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on

Sustainable Industrial Development

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Introduction

In response to the request of the Vienna European Council, the Industry Council adopted on 29 April 1999 “*Conclusions on the Integration of Environment and Sustainable Development in the Industrial Policy of the EU*”. In these Conclusions, the Council called for an integrated approach to sustainable development, taking into account the objectives of environmental protection, economic development and social development. It emphasised the potential of environmentally sound policies to increase industrial competitiveness and create employment opportunities. It pointed out the need for an appropriate mix of policy instruments, including a wider use of market-based instruments and voluntary approaches, taking into account the cost effectiveness of the various measures. It also recognised the environmental improvements made by industry while emphasising the need to further develop a business pro-active approach towards the environment. The role of the concepts of eco-efficiency and responsible entrepreneurship was underlined as well as the need to ensure a proper functioning of the internal market.

The Council committed itself to pursuing further work with a view to submitting a detailed report to the Helsinki European Council and stressed the need to improve co-operation and exchange of information between all the relevant formations of the Council that are responsible for the development of policies and measures of environmental, industrial and social importance. The Commission was called upon to present elements of an integration strategy and to develop tools and methodologies for assessing the impact of major policy proposals on the environment as well as on competitiveness and on employment.

This Commission Services Working Document should be seen in the same context as other documents adopted by the Commission on the process of integrating environmental concerns and sustainable development into other Community policies, started at the Cardiff European Council¹. However, this Working Document represents only the first step in the development of an integration strategy in the field of industrial policy. It addresses some of the issues raised by the Council Conclusions and is intended to be an input to the debate in the Industry Council, contributing in a relevant way to the integration process in this Council.

The achievement of sustainable industrial development is the main objective of an integration strategy in the domain of industrial policy. This Working Document notes that, while industry has already made considerable efforts in the environmental field, achievement of sustainable industrial development will require further substantial improvements in all three pillars, including in its environmental performance. That calls for an integrated approach to sustainable development involving several other Community policies. Special attention is given to the instruments for implementing sustainable industrial development and the development of indicators to monitor progress. Cross-cutting issues, such as climate change, and the environmental dimension of enlargement and employment are also addressed.

¹ Such as the Commission Communications on « Strengthening Environmental Integration within Community Energy Policy » (COM (98) 571) and on « Single Market and Environment » (COM (1999) 263 final)

Achieving Sustainable Industrial Development

Achieving sustainable industrial development means that business and industry will have to adjust production structures and its product mix. Industrial policy should contribute to supporting such an adjustment process. This objective calls for an integrated approach to sustainable development, encourages increased interrelationship between environment and industrial policies and promotes the role of business and industry for the achievement of sustainable development.

The concept of sustainable development: the need for an integrated approach

Sustainable development has been defined as “*the development that meets the needs of the present without compromising the ability of the future generations to meet their own needs*”². Building on the scientific rationale that the management of natural resources should be consistent with the preservation of its reproductive capacity, this concept has been broadened to incorporate economic, social and environment concerns. Environmental protection, economic development and social development are thus the three pillars of sustainable development.

The emphasis on the needs of both present and future generations (inter-generation equity) with regard to these three dimensions is a key aspect. The achievement of sustainable development requires a balanced integration of environment, economic and social objectives, taking into account the needs and concerns of both present and future generations. But the links between the economic, environmental and social dimensions are complex, sometimes involving difficult trade-offs between them, which might seem contradictory in the short term though they should be mutually reinforcing in the long term.

Sustainable development has been reinforced in the Treaty on European Union and the Treaty establishing the European Community, both modified by the Amsterdam Treaty. A balanced and sustainable development is now recognised in Article 2 of the EU Treaty as a main objective of the European Union, together with the promotion of economic and social progress, a high level of employment and the achievement of an internal market without frontiers. The promotion of a harmonious, balanced and sustainable development of economic activities is also referred to in Article 2 of the EC Treaty (hereinafter referred to as “the Treaty”) as a main task of the European Community, together with the promotion of a high level of employment and social protection, a high degree of competitiveness, a high level of protection and improvement of the quality of the environment and the raising of the standard of living and quality of life. The Treaty establishes already a close link between the promotion of sustainable development and economic, social and environmental concerns, endorsing the need for an integrated approach and efficient co-ordination between policy sectors and their policy objectives.

Such an approach is essential when defining and implementing the different Community policy areas in order to ensure compatibility and coherence with the implementation of their objectives and to prevent any potential negative impacts that may arise from that process. In this context, Article 6 of the Treaty requires the integration of environmental protection requirements into the definition and

² Report of the World Commission on Environment and Development (Brundtland Commission), 1987

implementation of the other Community policies and activities, in particular with the view to promoting sustainable development. This implies striking an appropriate balance between environmental, economic and social objectives. That includes the need to maintain a high degree of competitiveness and a high level of employment and social protection.

Increased interrelation between environment and industrial policies

Environment and industrial policies are both important pillars for the achievement of sustainable development and increased interrelation between these policies will promote environmental protection, competitiveness, innovation and employment. The efforts to achieve a high level of environmental protection may encourage industrial innovation and increase competitiveness. And it is clear that a highly competitive economy is better placed for pursuing a high level of environmental protection and promoting employment. In fact, there are many examples where increased ecological and economic efficiency will save resources for further economic and social development. Companies profit from that economic development and growth to obtain adequate returns that allows them to continuously upgrade technology and increase efficiency, which in turn produces environmental benefits and creates employment opportunities.

In order for environment and industrial policies to be as complementary and mutually supportive as possible, the full range of costs and benefits of the various policy instruments should be identified and put in the balance of a systematic policy assessment framework. Article 174 EC addresses this concern, stating that in preparing policy on the environment, the Community should take into account potential benefits and costs of action or lack of action as well as the economic and social development of the Community as a whole. Along the same lines, Articles 2 and 6 imply that ecological economic and social concerns should be taken into account in the context of measures designed to ensure that the conditions necessary for the competitiveness of industry exist, in application of Article 157.

Indeed, if carefully implemented, the policy response to the challenge of sustainable development may avoid most of the painful trade-offs. It may unleash mutually beneficial interdependencies between environmental, economic and social goals. A core element of such a strategy will be to get prices right, i.e. to let them fully reflect all the costs of transactions, including the environmental ones. That approach, rather shifts the awareness of costs upstream, i.e. away from future generations and society as a whole towards the current generation and the polluters themselves thus making the economy more efficient.

The Role of Business and Industry for achieving Sustainable Development

The role of industry and business in general in the achievement of sustainable development is beyond doubt, as demonstrated by emerging concepts such as responsible entrepreneurship and eco-efficiency and the capacity of enterprises to face to new challenges such as globalisation, the information society and the change of production and consumption patterns. However, companies can play that role only if they remain competitive, in other words if they are able to make the appropriate investments and implement structural and organisational changes. Moreover, since prices play an important role in the decisions of both business and consumers, in order that they make the right choices it is necessary that the appropriate framework

conditions are established by Governments, including price signals that reflect the full range of costs and environmental externalities

The environmental challenge

One of the biggest challenges facing industry today is the need to further improve its environmental performance in order truly to become compatible with sustainable development. Although European industry has done a great deal in the past decades to improve its environmental performance, considerable challenges remain at European and global level. At European level, a report recently issued by the European Environment Agency³ states that “*apart from significant and positive cuts in ozone-depleting substances, progress in reducing other pressures on the state of the environment has remained largely insufficient.*” At global level the situation is even bleaker according to a recent UNEP report⁴, “*the global ecosystem is threatened by grave imbalances in productivity and in the distribution of goods and services.*” The report goes on to speak of “*environmental stewardship lagging behind economic and social development. Environmental gains from new technology and policies are being overtaken by population growth and economic development*”.

As mentioned above, industry and business have an important role to play in reversing the negative environmental trends at European and global level, through responsible entrepreneurship and eco-efficiency outlined below. Increased environmental performance will mean reducing the negative environmental impacts that occur at each stage of the product life-cycle, from the extraction of raw materials through the production processes, transport and distribution of products to the use and disposal of products.

Responsible entrepreneurship

The concept of responsible entrepreneurship, put forward by the United Nations as a recognition of the business role for the accomplishment of sustainable development, means that companies can manage their operations in such a way as to enhance economic growth and increase competitiveness whilst ensuring environmental protection and promoting social responsibility. In fact, major improvements in environmental performance have already been made by industrial companies and business in general. In the past, such improvements were mainly a response to Government regulatory pressure using command and control type instruments and to economic incentives such as the level of relative prices. But increased public and business awareness of environmental challenges has contributed to companies’ starting to take their part of the responsibility solving environmental problems and to integrate environmental concerns into their management strategies.

The implementation of environmental management systems by many of these companies is a clear sign of such responsible behaviour⁵. New approaches and strategies, such as eco-efficiency, life cycle thinking and sustainable product design, have been introduced and adopted by companies that wish to be on the leading edge of environmental and industrial innovation. Companies have developed and implemented management tools for measuring environmental impacts (such as life-cycle analysis),

³ “Environment in the European Union at the turn of the century”, European Environment Agency, 1999

⁴ “Global Environmental Outlook 2000” (GEO-2000), UNEP, 1999

⁵ As much as 2737 sites in the EU countries are now registered under the Eco-Management and Audit Scheme (EMAS) and many other companies have applied for the ISO 14001 standards (4999 sites certified from the EU countries, representing a share of 48% of all sites certified in the world)

for assessing the costs and benefits of environmental action (such as environmental accounting) and for communicating an environmentally responsible image to their stakeholders (such as environmental reporting). They have developed environmental performance indicators and benchmarking techniques to measure and monitor progress and compare it with that of other companies. In addition, social considerations are increasingly being taken into account in the strategy of several companies, including the development of methodologies for social audit, monitoring and reporting.

Some industry branches have also developed voluntary codes of conduct, charters or codes of good practice to promote improved environmental performance and responsibility and to spread best practice across the sector. The “Responsible Care” programme in the chemicals industry and “Care Vision 2000” in the electronics industry are good examples; similar initiatives are now starting in other industry branches, such as construction, mining industry and forest-based industries.

The concept of eco-efficiency

The development of the eco-efficiency concept and its promotion and implementation across business, including industrial companies, services and the financial sector is another example of responsible entrepreneurship. This concept emerged as an innovative business strategy combining both environmental and economic efficiency to create more value with less environmental impact. It has helped companies understanding the challenges of sustainable development and led them to increase efficiency in their processes and create new and better products, for example reducing material and energy intensity, decreasing the use of non-renewable resources and toxic substances, enhancing material recyclability and product durability and increasing the service intensity of their goods and services. The need to take into account a life cycle approach and to address the impacts across the entire product chain shows to these companies that they are able to influence their suppliers and customers and spread the concept across the supply chain. They are also starting a dialogue and co-operation with all their stakeholders and developing measurement and reporting mechanisms to monitor progress, such as eco-efficiency indicators and benchmarks.

Successful implementation of eco-efficiency by companies made Governments become interested in this concept and some have embraced eco-efficiency as an element of a policy strategy towards sustainable development. Governments have a role in supporting the promotion of eco-efficiency strategies in business and setting the framework conditions for encouraging companies to adopt these strategies. Eco-efficiency can provide a link between the integration of sustainable development concerns at the micro level and at macro levels and, in that context, eco-efficiency could be an important element of an integration strategy in the industrial policy domain stimulating progress towards sustainable industrial development.

The new challenges: globalisation, the information society and the change of production and consumption patterns

Industrial transformation is being accelerated by *globalisation*, which is provoking important structural changes in industry and in the structure and organisation of firms and markets. It also gives increasing importance to services in comparison to manufacturing. The development of the *information society* plays a driving role in that process with the emerging of a new global economy based on networks and intangible

assets⁶. This transformation has the potential to contributing already to a changeover to *more sustainable production and consumption patterns*, another major challenge facing industry and business. The shift to “lean” production and to higher-value services and the development of a knowledge based economy, furthers eco-efficiency and eco-innovation. Decreasing material and energy intensities and increasing the productivity of natural resources reduce ecological pressures. The information society and information technologies are already facilitating the development and wider use of cleaner technologies and cleaner production and the promotion of eco-efficiency and environmental best practice.

At the same time, it is essential to avoid any potential negative environmental impacts of globalisation, and indeed to seek to manage *globalisation* in such a way that it enhances sustainable development. Adequate environmental performance of European industry can only be fully compatible with its global competitiveness in the context of an integrated external trade policy which takes fully into account global environmental and development concerns. Multinational companies are often able to introduce and implement environmental management systems, cleaner production and cleaner technologies in developing and newly industrialised countries, through their subsidiaries. Codes of conducts or charters of good practices could be developed to ensure that multinational companies apply high environmental standards when investing in such countries.

The change for *more sustainable consumption patterns* is now an important challenge on the path towards sustainable development. The business response has been to increase dialogue and co-operation with their stakeholders in order to improve their image, and to influence the environmental behaviour and performance of customers and suppliers through green purchasing and procurement practices. Some companies are also keen to improve the quality of information to consumers on the environmental impact of their products⁷.

Other stakeholders

Although this Working Document emphasises the important role of industry and business in contributing to sustainable industrial development, it is clear that this can only be done in the context of an open dialogue, co-operation and partnership with other stakeholders. All policy measures and decisions relating to that should be taken on the basis of close collaboration between all stakeholders, including business and the public, NGOs and government at all levels.

Instruments for implementing Sustainable Industrial Development

Instruments, measures and actions developed with the aim of achieving sustainable development fall into a wide range of traditional policy areas, including industry, internal market, environment, energy, transport, innovation, research, state aid, economic and social cohesion, international co-operation and trade. It is essential that these different policy areas be integrated in such a way that they reinforce each other, rather than continuing separately with sometimes-conflicting objectives. They should contribute to the changes in production and consumption patterns. Recognising the

⁶ Communication from the Commission on « The Competitiveness of European Enterprises in the face of Globalisation – How it can be encouraged », COM (1998) 718final, 20.01.1999

⁷ The industry commitment on detergents is a successful industry voluntary initiative in this respect.

importance of preserving the competitiveness of European industry, measures governing business activity should be lean, effective and flexible so as to allow for innovation within a clear and simple EU policy framework.

In this context and in order to ensure a proper synergy between industrial development and environmental protection at various levels, it is necessary to further encourage, promote and implement an integrated product life-cycle approach. In particular, measures and activities in the field of industrial policy should contribute to that purpose.

Furthermore, the implementation of sustainable industrial development is likely to imply substantial evolutions in production techniques, organisation and management, as well as in product design. The success of this approach will thus to a large extent depend upon the vitality and the efficiency of the innovation processes in place, and of the underlying research programmes. Where necessary these should be developed in line with the First Action Plan for Innovation in Europe.

Measures and activities in the field of industrial policy

Measures so far

Activities that have been developed in the area of industrial policy relate to the use of internal market policy instruments, such as internal market directives and standardisation, and the creation of forums, networks, roundtables and other kind of direct or supporting measures for reinforcing industrial competitiveness.

Comprehensive regulatory frameworks have been adopted in the field of chemicals⁸ and motor vehicles⁹. Environmental considerations have been integrated into the essential requirements of some New Approach Directives such as the Directive on Construction Products¹⁰ and in other legislation, such as the Directive on the interoperability of the Trans-European high-speed rail system¹¹. Standards bodies, such as CEN and CENELEC have been active in the field of environment, including the development of European standards on specific environmental issues¹² and the incorporation of environmental considerations in the elaboration of product standards. Other activities that are worth mentioning include the establishment of the Recycling Forum¹³ and the creation of European initiatives and networks in the field of eco-

⁸ Directives relating to restrictions on the marketing and use of certain dangerous substances and preparations, to the classification, packaging and labelling of dangerous preparations, to fertilisers and to detergents

⁹ Directives on harmonised requirements to limit new vehicle emissions and a strategy to reduce CO₂ emissions and to improve car fuel economy, including the agreement with the car manufacturers

¹⁰ Directive 89/106/EC (OJ L40 of 11.02.1989)

¹¹ Directive 96/48/EC (OJ of 23.09.1996)

¹² Such as packaging and packaging waste, environmental management systems and the testing and sampling of a number of pollutants including dioxins, SO₂, mercury, and other substances classified as dangerous to water under Directive 76/464/EEC

¹³ The Recycling Forum was established in 1999 following the adoption of the Commission Communication on the “*Competitiveness of Recycling Industries*”, endorsed by the Industry Council Conclusions of 16 November 1998. The aim of the Forum is to discuss between the main stakeholders the scope for common actions to improve the competitiveness of recycling activities and the feasibility of new legislation and other instruments such as voluntary agreements.

efficiency, such as the European Eco-Efficiency Initiative, environmental best practices and management tools¹⁴.

Environmental concerns have been partially addressed through activities related to specific industry branches, including in Commission Communications concerning the relation between environmental protection and the competitiveness of specific industry sectors (chemicals, motor vehicles, recycling, aerospace industry, textiles, construction and shipbuilding), several studies, conferences and workshops as well as other initiatives organised or supported by the Commission. The Commission has also sponsored the development of guides on good environmental practices in industry branches¹⁵.

Further developments

There is great potential for further developing internal market instruments and measures or activities that relate to industrial competitiveness for the purpose of achieving sustainable industrial development.

Environmental requirements should be further incorporated into internal market directives that are related to industry, especially in the New Approach type directives, facilitating the harmonisation of those requirements at European level. Environmental considerations should be included in the essential requirements in the context of future amendments of existing directives or the adoption of new ones. That process would start with a comprehensive review of the existing “*Acquis*” in order to evaluate the potential for incorporating such concerns. A timetable for revision of the requirements of the directives will need to be established.

This activity should be complemented by the inclusion of environmental requirements in the mandates from the Commission to CEN, CENELEC and ETSI. The incorporation of environmental considerations into the work of standardisation organisations, in particular in the context of standards not linked with legislation, should be reinforced as required by the Decision of the EP and the Council on the review of the 5th Environmental Action Programme¹⁶. Strengthening representation of environmental interests in the European standardisation process should be pursued as suggested in the Commission Communication on “*Single Market and Environment*”¹⁷, in particular as regards the participation of environmental NGOs in the European standardisation process¹⁸. Other measures or activities in this context could be further evaluated. .

The Competitiveness Report offers a framework for developing economic analysis on the relation between environment and competitiveness and on the integration of environment, economic and social concerns. It will contribute to future policy discussions on environmental, sustainable development and competitiveness issues. A

¹⁴ Such as The European Network for Good Environmental Practices (GEPnet) and the European Business Environmental Barometer (EBEB)

¹⁵ Such as the Guide on «Good Environmental Practice in the European Extractive Industry»

¹⁶ Article 3 of Decision N°2179/98/EC of the European Parliament and of the Council of 24 September 1998 (OJ L275 of 10.10.1998) : «*promote standardisation in relation to environmental issues and to strengthen the integration of environmental aspects in the framing of industrial standards*».

¹⁷ COM (1999) final, 09.06.1999

¹⁸ Currently environmental NGOs participate in the standardisation process within CEN (European Committee for Standardisation) through their representation in SABE (Strategic Advisory Board for Environment). They follow the work of the Environmental Helpdesk established recently within CEN.

chapter on environmental aspects and sustainable development should be included in future Competitiveness Reports.

Commission Communications on the competitiveness of specific industry sectors should also address the contribution of their sectors to sustainable development. In that respect, there is considerable scope for strengthening the environmental dimension, in particular by providing a comprehensive description of the environmental impacts of the sector concerned, and suggestions for improving its environmental performance. In this context, the Community should encourage and support the development of initiatives at the level of specific industrial branches aimed at furthering the integration of environmental concerns and sustainable development in those branches, including the development of codes of conduct and good environmental practices guides that promote pro-active voluntary action.

Benchmarking techniques should be used in the field of the environment either at the level of companies and industry sectors or at the level of framework conditions. In this regard, the High Level Group on Benchmarking, established by the Commission in 1998, has given detailed consideration to the scope for applying benchmarking to issues related to the integration of sustainable development into industrial policy. The Group believes that benchmarking can play an important role in identifying and disseminating best practices in relation to the environment, including environmental measures. The Commission will support the creation of an European Environmental Benchmarking Network that will aim to promote benchmarking as a management tool for improving environmental performance in industry.

Policy measures and activities aiming to support the promotion of eco-efficiency, environmental management tools and best practices, building on the competitive advantage of European companies that are on the leading edge of the development of such tools and approaches, should be continued. Projects should be carried out in co-operation with other organisations that have a leading role in such issues in order to get the most cost-effective results of such activities. Future measures and activities will need to be identified and evaluated¹⁹.

Particular consideration should also be given to helping Small and Medium-sized Enterprises adapt to environmental requirements through appropriate regulatory provisions, guidelines and the development of support services.

Industrial co-operation activities with business in third countries offer a great potential to spread European know-how on environmental issues, an area where European industry has shown to have important competitive advantages. EU industry leads in the development of many cleaner technologies, processes and products or environmental management tools and plays an important role in the promotion of eco-efficiency. European companies will be able to offer solutions tailored to the problems of third countries in response to growing awareness and concern with respect to environmental problems. In particular, the priority is to ensure an adequate diffusion of information on such technologies, processes, products and management and facilitate the transfer of that know-how to these countries, combining industrial development with environmental priorities. The Community should include environmental issues and eco-efficiency approaches in the agenda of industrial Round Tables and promotional seminars with industry representatives and local authorities. The Community should

¹⁹ Workshops or conferences on environmental management tools and eco-efficiency are foreseen for that purpose.

facilitate the development of activities, in co-operation with business organisations from third countries, aiming to promote eco-efficiency and cleaner technologies, processes and products through existing programmes, such as the Asia Eco-Best Programme, or new initiatives.

Finally, the Commission is developing an integrated appraisal methodology for the assessment of impacts on environment, competitiveness and innovation as regards the definition and implementation of proposals and activities in the policy areas related to industry.

Instruments, measures and activities from other policy areas

Most of the basic environmental directives and regulations in force are command and control type instruments aimed at controlling the environmental performance of industry. While this approach, if completed, would ensure a more even playing field, it would risk reducing flexibility that industry needs to adapt to the structural changes. Nevertheless, it is clear that regulation will continue to play an important role in environmental policy for the foreseeable future.

The Fifth Environmental Action Programme underlined the need to broaden the range of instruments to include market-based instruments - such as taxes, tax differentiation, tradable permits or financial incentives - and voluntary approaches - such as voluntary agreements, environmental management systems and eco-labels. The use of voluntary agreements was especially emphasised in relation to industry. So far, voluntary agreements have mostly been developed at national and regional levels (more than 400 agreements). At Community level progress has been more difficult, partially as a result of institutional obstacles. Further development of environmental agreements should be targeted towards those environmental objectives for which they represent an effective means in comparison with other instruments. It is also essential that they fulfil the conditions laid down in the Commission Communication on Environmental Agreements²⁰.

While progress on broadening the range of instruments for achieving environmental objectives has been positive, especially at Member State level, this trend needs to be developed further. The shift which started with the Integrated Pollution Prevention and Control directive²¹ moving from single emission to process-related and from there to more integrated approaches that take into account the whole life-cycle and all actors involved should be pursued. Moreover, recent initiatives such as the development of an Integrated Product Policy offer an opportunity to include life cycle thinking into Community environment policy without adopting prescriptive legislation. Such an approach would leave a certain amount of flexibility to industry and would involve all stakeholders in the development and implementation of policy. In this context, the Commission intends to issue a Green Paper on Integrated Product Policy that will contribute to the development of a product life-cycle approach to the environment-industry interface. As regards environmental management systems, the participation in the Eco-Management and Audit Scheme (EMAS) must be encouraged further.

The advantage of instruments such as tradable permits, tax differentiation, environmental management systems and environmental agreements is that they encourage industry to take its own initiatives. In addition, they leave industry a certain

²⁰ COM (96) 561 final of 27.11.1996

²¹ JOCE L257 of 10.10.1996

flexibility in reaching specified goals and persuade it to act responsibly. Once industry takes on its own responsibility room will exist for an improved relationship with regulatory authorities, for example through simplification of permitting requirements or less intensive control of companies. The new trend in a number of Member States, and to a certain extent at Community level, to adopt a market-based approach and increase the dialogue with industry and other stakeholders should be further developed.

The disadvantages of such instruments include institutional obstacles to their further development at Community level, and other obstacles of a more practical nature. Economic instruments are sometimes more complex and less effective than regulatory instruments depending on the nature of the specific problem. Whilst environmental agreements allow more flexibility to industry they also introduce a degree of uncertainty into the achievement of environmental objectives. The use of environmental agreements, therefore, need careful design, transparent procedures, and adequate monitoring and may need to be supported by a regulatory framework or other instruments. The effectiveness of such instruments depends on the extent to which they are taken up by businesses in a substantial and ambitious way. The degree to which it is possible to accelerate the shift towards a wider mix of instruments will depend on how far the obstacles described in this paragraph can be overcome.

The EU Fifth Framework Programme for RTD (1998-2002) constitutes a major instrument encouraging and supporting technology based innovation aimed at a sustainable economic and social development. This objective has been incorporated in the various programmes and is addressed explicitly from different complementary perspectives in several Key Actions. Sustainable development of industrial activities is the central objective of the Programme "Competitive and Sustainable Growth" which supports industrial and pre-normative research to promote both competitiveness and sustainability (e.g. eco-efficient processes and product design, integrated life cycle approach including re-use, recovery and recycling) across a wide range of manufacturing sectors and in the field of transport (transport means and sustainable transport systems). Furthermore, the thematic programme "Energy, Environment and Sustainable Development" devotes particular attention to the technical and socio-economic aspects related to the development and use of cleaner, efficient and renewable energy technologies. It also provides vital support for the Union's key policy objectives among which the atmospheric pollution reduction and the security of Europe's energy supply improvement, both of which are crucial for a sustainable industrial development.

As regards economic and social cohesion, the guidance for programmes to be co-financed by the Structural Funds for the period 2000-2006, as adopted by the Commission earlier this year ²², highlights that environmental quality is a major factor in regional development and competitiveness. The integration of environmental quality in productive investment will ensure a rational use of resources, enhancing economic performance and competitiveness. Moreover, environment-related products or processes provide an additional opportunity for the regions as they are themselves a potential new source of employment. Specific action combining environmental improvement and investment in industry and services according to the above-mentioned guidance should include the following elements:

²² SEC (1999) 103 final du 3.2.99

- Preventive approach: support investments characterised by a preventive approach, including priorities such as the efficient and sustainable use of natural resources, waste minimisation and reuse, reduction of air pollution and the implementation of a sustainable product policy;
- Clean technologies: favour measures to accelerate the shift from old, polluting technologies and end-of-pipe measures to new clean technologies;
- Environmental management: financial support provided, in particular to SMEs, to make use of environmental services such as Eco-audits;
- Industrial sites: priority to the rehabilitation of derelict industrial sites (brownfields) over the development of greenfield sites;
- Training: improving skills in environment-related issues within the business sector and promoting new employment (or conversion).

Education, training and information are also important factors as knowledge and its use have become key to competitiveness. Calls for an integrated approach to sustainable development applies increasingly to the treatment of knowledge and information as competitive factors, not least when coupled with the need for a persistent drive for its optimal use. It follows that the objective of ensuring sustainable industrial development cannot be fully addressed without addressing the issues of competencies, skills and knowledge, information and human resources generally. In this respect, the improvement of education and lifelong learning and competencies for the worker and producer, and the extension of accessibility of information to the citizen and consumer must be important and indispensable ingredients of that policy. The Commission's programmes and policies in education and training, youth and information should note the contributions they can make to the development of sustainable development in respect of the knowledge economy.

Indicators for Monitoring Progress with the Implementation of Sustainable Industrial Development

The formulation of an integration strategy should include the development of policy and performance indicators that are able to monitor progress with the integration process. The continued development of such indicators will provide a tool for monitoring and benchmarking the implementation of the integration strategy. Such indicators must follow the integrated approach to sustainable development and consider the objectives of environmental protection, economic development and social development. The impacts on competitiveness and innovation and the cost-effectiveness of policy measures should be emphasised. Such work should take into account the results of activities and initiatives for the development of indicators at micro level or for specific industrial sectors, such as environmental performance indicators and eco-efficiency indicators. The development of such indicators should follow a bottom-up approach and consider the "micro-macro" link. The Commission has launched a study that will address these issues, identify the availability of data and propose a set of indicators. Although the final results will only be available in autumn 2000, the reports on the preliminary results of the study, including the identification of major policy issues to be addressed by such indicators, will contribute to discussions in the Council on this issue. The work carried out by the Commission in order to identify a preliminary set of eco-efficiency indicators for core industrial branches and to compile the necessary statistics will be taken into account.

Cross-cutting issues: climate change, enlargement and employment

The Vienna European Council conclusions requested the different formations of the Council to put emphasis on cross-cutting issues such as climate change, and the environmental dimension of enlargement and employment.

Climate change

Reducing the effect of human activities on the global climate and fulfilling the targets established in the Kyoto Protocol²³ will only be successful when integrating the appropriate measures into all policy areas, including industry policy. Efforts to increase energy efficiency are already being made, but substantive improvements are possible and need to be encouraged. It will also be important to reduce halogenated gases such as HFCs, PFCs and SF₆ and to improve emissions data for various industry sectors. Appropriate policy instruments have to be found to address the necessary contributions to climate change. In this context, voluntary agreements are important and can be effective provided that they are clear and ambitious in their objectives, that their results can be verified and there is a high degree of confidence in their achievement. The flexible mechanisms as an important element of the Kyoto Protocol will provide for industry a cost-effective way to reduce GHG emissions, thereby ensuring competitiveness. Moreover, it is important to ensure the conditions for the rapid development and implementation of new, low-energy consuming technologies and the use of renewable energies. Internalisation of cost-elements, review of subsidies, fiscal incentives and improved consumer awareness are prerequisites in that respect.

An ongoing study of modalities for a regional testing group of flexible instruments in the Baltic Sea Region and the foreseen Green Paper on emissions trading will add substantial knowledge on the use of such instruments in the Community.

Employment

Recent European Councils have all placed great emphasis on achieving a high level of employment as an overriding political priority. Increased synergy between environmental and industrial policy will be a driving force for achieving that objective. Strong environmental protection and a competitive economy that increases ecological and economic efficiency will save resources for economic and social development and thus contribute to the creation of employment. Innovation in technology, production processes, products and environmental management is a key to achieving it. The Community should support and stimulate initiatives that accelerate the shift from polluting and “end-of-pipe” technologies to new, cleaner, integrated and energy-saving technologies, promote the design and development of products that have less impact on the environment and encourage the implementation of environmental management systems and tools in business²⁴.

²³ Commitment by certain countries to reduce or curb greenhouse gas emissions negotiated at the Kyoto Conferences under the United Nations Framework Convention on Climate Change in December 1997.

²⁴ Commission Communication on Environment and Employment of 18.11.97, COM (97) 592 final and Commission Communication on Community Policies in Support of Employment of 21.04.99, COM (1999) 167 final

Enlargement

The challenges of sustainable development are crucial to candidate countries. Their environment is degraded, there are few resources for implementing environmental objectives and their industries are often too weak to compete and generate income for social development.

Significant environmental investments are necessary and the candidate countries need to speed up their preparations for enlargement in the field of environment. Least cost solutions will be necessary. An overall enhancement of both the economic and the environmental efficiency of the approximation process is needed. The candidate countries should consider carefully how environmental priorities and objectives could be integrated into other public policies and programmes.

Negotiations with the candidate countries will make it possible to identify what they need to do to adopt and implement legislation and the resources that will be necessary for this purpose. As a priority in the environmental agenda the legal measures taken by the candidate countries must be coherent with the need to develop the single market. In this context, it is essential that the candidate countries adopt and start implementing EU environmental standards before accession. The Community should promote and support the organisation of seminars and co-operation networks on environmental issues in those countries, including by European industry organisations. Financial support for addressing past environmental liabilities and for promoting environmental support should be allowed under the state aid rules.

Conclusions

Although much progress has been achieved by business and industry as regards the improvement of environmental performance, it is necessary to further encourage a more pro-active approach on the part of business. In order to foster such pro-active behaviour, it is essential that policy-making is designed in such a way that the achievement of sustainable development becomes a concern of the whole society. This implies that the responsibility of all stakeholders is acknowledged and that policy is developed and implemented in closer co-operation and partnership with them. Moreover, environmental externalities should be internalised by way of price signals, as industry best knows how to appropriately react to changing prices.

In addition to the promotion of responsible entrepreneurship, innovation and eco-efficiency in business, preference should be given to cost-effective and market-based measures so as to encourage industry to take its own responsibility. Moreover, it is essential to increase the use of existing tools such as cost-benefit and cost-effectiveness analysis, apply new and integrated appraisal methodologies for assessing the impacts of policy measures on environment, competitiveness and innovation and develop and implement policy and performance indicators to measure progress towards sustainable industrial development. Finally, the promotion and implementation of an integrated product life-cycle approach will certainly contribute to increasing the synergy between industrial development and environmental protection, especially as far as measures and activities in the field of industrial policy are concerned.

A sustainable industrial development strategy should aim to achieve the integration of environmental concerns and sustainable development in industrial policy, thereby promoting environmental protection, competitiveness, innovation and employment. In the long term, sustainable industrial development can only be achieved through the integration of all three pillars of sustainable development – economic, environmental and social. However, as a first step this paper focuses mostly on the relation between business activities and the environment, and corresponding policies.

Such a strategy involve, in the first place an analysis of the main points of interaction between industrial activity and environmental quality. The next step will be to examine the ways in which current industrial policy influences these interactions. On the basis of this analysis it will be possible to propose appropriate new actions and measures within policy areas related to business and industry, including an action plan and a timetable. It will then be appropriate, following that action plan, to establish policy targets on the basis of the policy and performance indicators that will be developed to monitor progress with the integration strategy.