

Outcome of the stakeholders' consultation resulting from COM(2003)131

Summary of comments made

- 72 responses received
- Very wide range of contributors, with a large input from UK
- Broad accord on issues considered; “Climate Change” and “Sustainable Production & Consumption” regarded as key; air quality should have been addressed
- From commercial to advanced technologies; risk that cross-cutting technologies are marginalised; techniques, services and work organisations duly considered; clearer definition of environmental technologies (ETs) required by some
- Barriers well identified; mostly generic by nature
- Main barriers located at the level of market penetration and development: 1) lack of “coherent” legislation (integration and harmonisation), 2) higher cost of ETs, 3) lack of financial means to back the development, demonstration and acquisition of ETs
- Need for a common EU framework made up of both supply and demand measures; integrated packages; ex-ante impact assessment required by some
- Strengthened and streamlined legislation; long-term vision and concrete “performance” targets; enforcement of existing legislation; uniform, quick and simplified approval and licensing procedures; sector-specific voluntary agreements to be explored
- Need for market-based incentives; internalisation of external costs regarded as essential; use of the full range of financial instruments; harmonised scheme at the international level; removal of subsidies to non ETs
- Need for structured communication addressing all actors and institutional levels; on-line European database; need to educate and change behaviour; public authorities to show example; need for new decision-making tools
- Permanent need for R&D (especially for accession countries and SMEs); more emphasis on large scale demonstration; important role of socio-economic research; support to policy-making
- Technology transfer (incl. to developing countries) and education and training need further improvement (e.g. better use of aid instruments, European centre of excellence)
- Regional policy and public procurement to become more propitious to the take up of innovative technologies (e.g. introduction of the concept of “whole life cost”)
- The Action Plan should build upon the existing; governance and timing key for implementation; need for monitoring and follow-up mechanisms

Outcome of the stakeholders' consultation resulting from COM(2003)131

Detailed analysis

This note summarizes the main comments and recommendations made by external stakeholders for the preparation of the Action Plan on Environmental Technologies. It is based on the 72 responses received following the publication of COM (2003) 131. This note is an attempt to synthesize the full range of opinions expressed by stakeholders, without prejudging their inherent merits and value. Most of the responses concentrate on generic barriers and measures that cross the four considered issues. Yet several responses are quite issue specific¹ and should be examined in further detail by the relevant issue groups. It is important to stress that most of the specific comments have been made by a limited number of contributors.

Type of respondents

Very broad range, including:

- industries (e.g. Air Products, Pernod-Ricard, 3M)
- European industrial associations (e.g. European Insulation Manufacturers Association, European Technical Contractors Committee for the Construction Industry, European wind energy association)
- Federation of learned societies (e.g. European Federation of Biotechnology)
- universities (e.g. Norwegian university of science and technology)
- research organisations (e.g. VITO, Research Centre Jülich, ENEA)
- different ministries: mainly Ministries of environment or their corresponding agencies (contributions from I, DK, D, SE and RO), but also Ministry of SMEs and cooperatives (RO), Ministry of Industry and Resources (RO), Ministry of Education and Research (RO)
- Chamber of commerce and industry (e.g. Deutscher Industrie und Handelskammertag)
- technical foundations (e.g. Papiertechnische Stiftung)
- technology transfer company (e.g. Firstfaraday)
- regional technological poles (e.g. Polo Tecnologico di Pordenone)
- consultancies (e.g. Garas Consultants Ltd)
- non profit organisations (e.g. Sustainable Shorelines)
- unions (e.g. European Trade Union Confederation)
- European agency (e.g. European Environment Agency)
- individuals (e.g. a farmer in Ireland).

¹; Water in 2; Water/soil and landfills in 17; Climate Change and construction in 18-19; Climate Change and hydropower in 25; Biotechnology in 28; Climate Change and insulation in 29; Water in 39; SPC and paper industry in 41; Climate Change/Water/Soil and Conservation Agriculture in 46; SPC and waste management in 47; ICT in 52; Climate Change and temperature control systems in 53; Climate Change and wind energy in 58; Soil and constructed wetland filters in 66; Climate and fuel cells/composite conductors/window films in 68; Soil in 71

The UK government has also sent an official response through the Brussels Representation.

The largest number of contributions has been received from UK (11), followed by D (6), NL and B (5), F and I (4). The two contributions from an Accession Country came from Romania.

Issues addressed

The selection of the four issues does not raise any substantial concern from the stakeholders. Some contributors pointed out that both the “Climate Change” and the “Sustainable Production and Consumption” issue groups are key in the promotion of sustainable development, and that the Action Plan should be concentrated on measures to radically change the production and consumption patterns (e.g. by addressing the behavioural changes).

However, several contributors regret that air quality has not been addressed as a separate issue. In the medium term, it could be necessary to focus on other issues than those selected in COM (2003)131, so that all sectors might benefit of the initiative.

One contributor mentions that the work of the SPC issue group should be closely coupled to the global 10-year framework for sustainable production and consumption which has been decided in Johannesburg.

One contributor claimed that there is little merit to deal specifically with the issue of “soil”, as soil protection is inherently integrated in water and waste (cf. SPC) aspects.

Technologies addressed

From well-established and commercial technologies (e.g. insulation products for the construction sector) to more advanced ones (e.g. biochip for quick environmental diagnostic).

As cross-cutting technologies are not covered in a specific issue group, there is a danger that they could be marginalized within the Action Plan. The role of ICT in the protection of environment as well as in the promotion of growth and employment is generally well accepted, with the exception of one contributor who claims that it must be assessed with great care.

Techniques and know-how (e.g. conservation agriculture) have been duly considered by the contributors, and, in many cases, their maturity is such that they could be adopted immediately by the interested actors if several barriers were not preventing their diffusion.

The Action Plan should investigate the potential role of product-to-service transitions as a means of environmental improvement. There is an increasing amount of services that can provide alternatives to product ownership (e.g. car sharing). New forms of work organisation are also to be taken into account for their sustainability potential. It is to be noted that ICT play a key role in the development of these new services and forms of work organisations.

Some contributors claim that end-of-the-pipe technologies might in some case not be as bad as described in COM (2003) 131. For example, it may happen that the same environmental benefit can be achieved with an end-of-the-pipe technology compared to an integrated one, but that the latter would be far more costly to market.

Some contributors claim that nuclear energy should also be covered by the Action Plan.

Several contributors claim that there is a need for a clearer definition of “environmental technology”. The difference with “eco-industry” should be better explained. One contributor even suggests to define a set of criteria for the attribution of the label “environmental technology”.

The impact of environmental technologies on productivity needs to be addressed in the Action Plan.

Barriers, and the related proposed measures

The main barriers seem to be located at the level of the market penetration and development. Most of them are generic by nature. They often occur in combination, hence the intrinsic complexity of the decision-making process in favour of environmental technologies. A great majority of the contributors claim that COM(2003)131 has identified most of the relevant barriers. It would have been helpful to identify also the positive drivers.

There is a need for both supply and demand measures. Measures need to be put in place in an integrated manner.

Some contributors claim that the impact of the proposed measures needs to be assessed anticipatively. Such impact assessment could take place after the adoption of the Action Plan, but will have to be completed before the effective implementation of the proposed measures. It is recognised that the impact of environmental technologies could strongly vary depending on the local or regional context in which they are implemented. The impact assessment will help to clarify whether specific environmental technologies require an EU-wide, rather than national level, approach. Early estimation of widespread applicability of the targeted technologies would also be helpful.

1) The main barriers for development, acceptance and penetration of existing and new technologies in Europe seem to be as follows:

- **the lack of “appropriate” environmental legislation and the lack of integration between the existing pieces of EU legislation.** Many of the environmental directives are not coupled, which leads to the impossibility to adopt integrated and coherent approaches. The lack of regulation and standards about environmental technologies leads to inadequate and lengthy administrative procedures.

- **the heterogeneity of the regulatory framework in the different EU countries.**
- **the higher cost of environmental technologies compared to established technologies**
- **The lack of financial means and subsidies to back the development, demonstration and acquisition of environmental technologies.** This appears to be a major problem in the Accession Countries.

For a number of contributors, the main drivers for environmental technologies would therefore be legislative and fiscal.

***Suggested measures:** To put in place a coherent set of environmental and other policies which all together contribute to the promotion of environmental technologies. Key drivers of market demand for environmental technologies are government policy and regulation on sustainable development and environmental protection. This makes the sector fundamentally different to other “regulated sectors”, where market forces largely control demand. The development of this sector therefore requires particularly close co-operation and ongoing dialogue between government, regulators and industry. The Cardiff process should be pursued.*

Legislation should set a vision for the future (based on the EU “Sustainable development” policy and Lisbon strategy), should include long term qualitative and quantitative objectives and targets, and should be propitious to innovation.

Different views exist regarding the necessity to provide guidance on how to best reach the long-term environmental, economic and social objectives. Most of the contributors seem to prefer the option taken so far by EU regulation: i.e. to fix performance targets (e.g. emission limits) instead of specifying the environmental technologies by which such targets could be reached (i.e. proposed by one contributor only). In the same line, the overall framework to be established should be sufficiently open and flexible to allow a quick adaptation to evolving technological development.

The establishment of legislation should take place along with accompanying measures that facilitate compliance and follow-up. For example, efforts must be spent on maintaining websites relating to the implementation of the legislation (e.g. such as the website of the Solvent Emissions Directive 99/13/EC). Legislation should allow enough time for implementation. There is a great need to enforce more strictly the application of the existing and future legislation (e.g. the SAVE directive of 1993 is poorly implemented by MS; non compliance of the Basel Convention by the Member States).

A good example of a stimulating EU policy is the Directive on “Waste electrical and electronic equipment” (WEEE). This directive establishes long-term and clear objectives at EU level assorted with recycling targets, timetable for action, and monitoring indicators. It is viewed as providing a concrete framework which gives confidence to investors and creates favourable conditions for the emergence of new markets.

One has to remove the differences in the environmental standards and approval procedures in the different European regions to promote a single market for products or services based on environmental technologies. Approval and licensing procedures should be simplified (e.g. one stop shop) and accelerated. Standards have to be applicable at an international scale to avoid market distortion and to give confidence to investors.

The establishment of new legislation has to go hand in hand with the provision of market-based incentives for both developers and users. An important aspect of this legislation is the internalisation of external costs (based on the polluter-payer principle). The internalisation process, though insufficient to remove the system-oriented barriers of dominating technologies, is essential to promote economic growth and employment. There might be cases where the benefits of reduced whole life costs will not be quantifiable, but this cannot be a reason for not applying any incentive if there is a general agreement about the sustainability impact. Many contributors praise the EU to continue its efforts towards the application of the internalisation process, and regret that it is still virtually free for companies to pollute.

This process should lead to the use of the full range of financial instruments (e.g. taxes, subsidies, trade permits, low interest rate loans) to make environmental technologies more attractive economically (e.g. in the same way as leaded/unleaded gasoline). The use of such financial instruments will only be effective if a common European-wide scheme is designed, because of the high level of trade integration between the EU Member States. There should be a change from taxation of labour and capital to taxation of resources use and pollution. Revenues from environmental taxation or levies should be channelled back into environmental initiatives in a transparent way. Incentives should be carefully put in place to prevent any counter-productive effect. There is only one contributor to claim that financial incentives should be confined to the research phase to avoid distorting competition and internal market.

Several contributors regret that there are still heavy subsidies provided to non-environmental technology sectors, which is a barrier to the proper functioning of the internal market and international trade.

Several contributors claim that penalties should be imposed to those using non-environmental technologies when environmental alternatives, both affordable and offering a high degree of reliability, are available on the market.

The required new legislation has to be established in parallel with a simplification of the existing regulatory framework in the environmental field which tends to become more and more opaque for many small actors (e.g. SMEs). Existing environmental law should be continuously scrutinised and modernised. Clarity and stability are needed at the regulatory level to facilitate the long-term investment for environmental technologies.

Some contributors recognise that regulation is expensive to develop, implement and maintain. In some cases, it might be more appropriate to conclude sector-specific voluntary agreements.

Overall, there are different views about the comparative merits of the implementation of a strict body of legislation on one side or the provision of flexible market incentives on the other side. Most of the stakeholders recognise the need for a right balance between the two (see point 2 above) and agree that this balance might vary on a case by case basis. They ask for a mix of policy instruments that are not unduly prescriptive so as to encourage innovation. Prescriptive solutions can freeze innovation at a particular point in time, hindering the development of more innovative technologies.

2) Many of the available environmental technologies are not used. This is mostly due to the **lack of clear information** provided to key actors in both the developer (e.g. purchase managers, technical contractors in the construction sector) and the user communities. There is a lot of **misbelieve or false rumour about the potential and impact of environmental technologies**. This prevents for example the user community to take informed decision regarding investment in environmental technologies.

*Suggested **Measures**: There is a need for structured communication, not ad hoc or anecdotal. This may take various forms: information campaigns, training programs, consensus conferences, regional dissemination networks, open days, TV spots, etc. which are targeted to all concerned actors. Good examples repeatedly need to be given to show how environmental technologies are worthwhile to be supported. Public authorities should show the example by adopting the most promising environmental technologies for their own activities (e.g. through green procurement). The information flow between the EU level and local administrations should be dramatically improved. A system of European award would greatly raise the visibility and the potential of environmental technologies.*

Transparency should be improved with regard to the technologies available and/or under development. Information on available environmental technologies is scattered, which makes it impossible for decision-makers to take informed decisions. Information should be provided on the suppliers, cost, performance, current applications as well as the relevant EU/national/regional regulation. This objective could be achieved through the establishment of a “European e-platform”. Examples of similar existing EU, national and regional databanks have been given by several contributors (e.g. EU eco-industries database; UMFIS, IHK and “Cleaner Production Germany”² in D). Such existing databanks must be interlinked at the level of a European e-platform. The purpose of the platform should be to bring supply and demand closer together. It is recognised that the European Environment Agency (EEA) might possibly play a useful role in that respect.

The citizens are considered to be a key target of this communication. The general public has to become more aware of the need for sustainability. There is a need to educate and encourage a change not only in consumer attitude, but more importantly in their behaviour towards the environment.

² www.cleaner-production.de

There is good evidence that companies, and especially SMEs, overlook the use of certain environmental technologies, because they simply ignore the existence of such technologies or they fail to carry out a full cost-benefit analysis of the proposed technology. There is a need for new integrated decision-making tools, based on state-of-the-art impact assessment and standard LCAs methodologies, and also for regularly updated common databases. There is a need to clarify the concept of BATs, which is not always adapted to SMEs as it does not take into account the aspect of economic viability.

The dissemination of R&D outcomes to the end user community needs radical improvement, especially at the level of the EU Framework Programme.

3) For the new and breakthrough technologies, **the resources available for their development are often lacking** or are not strategically allocated. There is a great need for large-scale high-profile demonstration activities to validate the technology and ensure its wide acceptance (this is a recurrent demand in many of the contributions!). By limiting their financing to pre-competitive research, public authorities do not allow to bridge the huge financing gap between the end of research and the start of commercialisation. There is insufficient knowledge in Europe on sustainability and interaction between the three pillars.

*Suggested **Measures**: There is a permanent need for R&D programmes in domains which are relevant to the Action Plan. A higher priority should be dedicated to environmental technologies in the European Research Area. Additional research funding is especially needed in some Accession countries.*

Research programmes must integrate all the necessary components (e.g. training, social and economic impact assessment, market research, demonstration, and involvement of all stakeholders) for promoting the take up of the new technology by the market. Ideally, the consortia should be vertically integrated: i.e. gathering complementary partners instead of competitors.

Extra efforts need to be spent to remove the barriers to the participation of SMEs in research programmes, and in particular in the EU Framework Programme. The UK's Small Business Service has an effective mechanism of supporting environmental technology's take up by SMEs, through its Smart scheme.

The research and demonstration programmes should address the socio-economic factors relating to the development and use of environmental technologies. Research should support and assist in the shaping of policy and regulatory decisions, which creates the need for R&D projects to be monitored in close liaison with the evolving legislation.

A greater emphasis should be given to the support of demonstration activities. There is a need to reinforce the links between the EU Framework Programme and the LIFE programme. The LIFE programme is a good base for stepping up demonstration and dissemination of new technologies and methods but there is still pace for improvement of the instrument. There is a need for translating pilot projects into large-scale applications, i.e. the next stage after the demonstration of ideas under programmes

such as LIFE. It is agreed that even technologies that have moved beyond the demonstration phase might still require R&D support.

It is necessary to perform relevant research on sustainability and to strengthen the dialogue between science, industry and politics, with the involvement of society at large.

4) There is **not enough co-operation between the different actors involved in the development and use of environmental technologies.**

***Suggested Measures:** Project teams have to integrate all the concerned actors of the supply and demand chains, for example in a similar way as “type 2 partnerships” (cf. WSSD of Johannesburg). Work on competitiveness has highlighted the importance of economic “clusters” which, in a relatively small geographic location, involve mutually beneficial interactions between a critical mass of suppliers, education and research organisations, customers, public authorities and other interested actors. Clusters of this kind can be especially beneficial to SMEs by allowing them to draw on external support and information. Project leaders (e.g. architects) should be given the task to ensure regulation and standard compliance.*

5) **Technology and know-how transfers within and outside the EU are a recurrent problem.** Those who suffer the most of the deficiencies of the current transfer approaches (including their high cost) are the SMEs, accession countries and developing countries.

***Suggested Measures:** Technology transfer needs more effective programmes, in the same line as the UK’s Faraday Partnerships which provide national hubs for R&D, technology transfer and training in a specific area of technology. It is recognised that dedicated technology transfer organisations are needed throughout Europe, as transfer requires a strong multidisciplinary expertise (cf. US EPA acts both as regulator and a technology transfer organisation).*

There are several new instruments within the context of the Kyoto protocol and the WSSD of Johannesburg (e.g. clean development mechanisms, public private partnership) that would deserve to be promoted to foster technology and know-how transfer. The dissemination of so-called best practice has to be looked at very carefully, as there is a tendency to overlook the needs of the target group in the transfer phase. There is a need for an improved dialogue between the technology developers and the financial investors. One should explore the potential of technology transfer from other types of industries such as defence or bioscience industries.

In the frame of export and trade, technology transfer needs a proper identification of the target markets.

6) The **lack of education and training** in the area of environmental technologies. This leads for example to a lack of competent workers to operate, maintain and disseminate environmental technologies (e.g. experience of the European domestic heat pump market in the 80’s). Weaknesses in technical and business skills within the environment industry sector are acting as a barrier to innovation and commercialisation.

Suggested Measures: *There is a need for targeted training and education programmes, especially in the Accession Countries. There should be a greater industry/ user community pull on the content of education and training programmes. Efforts should be spent to map sector requirements at the European level, in order to plan the development of relevant training packages. Co-ordination is needed across the various European training and education organisations to optimise the content of programmes and to anticipate emerging needs. The EU might sponsor the creation of a network of “educational centres of environmental excellence”. The establishment of an EU wide forum on skills and training in the environmental sector might be a good mechanism for achieving the above actions.*

There is a need for vocational training dedicated to company workers. Particular skills needs within the wider market place include improvements to the environmental knowledge of professions that “specify” environmental goods and services (e.g. in procurement). The status of the environmental manager or engineer has to be raised.

7) The EU regional policy is not propitious to the adoption of the most environmentally friendly technologies.

8) By promoting **conservatism** in many sectors (e.g. construction sector), **public procurement** procedures are seen to put a number of barriers to the full use of environmental technologies. The tendency to select offers on the basis of the lowest price discourages the take up of innovation.

Suggested Measures: *It is proposed to introduce the concept of “whole life costs” (WLC) or “economically most advantageous tender” (EMAT)³ in the offer-making process to improve the chance of environmental technologies to be adopted. In this context, reference is made to the European Court decision regarding the Helsinki city natural gas bus case. The emphasis should be on specifying outcomes rather than precise solutions. Increasing the weight given to environmental performance criteria when awarding procurement contracts can be an effective signal to suppliers. In duly justified cases, there might be some relevance to apply precise targets for specific types of procurement (e.g. such as the use of a minimum %age of recycled content). There is also a need for minimizing administrative burden for those applying.*

9) Not enough is done to promote the take up of environmental technologies in developing countries.

Suggested Measures: *To associate more closely partners from developing countries in European research and demonstration programmes. To adapt or relax the IPR rules for giving the possibility to developing countries to acquire the BATs at lower cost.*

Some thoughts need to be given to better use the existing aid instruments for third countries in the perspective of technology transfer (e.g. Technical assistance programme in the frame of Europe Aid, ECHO) and/or to introduce new types of

³ The concept of EMAT relies on the principle of whole life costs which includes expenses for energy and maintenance hence allowing clients to understand their long-term saving potential.

instruments for promoting exports (e.g. based on public/private partnerships). International financial institutions should also be encouraged to adapt their development aid guidelines to better take into account the potential of available environmental technologies. Member States that lack a network of chambers of foreign trade should be encouraged to establish such a network.

10) Efforts at the WTO to define arrangements where environmental technologies would be exempted from duties and tariffs should be pursued within the so-called Doha negotiations.

11) One contributor suggested to include dedicated foresight activities within the Action Plan, with a special emphasis on the role of environmental technologies for regional development.

Implementation of the Action Plan

There are already in place few national and regional strategies to promote environmental technologies (or equivalent technologies). The EU Action Plan should build upon the existing. Benchmarking would help to identify the most effective strategies which could then be extended throughout the EU.

Several contributors think that COM(2003)131 is not sufficiently explicit on governance issues: how policies are made and implemented, by who, on the basis of what knowledge and principles, etc.

The Action Plan should clearly identify those responsible for its implementation and the monitoring and follow-up mechanisms to be put in place. The success of the implementation phase will partly depend on the co-operation among the concerned actors and the commitment of the local level. One has to admit that local cultures differ across Europe, which means that different responses are provided to questions relating to sustainable development. The benefits of environmental technologies will have to be clearly communicated to the local level to ensure its full mobilisation.

It may be useful to look at different time periods when developing the Action Plan: for example, near term (0-5 years); medium term (5-10 years) and long term (10+ years).