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ENVIRONMENTAL PROTECTION AGENCY

EU's Environmental Technologies Action Plan

A study of possible Danish contributions

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The Danish Environmental Protection Agency will, when opportunity offers, publish reports and contributions relating to environmental research and development projects financed via the Danish EPA.

Please note that publication does not signify that the contents of the reports necessarily reflect the views of the Danish EPA.

The reports are, however, published because the Danish EPA finds that the studies represent a valuable contribution to the debate on environmental policy in Denmark.

Contents

Abbreviations

6FP	6th Framework-Programme for Research and Development
BAT	Best Available Techniques
CM	Community Method
DEPA	Danish Environmental Protection Agency
EBRD	European Bank for Reconstruction and Development
EESC	European Economic and Social Committee
EIB	European Investment Bank
EPET	European Panel on Environmental Technologies
EPSD	European Panel on Sustainable Development
ETAP	Environmental Technologies Action Plan
EUCETSA	The European Committee of Environmental Technology Suppliers Associations -
GDP	Gross Domestic Product
GTF	Green Technology Foresight
ISPA	Instrument for Structural Policies for Pre-Accession
NGO	Non Governmental Organisation
OMC	Open Method of Co-ordination
PA	Priority Action
SDS	Sustainable Development Strategy

1 Summary and Recommendations

This section offers a summary and recommendations as regards the future of the Environmental Technologies Action Plan (ETAP), including specific ideas for potential roles of Danish stakeholders in the broader ETAP process.

1.1 Summary

On 28 January 2004, the Commission adopted an Environmental Technologies Action Plan (ETAP) with the aim of harnessing the full potential of environmental technologies to reduce the pressures on natural resources, improve the quality of life of European citizens and stimulate economic growth. In the plan it was emphasised that ETAP is a contribution to the EU Sustainable Development Strategy and to the Lisbon Strategy.

Box E1: Environmental Technologies

The ETAP defines environmental technologies to include all technologies whose use is less environmentally harmful than relevant alternatives. This is therefore quite a broad definition that allows both true clean technologies (eg zero emission closed circuit processes), cleaner technologies (eg more efficient processes or products) and also end-of-pipe technologies (eg filters).

The objectives of the ETAP are to remove the barriers for environmental technologies such that they can achieve their full potential, ensure that the EU takes a leading role in developing and applying environmental technologies and mobilise all stakeholders in supporting these objectives. It focuses on three pillars: getting from research to markets; creating the right market conditions; and acting globally, ensuring that the international dimension is suitably incorporated.

More precisely, the Environmental Technologies Action Plan contains 28 actions of which 11 are chosen as priority actions (PAs) for the Commission, national and regional governments, industry and other stakeholders to improve the development and uptake of environmental technologies. The PAs are given in Box E2.

Box E2: ETAP Priority Actions

Getting from Research to Markets • Increase and better coordinate research (PA1), • Launch three technology platforms bringing together researchers, industry, financial institutions, decision-makers and other relevant stakeholders (PA2) (see Box E3), • Establish European networks of testing and standardising (PA3), *Improving Market Conditions* • Develop and agree performance targets for key products, processes and services (PA4), • Mobilise financial instruments to share investment risks (PA5), • Review state aid guidelines (PA6), • Review environmentally-harmful subsidies (PA7), • Encourage procurement of environmental technologies (PA8),

- Raise business and consumer awareness (PA9),
- Provide targeted training (PA10), and

Acting Globally

- Promote responsible investments in and use of environmental technologies in developing and economies in transition countries (PA11) – eg through trade agreements; development of cooperation funds

There is also a plan for moving forward, which includes regulator reviews of the situation, the setting up of a European Panel on Environmental Technologies (EPET) and the use of the open method of co-ordination (OMC).

The EPET is simply to be a high level panel from across the EU to help coordinate and input into the ETAP and, while its constitution is not yet set, is likely to involve key stakeholders and personalities.

The OMC is basically a mechanism with the aim to help Member States to progressively develop their own policies. This can take place via 'soft' instruments such as benchmarking, peer reviews, regular reporting, and the development by the Commission of voluntary guidelines. This approach contrasts with that of the Community Method (CM), which relies on setting 'hard' legally binding standards for achieving goals.

Box E3 Technology Platforms for ETAP

The aim of the platforms is to help develop a coordinated long-term strategy for developing the technology or marketing its results. There are currently around 20 such platforms at the EU level, some with numerous national 'mirror platforms'. As regards ETAP, the status of the selection of platforms is:

- Hydrogen and fuel cells - *In place*
- Photovoltaics – *In place*
- Steel – *In place*
- Water technology – *Planned to be in place in 2005*
- Others to come – eg currently discussions underway whether to have one on Chemicals.

1.2 Recommendations

Constructive efforts can come from all levels of stakeholders – from government officials that currently constitute the high level working group on ETAP; from industry to ensure a real commitment and in cases pressure for the priority actions (PAs) to be implemented and dialogue in the platforms and national mirror groups; to academics in the links to research networks of excellence and to the European Panel on Environmental Technologies (EPET). EPET membership is still an open question, and support can usefully be given to ensure that there is some type of NGO participation; NGOs can be influential in keeping momentum going on the environmental aspects of ETAP.

General Recommendations Regarding Environmental Technologies

- The EU should ensure that it maintains or grows its share of the global eco-industries markets - in services, end-of-pipe applications and clean technologies, whether process or products. The EU has to counter the explicit ambitions of the Japanese in this field, and the expected American ambition.

- EU and Member States should contribute to helping identify and support key new technologies that can offer environmental benefits as well as both domestic economic gains and export markets. This can be done, *inter alia*, through focused support on this issue in national foresight work – eg green technologies foresight. This will achieve win-win-win situations.
- The scope for supporting/offering appropriate signals for the development and uptake of environmental technologies in existing programmes and funding should be explored and realised. Notably, more emphasis should be given to promoting these technologies through the revised Structural Funds and in the Cohesions funds prioritisation need to better reflect the benefits of these technologies.
- While there is already an expected high level of commitment to environmental technologies in the 7th Framework Programme for Research and Development, support that this actually ends up being the case would be beneficial.
- Finally, it has been shown that the key driver for the development and uptake of environmental technologies is regulation itself. Therefore, particular attention should be paid to putting in place appropriate regulation to support needed technologies.

General ETAP Recommendations

- The 'Open Method of Communication' (OMC) should only be used in areas where there is a true value added as a supplement to EU environmental regulation – eg in relation to investments in cleaner technology and exchange of good practices.
- OMC should not substitute EU environmental regulation and should only be used in areas where competence is shared between the Community and Member States, but progress at EU level is limited due to unanimity voting rules – eg in relation to the use at national level of economic instruments for furthering environmental technologies.
- Member States could push for the annual reports (which are to feed into the Commission Spring Reports) on the 'R&D 3% of GDP objective' to include information on the implementation of ETAP.
- With regard to the technologies covered under the 6FP it would be valuable to have assessments of the environmental achievements in relation to those technologies to clarify which technologies run counter the environmental objectives, to clarify where future support is appropriate, and indeed make the programme more internally consistent and avoid contradictions of objectives.
- It is important that experts involved in the implementation of ETAP explore funding opportunities outside the general environmental funding framework as funding here is relatively limited and this seem to also be the case for the next EU budget period (2007-2013). Other budgets are also relevant. ETAP can be seen as an instrument to achieve the Lisbon goals and should therefore be promoted in relation to policies related to the Lisbon Strategy.
- In terms of creating coherent and mutually supportive policies, the Dutch Presidency should ensure that actions in support of ETAP becomes part of the result of the negotiations on the proposal for a new Programme of the Competitiveness of Enterprises and the proposal for a new action plan for innovation.

Possible Recommendations for Danish Stakeholders

- Explore which of the PAs offer the greatest benefit to Denmark and be proactive in encouraging that these PAs be implemented robustly. This includes identifying and communicating cases of best practice that others can learn from.
- Where relevant, and appropriate for Denmark, look at national strategies and measures to support implementation of PAs.
- Consider proactive suggestions as to representatives for the EPET – either permanent or liaisons on special issues, if the EPET is more flexible. The representatives should be constructive and influential.
- Check to see which research networks in Denmark can support the EPET and encourage links of national research networks and programmes to EPET discussions.
- Link in to Dutch activities on ETAP, innovation and policy instruments.
- Explore which national technologies (existing or potential) can have their exports markets developed (eg selling Danish wind power, given interest in clean technologies).
- Develop mirror groups on technologies at a national level to link to the EU platforms – these are the equivalent of national platforms.
- Encourage that platforms are taken seriously and not just talking shops.
- Encourage further platforms if and where appropriate – eg support the concept of the development of a chemicals platform.
- If and where a platform is particularly important for Denmark, communicate early to the Commission potentially important Danish representative for the panel. The Commission is key in the decision as to who is a member of each platform, but its position builds on information it has available.

2 Introduction

2.1 Aim of the Project

Cleaner technology is a central instrument in decoupling economic growth from environmental degradation. However, the development of new technologies and policies that encourage their uptake needs to be carefully linked into existing policy processes to ensure implementation. The promotion of the development and use of cleaner technologies can only be secured via proactive policies ensuring the right incentives and disincentives for the relevant stakeholders to engage in the innovation and use of these technologies.

This report was written as part of a project for the Danish Environmental Protection Agency (DEPA) under the Programme for Cleaner Products. The programme for cleaner products is to contribute towards increased understanding of cleaner production and greater promotion of cleaner products.

The main aim of this project is to support DEPA in its work with implementing the European Environmental Technologies Action Plan (ETAP) and hence this report is part of the Danish contribution to ETAP.

The support to DEPA comes in the shape of this report, which is to provide useful background information for DEPA's future work with ETAP and the reports answers to a number of questions raised by DEPA.

Another aim of the report is to contribute to the ongoing so-called Green Technology Foresight (GTF), which is also financed by DEPA.

The GTF is about the environmental challenges from the three generic technologies nanotechnology, biotechnology and ICT (information and communication technologies). The Technical University of Denmark, Risø National Laboratory and Institute for Product Development carry out the project. A number of companies have also agreed to contribute to the project.

The aim of the GTF project is to:

- analyse the environmental potentials and risks related to the three generic technologies within the coming 15 – 20 years, especially in relation to chemicals;
- identify areas, where Denmark has competencies, which might contribute to enhanced competitiveness of Danish companies and position Denmark within environmentally sound design of products and materials;
- analyse how environmentally promising innovation paths might be supported in Denmark and in the EU.

Finally, the project has also contributed towards the programme of research IEEP is carrying out on: ***Policy pathways to promote the development and***

adoption of cleaner technologies (acronym POPA-CTDA) a programme part funded by the 6th Research Framework Programme of the European Commission. It is also hoped that the POPA-CTDA will prove valuable to the Danish EPA.

2.2 Study approach

This project was carried out from January 2004 to June 2004 on the basis of desk based research and interviews with key stakeholders.

A number of policy experts have kindly helped us doing our research with answering questions and providing us with material. We would therefore in particular like to thank Pierre Henry (European Commission, DG Environment), Peter Carter (European Investment Bank), Pieter Hamelink (VROM of the Netherlands) and Nikolaos Christoforides (European Commission, DG Research).

However, no content of this report can necessarily be attributed to the above-mentioned experts, and all findings are the sole responsibility of IEEP.

The project also had a helpful steering group to guide the project in a policy and research relevant direction and to ensure that the report answered relevant and timely questions. The composition of the group was: Niels Henrik Mortensen (DEPA), Michael Søgaard Jørgensen (The Technical University of Denmark - GTF), Maj Munch Andersen (Risø National Laboratory - GTF) and Mads Borup (Risø National Laboratory - GTF).

2.3 Structure of the report

The next part of the report (Chapter 3) consists of a section describing relevant ongoing political processes including the Lisbon Strategy and the overall agenda of growth and employment in order to put ETAP in context of the existing processes and policies. The functioning of the Open Method of Co-ordination (OMC) is also briefly touched upon, as this method has been foreseen to be used for at least part of the implementation of ETAP.

Chapter 4 explores the ETAP relevant stakeholders and their respective roles in the genesis and implementation of ETAP. In particular, the roles of DG Research, DG Environment, and the EIB are discussed. Chapter 5 presents an analysis of opportunities and finally, the report includes a series of recommendations regarding the future of ETAP and the potential role for Danish stakeholders.

3 Institutional Processes

This chapter aims at describing relevant ongoing political processes including the Lisbon Strategy and the overall agenda of growth and employment in order to put the European Environmental Technologies Action Plan (ETAP) in context of the existing processes and policies. The functioning of the Open Method of Co-ordination (OMC) is also briefly touched upon, as this method has been foreseen to be used for the implementation of ETAP.

3.1 The Lisbon Process

In March 2000, at the Lisbon Summit, the European Council set a new strategic goal for the Union in 2010: 'to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion'. The focus was essentially on social and economic objectives.

The Stockholm European Council in Spring 2001 decided that an EU sustainable development strategy (SDS) should add an environmental dimension to the Lisbon Strategy. An annual review by each Spring Summit of the Community's progress in meeting sustainable development objectives would take place building upon the existing Lisbon process for reviewing and steering EU and Member State economic and employment policies, by adding an environmental dimension to the procedure.

It has therefore been decided that the yearly Spring Summits are to evaluate the implementation of the Lisbon objectives and the SDS on the basis of the Commission's annual Spring Reports. The Summits are to be based on these reports, which are in turn based upon regular, separate policy reviews and guidelines produced each autumn by the Economic and Finance, and Employment Councils. As a contribution to the environmental part of the Spring Reports, the Commission has been asked to produce an annual environmental policy review and a stocktaking of the Cardiff Process (the process of integrating environmental concerns into sectoral policies).

However, the role given to the Spring Summit in terms of steering and reviewing the SDS is not being reflected in practice, with political priorities instead focusing on economic and social issues, within the Lisbon Strategy. For this year's Spring Summit, the environment policy review[1] did not materialise until December 2003 – too late to be included in the drafting of the Spring Report and the Cardiff stocktaking was published after the Summit, namely in June 2004. So as in previous years, this year's Spring Report focuses mainly on the economic and employment aspects of the Lisbon process.

[1] Communication from the Commission to the Council and the European Parliament, *2003 Environment Policy Review - Consolidation the environmental pillar of sustainable development*, COM (2003) 745, 03.12.2003

In relation to R&D, the process was strengthened in the 2002 Barcelona European Council, where it was agreed that overall spending on R&D in the EU should increase and approach 3 % of Gross Domestic Product (GDP) by 2010 - significantly higher than the current 2.1%, which is much lower than that of the US or Japan.

3.1.1 Implementation of the Lisbon Strategy

It was decided at the European Summit in Lisbon 2000, that the Lisbon strategy should be implemented via a new 'Open Method of Co-ordination' (OMC). The OMC is a method that was introduced in the Maastricht Treaty, notably to ensure the coordination of economic policies at the European level.

The OMC can involve elements of benchmarking, peer reviews, regular reporting, and the development by the Commission of voluntary guidelines for the Member States. These elements can be regarded as 'soft' instruments in comparison with the Community Method (CM), which relies on setting 'hard' legally binding standards for achieving goals.

The OMC is now used on a number of policy areas – ie economic and employment policies as well as innovation policies and pension policies - with the aim is to help Member States to progressively develop their own policies. New areas for using the OMC are being explored including the environmental policy field. When the Commission in December 2003, published their Environment Policy Review, the idea of introducing some form of OMC in the environment field was further articulated.

In order to increase investment in European R&D towards the 3 % of GDP by 2010 target agreed in Barcelona, the Commission in September 2002 published the Communication[2], *More research for Europe - Towards 3 % of GDP*. On the basis of feedback on the Communication from Member States, industry and other stakeholders, and on recommendations from independent experts, the Commission in April 2003 adopted the action plan *Investing in research*[3]. The action plan identifies ongoing initiatives relevant to the 3 % objective, and new actions to be undertaken at national and/or European level.

In March 2003, the European Council also agreed that OMC was to be used to pursue the 3% objective. One of the elements of the action plan was therefore a suggestion on how to make an appropriate framework for the monitoring, reporting and benchmarking needs related to the target. A set of 22 indicators was proposed to help monitor and report on progress towards the target and annual reports should be available in mid-November to feed into the Commission Spring Reports (meaning that Member State information would have to be available two months before).

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[2] Communication from the Commission, *More research for Europe - Towards 3 % of GDP,* COM(2002)499, 11.09.2002 – the Communication is complemented by the Commission Staff Working Paper SEC(2002)929

[3] Communication from the Commission, *Investing in research: an action plan for Europe,* COM(2003)226, 30.04.2003 – the action plan is complemented by the Commission Staff Working Paper SEC(2003)489

3.1.2 Review of the Lisbon Strategy

A Lisbon Strategy mid-term review is foreseen to take place during 2005 under Luxembourg's EU Presidency. In accordance with the conclusions of the March 2004 European Council, the Commission has set up a High-level Group on the Lisbon Strategy, to be chaired by Mr Wim Kok, former Prime Minister of the Netherlands.

The Group is to look into ways of injecting fresh stimulus into the Lisbon strategy, in particular by improving delivery of the objectives set and by involving Member States and stakeholders more closely. It will also be assessing the instruments and methods used so far. It is to report to the Commission by 1 November 2004, in order to help the Commission in preparing proposals for the mid-term review of the Lisbon strategy to be included in the Commission's Spring 2005 report.

The Dutch Presidency has committed to facilitate the work on the mid-term review of the Lisbon Process during their Presidency with a clear focus on lifting the administrative burden on industries.

A larger review of the EU SDS was, according to the Commission's 2004 Work Programme, to be published for consultation in May 2004 although this timetable has slipped. Little information is currently available on the content and the possible link between these two reviews. It seems most likely that the SDS review will be not be adopted until there is a new Commission is in place, which is expected for after 1 November 2004.

3.2 Environmental Technologies Action Plan (ETAP)

3.2.1 Background of ETAP

In Stockholm, when the European Council decided on an EU SDS, it was also decided that:

> ***'The European Council will accordingly review at its Spring meeting 2002:***
> - ***progress in integrating the sustainable development aims into the Lisbon strategy;***
> - ***the contribution that the environment technology sector can make to promoting growth and employment.'***

Work on the Plan began in 2001 and in 2002 the Commission produced a report[4] that outlined the environmental technologies market, including some of the barriers to their development.
Following this the Commission produced a further communication[5] in March 2003. The aim of this communication was to deepen discussions on the content of the Action Plan by setting out a number of measures and questions as a basis for discussions.

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[4] Report from the Commission, *Environmental Technology for Sustainable Development*, COM (2002)122, 13.03.2002
[5] Communication from the Commission, *Developing an action plan for environmental technology*, COM (2003)131, 25.03.2003

At the same time the Commission set up four stakeholder groups to look at the potential of environmental technologies for four particular issues. The four issues selected for investigation were:

- climate change (including energy and transport)
- soil
- sustainable production and consumption
- water

Each of these stakeholder groups have produced studies, which have provided input for the plan. These studies can be found on the Commission webpage: http://europa.eu.int/comm/environment/etap/developing.htm

3.2.2 ETAP

On 28 January 2004, the Commission adopted an Environmental Technologies Action Plan[6] (ETAP) with the aim of harnessing the full potential of environmental technologies to reduce the pressures on natural resources, improve the quality of life of European citizens and stimulate economic growth. In the Plan it was emphasised that ETAP is a contribution to the EU Sustainable Development Strategy and to the Lisbon Strategy.

The objectives of the ETAP are to remove the barriers for environmental technologies such that they can achieve their full potential, ensure that the EU takes a leading role in developing and applying environmental technologies and mobilise all stakeholders in supporting these objectives. It focuses on three pillars: getting from research to markets; creating the right market conditions; and acting globally, ensuring that the international dimension is suitably incorporated.

More precisely, the Environmental Technologies Action Plan contains 28 actions of which 11 are chosen as priority actions (PAs) for the Commission, national and regional governments, industry and other stakeholders to improve the development and uptake of environmental technologies. The PAs are to:

Getting from Research to Markets

- Increase and better coordinate research (PA1),
- Launch three technology platforms bringing together researchers, industry, financial institutions, decision-makers and other relevant stakeholders (PA2) (see Box 3.2),
- Establish European networks of testing and standardising[7] (PA3),

- *Improving Market Conditions*
- Develop and agree performance targets for key products, processes and services (PA4),

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[6] Communication from the Commission to the Council and the European Parliament *Stimulating Technologies for Sustainable Development: An Environmental Technologies Action Plan for the European Union* - COM(2004)38, 20.01.2004

[7] Note that Canada and the USA already have environmental technology verification centres, which are linked with international markets, such as China and Indonesia. Any EU move to having testing networks could usefully have an international component to ensure the connection to global markets. Note that the certificates produced should help in procurement, technology recognition, reducing concern as regards technological risk, and may help link to funds (Eg structural funds).

- Mobilise financial instruments to share investment risks (PA5),
- Review state aid guidelines (PA6),
- Review environmentally-harmful subsidies (PA7),
- Encourage procurement of environmental technologies (PA8),
- Raise business and consumer awareness (PA9),
- Provide targeted training (PA10), and

Acting Globally

- Promote responsible investments in and use of environmental technologies in developing and economies in transition countries (PA11) – eg through trade agreements; development of cooperation funds

There is also a plan for moving forward, which includes regulator reviews of the situation, the setting up of a European Panel on Environmental Technologies (EPET) and the use of the open method of coordination (OMC) – recall 2.1.1.and see also 2.2.3.

The Commission in the Plan concludes that important key players in making the plan come true are the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). The Commission therefore calls on the Member States, the European Council and the European Parliament to request the EIB and the EBRD to broaden their range of financing instruments to promote environmental technologies.

According to the Plan, every two years, the Commission is to report on the implementation of the ETAP to the European Council and the European Parliament.

3.2.3 Implementing ETAP

The High Level Working Group

A new High Level Working Group, consisting of government officials from the 25 Member States and Norway, has been created to ensure the implementation of ETAP. The first meeting of the group took place on 3 May 2004 in Brussels.

According to the minutes[8] of the meeting, all delegates who expressed their views confirmed the high priority dedicated to ETAP by their countries, the need for the Action Plan to produce rapid results and to mobilise and closely involve relevant stakeholders in its implementation.

A number of actions were suggested by delegates as to be prioritised, among these were:

- Green procurement,
- Performance targets,
- Dissemination of R&D results and more generally the need to share good examples of technologies,
- Funding mechanisms,

[8] These are seen by some as 'informal' as the minutes do not have a formal status.

- Economic instruments including taxes, the review of state aids guidelines and of environmentally-harmful subsidies, the development of pilot projects in key technological domains,
- The work on specific sectors such as energy-efficiency or water and resources management,
- The enhancement of producers and consumers awareness on environmental technologies,
- Technology platforms

It was mentioned in the meeting that a number of criteria used to retain a technology platform have been proposed by stakeholders, namely the perspective to elaborate a research agenda, the European added value and the appropriate technical and political conditions (for the latter, the link with research objectives).

In order to bring forward the preparation of the co-operation with Member States in implementing ETAP, the Commission asked Member States delegates to forward a short paper by the end of May, covering:

- Actions under ETAP that should be priorities for the work of the group
- Areas where Member States have examples of good practice
- Actions that Member States would have a particular interest to contribute to and take an active role in the co-operation

Based on these contributions, the Commission will prepare and circulate a synthesis report, with proposals for the future work of the group, which will also serve as a preliminary basis for the report to the Spring Council 2005 on the implementation of ETAP.

The next meeting of the group on implementing ETAP is planned to take place on 29 October 2004.

The European Panel on Environmental Technologies (EPET)
The exact nature of and involvement in the EPET is still being decided – indeed discussions on 2 June 2004 at the Green Week, underlined this, where Catherine Day (Director General, DG Environment) called for debate on 'what should EPET be' and 'who should be on the panel' and 'what resources it should have'. The debate led to a range of suggestions, but to no obvious consensus on a way forward. It is clear that Member State representatives will remain key here, as they are in the high level working group, which is seen as a type of precursor or stepping stone to the EPET.

The working aim of this panel is to exchange information (eg best practices), advise the Commission, derive concrete initiatives. How much advising should be done and how much exchanging and the balance of the two is still to be decided. Similarly it is still unclear whether the panel should be 'wide or narrow'.

The problem was raised[9], that the subjects to be covered by the EPET would be too broad to have all knowledge grasped by the group, no matter how qualified. This argues either for a more flexible EPET, with the panel membership being flexible, with interchange of people, or a core panel

[9] Dan Stromberg of Chalmers University, during the Green Week session on ETAP

supporting by working groups (of time-limited role), or linked to other research networks, whether existing national or EU ones, or new ones such as a European Panel on Sustainable Development (EPSD).

The suggestion was also made in Green Week that the EPET could also usefully be involved in the regular ETAP review when this is done every other year. For example it could be involved in the planning of the review and write parts of the review. Furthermore, the suggestion was made that the key focus for the EPET could be on:

- Establishing technology platforms (PA2) – helping with the implementation phase;
- Performance targets (PA4) – could help in developing this further
- Business and consumer awareness.

As regards working methods, the proposal was made that the EPET be non-political (widely endorsed) and that it could give a second opinion on white and green papers where relating to ETAP issues, be a forum for top level discussions on global initiatives of long time frame.

The rules of the EPET are not clear yet. There is therefore potential to influence the design and ensure that the right people are nominated, whether from government, NGOs, industry or non-aligned high calibre people.

OMC

ETAP will be a test case for using the OMC in an environmental context, the Commission has announced and the council has supported that this possibility is explored. This is quiet a novelty of the plan, as the environmental policy field is normally characterised by the CM, however, one may argue that environmental technologies do indeed not fall exclusive within the remit of the environment policy field as it has (or ought to have) as much to do with enterprise, competitiveness and innovation policies. To what extent the OMC will take precedence over or supplement traditional Community Methods, however, will depend on discussions with Member States.

The need to clarify the limits of the Open Method of Co-ordination and/or the role of the High Level Working Group in the implementation of ETAP was also stressed in the High Level Working Group in May.

As mentioned the OMC is already being applied to the other two 'legs' of the EU Sustainable Development Strategy – but these are areas where (unlike in environment) Community competence is limited.

In applying the Open Method of Co-ordination in implementing ETAP, the Commission favours a gradual and flexible approach, focussing on a limited number of areas and on exchange of experience and best practice. The Commission wishes to avoid discussions on theory/structures and start with the substance and then based on that see how common work evolves.

From an environmental perspective, the concern is that there could be an increasing temptation to apply the OMC instead of environmental legislation. In other words, one might see a gradual softening of EU environmental policy unless strict criteria for when the OMC can be used are established.

3.3 Enlargement

One of the key elements of cohesion policies is to make the new Member States make the 'right' investments – this involves reaching EU minimum standards in some areas, reaching the standards of best available techniques (BAT) in others, and going beyond requirements in yet others, such as by ' leapfrogging' current Member States and going for the very best technologies and techniques. Ideally, the approach would be one of ensuring that investments allow countries to move to the front line of technologies or techniques, but in practice this may tend to be optimistic given the huge scale of the task of harmonising standards facing these countries.

Key areas of development as regards environmental technologies are:

- Eco-industries – we have seen and can expect to see continued very significant investments in eco-industries[10] – technologies and services to address:
  - Pollution management: air pollution, water, waste
  - Clean technologies – process/products: same environmental domains as pollution management; and
  - Resource management – water, renewable energies, recycling etc
- Process and product innovation that are not environmental per se, but lead to environmental benefits given process or product efficiency gains.

Investments in the tens of billions of Euros has already taken place, and additional sums nearer 100 billion Euros[11] can be expected to be spent in the new Member States and remaining candidate countries. While these countries have some of the technologies, these fast growing markets offer major opportunities for EU companies. For Denmark, sales of, ***inter alia***, wind energy technologies, could prove a valuable market as we get to the Kyoto implementation periods.

It is clear that in the coming years the new Member States and remaining candidates (and soon to be Candidate countries) will be busy implementing the EU environmental ***acquis Communautaire***, with its economic and administrative challenges[12]. This will lead to a number of environmental technologies being implemented – from clean technologies and processes related to the IPPC Directive to more 'traditional' end-of-pipe technologies for environmental services. Having said that, we can expect some fast growing modern industries, and particular scope for new clean technologies where the old capital stock is to be replaced in a short period. In some cases, there may actually be more room for innovation in the old member states where in certain areas there is a greater case of technology lock-in. Overall the focus will remain on traditional eco-industries, but a move towards clean processes will be significant. Much of the expenditure will remain in the countries themselves, especially where relating to labour intense expenditures (eg

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[10] ECOTEC (2002) Analysis of the EU Eco-Industries, their Employment and Export Potential.

[11] CEC (2001): Communication from the Commission - The Challenge of Environmental Financing in the Candidate Countries

[12] Ecotec, IEEP et al (2002) *Administrative Capacity for Implementation and Enforcement of EU* Environmental Policy in the 13 Candidate Countries.

relating to waste), but where investments relate to capital goods (complex filters, chemicals, instrumentation, renewable energies), then products from old Member States may well be sought. In some areas, we can expect the new Member States to catch up quickly, notably with joint ventures with companies from old Member States or further a field.

At this stage it is unclear what the New Member State influence will be on ETAP. Having said this, there is some fresh enthusiasm and critical spirit in the new Member States and one can expect at least some constructive ideas for debate, and real encouragement that certain of the PAs become real actions and be involved in the technology platforms.

4 Stakeholders and their roles – ETAP genesis and implementation

This chapter gives a description of the ETAP relevant stakeholders and their respective roles in the genesis and implementation of ETAP. In particular, the roles of DG Environment, DG Research, and the EIB are discussed.

The idea of ETAP seems to come from many different angles – within the Commission by both Wallström and Busquin; outside the Commission by for example the Swedes, also by the eco-industries associations, and some would argue that the Clinton-Gore development of an overarching strategy for eco-industries (the Sunrise Industry of the time) was an early inspiration. ETAP has been long in the making, and there have been particular drivers at different times, working both directly and indirectly. This will also be the case for ETAP implementation. Importantly ETAP will be a 'banner' under which many actions will be launched by different parties – again some formally linked to the ETAP and others sailing under the theme title.

4.1 The Commission

The Commission has already begun to implement the Action Plan, which has been supported by conclusions of both the Environment Council and the European Council. The Commission will review the implementation of ETAP and report on it for the first time in 2005, including at the 2005 Spring Summit.

ETAP objectives are being integrated into future calls for proposals under the 6th Framework-Programme for Research and Development (6FP), pilot technology platforms (see section 4.2 for details) are being launched (hydrogen and fuel cells, photovoltaics), networks of testing centres are part of the very recent (16 June 2004) and next 6FP calls, a communication on the integration of environmental aspects into standardisation has been adopted, work on the handbook on greener public procurement is on-going after the final adoption of relevant EU Directives.

In addition, stakeholders' consultation meetings on the implementation of ETAP will be organised by the Commission: a debate was already held during Green Week (2-4 June 2004) and another stakeholders' event is foreseen in September. The setting up of the European Panel on Environmental Technologies (EPET) will probably be discussed at this event.

4.1.1 The DGs involved in ETAP

DG Environment is responsible for the main part of the PAs, and DG Research for three of the PAs. However, a number of other DGs are heavily involved, eg DG Internal Market on PA 18 (harmful subsidies) and DG Competition on PA 16 (State aid). DG Enterprise and DG Transport and

Energy are other very involved DGs. DG Agriculture is not really involved due to the way ETAP was designed.

Within DG Environment one could envisage some scepticism that the ETAP take all the 'spotlight' away from core environmental issues. However, it seems not to be seen this way, more as a complementary mechanism that can link into IPP, add additional interest in eco-labels and EMAS, and be supported by initiatives to clarify state aids, reforms of harmful subsidies, and the use of other economic-environmental instruments to encourage appropriate innovations – such as through taxes and charges and emissions trading. It is however, not unlikely that some parts of DG Environment will be less supportive in the future, if ETAP 'swallows' most of the available funds in the environmental field being a key priority.

DG Research is also seen as a key actor. The 'priority actions' (PA) 1-3 are DG Research's responsibility and have been launched already. Within the Framework Programmes, the *POPA-DACT Clean Technologies Pathways* is the main ETAP related project under the 3rd call of the 6FP, additional ones are and will be supported under other calls; significant coverage of ETAP related projects is also expected in the 7th Framework-Programme for Research and Development – either under directly related areas or under others such as industry, and energy. In the preparation of the 7FP, the identification of major environment projects can contribute to its success and DG Environment has been asked to identify potential in the existing programmes.

To give an indication of the importance currently given to environmental technologies, DG Research, within the 6th Framework programme, tried to realise all major opportunities for including technologies in the calls. There is more on testing networks and water quality, and more in the fourth call. Support for clean technologies is not just included in the environmental strands of the framework programme, but other strands also relate to clean technologies. For examples the industry technologies area includes a big line on waste and recycling. There are opportunities in the energy domain also – while this is not a new programme, new and more actions can be expected here. Furthermore, in other programmes – eg nanotechnologies, waste recycling, industrial technologies - there are also more funds that can potentially be used to support clean technologies.

The prioritisation of the work with environmental technology within the Commission will to some extend build on the capability of the new Commissioners responsible for environment and research to build strong alliances with other Commissioners and to closely link the work to the Lisbon agenda. There will be a new Commission in place from 1 November 2004 consisting of a College of 25 Commissioners. One can imagine different ways of working in the future due to the large number of Commissioners eg a more decentralised model where the Commissioners split the work into 'clusters' and 'working groups'.

4.2 The European Investment Bank (EIB)

The European Investment Bank (EIB)[13] is the European Union's financing institution, which has the task to contribute towards the integration, balanced development and economic and social cohesion of the Member Countries. To this end, it raises on the markets substantial volumes of funds, which it directs on favourable terms towards financing capital projects according with the objectives of the EU. Outside the EU, the EIB implements the financial components of agreements concluded under European development aid and cooperation policies. The EIB is a 'not-for-profit institution'[14], which means that the Bank passes on the benefits to its clients in the form loans at fine rates. Interest rates are based on EIB's borrowing cost and a small margin to cover administrative expenses and other costs.

The EIB is obliged to ensure that all projects it finances comply with EU environmental policies and standards[15]. Besides the obligation to make sure that the projects do not have a negative impact on the environment, the EIB also supports investments that directly protects and improves the environment.

The EIB do not envisage new instruments for the implementation of ETAP. The objectives of the EIB are, as mentioned, the EU policy objectives like economic development goals, regional goals, environmental goals, etc. ETAP is seen to be one of the instruments in this frame. However, the EIB does envisage more focus on environmental technologies. The bank's mandate in this respect is both the environmental mandate, but arise as much from the Innovation 2010 Initiative.

The EIB tends to focus on commercially and technically well-developed project. The small scale of projects and immaturity of technologies can limit EIB loans, however, the EIB is exploring ways to support financial intermediaries equipped with sufficient resources to evaluate and manage small scale schemes in the energy sector.

Innovation and R&D

The financing of innovation is stated to be a key priority for the EIB. In line with the conclusions of the Stockholm (March 2001) and Barcelona (March 2002) European Councils, the EIB's Board of Governors in June 2003 approved the Innovation 2010 Initiative.

The Innovation 2010 Initiative is to take forward the conclusions of the Lisbon European Council, aimed at fostering the development of a knowledge and innovation-based European economy.

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[13] For more information on the EIB please visit: www.eib.org on information regarding the EIB and environment please visit: www.eib.org/environment/en/index.htm

[14] The EIB is a public bank whose role is to finance projects that promote EU policy objectives. In the field of environment, EU policy is outlined in the Treaty and detailed in secondary legislation as well as various policy documents. ETAP would fall under this last category.

[15] This includes requiring that all projects likely to have a significant effect on the environment is to be subject to an Environmental Impact Assessment according to the EIA Directive.

It provides a framework for EIB Group action until the end of the decade and establishes an new indicative lending envelope of EUR 20 billion for the period June 2003 to December 2006. The EIB Group will then conduct a mid-term review to fine-tune the initiative's priorities and instruments up to the end of 2010.

The Ecofin Council in November 2003 also adopted a report to the European Council, which calls upon the EIB to focus its action in sectors such as Trans-European networks, innovation, research and development and securitisation.

Global Loans

EIB's clients are public and private sector bodies and enterprises. As a rule, EIB normally only lends up to half of the capital required for a project and usually finances larger scale projects directly. It supports small investments, eg between EUR 40 000 to EUR 25 million, and the activities of small and medium-sized enterprises (SMEs) indirectly through its global loans.

Global loans are credit lines, which the EIB makes available to financial intermediaries for financing small and medium-scale projects. This type of loan enables the EIB to contribute indirectly to the long-term financing of projects which, because of their size, are not eligible for direct EIB funding. The volume of such lending varies from country to country. In total, both within and outside the EU, EIB has dealings with nearly 400 banks and financial institutions[16], which are or have been its partners in deploying this type of instrument.

4.3 Member States and the Presidency/ies

Among the most important tasks of the EU Presidency is to preside over the work of the Council and to chair the European Council meetings, where the overall guidance for the work of the EU and its strategy are discussed and laid down.

As the Presidency is only six months and it takes over a large number of matters from the previous presidency as well as is guided in its priorities by the proposals put forward by the Commission, there is a limit to how much the Presidency can place on the agenda.

However, the timing of the ETAP is positive in terms of the Dutch Presidency clear goal of pushing the technology and innovation agenda forward. The informal Council meeting of the Dutch Presidency will be used to discuss 'Environment as Economic Opportunity'. To prepare for this the Dutch presidency has launched a series of regional workshops across Europe (note from Presentations). They are also expected to have a workshop in September on innovation and the use of economic instruments.

In the first half of 2005 Luxembourg will take up the Presidency and then the UK Presidency will take over at the end of 2005 (then Austria and Finland). The UK has also been pushing the ETAP case, having already had a joint workshop with Sweden in London. Sweden has also launched a series of

[16] In Denmark, the EIB intermediaries are *KommuneKredit* and *Nykredit,* which both handle EIB loans for public authorities, and the latter also handles loans for SMEs.

seminars – *Views on Research and Innovation: European Challenges and Swedish R&D (see Box 3.1).*

Box 3.1

The 22 June 2004 workshop, titled, '*Swedish Prosperity and Technology at the Crossroads*' presented some conclusions and insights on the Swedish Technology Foresight[17] Programme. A further workshop – '*Link between Research, Innovation and Entrepreneurship'*, will take place at the end of 2004, beginning of 2005. The former is organised by VINNOVA, the Swedish Agency for Innovation Systems, and the latter by The Confederation of Swedish Enterprise.

The main points from the June presentations, questions and answers and corridor discussions include:

- Most EU Member States have foresight commissions/programmes – some programmes are continuously ongoing (Eg the UK's Technology Foresight Programme[18] that started in 1994 and Germany's Delphi and Futur, the German Research Dialogue[19]), others are repeated every few years (eg Sweden).
- Prioritisation of which area to focus national attention on is both of paramount importance and difficult. The Swedes were clear that 'we cannot be the best at everything'. Choice of where to allocate resources is therefore key. This clearly applies to all Member States.
- Technology platforms have been around since 2001, and there are now around 20. The ETAP related platforms are simply building on the broader platform concept already launched.
- There is some scepticism as to which level of ambition is realistic for the panels. A platform as a talking shop is clearly possible; a panel as a real co-ordinating mechanism is seen as difficult but in cases possible; and a panel as a major venue for making commitments and allocating resources was regarded by some as very unlikely. This depends on a number of things, including who is allocated to the panel by the Commission (as they ultimately decide/invite), how representative the stakeholders are, and what the working relationships are between the stakeholders of industry concerned, and the linkage to national mirror groups.

However, all countries can usefully play a range of roles in making the ETAP move in a positive right direction:

- Develop mirror groups on technologies at a national level to link to the EU platforms
- Encourage that platforms are taken seriously and not just talking shops
- Encourage further platforms if and where appropriate – eg support the concept of the development of a chemicals platform.
- Recommend appropriate, constructive and influential people onto the EPET
- Encourage links of national research networks and programmes to EPET discussions.
- Support the PAs.

[17] 'Foresight' has been defined as 'the systematic attempt to look into the longer-term future of science, technology, the economy and society, with the aim of identifying the areas of strategic research and the emerging of generic technologies likely to yield the greatest economic and social benefits' Ben Martin (1995) *Foresight in Science and Technology* in: Technology Analysis & Strategic Management, Vol. 7. (1995), No. 2, p. 139-168

[18] see http://www.foresight.gov.uk/

[19] see http://www.futur.de/en/6287.htm This is also gives a list of Member State activities.

4.4 Industry

Industry is clearly a key, if not the key, stakeholder involved in the development and uptake of Environmental technologies. As regards ETAP, the main associations promoting industry position do not appear to have taken a strong position yet. However, the main association on eco-industries - the European Committee of Environmental Technology Suppliers Associations - EUCETSA – is already active in the debate. EUCETSA represents more than 800 European companies. Its mission is to provide a strong and effective voice with Brussels for the EU's environmental technology industry.

According to EUCETSA[20], the key driver for the environmental technology industry is the investment required by environmental legislation, supplemented increasingly by other policy measures such as fiscal instruments. Legislation leads to (early) introduction of high environmental standards, and creates a strong home market from which to export to the growing international markets.

Note that EUCETSA represents a core niche of industry, and for ETAP to really progress, major involvement by the major players is also required. For example, as regards the ambitions for hydrogen and fuel cells manifest in the platform, without big industry involvement, the promise of the move to a hydrogen economy will not be realised.

[20] www.eucetsa.org

5 Analysis of the opportunities

5.1 The Context – the Growth Agenda

The European Council met in Brussels in March 2004 for its fourth annual Spring meeting on the Lisbon Strategy. The EU SDS, which is in principle supposed to be part of these annual debates, was only mentioned in one line (para 47) where the conclusions states that the preparations of the 2005 mid-term review of the Lisbon Strategy should take account of the forthcoming review of the EU SDS.

In the Summit Conclusions, the 'environment' no longer – compared to previous years - has a section on its own. The new wording is 'Environmentally Sustainable Growth' and for the environmental topics to be picked up at this high political level, it now appears that they have to offer 'win-win' opportunities and preferably have positive impacts on the EU's competitiveness. Though the Conclusions state that the European Council met for its annual meeting on 'the Lisbon Strategy and the economic, social and environmental situation in the Union', growth seems to be the red thread throughout the Conclusions, and the fear that anything could limit this growth seems to substantially have changed the wording compared to previous years.

One such win-win opportunity is environmental technology, which receives considerable attention with an eight lines paragraph welcoming ETAP, and the European Council calls for the plan's rapid implementation.

ETAP offers an opportunity to push an environment agenda in the Lisbon process at a time where environment policy is under pressure. It is important to keep stressing the link between environmental technologies and competitiveness and employment. We can expect a move away from employment in traditional eco-industries such as end of pipe solutions (eg air emissions filters or waste water treatment plant), towards one where there is more employment in clean technologies and resources management (eg water supply, renewable energies).

Currently it has been estimated that there are around 2.5 millions direct jobs supported in the EU-15 in these areas – most of which are currently associated with services and end-of pipe technologies. This figure is nearer 4 million if indirect and supported jobs are taken into account. If the economy further integrates process efficiency technologies and techniques, then the number of environment related jobs can be expected to increase – as what were simply 'jobs' start to be linked to the environment.

However, with the move towards cleaner technologies, it will be increasingly difficult to ascertain which jobs are 'normal' and which 'environmental', and this distinction will inevitably blur. If and when the use of clean technologies becomes pervasive and end-of-pipe solutions less used, then clearly the approach to supporting environmental technologies – if and where still needed - becomes more difficult, and would need to focus on indicators (eg showing

nature resource intensity of production), benchmarking, use of national targets etc. This, however, will not be a short or medium term concern.

5.1.1 The Funding Opportunities

EU budget 2007-2013

The Commission Communication[21] on the EU's budget for the period after 2007, known as the 'Financial Perspectives' was launched in February 2004. This was the start of a process that will run well into 2005, possibly longer. It has implications for both policy and expenditure, affecting the environmental budgets as well as research and much else.

The Commission proposed a relatively large EU budget for the period 2007-13, although this does not imply higher levels of expenditure on most issues in the existing EU15. The new package was wrapped in the language of the Lisbon Strategy and strategic political objectives such as 'sustainable growth'.

Amongst the notable features of the proposal, in relation to the environment are:

- Future regional and cohesion policies should be driven by the priorities of growth and competitiveness.
- A new budget heading 'Preservation and Management of Natural resources' is established that will include Common Agricultural Policy market measures, fisheries policy and environmental measures and the operational expenditure required for these sectors.
- There is general language about the goals of both environmental and fisheries policy but nothing concrete about expenditure. The EU 'must manage its natural resources as a translation of the European model of growth and cohesion into the management of the environment'.
- A greater contribution to trans-European networks, with reference to 26 priority transport projects and more investment in energy supply, including renewables.
- A new 'financial instrument for the environment' would replace current environmental funding programmes.

The bulk of funding for the environment would continue to come from cohesion, agriculture and rural development, research and development and external assistance programmes, however, the new financial instrument for the environment would be funded grouping together all current budget lines (LIFE, urban environment, Forest Focus, civil protection etc.) in one instrument.

The first formal debate by EU leaders on the budget was scheduled for the Brussels Summit on June 18. The idea is that the Commission subsequently, on the basis of the discussions, prepare the legislative proposals to be adopted in July 2004.

Note, however, that the Commission has made strengthening European research a major objective in the financial perspectives, proposing to double the EU's research budget and since the budget for research is more than 10

[21] Commission Communication, Building our common future – Policy changes and budgetary means of the enlarged Union 2007-2013, COM (2004)101, 10.02.2004

times larger than the budget for the environment, it might therefore prove more interesting to keep an eye on the research funds.

EU's Research Policy

On 16 June 2004, the Commission in a new Communication[22] proposed orientations for the development of future EU programmes to support research activities and policies. They imply a significant expansion of the budget for the period 2007-2013 as set out in the financial perspectives. Six major objectives are identified:

- Creating European centres of excellence through collaboration between laboratories;
- Launching European technological initiatives;
- Stimulating the creativity of basic research through competition between teams at European level;
- Making Europe more attractive to the best researchers;
- Developing research infrastructure of European interest; and
- Improving the coordination of national research programmes

The ideas presented in the Communication are to be debated[23] both within the Institutions and among research stakeholders in Europe. On the basis of the debates, the Commission will present its proposal for the Seventh Research Framework Programme in the beginning of 2005. Along with specific information about the financial support schemes, it is to include the Commissions proposals for thematic research priorities. The 7FP will most likely run from 2006-2010.

As mentioned, significant coverage of ETAP related project is expected in the 7th Framework-Programme for Research and Development – either under directly related areas or under others such as industry, and energy. It is also expected that establishing EU testing networks of environmental technology (eg leading to certificates) will form a cornerstone of the 7th Framework Programme.

Big Funds – small projects

One difficulty for many new innovative projects is often that most of the funds that have substantial budgets are only accessible for projects of a certain size - eg funding from the Cohesion Fund have to involve a minimum investment of €10 million and, as described, the EIB also have difficulties dealing with smaller projects, but have to help this by being engaged with intermediaries banks and finance institutions. Part of the problem can be addressed by suitably 'bundling projects' so that linked or similar projects are grouped, with the total budget passing the eligibility criteria. This has already been used in the Candidate Countries under ISPA funding, and valuable lessons have been learnt there.

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[22] Communication from the Commission, Science and technology, the key to Europe's future – Guidelines for future European Union policy to support research, COM(2004)353, 16.06.2004

[23] The Commission will start an open Internet consultation shortly, on: http://europa.eu.int/comm/research/future/index_en.html

To address the problem of large minimum size projects, the European Economic and Social Committee (EESC) has therefore proposed[24] that part of the EU aid made available should be paid into a fund used, first and foremost, to finance smaller measures and that consideration be given to introducing a degree of earmarking of funding specifically for investments involving appropriate environmental technologies. A given percentage of funding under the Cohesion Fund could, for example, be set aside for projects involving less than a given level of investment.

5.2 Technology Platforms

The Technology Platforms as such are not formally actions within the ETAP. The idea of creating Technology Platforms came from Research Commissioner Philippe Busquin. It was then picked up by the Commission services and industry, started on a 'learning by doing' process, which means that there are no clear definitions of what a Technology Platform must consist of, so it in some ways there are defined by what they do and who is involved and what they make of it. This is perhaps a little simplistic; in practice each have an overarching ambition of creating a mechanism to move forward with the development of important technologies in Europe.

The aim of the platforms is to help develop a coordinated long-term strategy for developing the technology or marketing its results. As noted by Pierre Henry of the European Commission's Environment DG.

> *"At the beginning, the different actors are unaware of each other's plans, have no long-term strategy for developing the technology or marketing its results,"*
>
> *"Therefore, in these technology platforms we first draw up a research agenda together with all the relevant actors, identifying the research needs for the short and medium term, as well as scenarios for market developments in the long term. This should enable all the actors – including the EU – to share in the same vision and to plan their research and investments accordingly."*[25]

There are a number of drivers and aspects – see section 4.2.1 - that are to be taken into account when deciding on the setting up of a TP. However, there are no very fixed rules, hence the Commission creates Technology Platforms (see Box 5.2) if there is a need to gather industry in certain areas where one sees a potential for a given technology. However, most of the existing platforms come from industry initiatives. Some financing from the 6FP occurs – eg on fuel cells and some of the work going on in these platforms could eventually also have an influence on how the next FP will look.

Box 5.2: Technology Platforms – Definitions and Selection

Technology Platforms are a mechanism to bring together all interested stakeholders to build a long-term vision to develop and promote a specific technology or solve particular issues. In total there are around 20 platforms, many of which are not environmental – platforms are therefore of broader application than just ETAP. Indeed the first platforms were launched in 2001, well ahead of ETAP. ETAP is therefore using an already existing instrument. Platforms are launched by the Commission and

[24] Opinion of the European Economic and Social Committee on Realities and prospects for appropriate environmental technologies in the candidate countries, 31 March 2004.

[25] Source: http://www.cordis.lu/itt/itt-en/04-3/prog01.htm

industry, and, in general, for the ETAP, launched in those cases where the targeted technologies are considered to have significant environmental, economic and social potential. It is understood that the Commission invites representatives to be on the panel.

The status of the selection of ETAP related platforms is:

- Hydrogen and fuel cells– established by President Prodi. *In place*
- Photovoltaics – *In place*
- Steel – building on the conclusions from the Issue Group on Sustainable Production and Consumption – *in place*
- Water supply and sanitation technologies - *In place in 2005*
- Others to come – eg currently discussions underway whether to have one on Chemicals.

The Platforms in Detail

The 'European Hydrogen and Fuel Cell Technology Platform' was launched on 20th January 2004 by the European Commission. Its 'Advisory Council' is composed of major private and public stakeholders in the European hydrogen sector. A core task of the platform is to draft a blueprint to smooth the EU's transition from a fossil fuel-based to a hydrogen-based economy. The creation of the platform followed the presentation of a report by an EU high-level expert group on June 16, 2003, and the inclusion of a hydrogen and fuel cell initiative in the "QuickStart" list of transport and research projects. This list was presented by the Commission on November 11, 2003, in the framework of the "European Growth Initiative"[26]

The PV platform's objective is to contribute to a rapid development of world-class, competitive European Photovoltaic (PV) solutions for sustainable electricity production. The context of this technology, from the environmental policy point of view, is that of the climate change. To find the best way forward, and in support of the European Photovoltaic Technology Platform, a Photovoltaics Technology Research Advisory Council (PV-TRAC) has been created in December 2003. In order to address the barriers to maximising the use of this clean energy source, the Advisory Council will produce a foresight report "A vision for Photovoltaics up to 2030 and beyond" and will present it on 28 September 2004 in Brussels.[27]

The Steel Platform brings together key European stakeholders including enterprises, research institutes and organisations of steel users. The platform's aim is to help the sector meet the challenges of the global marketplace, changing supply and demand patterns, environmental objectives, and the streamlining of EU and national legislation and regulation in this field. In addition, with EU enlargement, the need for extensive restructuring of the steel industries is even more pressing. The Platform will help identify ways to boost research and innovation and to develop new and cleaner processing methods such as reducing CO_2 emissions.[28]

[26] See http://europa.eu.int/comm/research/energy/nn/nn_rt_htp1_en.html

[27] See http://europa.eu.int/comm/environment/etap/photovoltaic.htm and http://forum.europa.eu.int/Public/irc/rtd/pvtrac/library?l=/publicsarea&vm=detailed&sb=Title

[28] See http://www.cordis.lu/coal-steel-rtd/steel/events_stp.htm

The water supply and sanitation technology platform is not yet fully launched. However, a draft report on the platform is available through the Danish mirror group, the Danish Water Forum[29].

5.2.1 Criteria for establishment of TPs

Even if there are no official rules in setting up the TPs, there are some written indications to consider. In the staff working paper complementing the 2003 Action Plan for Investing in Research, it is stated that the setting up of TPs should be limited, in the first instance, to areas for which clear and significant benefits can be established. Though sectors have very different characteristics, the common thread should according to the plan be:

1. the potential strategic importance of the sector,
2. the EU dimension and
3. the role of RTD in fully achieving the potential benefits.

The plan mention the following six main drivers as likely to point towards potential candidates for a TP:

- the need to maintain/regain world leadership and enhance competitiveness in the face of stiff global competition through the generation of new RTD;
- the need to develop and assimilate new scientific knowledge and technologies to evolve towards a paradigm shift;
- the need to reconcile different policy objectives with a view to a sustainable development of the sector;
- the need to renew, revive or restructure ailing industry sectors;
- the need to support development of new technology based public goods or services with high entry barriers, uncertain profitability, but high economic and social potential;
- the opportunity to fulfil the potential of new technologies which hold the promise of radical change in a sector, if developed and deployed appropriately and in time. Global competition may condition, accelerate or decelerate development and deployment and will ultimately translate into a struggle for huge (global as well as local) markets, with consequences for the economy, employment and social welfare.

It is striking that the last two bullets do not have environmental potential or consequences for the environment, however, there seem to be plenty of scope for environmental technologies anyway as contributors to competitiveness, to a paradigm shift, to sustainable development – as in the first three bullets.

Other aspects that need to be taken into account in the establishment of selection criteria are also mentioned:

- the identification of a major economic, technological or societal challenge and the pivotal role that RTD can play in addressing that challenge;
- the need for the mobilisation and rapprochement of stakeholders to accelerate progress and optimise the efficient use of resources –

[29] See http://www.danishwaterforum.dk/Docs/EC%20Water%20Supply%20and%20-Sanitation%20Technology%20Platform.pdf

particularly where relevant knowledge and activities are fragmented between different Member States and regions;
- the current and projected levels of effort, especially in terms of R&D spending, in relation to the magnitude of the potential socio-economic benefits and the degree of disconnection between the stakeholders, which could benefit considerably from being brought together around a common vision;
- the maturity of the technology or the sector in question;
- the commitment of key players to contribute to the funding of the platform and become actively involved in its development and the execution of its action plan. An initiative coming from a particular sector, rather than from the Commission, could be a good indication of commitment.

Note that it was thought that there will be a formal Communication from the Commission on platforms, but this appears now not to be the case (as explained the above mentioned staff working paper contain information on selection criteria etc., but the document is not a formal Communication), and the Commission experts are still working on how best the platforms can work. There are three potential levels at which they can operate:

1. platforms as a dialogue box across stakeholders and then with the Commission deciding what to take forward), or
2. more joint coordination, or
3. a platform upon which joint undertakings can be launched - people committing funds to projects

It is unclear at this stage, which type of platform will be common, or which platforms may proceed to the third and most significant level. It is thought that of the 20 platforms only a minority will proceed to the third 'stage'. Which level of ambition will be appropriate or reached depends on the technology in question, industry interest, Commission interest and Member State support and initiative.

In addition, European Platforms are not the end-all. It is important to have mirror organisations (basically national platforms) in Member states (eg as exist for water in Denmark[30] and Italy – where mirror groups have been set up to link with the European platforms). Note that national mirror groups / platforms can actually precede EU level platforms (as is the case with the Danish Water Forum). This also already works for the Hydrogen platform. It seems therefore that the platform is not just a base, but also plays the role of a hub for other activities.

The process of launching platforms

The selection of platforms and their specific focus reflects different agendas and opportunities, potential markets and hence economic and employment benefits as well as potential environmental benefits. These can coincide – the core aim of ETAP – or indeed clash, as is arguably the case with white biotech that is related to GMOs. It will be important not to lose sight of the overall aim of ETAP, it is not just a technology action plan, but an environmental technologies action plan.

[30] See http://www.danishwaterforum.dk/. They have also produced a draft note

The participants in a TP may include the research community, industry, public authorities, the financial community, civil society, users and consumers. The composition and the 'level' of the participants may vary depending on the sector.

In theory, anyone can suggest a new platform eg on nanotechnology, biotechnology or ICT, however, it might be wise to phrase such a suggestion in wording related to the above main drivers and aspects in order to gain support. The Commission will have the final say if it is to help finance the TP.

It has been suggested that on energy efficiency and renewables there are many ongoing EU as well as Member States initiatives where there could be value added of a Technology Platforms.

5.3 The use of OMC for implementing ETAP

The use of OMC for implementing ETAP will be debated in the coming months. It has eg been suggested that OMC could also be used to further the establishment of 'Performance Targets'. However, there seems to be no reason for this work not to take place within the existing structures of the Community Method, as the Commission could come with a proposal for legislation in this respect and the suggestion therefore seem to confirm that there is and will be a temptation to apply the OMC instead of environment legislation. The broader question on how to avoid a gradual softening of EU environmental policy has to be addressed by eg setting strict criteria for when the OMC can be used.

One such criteria may be to use the OMC only in areas of limited Community competences, such as on fiscal measures for the promotion of environmental technologies. It also seems likely that the OMC will work best if applied to areas where the Member States have an interest in sharing information eg exchanges on best practices.

As mentioned in previous sections, it has already been decided that OMC should be used to pursue the 3% of GDP target for R&D investment. It could therefore be worthwhile exploring the possibility of establishing a guiding target on the extent to which some of these investments should be earmarked towards R&D in environmental technologies.

5.4 ETAP and Enterprise Policy

The uptake and development of environmental technology by enterprise are strongly dependent on the political and regulatory framework that enterprises act within. The following two items have been recognised to be of importance, (likely to be picked up by EU presidency agenda in the near future) if enterprise policies in the future are to contribute to a rapid and successful implementation of ETAP:

- A new Programme of the Competitiveness of Enterprises is to be adopted, replacing the current Multi-annual Programme for Enterprises and Entrepreneurship expiring in 2005.

- Innovate for a Competitive Europe (the new action plan for innovation).

The Commission have come forward with proposals for both the new programme and for the action plan. However, both proposals have very little thinking on the environment as an economic opportunity and limited attention is given to the implementation of ETAP.

It is most likely that both items will be treated in the Council during the Dutch Presidency and it would therefore be important that Environment Ministries in the Member States ensure that actions in support of implementing ETAP are parts of the result of the negotiations on the two proposals.

5.5 Summary Recommendations

In summary therefore, a range of possible recommendations can be made for the appropriate promotion of ETAP and ETAP related issues and Denmark's interests vis-a-vis ETAP.

Constructive efforts can come from all levels of stakeholders – from government officials that currently constitute the high level working group on ETAP; from industry to ensure a real commitment and in cases pressure for the priority actions (PAs) to be implemented and dialogue in the platforms and national mirror groups; to academics in the links to research networks of excellence and to the European Panel on Environmental Technologies (EPET). EPET membership is still an open question, and support can usefully be given to ensure that there is some type of NGO participation; NGOs can be influential in keeping momentum going on the environmental aspects of ETAP.

General Recommendations Regarding Environmental Technologies

- The EU should ensure that it maintains or grows its share of the global eco-industries markets - in services, end-of-pipe applications and clean technologies, whether process or products. The EU has to counter the explicit ambitions of the Japanese in this field, and the expected American ambition.
- EU and Member States should contribute to helping identify and support key new technologies that can offer environmental benefits as well as both domestic economic gains and export markets. This can be done, inter alia, through focused support on this issue in national foresight work – eg green technologies foresight. This will achieve win-win-win situations.
- The scope for supporting/offering appropriate signals for the development and uptake of environmental technologies in existing programmes and funding should be explored and realised. Notably, more emphasis should be given to promoting these technologies through the revised Structural Funds and in the Cohesions funds prioritisation need to better reflect the benefits of these technologies.
- While there is already an expected high level of commitment to environmental technologies in the 7th Framework Programme for Research and Development, support that this actually ends up being the case would be beneficial.
- Finally, it has been shown that the key driver for the development and uptake of environmental technologies is regulation itself. Therefore, particular attention should be paid to putting in place appropriate regulation to support needed technologies.

General ETAP Recommendations

- The 'Open Method of Communication' (OMC) should only be used in areas where there is a true value added as a supplement to EU environmental regulation – eg in relation to investments in cleaner technology and exchange of good practices.
- OMC should not substitute EU environmental regulation and should only be used in areas where competence is shared between the Community and Member States, but progress at EU level is limited due to unanimity voting rules – eg in relation to the use at national level of economic instruments for furthering environmental technologies.
- Member States could push for the annual reports (which are to feed into the Commission Spring Reports) on the 'R&D 3% of GDP objective' to include information on the implementation of ETAP.
- With regard to the technologies covered under the 6FP it would be valuable to have assessments of the environmental achievements in relation to those technologies to clarify which technologies run counter the environmental objectives to clarify where future support is appropriate, and indeed make the programme more internally consistent and avoid contradictions of objectives.
- It is important that experts involved in the implementation of ETAP explore funding opportunities outside the general environmental funding framework as funding here is relatively limited and this seem to also be the case for the next EU budget period (2007-2013). Other budgets are also relevant. ETAP can be seen as an instrument to achieve the Lisbon goals and should therefore be promoted in relation to policies related to the Lisbon Strategy.
- In terms of creating coherent and mutually supportive policies, the Dutch Presidency should ensure that actions in support of ETAP becomes part of the result of the negotiations on the proposal for a new Programme of the Competitiveness of Enterprises and the proposal for a new action plan for innovation.

Possible Recommendations for Danish Stakeholders

- Explore which of the PAs offer the greatest benefit to Denmark and be proactive in encouraging that these PAs be implemented robustly. This includes identifying and communicating cases of best practice that others can learn from.
- Where relevant, and appropriate for Denmark, look at national strategy/measures to support implementation of PAs.
- Consider proactive suggestions as to representatives for the EPET – either permanent or liaisons on special issues, if the EPET is more flexible. The representatives should be constructive and influential.
- Check to see which research networks in Denmark can support the EPET and encourage links of national research networks and programmes to EPET discussions.
- Link in to Dutch activities on ETAP, innovation and policy instruments.
- Explore which national technologies (existing or potential) can have their exports markets developed (eg selling Danish wind power, given interest in clean technologies).
- Develop mirror groups on technologies at a national level to link to the EU platforms – these are the equivalent of national platforms.

Encourage that platforms are taken seriously and not just talking shops.

- Encourage further platforms if and where appropriate – eg support the concept of the development of a chemicals platform.
- If and where a platform is particularly important for Denmark, communicate early to the Commission potentially important Danish representative for the panel. The Commission is key in the decision as to who is a member of each platform, but its position builds on information it has available.