Oil and Gas Technologies including abatement of SO<sub>x</sub>, NO<sub>x</sub>, dust (step 1), continuous improvement of power plant efficiency (step 2) and the vision of CO<sub>2</sub>-abatement and storage (step 3). Step 3 should be a vital part of R & D Framework Programme No.7

### **Pt 6**

As total energy demand and consumption continue to increase rapidly, and because structural changes to energy supply take a long time and enormous capital, efforts must be encouraged and supported which would increase energy savings and energy efficiency now, with the additional economic advantages they bring.

*Typical infrastructure lifetimes, which are a factor in the rate at which new technologies enter the economy.*

Infrastructure	Expected lifetime, years
Hydro station	75++
Building	45+++
Coal station	45+

Infrastructure	Expected lifetime, years
Nuclear station	60-60
Gas turbine	25+
Motor vehicle	12-20

### **Pt 7**

On energy efficiency, EU labelling schemes and minimum efficiency requirements have an important role to play in the household sector.

Energy demand in households accounts for 25% of the final energy needs in the EU. Electricity used for domestic appliances in households show the sharpest increase. Higher standards of living and comfort, multiple purchases of electric appliances and the growing use of air-conditioning are the main reasons for this trend. Energy consumption by consumer electronics and new media such as Internet is also growing rapidly. Response to this growth in demand could follow two complementary paths:

- EU labeling schemes: Given that household appliances such as washing machines, dishwashers, ovens, fridges and freezers etc, are highly visible to the consumer, one approach is to increase the consumer's awareness of the real energy use of household appliances over their normal lifetime through a standardized and clear labeling at the point of sale
- Minimum Efficiency Requirements: Compulsory minimum efficiency requirements (currently proposed under the EuP Directive) will encourage producers of household appliances to improve the products' design in view to ensure efficient energy consumption in use.

Maybe they are not a miracle solution but since they raise the awareness of the consumer, they should be further promoted.

### **Pt 8**

In the annex by DG TREN are included a list of measures on energy that lead to energy savings, energy efficiency and the increased penetration of renewable sources.

The contribution of renewables will, nevertheless, remain limited and by no means be adequate to fully offset growing demand or to replace existing energy sources.

All measures proposed in this respect need to be sustainable in all three dimensions, and have to consider different Member State backgrounds, the subsidiarity principle and security of supply aspects.

### **Pt 9**

Demand for transport is increasing, in particular for freight by road and personal leisure by road & by air. The policy objective should not be to limit access but to ensure the environmental & spatial impacts of transport are reduced by system innovation supported by technological & design inputs, and coherent planning.

### **Pt 10**

A number of linked initiatives could contribute to positive change including

- Modal shifts to less environmentally damaging transport media
- Elimination of bottlenecks and increased efficiency of the transport system
- Better urban planning for access and mobility
- Actions to make public transport more attractive.

### **Pt 11**

Incentives or research co-financing could help the development & take up of fuel efficiency, renewable bio-fuel utilization, or emission control technologies.

The "greening" of public or private transport fleets might be achieved by combining incentives such as vehicle tax reductions, or preferential fuel pricing.

### **Pt 12**

In the annex by DG TREN is included a list of the measures in the transport sector already adopted by the Commission and/or the Council and Parliament.

### **Pt 13**

The energy efficiency of the housing stock is far from optimal, however as yet, there are no legislative drivers in place to significantly change this.

An extension to the Directive on the energy efficiency of buildings (i.e. offices & public buildings, etc) could be a starting point in this regard, especially if linked to possible incentives to encourage change in the design of, and demand for more energy efficient new homes over time.

## **Pt 14**

The buildings sector accounts for 40% of the EU's energy requirements. It offers the largest single potential for energy efficiency. Research shows that more than one-fifth of the present energy consumption and up to 30-45 MT of CO<sub>2</sub>/Y could be saved by 2010 by applying more ambitious standards when building new and when refurbishing older buildings – which represents a considerable contribution to meeting the Kyoto targets.

The aim of improved energy efficiency has been set out in earlier existing legal instruments. Among the main Community legislation for the sector are the Boiler Directive (92/42/EEC), the Construction Products Directive (89/106/EEC) and the buildings provisions in the SAVE Directive 93/76/EEC). The Directive on the energy performance of buildings in force since January 2003 builds on those measures with the aim to provide for an ambitious step-ahead to increase the energy performance of public, commercial and private buildings in all Member States. In this framework, it is of utmost importance a good implementation of the measures.

The directive on the energy efficiency of buildings includes the possibility for the Commission, assisted by a Committee to evaluate this Directive in the light of experience gained during its application, and, if necessary, make proposals with respect to, inter alia:

- (a) possible complementary measures referring to the renovations in buildings with a total useful floor area less than 1000 m<sup>2</sup>;
- (b) general incentives for further energy efficiency measures in buildings.

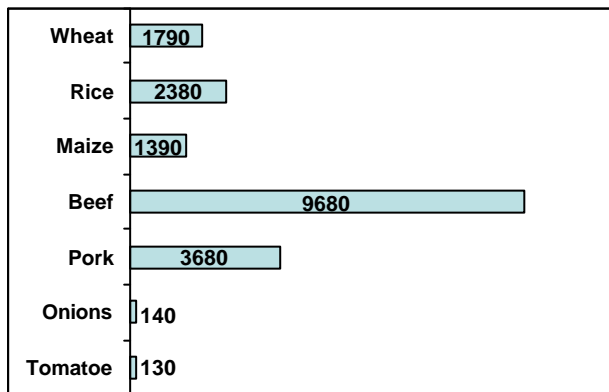
# WATER

## Pt 1

Water also needs to be recognized as a valuable – even critical – resource and the Water Framework Directive strictly applied.

Its quality is currently negatively affected by agricultural practices, although this should be improved by full implementation of the EU Nitrates Directive. If adequate incentives were created for land managers to maintain, protect and enhance water quality, and to safeguard water resources across the EU, costs for end of pipe treatment could be reduced.

The costs of “cleaning up” water are currently met by the consumers, rather than the polluters.



Scale – Litres water per kg of food

## WATER – A GLOBAL ISSUE

Currently up to 90% of all managed water is used to grow food.

Research suggests that up to 24% more water will be needed to grow the world's food in 20 years.

Cities are predicted to use 150% more water within 20 years.

Source: IWMI

## Pt 2

Water quantities used in production processes can represent a substantial resource flow which could offer considerable scope for savings in some sectors. Awareness of this important resource management goal needs to be increased and action stimulated, inspired by benchmarking of economic benefits to be gained in the poorly performing sectors.

## Pt 3

Improving consumption efficiency in households will continue to require awareness raising campaigns, coupled with visible cost reduction incentives.

## **WASTE**

### **Pt 1**

The sustainable management of resources includes the prevention of waste wherever possible and the efficient recovery of materials, energy and biogenic media from waste which does arise.

It is therefore important that the Strategy for Waste Prevention & Recycling complements the thinking of the Resource Management Strategy in recovering value from waste in an environmentally effective and economically efficient way, while recognizing that this may still be a small part of the overall life cycle impact of resource use.

### **Pt 2**

The active development of an EU wide European waste management infrastructure, offering environmentally friendlier alternatives to landfilling for recoverable resources, should be encouraged. Adequate capacity must be built for material recycling, mechanical biological treatment, composting and energy from waste recovery, and the growth of viable markets supported.

Raising the cost of landfilling is not a guarantee in itself that resources will be recovered, unless the alternative infrastructure is developed to deal with them. A significant cost increase might also have the undesirable effect of increasing illegal dumping in unauthorized landfills, at least in the short term.

### **Pt 3**

In this framework, it is important to look at the contribution of resource recovery from waste with the objective of achievable environmental improvements from a systems or life cycle perspective. We should promote integrated and sustainable waste management systems with flexibility for optimisation at the local or regional level.

We need to be aware that "end of pipe" pollution abatement measures benefiting the environment can nevertheless create their own waste streams requiring safe treatment (e.g. SO<sub>x</sub> and NO<sub>x</sub> particulate and dust from avoided emissions, or sewage sludge from waste water treatment).

Care needs to be taken integrate these waste streams into our waste management strategies in a sound way so as to avoid simply shifting the burden from one sector to another.

### **Pt 4**

Structuring recycling efforts along material rather than product lines reflects the markets for recycles themselves. While industrial waste lends itself well to this approach, household waste is different, and producer and consumer involvement comes together around products, therefore a link needs to be built between collection targets for specific products and a material recycling approach, especially since for household waste the cost of collection can be substantial.

### **Pt 5**

Setting EU minimum standards for recycling operations, as already done for landfilling and incineration, would be an important step. Recovered materials could then flow to the most economically, or technically efficient sites across the EU without the risk of the lower environmental treatment standards, which sometimes comes with the lower prices. The BREF/BAT approach could be used to develop these standards in a pragmatic way.

### **Pt 6**

The concept of tradable certificates suggested by the Commission is a relatively new concept and needs to be considered carefully. There is so far very little experience of this kind of system and its introduction at the European level raises a number of questions on how the implementation should be carried out, since within the EU there are many thousands of waste generating industrial installations that potentially would be part of the tradable certificate system.

### **Pt 7**

The development of recycling, pulled in part by green public procurement policies and supported by the source separated collection of specific materials has to serve the growth of sustainable markets for the recyclates. Developing these markets and ensuring their viability should be given priority since collecting for recycling is not an end in itself.

### **Pt 8**

By substituting primary materials, secondary raw materials help conserve virgin resources, and save the energy which would have been needed for their production, with consequent CO<sub>2</sub> equivalent emission reductions;

### **Pt 9**

Consideration should be given to the selective revision of the waste legislation surrounding by-products from many industrial processes if they could effectively be recovered and reused as substitutes for virgin stocks at negligible risk, therefore benefiting the environment. The current lack of criteria defining by-products frustrates the possibility for essentially inert materials from used products to be recycled, in construction for example.

### **Pt 10**

Some wastes which, after sorting, can not be efficiently recycled may be used to recover energy, and would thereby offer an alternative to offset using more fossil fuels. This option can provide an alternative local source of energy for heating or for power from modern Energy-from-Waste plants, and under certain conditions may do so with substantially lower CO<sub>2</sub> equivalent emissions as well.

### **Pt 11**

Landfill still has a crucial, although more specific, role to play in the long term because all other waste treatment processes will have final residues that will need to be managed in controlled landfill sites.

Member States should be self sufficient in maintaining adequate access to such landfill disposal sites on their territories.

## **ECONOMIC INSTRUMENTS**

### **Pt 1**

It is unlikely that information on “smarter choices” by itself will achieve radical breakthroughs, but most probably this will have to be supported and enhanced by providing economic incentives to make change happen.

Positive incentives might include capital investment rebates or favourable loan rates, positive tax discrimination policies, low or zero VAT rates, etc and could be used in the context of changing the behaviour both of producers and consumers.

Although the application of economic incentives will inevitably have some political motivation, the level of such incentives should be based on their objectively assessed potential for environmental gains.

They should remain in place long enough to “get the job done” and not automatically become institutionalised.

Any instruments introduced should be subject to an ex-post analysis of their environmental and social effectiveness.

Care should be taken to ensure coherence between any new measures to be introduced and other, pre-existing instruments or regulatory constraints.

### **Pt 2**

In all cases measures proposed must be reliable and predictable to allow longer term decisions to be taken in a stable legislative framework, and offer a secure investment climate.

### **Pt 3**

Capital investment cycles can be very long in some industries, and it is unlikely that companies will be willing to reinvest major capital before the return on their investments in place have been made, regardless of how environmentally attractive new technology may be when it comes along later.

A modern paper machine, for example, will cost 500 million Euros or more and will be expected to run for more than 25 years. Its environmental performance characteristics are determined when the technology is selected initially, after which only small upgrades and improvements will be feasible.

Economic incentives may influence the investment decision to be made next time around, but will affect the timing of the decision to a much smaller degree, if at all.

### **Pt 4**

If the introduction of economic instruments addressing global environmental problems is to be considered, then these should be harmonized at an EU level, bearing in mind the objective of ensuring the internal market criteria are met, even if unanimity might be sometimes difficult to achieve on EU taxation policies. However harmonization of the approach, but with some margin of flexibility in application could serve to accommodate national or regional diversity in an expanding EU.

Instruments designed to deal with local problems (such as water consumption for example) would be better applied at a local level.

## COMMENTS

There were alternative views on two points of significance which the majority of the Working Group did not support, but which should be reported.

- Some felt that a materials-based approach should be the approach chosen, identifying priority material streams for attention and setting specific targets for specific resources, with a view to reducing the environmental impact of their use. Methods of achieving this would include improving the sustainability of the extraction processes, lowering their use in kg's per capita across the EU, and increasing their substitution by environmentally preferable alternatives.
- Some felt that an overall reference target for dematerialization should be adopted as a headline political message "up front", such as Factor 4 by 2020. Without such targets they feared that there would be insufficient political pressure for action and change

There was wide divergence of opinion on the potential application of economic instruments.

- The need for a mix of instruments was supported by most WG members, although a few rejected the use of any economic instruments at all, seeing their use as an interference with the mechanism of well functioning markets.
- There was strong opposition from some to the introduction of economic instruments in the EU which were intended to deal with environmental impacts outside the EU's borders. This opposition was driven by concerns about EU competitiveness and the perceived risk of simplistic political choices being made which would not adequately reflect the complex realities of the global market.
- There was support for fiscal measures, although recognizing the likely difficulty of achieving the unanimity required across all 25 (or more) Member States.
- Some felt any environmental tax revenue should flow to wherever Governments chose to apply them; others seeing this as a disincentive to driving environmental change.
- Some felt levies were preferable which redirected revenue from undesirable environmental practices to provide a source of financing for the development of better alternatives.

The potential withdrawal of environmentally harmful subsidies and the conditions under which subsidies should be granted were not discussed in the WG meetings but comments received since the meetings indicate a similar polarization of views.

**Annex by DG TREN: Measures in transport and energy sectors in the framework of a sustainable use of natural resources**

Measures	COM	Economic aspects	Social aspects	Environment protection
<b>1. Transport</b>				
<b>1.1. General policy</b>				
<b>White Paper « European Transport Policy for 2010 : time to decide »</b>	(2001)370	Economic growth Improved efficiency of transport system Cohesion improvement	Employment creation	<b>Major CO<sub>2</sub> emissions reduction (135 Mt/y by 2010)</b>
<b>1.2. Modal shift</b>				
<b>1st railway package</b>		Economic growth Improved efficiency of transport system. Cohesion improvement	Improved quality of transport	<b>Reduced CO<sub>2</sub> emissions mainly through shift of freight transport from road to rail</b>
<b>2nd railway package</b>	(2002)18,21-25	Economic growth Improved efficiency of transport system. Cohesion improvement	Improved quality of transport	<b>Reduced CO<sub>2</sub> emissions mainly through shift of freight transport from road to rail</b>
<b>3rd railway package Containing measures to revitalise the European railways. The package consists of a Communication, four legislative measures and a Working Document on an extended impact assessment for the gradual opening up of the market for</b>	3 March 2004  COM(2004)140 final  COM(2004)139 final  COM(2004)142 final  COM(2004)143 final  COM(2004)144 final	Economic growth Improved efficiency of transport system. Cohesion improvement	Improved quality of transport	<b>Reduced CO<sub>2</sub> emissions mainly through shift of freight transport from road to rail</b>

Measures	COM	Economic aspects	Social aspects	Environment protection
<b>international passenger services.</b>				
<b>Promotion of short distance sea shipping</b>	(2003) 155	Improved efficiency of transport system		<b>Reduced CO<sub>2</sub> emissions mainly through shift of freight transport from road to waterways transport</b>
<b>Improvement of port services</b>		Improved efficiency of transport system	Improved quality of transport Improved safety of waterways transport	<b>Reduced CO<sub>2</sub> emissions mainly through shift of freight transport from road to waterways transport</b>
<b>CUTE programme</b>		Innovative technologies	High value employment	<b>CO<sub>2</sub> reduction on the longer term from substitution of fossil fuels by hydrogen Positive impact on local urban environment (noise reduction, reduction of local pollution)</b>
<b>Support to intermodal freight transport Marco Polo</b>	(2002)54	Economic growth. Improved efficiency of transport system Cohesion improvement	Improved access to transport	<b>Reduced CO<sub>2</sub> emissions mainly through shift of freight transport from road to waterway/rail transport</b>
<b>1.3. Eliminating bottlenecks</b>				
<b>Trans-European transport networks</b>	(2003)	Economic growth. Improved efficiency of transport system Cohesion improvement	Employment creation Improved safety Congestion reduction	<b>Reduced CO<sub>2</sub> emissions mainly through improved transport efficiency Reduced emission of pollutants. Noise reduction</b>

Measures	COM	Economic aspects	Social aspects	Environment protection
<b>Satellite radionavigation programme GALILEO</b>	(2000)750 (2002)518	Economic growth. Improved efficiency of transport system Cohesion improvement	High value employment Improved safety	<b>Reduced CO<sub>2</sub> emissions mainly through improved transport efficiency</b>
<b>1.4. Quality for users</b>				
<b>Infrastructure charging</b>	(2003) 132 (2003) 448	Internalise external impacts. Cohesion improvement	Decrease of congestion	<b>Reduced CO<sub>2</sub> emissions through improving efficiency of freight transport and shift from road to rail</b>
<b>Erica package</b>	(2000) 142 (2000) 489 (2000) 802	Reduction of external costs of transport. Cohesion improvement	Improved safety of waterways transport	<b>Reduction of risk of marine pollution</b>
<b>Prestige package</b>	(2003)92	Reduction of external costs of transport. Cohesion improvement	Improved safety of waterways transport	<b>Reduction of marine pollution</b>
<b>Road safety package (2002-2010)</b>	(2003) 311 (2003) 628	Reduction of external costs of transport	Improved quality of transport Improved safety	<b>Reduced CO<sub>2</sub> emissions through more energy efficient use of vehicles</b>
<b>Noise classification of aircraft for the purpose of calculating noise charges</b>	(2001)74	Internalise external impacts	Improved quality of transport	<b>Noise reduction CO<sub>2</sub> reduction through use of more fuel-efficient engines</b>
<b>Noise-related operating restrictions at Comm. Airports</b>	(2001)695	Internalise external impacts	Improved quality of transport	<b>Noise reduction CO<sub>2</sub> reduction through use of more fuel-efficient engines</b>

Measures	COM	Economic aspects	Social aspects	Environment protection
1.5. Horizontal measures				
<b>5<sup>th</sup>, 6<sup>th</sup> R&amp;D Framework Programme</b>		<b>Numerous projects contributing to the three pillars of sustainable development and providing support for other measures</b>		

Measures	COM	Economic aspects	Social aspects	Environment protection
2. Energy				
2.1. General policy				
<b>Green paper on security of energy supply</b>	(2000)769	Improved security of energy supply Reduction of import dependence Diversification of energy sources	Better access to energy supply Wider consumer choice	<b>Reduction of CO<sub>2</sub> emissions through reduced use of fossil energy sources</b>
2.2. Internal market				
<b>Internal electricity and gas market</b>	(2001)125-2 (2002)304	Cost reduction through increased efficiency in the energy system. Improved Competitiveness	Better service quality through wider choice for the user	<b>Reduced CO<sub>2</sub> emissions due to improved efficiency in energy production and transmission</b>
<b>Security of oil and gas stocks</b>	(200)(488,1-5	Security of supply improvement Cohesion improvement	Employment secured	<b>Reduction of CO<sub>2</sub> emissions through better management of supply logistics</b>
<b>Energy infrastructure and supply security package</b>	(2003) 740 (2003) 743	Security of supply improvement Cohesion improvement	Employment secured Access to electricity supply improved	<b>Reduced CO<sub>2</sub> emissions due to improved efficiency in energy production and transmission</b>

Measures	COM	Economic aspects	Social aspects	Environment protection
<b>Nuclear safety package</b>	(2002)605,606	Ensure security of supply Maintain nuclear option	High value employment Improved safety	<b>CO<sub>2</sub> reduction through promotion of a carbon free energy source</b> Improved waste management
<b>State aid to the coal industry after expiry of ECSC Treaty</b>	(2002)176	Security of supply improvement by domestic resources	Employment secured in problem areas	
<b>2.3. Energy efficiency</b>				
<b>Energy Performance of buildings</b>	(2002)192 (2002) 91	Energy saving. New industry opportunities	Employment creation Improved consumer information	<b>Large potential for reduction of CO<sub>2</sub> emissions (up to 150 Mt CO<sub>2</sub>)</b> <b>Reduction of pollutant emissions (SO<sub>x</sub>, NO<sub>x</sub>, VOCs, particulates)</b>
<b>Promotion of cogeneration of heat and power</b>	(2002)415	Increased efficiency in the energy system. New industry opportunities	Employment creation	<b>Large potential for reduction of CO<sub>2</sub> emissions (up to 65 Mt CO<sub>2</sub>)</b> <b>Reduction of pollutant emissions (SO<sub>x</sub>, NO<sub>x</sub>, VOCs, particulates)</b>
<b>Energy labelling of electric domestic appliances</b>	(1999)328 2002/31/EC 2002/40/EC	Energy saving	Improved consumer information	<b>Large potential for reduction of CO<sub>2</sub> emissions (up to 54 Mt CO<sub>2</sub>)</b>
<b>2.4. Renewable energy sources</b>				
<b>Electricity production from renewable energy</b>	(1999)470	Security of supply improvement by domestic resources.	High value employment	<b>Large potential for reduction of CO<sub>2</sub> emissions (upto 50-60 Mt)</b>

Measures	COM	Economic aspects	Social aspects	Environment protection
<b>sources</b>		Innovative technologies		
<b>Promotion of biofuels</b>	(2001)547 (2003)193	Security of supply improvement by domestic resources	Employment creation	<b>Large CO<sub>2</sub> reduction expected (35 Mt/y by 2010)</b>
<b>2.5 Horizontal measures</b>				
<b>Energy Framework programme (Save, Altener,..)</b>		Improved Competitiveness	Employment creation	<b>CO<sub>2</sub> reduction Promotion of market penetration</b>
<b>Intelligent Energy for Europe 2003-2006</b>	(2002)162	Improved Competitiveness	High value employment secured	<b>CO<sub>2</sub> reduction</b>
<b>5<sup>th</sup>, 6<sup>th</sup> R&amp;D Framework Programme</b>		<b>Numerous projects contributing to the three pillars of sustainable development and providing support for other measures</b>		