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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Innovation for a sustainable Future - The Eco-innovation Action Plan (Eco-AP)**

(Text with EEA relevance)

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## 1. INTRODUCTION

As a response to the economic and financial crisis, the Europe 2020<sup>1</sup> strategy reinforces the EU's capacity to deliver smart, sustainable and inclusive growth. The strategy's objectives are being implemented through a number of Flagship Initiatives addressing the main challenges.

The Innovation Union<sup>2</sup> Flagship Initiative will ensure that innovative ideas are turned into products and services that create growth and jobs and address Europe's major societal challenges. As a step in this direction this Flagship Initiative commits to developing an Eco-innovation Action Plan building on the Innovation Union and focusing on the specific bottlenecks, challenges and opportunities for achieving environmental objectives through innovation.

The Eco-innovation Action Plan (EcoAP) also complements other Europe 2020 Flagship Initiatives. A major building block for the transition towards a green economy is the "Resource Efficient Europe"<sup>3</sup> Flagship and its roadmap<sup>4</sup>, creating and reinforcing demand for eco-innovation and related investment. . The "Industrial Policy for a Globalized Era"<sup>5</sup> places the EcoAP as one tool to identify and implement measures for the deployment of key environmental technologies, to enhance coordination and cooperation between the EU and Member States and to generate awareness of the potential of new technologies. The Agenda for new Skills and Jobs<sup>6</sup> calls for the EcoAP to support competences for sustainable development, and promote appropriate skills development and tackle skills mismatches.

The EcoAP will therefore focus on boosting innovation that results in or aims at reducing pressures on the environment and on bridging the gap between innovation and the market. It will, *inter alia*, take further some actions identified in the Resource Efficiency Roadmap.

**Eco-Innovation**<sup>7</sup> is any form of innovation resulting in or aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment, enhancing resilience to environmental pressures, or achieving a more efficient and responsible use of natural resources.

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<sup>1</sup> COM(2010) 2020: Communication from the Commission "Europe 2020: A strategy for smart, sustainable and inclusive growth".

<sup>2</sup> COM(2010) 546: Communication from the Commission: "Europe 2020 Flagship Initiative: Innovation Union".

<sup>3</sup> COM(2011) 21: Communication from the Commission: "A resource-efficient Europe – Flagship Initiative under the Europe 2020 Strategy".  
<sup>4</sup> COM(2011) 571 final.

<sup>5</sup> COM(2010) 614: Communication from the Commission: "An integrated industrial policy for the globalisation era: Putting competitiveness and sustainability at centre stage".

<sup>6</sup> COM(2010) 682 final: An Agenda for new skills and jobs: "A European contribution towards full employment".

<sup>7</sup> Adapted from Decision N° 1639/2006/EC establishing a Competitiveness and Innovation Framework Programme.

As part of the multi-annual financial framework for 2007-2013, the European Commission is supporting research and demonstration projects for eco-innovative technologies and for their market penetration within (1) the 7<sup>th</sup> Framework Programme for Research and Technological Development (FP7), (2) the Competitiveness and Innovation Framework Programme (CIP), Eco-innovation First Application and Market Replication Projects, (3) the European Eco-innovation Platform, and (4) under the Environmental Part of the LIFE+. In synergy with these programmes, Member States and regions can also draw on Cohesion Policy support for the further deployment and replication of eco-innovation.

In its Communication on a Budget for 2020<sup>8</sup>, the Commission has indicated that research and innovation will be structured around three mutually reinforcing themes (1) excellence in the science base; (2) tackling societal challenges; (3) creating industrial leadership and competitive frameworks. The Commission has also committed to mainstream climate action into EU spending programmes and to direct at least 20% of the Union's budget to climate-related objectives.

Horizon 2020<sup>9</sup>, the Framework Programme for Research and Innovation for 2014-2020 will strengthen the role of eco-innovation and provide adequate financial means for the implementation of this Action Plan post-2013. In particular, actions to enable the transition to a green, low carbon and climate resilient economy as foreseen in the context of the Societal Challenge "Climate Action, Resource Efficiency and Raw Materials" are of great relevance.

The partnering<sup>10</sup> approach in research and innovation will accelerate the path of innovative research towards market applications.

## **2. THE ECO-INNOVATION CHALLENGE**

Eco-innovation needs to be accelerated in a way that boosts resource productivity, efficiency, competitiveness and helps to safeguard the environment. More and more severe environmental challenges and resource constraints have led to growing worldwide demand for environmental technologies, products and services and have facilitated the emergence of green industries (see Annex 1). Accelerated market uptake and dissemination of eco-innovation will lead to improved environmental performance and resilience across the economy being at the same time cost-effective and good for business and society as a whole.

## **3. BARRIERS AND DRIVERS FOR ECO-INNOVATION IN SMES**

Eco-innovation has until now penetrated to the markets relatively slowly, with the exception of renewable energy as a result of energy and climate policies. Bottlenecks to eco-innovation include the failure of market prices to accurately reflect

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<sup>8</sup> COM(2011) 500; A Budget for 2020- Part II: Policy fiches

<sup>9</sup> COM (2011) 808/3 final: Communication from the Commission on Horizon 2020 – The Framework Programme for Research and Innovation.

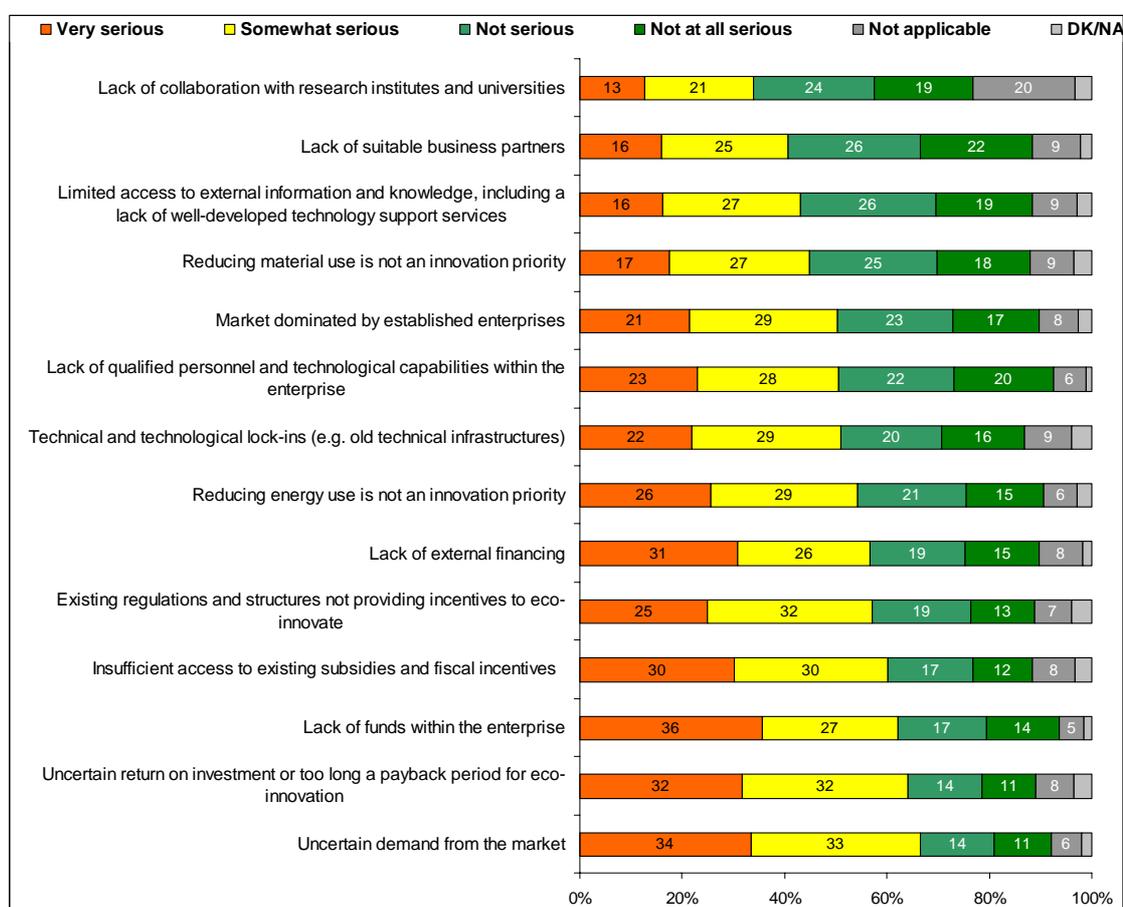
<sup>10</sup> COM(2011) 572 final: Communication from the Commission: Partnering in Research and Innovation

environmental costs and benefits, rigid economic structures, infrastructure and behavioural lock-ins, and harmful incentives and subsidies. Other aspects hampering the spread of eco-innovation include limited knowledge and certainty of the markets. Although many of these barriers are similar to those faced by innovative businesses at large, they tend to be more severe for businesses focusing on eco-innovation.

To address some of the barriers the European Commission launched already in 2004 the Environmental Technologies Action Plan<sup>11</sup> (ETAP).

A recent Eurobarometer survey on the attitudes of European SMEs to eco-innovation<sup>12</sup> gives a good insight into perceived barriers and drivers for eco-innovation.

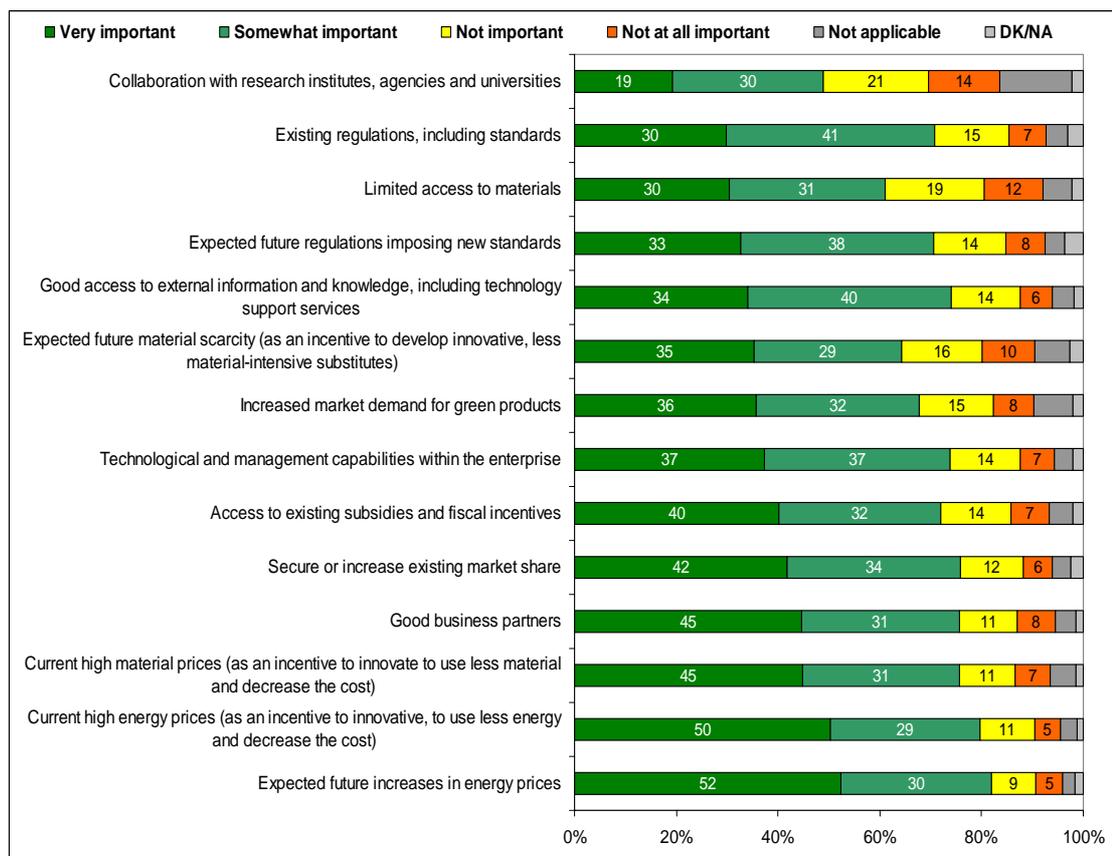
### Barriers to accelerated eco-innovation uptake and development for companies



<sup>11</sup> COM (2004) 38 final, Communication from the Commission, Stimulating technologies for sustainable development: An Environmental Technologies Acton Plan for the European Union

<sup>12</sup> Flash Eurobarometer 315: Attitudes of European entrepreneurs towards eco-innovation, March 2011

## Drivers that could accelerate eco-innovation uptake and development



This survey shows that the uncertain demand from the market and return on investment are two of the main barriers, while high energy and material prices, new regulations and standards, and access to knowledge are among the main drivers.

Building on the Europe 2020 Flagship Initiatives and on the ETAP lessons learnt, the EU can accelerate further eco-innovation with well targeted policies and actions. In particular, measures in the areas of regulatory incentives, private and public procurement and standards and performance targets can help create stronger and more stable market demand for eco-innovation. Additional funding must also be mobilised for investment in eco-innovation and policy measures are needed to lower and manage the risks for entrepreneurs and investors.

A long term strategy on eco-innovation, based on partnering, will reinforce eco-innovation by increasing the critical mass required for innovation, exchanging ideas and good practice and creating networks and commercial relationships.

#### 4. ECO-INNOVATION OPPORTUNITIES AND EU ACTION

Eco-innovation is closely linked to the way we use our natural resources and to how we produce and consume. The expected environmental, societal and commercial benefits of wide-spread adoption of eco-innovation can be considerable. European eco-industries are already a significant economic sector, with an estimated annual

turnover of €319 billion or about 2.5 % of the EU's gross domestic product<sup>13</sup> (GDP). In the past two years 45% of European companies operating in manufacturing, agriculture, water and food services have eco-innovated and benefited from it.

During 2012-2013, under current EU financing framework, EcoAP will support the introduction and scaling-up of environmental technologies in the market, in particular by supporting demonstration projects. This will pave the way for more comprehensive follow-up actions under the EU2020 Flagship Initiatives and Horizon 2020.

In the medium and long-term, in 2013-2020, eco-innovation should benefit from the emerging EU instruments and vehicles of the Innovation Union and Resource Efficient Europe Flagships as well as the post-2013 Cohesion Policy and Horizon 2020. For example, the Commission has proposed a strong innovation component within the provisions of the 2014-2020 Cohesion Policy, which will give greater prioritisation to innovation due to the explicit conditions for Member States in this direction.

Further analysis of the challenges and opportunities will lead to further actions for accelerating eco-innovation. This work should be based on a multi-stakeholder group and on the partnering approach starting from 2012.

## 5. THE ECO-INNOVATION ACTION PLAN

The Plan includes targeted actions both on the demand and supply side, on research and industry and on policy and financial instruments. The implementation of the actions will be supported by the partnering approach between stakeholders, private and public sector, and the European Commission.

The Commission will foster key drivers for the market uptake of eco-innovation by:

- using environmental policy and legislation as a driver to promote eco-innovation (Action 1);
- supporting demonstration projects and partnering to bring promising, smart and ambitious operational technologies to the market that have been suffering from low uptake (Action 2);
- developing new standards boosting eco-innovation (Action 3);
- mobilising financial instruments and support services for SMEs (Action 4);
- promoting international cooperation (Action 5);
- supporting the development of emerging skills and jobs and related training programmes to match the labour market needs (Action 6);

<sup>13</sup> IDEA Consulting and Ecorys, 'Study on the competitiveness of the EU eco-industry', 2009; Roland Berger, 'Innovative environmental growth markets from a company perspective', 2007.

- promoting eco-innovation through the European Innovation Partnerships foreseen under the Innovation Union (Action 7).

### 5.1. Action 1: Environment policy and regulation for promoting eco-innovation

EU environmental legislation has traditionally been one of the most important drivers for eco-innovation and for the development of strong European industries in areas such as water, air pollution, waste management, recycling, and climate change mitigation. Environmental policy can also direct research and development efforts and set the pace of technological change.

For example, the REACH<sup>14</sup> regulation lists substances of very high concern (SVHC) for which substitution is required when safer alternative substances or technologies become technically and economically feasible. This incentivises the active search for alternatives and stimulates R&D activities towards delivering competing and safer substitutes. The REACH regulation is also an example of how EU policies can drive innovation worldwide. Chemical companies across the world follow the REACH when developing products which should meet the requirements of EU markets.

On the other hand a regulatory framework creating lock-ins into insufficiently ambitious or outdated standards or technologies may be a barrier to eco-innovation. Legislation should therefore be revisited and reinforced to deliver strong and steady incentives driving eco-innovation as well as sufficient predictability for investors.

As foreseen in the Innovation Union the Commission will undertake a screening of the regulatory framework in the environmental area. In this context possible gaps will be identified, new rules implemented and existing ones reviewed in order to provide a coherent legislative framework that promotes eco-innovation.

For example, in the future, when designing, revising an implementing environmental legislation and policies, attention should be paid to:

- (a) the potential of innovation for improving the environment for example through allowing for flexibility in prescribed technological solution or by providing room for more stringent and robust environmental standards (in order to avoid technological lock-ins);
- (b) the barriers to innovation within environmental legislation and its implementation;
- (c) the need to facilitate the emergence of commercially viable new products or practices;
- (d) the need to accelerate the uptake of eco-innovation in all policy areas.

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<sup>14</sup> Regulation (EC) No 1907/2006 of the European Parliament and the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Valuable work already carried out in cooperation with OECD<sup>15</sup> recognises the need to improve policies to better support eco-innovation taking into account factors such as market dynamics, technological trajectories, coordination and consistency of different policy instruments.

#### Milestones

- Based on existing work the Commission will develop in 2012 a methodology aiming at assessing the likely barriers, drivers and impacts of environmental legislation, policy and regulatory initiatives on eco-innovation and at optimizing its market diffusion.
- In the revision of existing water policy, air quality and emission standards, building standards, existing prevention, re-use, recycling, recovery and landfill diversion targets, as foreseen in the frame of the Resource Efficiency Roadmap respectively in 2012, 2013 and 2014, the Commission will integrate eco-innovation objectives.
- Eco-innovation potential should be at the centre of the revision of existing infrastructure standards, including transport, energy, buildings, and ICT, while simultaneously leading to enhanced climate resilience.
- When developing implementing measures in 2012 under the Waste Framework Directive and under other waste legislation, the Commission could for example:
  - promote eco-design for implementing the ELV (End-of-Life Vehicles), WEEE (Waste Electrical and Electronic Equipment), RoHS (Restriction of Hazardous Substances), Batteries and Accumulators, and Packaging Directives;
  - develop end-of-waste criteria under Article 6 of the Waste Framework Directive for copper, paper, glass, plastics, compost and, possibly, other waste streams. These criteria will be designed to develop demand and confidence in secondary raw materials and support and drive innovative waste collection, separation and treatment technologies for high quality secondary materials;
  - develop minimum standards for waste treatment activities at EU level in response to Article 27 of the Waste Framework Directive, where such standards are cost efficient, based on best available techniques and innovative solutions.

## 5.2. Action 2: Demonstration projects and partnerships for eco-innovation

In spite of on-going funding programmes and initiatives, a significant gap still exists between the availability of new technologies and their commercialisation into marketable products. This is for example the case for innovative wastewater treatment and water purification technologies<sup>16</sup> such as membranes, or new

<sup>15</sup> OECD, 'OECD studies on Environmental Innovation – Better policies to support eco-innovation', 2011.

<sup>16</sup> "EIO Thematic Report: Water Innovation" Eco-Observatory, May 2011.

technologies for biological removal of ammonium developed by the ICON project<sup>17,18</sup>.

In their final report to the Commission on 28 June 2011<sup>19</sup>, the High Level Expert Group on Key Enabling Technologies (KETs) underlines the importance of funding opportunities for product development and demonstration activities in order to fill the gap between technology and market up-take to increase European competitiveness.

As from 2012 the Commission will support targeted eco-innovation demonstration projects and ad hoc partnerships implementing innovative technologies which in spite of their high environmental and commercial potential did not succeed in reaching the market. Priority will be given to technologies suitable for reaching stricter, smarter and ambitious environmental standards than those currently in place effectively and efficiently. Overall goal of this action is to demonstrating the market viability of these technologies

Starting 2014, Horizon 2020 will continue to support such demonstration projects as well as projects implementing technological and societal innovation.

#### Milestones

- Selection of the above described technological demonstration projects by end 2012 as part of the last FP7 call for proposals. Participation would be open to all industrial sectors. Possible fields include demolition waste - the largest waste stream -; remediation of soil, sediments and groundwater; wastewater and sludge treatment; pesticides and fertilisers in agriculture; urban mining; waste electric and electronic equipment, including rare elements and gold; climate change adaptation.
- Selection of technological and societal demonstration projects from 2014 and onwards that could be supported and implemented under Horizon 2020.

### **5.3. Action 3: Standards and performance targets for key goods, processes and services to reduce their environmental footprint**

New and ambitious standards and performance targets are a powerful tool for supporting innovation, increasing productivity and opening up opportunities of the Single Market.

As a complement, labelling schemes indicating performance standards of a product can be a powerful tool to communicate the benefits of eco-innovation. For example, since the adoption of the energy efficiency policy and the energy labelling directive<sup>20</sup> the market for household appliances has been transformed towards energy-efficient

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<sup>17</sup> <http://tnw.tudelft.nl/en/about-faculty/departments/biotechnology/research/research-cooperation/icon/>

<sup>18</sup> [http://ec.europa.eu/research/water-initiative/pdf/4th\\_wwf\\_brochure\\_en.pdf](http://ec.europa.eu/research/water-initiative/pdf/4th_wwf_brochure_en.pdf)

<sup>19</sup> [http://ec.europa.eu/enterprise/sectors/ict/key\\_technologies/kets\\_high\\_level\\_group\\_en.htm](http://ec.europa.eu/enterprise/sectors/ict/key_technologies/kets_high_level_group_en.htm)

<sup>20</sup> Council Directive 92/75/EEC on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances

products, giving 700 TWH<sup>21</sup> of energy-savings and increasing the competitiveness of European industry.

Building on the standardisation package<sup>22</sup> the Commission, in cooperation with stakeholders, will ensure that new or revised standards result in strong incentives for innovation, do not create inertia or lock-ins, are performance-related, and take resource efficiency, environmental and climate change concerns into account.

#### Milestones

The European Commission with the Member States and in cooperation with international standardization bodies will set up an interactive process to identify and prioritise those areas where the development of standards and performance targets has the greatest potential in terms of driving eco-innovation.

Some examples of such areas that could be considered as from 2012 are:

- on-site verification of characterisation of waste;
- drinking water and sewage collecting system pipes;
- waste treatment activities in response to Article 27 of the Waste Framework Directive.;
- sustainable construction materials and insulation of buildings to support the implementation of the Directive on the Energy Performance of Buildings<sup>23</sup>.

#### **5.4. Action 4: Finance and support services for SMEs**

Public-sector financing is needed and justified to accelerate eco-innovation in the private sector, particularly in SMEs. Due to the relative immaturity of the market, access to finance is especially difficult for small businesses engaging in eco-innovation where the perceived commercial risk is greater. Financiers and investors tend to use the same investment rationale for eco-innovation as for other investments i.e. the same expected returns and same level of accepted risks. Moreover, the added value created by reducing environmental pressures is not accounted for and only plays a marginal role in investment decisions.

Policy measures can help create more favourable financial and more flexible risk-sharing conditions. Further support to SMEs should be mobilised to improve investment readiness, networking opportunities as well as market confidence in eco-innovation.

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<sup>21</sup> Estimated savings due to energy labelling for cold appliances, dishwashers and washing machines between 1996 – 2020.

<sup>22</sup> COM (2011) 311 final: Communication from the Commission: A strategic vision for a European standard: Moving forward to enhance and accelerate the sustainable growth of the European economy by 2020

<sup>23</sup> COM 2002/91/EC, Directive on the energy performance of buildings

ETAP and other European policies and initiatives, such as the Cohesion Policy, have already taken some steps to mobilise funding for eco-innovation. Efforts to mobilise funding for eco-innovation will continue as part of current multiannual financial framework 2007-2013 and will be reinforced under Horizon 2020 Specific Programmes "Tackling Societal Challenges" and "Creating industrial leadership and competitive frameworks". The Commission is considering the earmarking of funding for eco-innovation, in order to face the specific financing challenge in this area.

### Milestones

In the context of current multiannual financial framework:

- The Commission, in cooperation with the Enterprise Europe Network<sup>24</sup>, will expand the activities of the "environmental assistants for SMEs". The assistants will help SMEs seize the business opportunities created by eco-innovation. The scheme will consolidate environmental sound approaches in SMEs, raise their awareness and facilitate the acquisition of skills to stimulate eco-innovation.
- In 2012 the Commission will establish a European network of eco-innovation financiers and investors with a view to mobilising them and defining better their policy needs in order to provide faster investment and finance.
- The Commission will help eco-innovative European enterprises gain better access to global markets. The Enterprise Europe Network, European technology centres outside Europe and the EU Delegations will provide additional support for participation in trade fairs and trade visits, for links between SME support networks in Europe and elsewhere and for market intelligence and technology needs assessments.
- Furthermore, the European Commission will develop initiatives to improve confidence in new environmental technologies and eco-innovative solutions entering the EU and global markets, informed by the results of an experimental voluntary pilot programme on environmental technology verification (ETV), whose principles and benefits are described in the Staff Working Paper attached to the Action Plan.

As from 2014, in the context of the next multiannual financial framework, including Horizon 2020 and the Cohesion Policy, the Commission will take appropriate initiatives to:

- Work with the Member States and regions to mainstream eco-innovation in the 2014-2020 operational programmes of the Cohesion Policy, in particular through the regional innovation strategies for smart specialisation, which are proposed as ex-ante conditionality.
- Develop two innovative financial instruments: an EU Loan & Guarantee Service and an Equity Instrument for research and innovation. The first will

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[http://www.enterprise-europe-network.ec.europa.eu/index\\_en.htm](http://www.enterprise-europe-network.ec.europa.eu/index_en.htm).

have a demand driven as well as a policy driven component which will include eco-innovation. The second will concentrate on the start-up and growth phase and have a thematic focus linked to eco-innovation. Both instruments will feature ad-hoc investment incentives to promote mobilisation of private finance in the area of eco-innovation;

- Develop technical assistance schemes to help SMEs and the financial sector develop bankable projects, appraise their bankability and implement projects benefiting from risk financing;
- Horizon 2020 will strengthen the role of eco-innovation and inter alia support eco-innovative SMEs in their early stage of market penetration.

### 5.5. Action 5: International cooperation

Eco-innovation is key to facilitating the global transition towards sustainable development by greening the economy. In this context the Commission's Communication on Rio+20<sup>25</sup> emphasizes inter alia the need to put in place market and regulatory measures that foster eco-innovation globally and ensure their enforcement.

The communication "A strategic European framework for international science and technology cooperation"<sup>26</sup>, the Commission proposes actions to deepen the European Research Area (ERA) through greater integration and cross-border coordination of research investments and activities. It aims *inter alia* to increase Europe's attractiveness as a place to invest in research and innovation.

In this context a Strategic Forum for International Science and Technology Cooperation (SFIC) has been established to drive forward the European Partnership for Science & Technology cooperation. This Forum will aim at identifying and coordinating joint initiatives between Member States and the Commission vis-à-vis third countries. Initiatives could include eco-innovation and eco-innovation capacity building and adaptation according to the needs of recipient countries.

Emerging economies such as China, India, Brazil and Russia offer significant market and partnership opportunities for European eco-innovators. However, accessing those markets remains a challenge due to high and unidentified risks, investment protection and lax intellectual property right protection.

To support market access and partnerships, the Commission will take appropriate initiatives to:

- Promote benchmarking and harmonisation of standards and requirements for environmental goods and services and for the environmental performance of products. This is to be encouraged within bilateral and regional dialogues with

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<sup>25</sup> COM(2011) 363 final, Communication from the Commission, "Rio+20: Towards the green economy and better governance"

<sup>26</sup> COM(2008) 588 final, Communication from the Commission, "A strategic European framework for international science and technology cooperation"

emerging economies. Relevant programmes and projects will be supported under cooperation programmes such as the SWITCH<sup>27</sup> Asia Programme to promote sustainable consumption and production. Expansion of such programmes to other regions, particularly in Africa and Latin America will be explored.

- Promote, in bilateral and multilateral policy dialogues as well as in trade negotiations and agreements, exchanges on policies for eco-innovation including measures for the liberalisation of trade in environmental goods and services, elimination of cost barriers to SMEs involvement in global value chains, investment protection and IPR protection. Networking between investors, financiers and enterprises will also be promoted.
- Include environmental technologies and eco-innovation in co-operation with neighbouring countries, such as the Eastern Partnership<sup>28</sup>, the Partnership for Democracy and shared Prosperity with the Southern Mediterranean and the Black Sea Synergy.
- Cooperate with the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organisation (UNIDO) in reinforcing the network of national cleaner production centres. These centres will facilitate the dissemination of eco-innovation best practice and facilitate networking between eco-innovators in developed and emerging economies.

#### Milestones

- In 2012 the European Commission will develop a policy toolbox supporting technology transfer of established environmental technologies and solutions.
- As part of the Rio+20 process the European Commission together with international partners will contribute to set up a framework for integrating eco-innovation into the international sustainability dialogue and outcomes of the Rio+20 summit in 2020, as a possible trigger to accelerate the transition towards a green economy.

## **5.6. Action 6: New skills and jobs**

New skills are required to facilitate the transition to a greener economy and to provide related reinforced skilled workforce for businesses. The Agenda for New Skills and Jobs underlines the need to match skills supply with labour market needs, in particular in terms of newly-emerging and expanding skills such as those required by green and greener jobs.

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<sup>27</sup> The SWITCH-Asia Programme is a grants programme funded through the EU's Development Co-operation Instrument (DCI), Regulation (EC) No 1905/2006 (OJ L 378/41) - [http://ec.europa.eu/europeaid/where/asia/regional-cooperation/environment/switch\\_en.htm](http://ec.europa.eu/europeaid/where/asia/regional-cooperation/environment/switch_en.htm)

<sup>28</sup> COM (2008) 823 final: Communication from the Commission to the European Parliament and the Council: 'Eastern Partnership'

A European Sector Council on skills for green and greener jobs will be established to facilitate exchanges of information between the Member States on skills profiles, training programmes and skills gaps in the environmental goods and services industry and in other relevant industries.

#### Milestones

- With the establishment of the "EU Skills Panorama", from 2012 the Commission will contribute to increased mobility on the labour market by providing information on current and future skills supply and mismatches. It will include a specific focus on skills for green jobs.

### **5.7. Action 7: European Innovation Partnerships**

European Innovation Partnerships (EIPs) are proposed under the Europe 2020 Flagship Initiative for an Innovation Union. The objectives of these EIPs are to join up actors and resources around common targets to speed up breakthrough innovations to solve specific societal challenges where there is also a large market potential for EU business.

Resource efficiency is a priority notably in the fields of raw materials, sustainable agriculture and water, where EIPs are currently under consideration. By bridging the gap between a more resource efficient economy, ambitious environmental goals as well as business opportunities eco-innovation is a major tool supporting these EIPs.

#### Milestones

- Potential actions could include testing green public and private procurement for promoting eco-innovation. Networks of public- and private-sector procurers and purchasers could be set up and tender specifications could be tested and developed for wider use in both public and private sectors;
- Other promising areas that may be considered include bio-gas from bio-waste, sustainable chemistry and eco-system services. Best approaches for combining demand and supply-side measures in these areas will be identified by the Commission in close consultation with stakeholders and Member States.

## **6. GOVERNANCE AND AWARENESS**

### **6.1. Governance structure**

Governance-specific networking activities and schemes to improve the knowledge base and awareness for eco-innovation will be established under the Innovation Union as well as under Horizon 2020. Simple and flexible systems in which the participation of key stakeholders is broad and balanced<sup>29</sup> are foreseen.

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<sup>29</sup> SEC(2011) 1028 final, "The pilot European Innovation Partnership on Active and Healthy Aging (AHA). First experiences on governance and processes"

In this context, and building on the positive experience of the (ETAP) High Level Working Group, an Eco-innovation High Level Multi-stakeholder Steering Group will be set-up for mainstreaming eco-innovation, facilitating policy learning, peer reviewing the measures undertaken, as well as to monitor implementation of this Action Plan.

In addition, a dedicated High-Level Working Group will continue bringing together Member States to facilitate exchanges of information, provide stronger policy guidance, at both EU and national levels.

The ETAP Stakeholder Forum which mobilizes and facilitates networking between sectoral stakeholders will have a more focussed orientation on business and will develop targeted and reachable recommendations that can be integrated into EU and national policies.

#### Milestones

- As from 2012, this High-Level Multi-stakeholder Steering Group, composed of representatives of Member States, business, industry, particularly SMEs, research and other key stakeholders, will support measures for eco-innovation uptake, if necessary with the support of specific thematic Multi-stakeholder expert working groups.

## **6.2. Cooperation between the Commission and the Member States**

Regular exchanges of information and good practice between Member States as well as the regions on eco-innovation policies are essential. A better knowledge base on environmental pressure points, policies, markets and the environmental goods and services industry will also be needed to promote eco-innovation in Europe and lead to appropriate policies.

#### Milestones

- Based on the lessons learned with ETAP roadmaps, voluntary Eco-innovation national roadmaps will be agreed with Member States with the aim to identify most efficient policies, facilitate policy learning between the Member States as well as set the appropriate level of implementation required to create the conditions for eco-innovation. These Roadmaps will build on existing initiatives for promoting environmental technology but with a sharper focus on eco-innovation in both the private and public sectors and will take into account global sustainability goals to contribute to their attainment.
- The Commission will cooperate with the relevant national and regional authorities to integrate eco-innovation in the initiatives of the Cohesion Policy and the Rural Development Policy in the area of innovation. In this respect the on-going development of the "Smart Specialisation Platform"<sup>30</sup> represents a key instrument in building the adequate governance capacity.

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<sup>30</sup> <http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/s3platform.cfm>

- The Commission will build on the experiences of the "Eco-innovation Scoreboard"<sup>31</sup> and other relevant indicators for eco-innovation to monitor and review measures and action taken by Member States and the EU.
- The initiative on "Accelerating eco-innovation policies"<sup>32</sup> for identifying best practice in eco-innovation policy-making will be re-enforced in order to scale up good practice in Member States.

### 6.3. Raising awareness of eco-innovation benefits and opportunities

Uncertainty about demand from the market is one of the main barriers to a fast up-take of eco-innovation. Greater social acceptance of eco-innovative technologies, processes, services and products needs to be achieved.

This social acceptance can be achieved if all interested parties make efforts to raise awareness of eco-innovation, including Member States, local and regional authorities, industry and civil society. The Commission will also take actions to explain the importance of eco-innovation as a key driver towards a greener and more sustainable economy, with a particular focus on its potential to generate growth and create new jobs. These efforts will build on existing communication activities undertaken as part of the corporate communication of the European Commission, such as on Resource Efficiency.

## 7. CONCLUDING REMARKS

Five years of implementation of the EU policies on environmental technologies, and the emergence of vibrant green businesses in the EU, have shown the potential for eco-innovation to create new business opportunities and growth and jobs in Europe.

However, more remains to be done requiring strengthened and broader actions. That is why current actions should be stepped up, why use of existing resources should be optimised and additional financial resources mobilised. The Action Plan boosts efforts for eco-innovation, provides a clear way forward and is thus a logical successor to ETAP.

An ambitious EU eco-innovation agenda will also help to respond better to global environmental challenges and to seize the opportunities on the global markets in line with the goals of the Europe 2020 strategy. It will provide the European Commission and the Member States with new tools to achieve the Europe 2020 goals and sets out a future framework for eco-innovation. The mid-term review of the upcoming financial perspective will provide a good opportunity to assess the achievement of the goals set in this Action Plan.

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<sup>31</sup> See the EU-funded project Eco-innovation Observatory; <http://www.eco-innovation.eu/>

<sup>32</sup> See the EU-funded project "Accelerating eco-innovation policies", <http://www.ecopol-project.eu/>

## **Annex 1. Eco-innovation benefits business and the environment**

The global economy will have no choice but to adjust to environmental and resource constraints and this will need eco-innovation. This can also generate jobs and growth and is essential for competitiveness of the economy, particularly in Europe, which has historically based its economic growth on intensive resource use.

### **The EU is well placed to take up its role in the global transition towards a more sustainable economy**

European environmental policies and increasing global environmental challenges have led to the emergence of a significant and competitive environmental goods and services sector in Europe.

For example, European eco-industries are already a significant economic sector, with an estimated annual turnover of €319 billion or about 2.5% of the EU's gross domestic product<sup>33</sup> (GDP). This means that they are larger than the steel, pharmaceuticals or automobile industries. Recently, eco-industries have been growing by around 8% a year. The main sub-sectors deal with waste management (30%), water supply (21%), wastewater management (13%) and recycled materials (13%). The sector directly employs 3.4 million people, around 1.5% of all Europeans in employment. Around 600000 additional jobs were created between 2004 and 2008. The annual growth rate in employment in all subsectors between 2000 and 2008 was roughly 7%.

### **European businesses recognise the opportunity**

The potential of eco-innovation is recognised by the business community. Venture capital (VC) investments in Europe<sup>34</sup> have increased greatly over the last decade. In 2010, they added up to app. €1.3 billion in this sector, up from €0.3 billion in 2004. Despite growing market uncertainty the figure was down only 7% compared to 2009, showing the great resilience and potential of the sector. Energy generation and energy efficiency dominate these investments. These two sectors alone took 71% of the capital invested in the fourth quarter of 2009.

Environmentally safe and energy- and resource-efficient products, processes and services are increasingly enlarging a competitive advantage across many businesses and sectors. Manufacturing firms have moved from 'end-of-pipe' solutions to 'closed-loop' approaches that minimise material and energy flows by changing products and production methods and reusing waste as a new resource for production - all of which cut costs. However, bottlenecks and barriers still prevent the full exploitation of such potential.

Protection from climate change impacts and weather-related disasters will also provide a wealth of opportunities. Since 1980, about 95% of economic losses caused

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<sup>33</sup> IDEA Consulting and Ecorys, 'Study on the competitiveness of the EU eco-industry', 2009; Roland Berger, 'Innovative environmental growth markets from a company perspective', 2007.

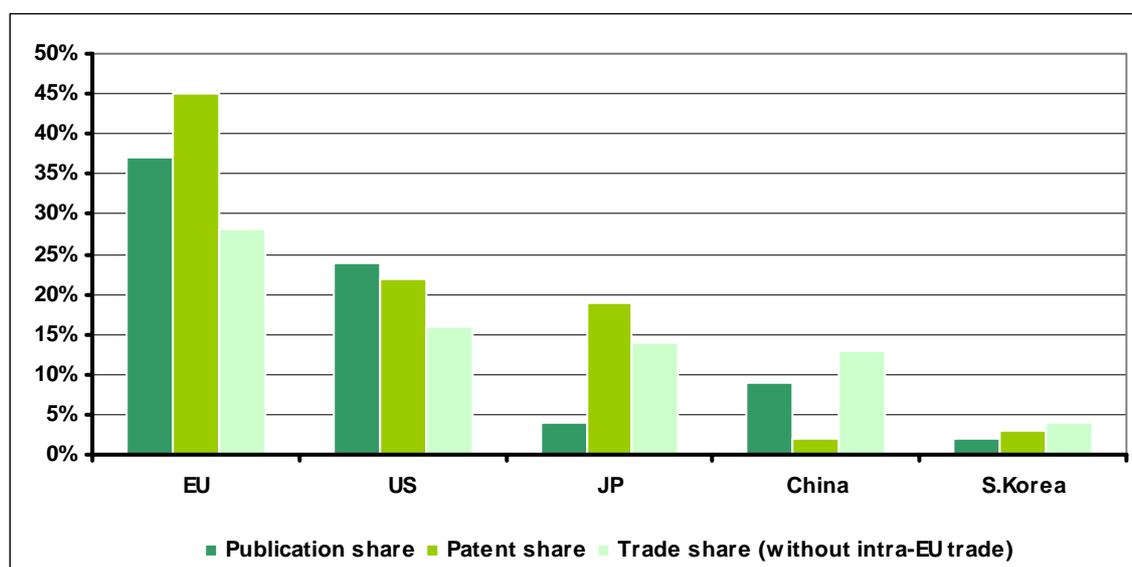
<sup>34</sup> Cleantech Group press release of January 7<sup>th</sup>, 2010 on Cleantech venture capital investments in 2010. The figures provided refer to cleantech investments for the Europe/ Israel region.

in Europe by catastrophic events resulted from weather and climate-related events, and such pattern will be exacerbated by climate-change. In the field of climate change adaptation and Disaster Risk Prevention (DRR), investing options will expand and innovative funding and climate-proofing schemes will be needed. The insurance industry will also be confronted with novel challenges and opportunities.

### Future global opportunities must be seized

The EU has the technological capability to become a major player for green goods, processes and services. The EU has a thriving research community and a technological lead in many areas. This is reflected in its leading position in world trade, as shown below (excluding intra-EU trade).

### The European eco-industry sector is well-positioned globally <sup>35</sup>



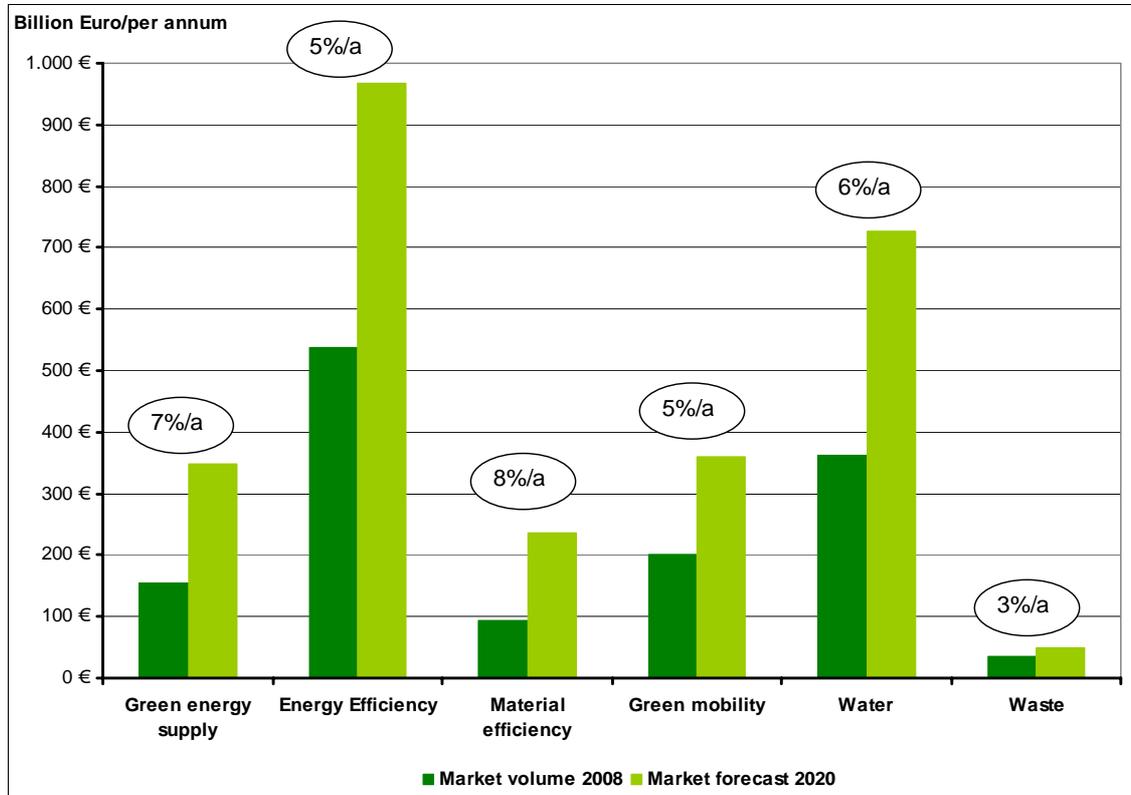
The global market for environmental industries was worth €1 trillion in 2007, with energy-efficient technologies playing a large part (€450 bn). Europe's market share differs from one sector to another. For example, in the cases of automatic separation of materials and solar power stations, Europe accounts for more than 70% of the total market. In synthetic biofuels, solar cooling systems and energy-storage technology, European industry leads R&D. The average market share of European companies was above 30% in waste management and recycling, power generation, sustainable mobility, energy efficiency and sustainable water management.

The world market for these products and services is growing by 5% a year and is expected to triple by 2030 (see the graph below for growth projections). The EU makes up roughly one third of the world market and is a net exporter. However, global competitors are emerging. In the wind energy sector, incumbent EU suppliers face new entrants seeking to profit from global efforts to limit climate change. The

<sup>35</sup> Source: IDEA Consult, ECORYS, 2009. Study on the competitiveness of the EU eco-industry; Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2009, "Greentech – Made in Germany 2.0"

EU must build upon its capabilities and boost the underlying drivers in order to consolidate its leading position and seize the opportunities emerging.

### Expanding Global Markets for eco-industries<sup>36</sup>



### EU SMEs must benefit from the transition

The make-up of eco-industries varies widely from one sector to another. For example, for waste management, soil remediation, wind power and renewable energy, approximately 10% of companies account for almost 80% of the turnover. On the other hand, small firms are stronger on new regulation-driven markets, such as eco-construction and renewable energy. It is also worth noting that for SMEs the potential to eco-innovate and as a result improve resource productivity is expected to be higher than for large enterprises. Case studies on material efficiency improvements in Germany have revealed that on average around EUR 200,000 have been saved per company, with investment costs under EUR 10,000 for nearly half of the companies<sup>37</sup>.

All in all, eco-industries are marked by the presence of large numbers of small and medium-sized enterprises (SMEs). These firms account for approximately half of total employment. Hence, SMEs in partnership with industries must play increasing

<sup>36</sup> Source: IDEA Consult, ECORYS, 2009. Study on the competitiveness of the EU eco-industry; Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2009, "Greentech – Made in Germany 2.0"

<sup>37</sup> Eco-innovation Observatory, Annual Report 2010, "Business perspective: Saving material costs"

role in innovating new technologies and solutions and also use them. **Public policies and action must create better conditions for eco-innovation**