

STIMULATING INNOVATION AND INVESTMENT IN PRO-ENVIRONMENTALLY ORIENTED PRODUCTION AND CONSUMPTION

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ABSTRACT

Global systemic trends and challenges, related to population dynamics, urbanization, disease and pandemics, accelerating technological change and unsustainable economic growth add to the complexity of tackling environmental challenges and achieving long-term sustainable development. Ensuring the Union's long-term prosperity requires taking further action to address those challenges. Successive environment action programs have provided the framework for Union action in the field of the environment since 1973. The 7th EAP should support the implementation, within the Union and at international level, of the outcomes of, and commitments undertaken at, the 2012 United Nations Conference on Sustainable Development (Rio + 20) and which aim to transform the global economy into an inclusive and green economy in the context of sustainable development and poverty reduction. An appropriate mix of policy instruments would enable businesses and consumers to improve their understanding of the impact of their activities on the environment and to manage that impact. Such policy instruments include economic incentives, market-based instruments, information requirements as well as voluntary tools and measures to complement legislative frameworks and to engage stakeholders at different levels. The possibilities of applying an appropriate instrument within the framework of the management approach into operative managerial practice depends on the situation and the efforts to address its current and potential problems in proactive way. The application of management approaches based on standards in quality, environment, safety and ergonomics aims to achieve a high quality of production, the efficiency of the organization, together with the provision of security for all activities in the company and compliance with the terms and conditions for the protection of the environment.

KEY WORDS

environment, policy, product, sustainable development

Introduction

Environmental changes in the EU has increasingly been prompted by the development that takes place on a global level, including demographic structure, consumer and business models and rapid technological progress. This development may offer significant opportunities for economic growth and social well-being, but also presents challenges and creates uncertainty for the EU economy and society and causes environmental degradation around the world.^{1, 2, 3} The growing global demand for products and services and use of resources as well as current uneconomical production and consumption in the world economy increase the prices of raw materials, minerals and energy, worsened environmental pollution, create more waste, increase the global greenhouse gas emissions and cause land degradation, deforestation and loss of biodiversity. Almost two thirds of the world's ecosystems in decline [⁴] and there is evidence that the limits of our planet's biodiversity, climate change and the nitrogen cycle has been exceeded.⁵

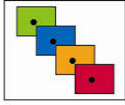
¹ SEK (2011) 1067, Europe's environment – state and perspective 2010: Evaluation of global megatrends, EEA, 2010

² Decision of the European Parliament and of the Council on general environmental action program of the Union 2020 "good life within the possibilities of our planet". Brussels, COM (2012) 710 final. - [on-line] Available on - URL: <http://ec.europa.eu/transparency/regdoc/rep/1/2012/SK/1-2012-710-SK-F1-1.Pdf>

³ COM (2012) 710: Proposal for a Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2020 "Living well, within the limits of our planet". - [on-line] Available on - URL: <http://eur-lex.europa.eu/procedure/EN/202195>, <http://www.senat.fr/europe/textes_europeens/e7919.pdf>

⁴ United Nations Secretary-General's High-Level Panel on Global Sustainability (2012). Resilient people, resilient planet: A future worth choosing, Overview. New York: United Nations.

⁵ Decision of the European Parliament and of the Council on general environmental action program of the Union 2020, COM (2012) 710 final. - [on-line] Available on - URL: http://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com%282012%290710_/com_com%282012%290710_en.pdf; p. 11



The basic requirements of a systematic approach to quality management, environment, safety requirements are generic international standards, ie ISO 9001 Quality Management System, ISO 14001 Environmental Management System and OHSAS 18001 occupational health and safety management systems.

Stimulation of environmentally sound products, services and technologies

Union policy in the area of environment stimulates innovations and investments into the environmentally sound products and services which creates employment and export opportunities.⁶ Continuous expansion of the EU contributed to wider application of high standards of environmental protection on larger part of the Europe continent and the efforts of EU contributed to the strengthening of international commitment to fight against climate changes and loss of biodiversity and towards successful global efforts to remove substances that harm the ozone layer, and leaded fuels.⁷

To address some of these difficult issues it is required to fully exploit the potential of existing environmental technologies and to ensure the continued development of best available techniques and innovations, and their uptake by the industry. It also needs a rapid progress in promising fields of science and technology. This should be facilitated by promoting research and creating conditions that would support private investment in research. At the same time, we need to better understand the potential risks to the environment and to human health associated with new technologies, and we must better assess and manage them. This is a prerequisite for the public to adopt and accept new technologies, as for the EU, to effectively and timely identify possible risks associated with technological developments and respond to them.⁸

Under "Priority Objective 2: to make the EU low-carbon, green and cost competitive resource-efficient economy" are the main initiatives besides other factors aimed at:

- Industry's uptake of the best available techniques under the Industrial Emissions Directive will deliver improved resource use patterns and reduced emissions for over 50000 major industrial installations in the EU, thus making a significant contribution to stimulating the development of innovative techniques, greening the economy and reducing costs for industry in the longer term.⁹
- Measures will also be taken to further improve the environmental performance of goods and services on the EU market over their whole life cycle through measures to increase the supply of environmentally sustainable products and stimulate a significant shift in consumer demand for these products. This will be achieved using a balanced mix of incentives for consumers and businesses, including SMEs, market based instruments and regulations to reduce the environmental impacts of their operations and products. Existing product legislation such as the Ecodesign and Energy Label Directives and the Ecolabel Regulation will be reviewed with a view to improving the environmental performance and resource efficiency of products throughout their lifecycle, thus ensuring a more coherent framework for sustainable production and consumption in the EU.
- Since 80% of all product-related environmental impacts are locked in during their design phase, the EU policy framework should ensure that priority products placed on the EU market are 'eco-designed' with a view to optimising resource and material efficiency, by addressing inter alia recyclability, recycled content and durability. These requirements will have to be implementable and enforceable. Efforts will be stepped up at EU and national level to remove barriers to eco-innovation⁵¹ and to unlock the full potential of Europe's eco-industries, generating benefits for green jobs and growth.¹⁰
- A long-term and predictable policy framework in all these areas will help to stimulate the level of investments and action needed to fully develop markets for greener technologies and promote sustainable business solutions. Resource efficiency indicators and targets are needed to provide the necessary guidance for public

⁶ The economic benefits of environmental policy (IES, Vrije Universiteit Amsterdam, 2009), COM(2012) 173, Implementing EU legislation for Green Growth (BIO Intelligence Service 2011).

⁷ Decision of the European Parliament and of the Council on general environmental action program of the Union 2020, COM (2012) 710 final. - [on-line] Available on - URL:

http://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com%282012%290710_/com_com%282012%290710_en.pdf; p. 10

⁸ Decision of the European Parliament and of the Council on general environmental action program of the Union 2020, COM (2012) 710 final. - [on-line] Available on - URL:

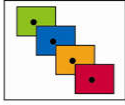
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⁹ Decision of the European Parliament and of the Council on general environmental action program of the Union 2020 (Rozhodnutie Európskeho parlamentu a Rady o všeobecnom environmentálnom akčnom programe Únie do roku 2020), COM (2012) 710 final. - [on-line] Available on - URL:

http://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com%282012%290710_/com_com%282012%290710_en.pdf, p. 18

¹⁰ Decision of the European Parliament and of the Council on general environmental action program of the Union 2020, COM (2012) 710 final. - [on-line] Available on - URL:

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and private decision-makers in transforming the economy. They will become an integral part of this programme once agreed at Union level.¹¹

EU environmental policy

Since 1973 a framework for EU action on the environmental progress was created by environmental action programs (EAP). The development of EU policy on the environment was driven by environmental action programs since the early seventies of the 20th century. Under the agreement, the EAPs are adopted by the ordinary legislative procedure. The sixth EAP was completed in July 2012 and the European Commission therefore, in response to requests from interested parties, including the Council and the European Parliament presented a proposal for a follow-up program. Context had four aspects, ie

- despite progress in some areas of the main problems in the environment persist, and there are still opportunities to make the environment more resistant to systemic risk and change;
- The EU has adopted the Europe 2020 strategy for smart, sustainable and inclusive growth, which is decisive for the development of policy for the period to 2020;
- While many Member States are trying to cope with the economic crisis, the need for structural reforms, offers the EU new opportunities to move closer to an inclusive green economy;
- Rio + 20 emphasized the importance of global dimension.

Ecological innovations have a significant importance from the view of strategy Europe 2020 execution in order to secure intelligent, sustainable and inclusive growth. Action plan in the area of ecological innovations (EcoAP) supports innovations aimed at decreasing pressure on the environment and is helping them to push through onto market. Due to fact that environmental technologies prosper the trade and help create new employment opportunities, environmental innovations are immensely important for the Europe's economic competitiveness. EcoAP is one of the obligations of the flagship initiative "Innovation Union" and is based on an action plan for environmental technologies (ETAP). The original center of gravity (Environmental Technology) is extended to a broader concept of eco-innovation and focuses on concrete barriers, challenges and opportunities for achieving environmental objectives through innovation. EcoAP contains measures on the demand and supply side, to support research and industry, as well as political and financial instruments. The plan recognizes the essential role of legislation in the development of eco-innovation and foresees a review of legislation on environmental protection. It also highlights the importance of research and innovation for developing innovative technologies and marketing. The plan does not neglect the international aspect of eco-innovation and focuses on better policy coordination with international partners.¹²

The aim of the 7th EAP is strengthening the policy environment for the transition to a low-carbon resource-efficient economy that protects and enhances natural capital and promotes the health and well-being of citizens. An important element of a 7th EAP is an effort that will respect the boundaries of Earth's natural resources. 7.EAP provides an overarching framework for environment policy for 2020 and identifies nine priority objectives to be achieved by the EU and its Member States. Responsibility for meeting goals and objectives in the field of environment and climate change borne jointly by the EU and its Member States. The program should be implemented in accordance with the subsidiarity principle at the appropriate level. Priority objectives and the steps that the EU must do to achieve them by 2020:

- to protect, conserve and enhance the natural capital of the Union
- making the Union competitive, low-carbon ecological and resource-efficient economy
- protect EU citizens against environmental impacts and risks to their health and well-being
- maximize the benefits of Union legislation on the environment by improving their implementation
- deepen knowledge on the environment and improve the factual basis for policy
- ensure investment into environment policy and be responsible for the cost of the environment from any social activities
- improve the integration of environmental concerns into other policy areas and to ensure coherence in creating new policies
- reinforce the sustainability of cities in the European Union
- to help the Union more effectively resolve international environmental and climate issues.¹³

¹¹ Decision of the European Parliament and of the Council on general environmental action program of the Union 2020. - [on-line]

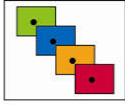
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¹² New action plan for eco-innovation to support ecological growth and the contribution from business.) Brussels 15.12.2011. - [on-line]

Available on - URL: http://europa.eu/rapid/press-release_IP-11-1547_sk.htm

¹³ Good life within the possibilities of our planet - the 7th EAP - general environmental action program of the Union 2020. ISBN 978-92-79-33918-9. - [on-line] Available on - URL: <http://ec.europa.eu/environment/pubs/pdf/factsheets/7eap/sk.pdf>



Environmental protection and relevant management activities

Social Responsibility of an organization (Corporate Social Responsibility - CSR) is defined in the Regulation of the EU Commission as a concept where companies integrate social and environmental needs in their business activities in conjunction with the concerned stakeholders on a voluntary basis.¹⁴ It is a complex, synthetic approach involving a range of instruments, the use of which may be at the level of the harmonious sustainable development in the context of sustainable development. The application of this approach is based on a growing awareness that responsible corporate behavior leads to success in business. CSR is also a way of managing change at company level in a socially responsible manner. This happens when the company is looking to balance trade-offs between the needs and requirements of different stakeholders in generally accepted manner for all stakeholders. Successful management of change in this respect has a significant positive impact on the sustainability of the macroeconomic scale.

Responsible Care (Responsible Care - RC) whose main objective was to initiate responsible behavior of workers in the chemical industry in relation to the environment.¹⁵ Responsible Care, the Canadian Association of Chemical Industry responded to the outflow of workers in chemical plants, was caused by an accident in India's Bhopal. In 1988 principles of the program were declared. Since 1988, the program supports the American Chemistry Council (ACC) in order to implement significant improvements in environmental protection, health protection, safety and security. ¹⁶ The initiative of the chemical industry aims to promote sustainable development by increasing safety of facilities, products, including their transportation, and protection of health at work and the environment. The program represents a long-term strategy coordinated by the International Council of Chemical Industry Associations (ICCA) and the European Chemical Industry Council (CEFIC) in agreement with the European Federation of Distributors of Chemicals (FECC). This global initiative contributes significantly to reducing contamination of the environment and pro-environmental orientation of organizations in 52 countries.¹⁷ The program preserves the principle of voluntariness and openness, which is characterized by ensuring the availability of information on the state of the environment, protection and safety, fulfilling various commitments to all interested parties including the public.

Normative standards applied within the quality management

On the organizations and state institutions is put an increasing emphasis from the consumer side, focused on products and services quality. Managers of organizations are forced to deal with the quality and stability of its processes, management and its continuous improvement, to be able to meet customers' needs at a reasonable price. One of the basic management tools to ensure and maintain the quality and the above principles is quality management system according ISO 9001: 2015.

Implementation and certification of quality management system ISO brings advantages in many areas, that is:

- economic benefits:
 - by reducing the cost of (non) quality
 - to reduce the number of claims and customer complaints
 - the opportunity to participate in public tenders
- Advantages for organization management:
 - to improve the overall management of the organization - "process control"
 - precise definition of responsibilities and powers
 - order in the company (the organization)
 - building of a corporate culture.

Environmental management system as an important environmental management innovation

Environmental management system (environmental management systems - EMS) is a voluntary tool in environmental management in the organization, established for the purposes of compliance with legal requirements.

ISO has developed a group of ISO 14000 standards to help organizations take a proactive approach to managing and protecting the environment.¹⁸ EMS implementation is considered as environmental organizations / managerial innovation. EMS includes the organizational structure, planning activities, responsibilities, processes, procedures and resources for formulating, implementing, reviewing and maintaining the environmental policy of the organization. It

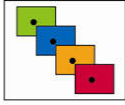
¹⁴ Corporate Social Responsibility: A business contribution to Sustainable Development. Brussels, 2nd July 2002; COM(2002)347 final

¹⁵ Responsible Care. - [on-line] Available on - URL: <http://responsiblecare-us.com/about.asp>.

¹⁶ Responsible Care. - [on-line] Available on - URL: <http://americanchemistry.com>

¹⁷ Responsible Care. - [on-line] Available on - URL: <http://www.responsiblecare.org/>

¹⁸ Environmental management - The ISO 14000 family of International Standards. - ISO Central Secretariat, 1, chemin de la Voie-Creuse, Case postale 56, CH-1211 Genève 20, Switzerland, www.iso.org, ISBN 978-92-67-10500-0. - [on-line] Available on - URL: http://www.iso.org/thiso14000family_2009.pdf



enables systematic management to achieve the level of environmental performance set out in an organization by itself, established through the policy adopted processes and documentation within an established environmental management system (EMS). EMS is a tool that combines approaches to environmental protection with the overall management of the organization to achieve business objectives and environmental management organization. Is applicable to any type of an organization in the industrial sector, agriculture, services, health and trade, financial or public sector.

A system approach to environmental management can be by:

- EMS (Environmental Management Systems. Requirements with guidance for use) according to ISO 14001: 2015
- EMAS (Eco-Management and Audit Scheme) - EU Regulation 761/2001 of 19.3.2001 on the voluntary participation by organizations in a eco-management and audit scheme (EMAS II) amended the EC Regulation 1836/1993 (EMAS I) on the voluntary participation of industry at Community program of environmental management and assessment approved by the Council of Ministers EC 29.6.1993 (entered into force on 13.7.1993 with effect for individual Member States of the EU from 13.4.1995). It was subsequently amended by Regulation of the European Parliament and Council Regulation (EC) No. 1221/2009 on the voluntary participation by organizations in a Community eco-management and audit scheme - EMAS III. The SR was to promote EMAS, the Act NR SR. 351/2012 on environmental verification and registration of organizations in the EU Eco-Management and Audit Scheme and on amendments to certain laws.

International standards of the ISO 14000 are voluntary, elaborated and implemented by consensus. Standards in their scope allow:

- through the method of analysis and life cycle assessment of products to guide the design, manufacture and use of products with reduced environmental impact and takes account of efficient consumption of resources and energy, and reduced pollution, waste production and increased chemical and environmental safety;
- through environmental product labeling evaluate and administer verifiable, accurate and not misleading information on the environmental aspects of products and services, thereby supporting the demand and supply of products causing less strain on the environment;
- specify the requirements and procedures for the introduction, auditing, certification and registration of environmental management systems with the aim of improving the environmental performance of organizations in different sectors;
- increase and deepen the level of environmental performance behavior of an organizations, communities and regions through the application of other support standardized methods with the aim of enhancing the environmental quality of the activities, products and services in relation to all the requirements of environmental protection.

Green action plan for MSP

One of the key drivers of business competitiveness is effective use of resources, as the cost of raw materials allegedly pose to European production companies on average 40% of their overall costs. Resource efficiency means using the planet's limited resources in a sustainable manner while minimizing impacts on the environment and facilitating economic growth (through a relative separation of the use of resources). With the cost of energy and water, these costs make up to 50% of the total production cost compared to the cost of labor, representing 20%.¹⁹ Improving resource efficiency indeed requires a combined approach to the execution of the value chain, comprehensive technical solutions at the organization level. In line with the Europe 2020 strategy is a priority for the EU to become a sustainable economy. It sets ambitious targets for action on climate change and energy efficiency. The Small Business Act (SBA)²⁰ initiative highlighted the fact that the EU and Member States should enable SMEs to transfer the challenges of the environment into opportunities. Green Action Plan (Green Action Plan - GAP)²¹ gives clear direction and provides the framework for how the EU intends - in partnership with Member States and regions - helping SMEs to benefit from business opportunities presented by the transition to a green economy. 'Green economy' is a model that "ensures growth and development, protect the health and welfare of the people, providing them with decent jobs, reducing inequalities and investing in biodiversity, including ecosystem services it provides and preserves their natural capital for their own value and key contribution to human well-being and economic prosperity. "(definition of the EP and the Council no. 1386/2013 / EU of 20.11.2013 on general EAP Union 2020" good life within the possibilities of our planet ").²²

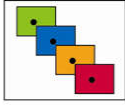
¹⁹ Guide to resource efficiency in manufacturing: Experiences from improving resource efficiency in manufacturing companies. - Europe INNOVA (2012)

²⁰ Small Business Act. - [on-line] Available on - URL: http://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act/index_en.htm

²¹ Green Action Plan, GAP. - [on-line] Available on - URL: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014DC0440>

²² Green Action Plan for SMEs - enable SMEs to transform challenges in the environmental field for business opportunities. -

Communication from the Commission to the EP, the Council, the European Economic and Social Committee and the Committee of the



This initiative is a series of specific new or revised measures for SMEs proposed at EU level. Green Action Plan for SMEs is targeted at resource efficiency in general without having to pay particular attention to energy efficiency and energy production from renewable sources, which are already addressed in a specific Commission communications and legislative proposals. Green Action Plan aims to:

- improve the resource efficiency of European SMEs;
- promote green business;
- exploit opportunities that bring greener value chains
- facilitate access of environmentally oriented SMEs to the market.

The aim of the Green Action Plan is to contribute to the re-industrialization of Europe, as set out in the notice of the renewal of European industry [COM (2014) 14]. This Action Plan is based on the action plan for eco-innovation (EcoAP)²³, which directs the policy and financing eco-innovation within the Europe 2020 strategy. A number of measures and instruments of EcoAP has a great significance for SMEs. For instance, the European Innovation Scoreboard, the Observatory eco-innovation, European Forum on eco-innovation, European innovation partnerships and financial instruments for eco-innovation under Horizon 2020. The measures contained in the Action Plan and the green EcoAP is thus they complement each other and lead to important synergies. Throughout the implementation phase an appropriate coordination will be ensured between EcoAP a green action plan.²⁴

Conclusion

Improving resource efficiency represents a huge potential to reduce production costs and increase productivity. Better use of resources has the potential to deliver significant savings. Prevention of environmental damage, its remedy and the move to a low carbon economy is a societal challenge that also provides new business opportunities for enterprises. "Eco-innovation" just as any other kind of innovation, to flourish they however need the right environment not only in the field of the development of ideas, suggestions but their implementation is dependent on support and access to finance. In the global context, it is a clear move towards effective management of quality, environment and safety primarily based on implementation of objective and periodic evaluation of the effectiveness of these systems, informing public of the place (location) to undertake production (industrial) activity on its performance, safety, certifying compliance with the requirements of appropriate standards in the implementation of the policy. The application of standard instruments for quality, environment and safety management, is necessary to develop a new dimension of management approach which allows to maintain and increase the competitiveness of organizations and implement their environmental sustainability in relation to the increasing demands in the marketplace.

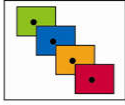
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