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## Development of Eco-Industry Sector

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*Measures to encourage development of eco-industries represent an important part of the programs of many countries; analyses of different international organisms reveal a series of advantages of this sector for economy. According to OCDE “The environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems”. The paper analyses the advantages of eco-industry and based on environmental expenditure is made an estimation of eco-industry development potential in Romani. In the second part of paper are presents the main action for promotion of eco-industry in EU and Romania.*

**Keywords:** *eco-industry, policies, potential, measures*

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In the last decade a number of policies, have been target to reduce the environmental footprint of the economy and reduce the use of raw materials, is also remarks remark change in the structure of the environmental sector is shifting from “end-of-pipe” equipment and clean-up services to “clean” environmental technologies and products. Moreover environmental pressures lead to the increasing of demand for environmental technology, therefore a eco-industry is a prerequisite for sustainable economic growth. “Taking into account the collective experience the best way to improve framework for an strong and balances economic increasing is to invest in green economic recovery” (UN Secretary General Ban Ki-moon, 2010).

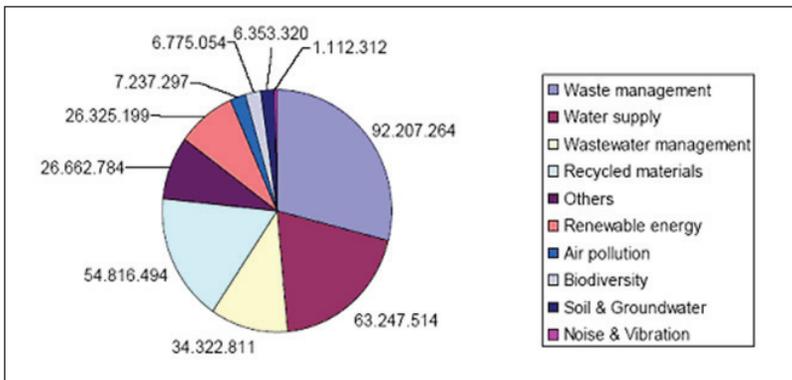
The OECD/Eurostat Informal Working Group has agreed on the following definition: “The environmental goods and services industry consists

of activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems”.

The recent study of international organism (OECD, EUROSTAT) and scientific community already agrees that developemnt of this sector brought an series of advatanges for economy. Large investments have, in fact, been earmarked in many countries around the world. The renewable energy sectors: solar, wind, biofuels, ocean currents and tidal projects all received unprecedented funding by governments and private investors (Henderson, 2006).

Beside the direct beneficial effects to the environment (protection, conservation, restoration, etc.) the environment market increases the potential of materials (through recycling, reuse) create new jobs, value the potential of research and development, scientific and technical incentives. Prospects for eco-industry and market environment is good, every ten years, the necessary volume for equipment and control apparatus will increase by about 50% and 80%. (Bran).

At international level eco-industry sector is one of the most competitive, according to an report published in 2009 by EC, the eco-industry in EU had a turnover of €232 billion (2.2% of GDP) in 2004 and €319 billion (2.5% of GDP) in 2008. As can be seen in Figure 1, the four largest sub-sectors of eco-industry are waste management, followed by water supply, wastewater management and recycled materials.



**Figure 1:** Sizes of sectors within eco-industry, Source: EC, 2009

According to report “Low carbon jobs for Europe” (WWF, 2009) jobs in low-carbon sectors are outstripping those in Europe’s traditional polluting industries. The polluting industries: mining, electricity, gas, cement, iron, steel and other polluting industries register 2.8 million jobs in Europe ( WWF, 2009).

The study estimates renewable energies employ 400,000 people, green transport 2.1 people and energy-efficient goods and services employ 900.000. The green jobs refer to production, installation and maintenance of wind turbines and solar panels, or construction activities for energetic efficiency building. All these activities have increased considerably, especially those based on wind, solar and bio-energy. The report reveals a total of 5 million jobs indirectly related to green economic activities. European countries with the largest number of green jobs are Germany, Spain and Denmark for wind power, Germany and Spain for solar power.

Moreover, environmental services, that include development and maintenance of necessary infrastructure (eg. Waste management, pollution control, maintenance of protected areas, renewable energies, prevention of natural hazardous, even activities such as protection of natural heritage) provides an important prerequisite for creating new jobs.

The potential of eco-industries makes this area important but in Romania the sector is very weak representative compared with EU average and monitoring are still not based on statistic documents.(IER, 2006).

In Romania the share of eco-industries is under represented in comparison with the EU average, and is also a general problem of other new EU member states. (IER, 2007).

Approximation of eco-industrial potential can be achieved on the basis of expenditure on environmental protection, that reflect the environmental and financial flows include payments for economic activities aimed at production of specific services to prevent, reduce or control environmental damage. These are grouped into: investment and running costs which in turn include internal current expenditure (salaries and social security contributions, consumption of raw materials, fuel, energy, water and other auxiliary materials, expenses for research and development, training, information) and external current costs (costs of environmental protection services purchased from third parties and as environmental taxes paid). On environmental areas, the largest potential is for waste management followed by water and air protection.

Specialized producers have registered the largest waste management

costs (about 76% of total expenditure for this area). For water protection, the largest expenditure was made by the government (39.0%), while for air protection; higher costs were recorded for non-specialized producers (76.7%). (INS, 2008).

**Table 1:** Environmental protection expenditure in 2008

<b>Environmental domain</b>	<b>Total</b>	<b>non-specialized producers</b>	<b>Specialized producers</b>	<b>Public administration</b>
<b>Air protection</b>	1.619.272	1.242.606	55.984	320.682
<b>Water protection</b>	3.508.767	788.120	1.352.751	1.367.896
<b>Waste management</b>	8.927.767	1.072.457	6.778.036	1.077.274
<b>Soil and underground water protection</b>	760.807	619.630	65.817	75.630
<b>Noise and vibration control</b>	32.594	8.900	3.165	20.529
<b>Natural resources protection and biodiversity conservation</b>	212.147	141.974	21.900	48.273
<b>Other environmental domain</b>	1.416.737	643.107	50.582	723.048

Sursa: INS, 2008

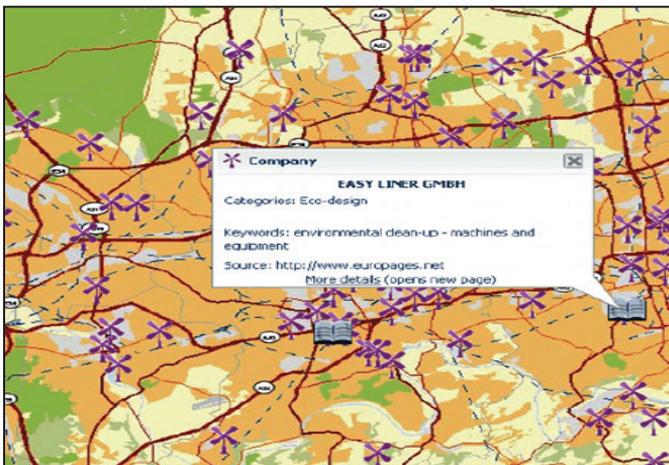
At international level, a series of integrated measures in various policies and programs have had implications on the development of eco-industries, in the following we will analyze these measures and their implementation in Romania.

“Environmental Technologies Action Plan ETAP”, provides information for actions to be taken at European level to promote environmental technologies to reduce pressure on natural resources and improving life quality. Environmental technologies are defining as “technologies, products, services, utilities, management systems and organizational of that production or application involves reducing the negative environmental impact compared with relevant alternatives technologies.” The objectives stages of ETAP are as

follows:

- Transfer of technology from research stage to market availability
- Research, innovation and dissemination of results
- Technology Platforms validation / certification of environmental technologies
- Improving market conditions
- Environmental Management Systems
- Mobilization of funding sources
- Economic instruments
- Green Public Procurement
- Information, education and training
- Global action
- Support for development of eco-technologies in third countries and foreign investment promotion

To develop an database on environmental technologies at European level was created a new web-based geographic service to assist the public to locate environmental technology and eco-efficient innovation players in the world. “*Atlas of environmental technologies*” (fig.2) aimed at providing support to private companies and public organizations to find sources of new environmental technologies in Europe , with details on location and information on companies, knowledge centers and major technological facilities.



**Figure 2:** Atlas of environmental technologies, Sursa: [http://technologies.ewindows.eu.org/atlas\\_map](http://technologies.ewindows.eu.org/atlas_map)

In Romania the Ministry of Environment and Forests coordinates the elaboration and implementation of the policy in the field of environment technologies according to Government decision no. 1568/2008 regarding the approval of the Road Map for the implementation of the Environmental Technologies Action Plan.

The action plan for environment technologies ETAP Romania encompasses actions and projects under the following guide lines: actions support for research and development, improvement of the testing-certifying systems for environment technologies, improvement of the environment performance, making available the financing sources, the improvement of the market conditions, setting up a coherent legislation and monitoring for the green public procurement, information, education and training and promotion on green technologies at the global level.

Green procurement was recommended to promote sustainable production and consumption patterns and the World Summit on Sustainable Development, Johannesburg 2002. Recommendation of the council to improve environmental performance of public procurement consist in integrating environmental issues into the procurement of goods and services.

To help interested parties (public authorities, private firms, suppliers of goods and services, contractors), EC issued a "Manual for green procurement", which explain the modalities for introducing environmental considerations in public procurement procedures . According to this the contracting authorities can introduce environmental criteria in different phases of the acquisition process as follows: the contract (contract name); qualification criteria and selection; technical specifications; evaluation criteria; clauses of contract performance. To support green procurement, also, European Council adopted a regulation that require to public authorities to purchased products labelled "Energy Star", that representing the energy-efficient products.

The impact of green procurement was significant, considering that according to a research report of European Commission, European public authorities spend over € 1,000 billion on goods, services and works. Over 2.8 million computers are purchased each year. Thus, the purchase of more efficient models of energy would reduce energy bills and greenhouse gas emissions over 830.000 CO<sub>2</sub> more green energy purchase would contribute one quarter to the fulfilment by the Kyoto Protocol tons, using efficient toilets and sanitary facilities would reduce consumption by 200 million tons of liquid, equivalent to 0.6% of total consumption in the European Union household.

In Romania, according to the regulation in force, the contracting authority has the right to use awarding criterion based on environmental characteristics or define the technical specifications by relating to environmental standards. Also it has been drafted The Romanian National Action Plan on Green Public that introduces a set of voluntary and mandatory 'green' targets for groups of products, services and works, scheme and penalties for the authorities that will not meet the targets.

Some of the actions have been done for promotion of environmental technology and green procurements. The Life Project Application of Industrial Ecosystems Principles to Regional Development – *ECOREG* implemented in Suceava County, have as objective the application of industrial symbiosis principles, allowing regional symbiotic development with a minimum impact upon the environment. One of the specific objectives of the project is to reduce the natural resources used as raw materials. More specifically the project aims to reduce natural resource consumption of the partners; reduce environmental impact related expenses by 20-50% for each partner; and identify best practices and disseminate these at national level. The main result foreseen is a reduction in the amount of industrial waste disposed.

## Conclusions

Development of eco-industries in Romania should be a necessary prerequisite for sustainable development taking in consideration the positive effects on the economy, already registered in EU countries. For development of sector in Romania is necessary the coordination of policy measures, in the sphere of small and medium enterprises and innovation and research policy, moreover we underline some specific measures: supply of data and information needed to develop the field, exchange of experience at national and regional level, transfer of international good practices, internalisation of environmental costs, considered a major obstacle in developing eco-industry, increasing financial incentive mechanisms and development of research in this field.

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