The Eco-Innovation Observatory functions as a platform for the structured collection and analysis of an extensive range of eco-innovation information, gathered from across the European Union and key economic regions around the globe, providing a much-needed integrated information source on eco-innovation for companies and innovation service providers, as well as providing a solid decision-making basis for policy development.

The Observatory approaches eco-innovation as a persuasive phenomenon present in all economic sectors and therefore relevant for all types of innovation, defining eco-innovation as:

“Eco-innovation is any innovation that reduces the use of natural resources and decreases the release of harmful substances across the whole life-cycle”.

To find out more, visit [www.eco-innovation.eu](http://www.eco-innovation.eu)

Any views or opinions expressed in this report are solely those of the authors and do not necessarily reflect the position of the European Commission.
Eco-Innovation Observatory

EIO country brief 2010: Bulgaria

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Part 1. Introduction: innovation and environment in Bulgaria

Bulgaria is a small open economy in South-Eastern Europe. It has an area of 110,910 sq. km and population of 7.7m. (NSRF 2007-2013). The annual GDP for 2009 €35,042.5m (NSI 2010) and €36,136m for 2010 (estimation for the forth quarter made by the Bulgarian National Bank). Bulgaria launched a process of economy restructuring in 1989 and like most of the Eastern Europe economies, in the early 90s it experienced transition from a centrally planned economy and undergone market liberalisation. During the 90s Bulgaria suffered from the political instability in the Western Balkans region, which resulted in closure of the country’s trade routes to Western Europe. These factors caused severe underinvestment in infrastructures, loss of human potential by emigration and labour market inefficiencies, which resulted one of the lowest GDP per capita in Europe.

The economic growth could be described as significant in the service sector and the industry, where substantial increase in the innovation activities has taken place (Innovation.bg 2010). Unfortunately the above described economic improvements have not brought improvements in the innovation potential of the Bulgarian economy, which impairs its long-term sustainability. The country is not only at the bottom of the Community’s Innovation Scoreboard, productivity and GDP per person but has also seen a decline in some aspects of innovation performance in the past years (Innovation.bg 2010). According to the European Innovation Scoreboard (EIS) 2009, Bulgaria is one of the catching-up countries with an innovation performance well below the EU-27 average but the rate of improvement is one of the highest of all countries and it is a growth leader within the catching-up group. Although research and development (R&D) expenditures in Bulgaria are increasing by €10.2m to €15.3m annually, they are still four times lower than the EU average level and remain at about 0.52% of Bulgaria’s GDP. However, some elements in the Bulgarian innovation system are disjointed: basic and applied research is largely detached from the private R&D (Innovation.bg 2009). According to the latest annual national innovation policy report (BNIP 2006) and the Bulgarian National Statistics Institute (NSI) the innovation research in Bulgaria is focused on scientific work, development in ICT, and industrial engineering solutions aimed at improving product quality and rarely at protecting and improving environmental conditions.

Unfavourable environmental effects, mainly related to increased energy and resources consumption, emissions and waste, are challenging the Bulgarian economic growth and future development. According to the national report on the state of environment in Bulgaria (NRSE 2008), 26% of the Bulgarian population lives in regions with increased dust contamination, which significantly exceeds the European average. Seven percent of the population lives under levels of sulphur dioxide contamination far above the European limits. On other hand, the energy consumption generated by renewable energy resources (RES) increased by 34.3% during the period of 2004 – 2008 which made it one of the fast growing sector in Bulgaria. The GHG emissions have been decreasing in the same period and reached 72,551 Gt CO₂e. Moreover, the overall water quality in Bulgaria in the period of 1990-2008 gradually increased. Another two very important environmental issues are the waste and waste management difficulties and the national protected areas network part of the Natura 2000 (NRSE 2008).
No specific national or local policy documents or programs targeting eco-innovation has been implemented in Bulgaria. Furthermore, there are no specific studies on eco-innovation strategies and/or pilot activities has taken place.

The **national innovation policy does not clear and specific objectives related to eco-innovations.** Most of the innovations relevant to improvement of environmental conditions, environmental protection, sustainable business and know-how transfer activities are imported as good practices implemented within the frame of EU LIFE and LIFE Plus programmes. The main objectives of the national innovation policy are formulated in the **National Innovation Strategy (NIS)**, adopted in 2004. This is the most important document for the development of the innovation system and the growth of the innovation potential of the Bulgarian economy. Another document, which underlines the goals of the innovation policy is the **National Reform Programme (2008-2010)** (INNO 2009).

The **National Science Fund** and the **National Innovation Fund** were established to finance the priority research and innovation activities, including eco-innovation projects. All measures within the national financing instruments aim at **strengthening the links between research and business** (technology transfer centres), **building the innovation infrastructure, strengthening the skills in entrepreneurship and innovation** (entrepreneurship centres), **supporting existing clusters**, etc. Another major instrument is the **Operational Programme Competitiveness, 2007-2013** with a budget of €1,162m. (Innovation.bg 2009; OPC 2007-2013) and the **Operational program Environment** with total budget of €1,800m (QRF 2010), which is particularly relevant for eco-innovations.
Part 2. Eco-innovation performance

The analysis in this section is based on the EU 27 Eco-innovation scoreboard (Eco-IS). Eco-IS via its composite Eco-innovation index demonstrates the eco-innovation performance of EU countries compared with the EU average and with the EU top performers. Eco-IS is based on 13 sub-indicators which are aggregated into five composite indicators, reflecting the five components: eco-innovation inputs, activities and outputs as well as environmental outcomes and socio-economic outcomes of each EU27 member state.

![EU27 Eco-innovation scoreboard, composite index](image)

**Figure 2.1 EU27 Eco-innovation scoreboard, composite index**

According to the eco-innovation index, the overall eco-innovation performance of Bulgaria is significantly below the EU average (see figure 2.1). Bulgaria is positioned in the group of countries with a lower eco-innovation performance.
Figure 2.2 Eco-innovation composite index components

Eco-innovation inputs

According to the national statistics in 2008 the government’s environmental and energy R&D appropriations and outlays were around 0.03% of GDP. Furthermore, according to the figures of the NSI the total expenditure on related to eco-innovations areas such as environmental protection, industrial development, agriculture, forestry and research on political and social systems in 2009 made up 23.5% of the total expenditures on R&D. The agriculture could be described as a leading sector among the others with 19.5% of total expenditures. The total R&D personnel and researchers in percentage of total labour force were at 0.57% in 2007, while the community average for the same year was higher at 1.43%. Information about capital investments in eco-innovation projects is not available for Bulgaria. During the past two years, however, the environmental sector started being considered as one of the fast growing sector with very good investment conditions (NSI 2009).

Eco-innovation activities

As regards to eco-innovation activities, Bulgaria is at the tale of the EU27 Member States statistics. In terms of innovations targeting reduction of material and energy use the Bulgarian businesses perform at the bottom of the EU27 counties ranking. Based on Community Innovation Survey (CIS4) results for the period 2002–2004, 17.04% of innovative enterprises in Bulgaria indicated that their innovations contributed significantly to the reduction of material and energy use per unit while the EU27 average was 9.5% (CIS4 2004). The latest CIS2008 suggest that the levels of engaged enterprises in Bulgaria is decreasing and 11.6% of the companies are using innovation to reduce material use, 13.57% for reducing energy consumption, and around 6% for reducing CO2 emissions and GHG.
Furthermore, the number of EMAS registered organisations is zero since the process of introducing the EMAS certification system in Bulgaria started after the accession in EU (the first certificates are expected to be issued in 2011). 770 valid ISO 14001 certificates are available at the moment for Bulgaria. In general, Bulgaria lags far behind the best performing EU countries for eco-innovation, although there is increasing awareness and improved knowledge and clear willingness in the Bulgarian companies (SLP-BGC 2010).

**Eco-Innovation outputs**

Eco-innovation outputs are measured in patenting outputs in pollution abatement and energy efficiency fields at national level. Unfortunately, Bulgaria has not been included in the OECD patent analysis. Considering the relatively modest R&D investments, however, it is likely that the overall patenting activities in Bulgaria, including patenting of environment related innovations, is low.

**Environmental outcomes**

Bulgarian indicators for environmental outcomes reflect a relatively poor performance (see figure 2.2). With 0.5 EUR/kg in 2007 Bulgaria is the worst performing country in the EU in terms of material productivity (GDP/DMC). It is important to be noted that the water productivity (EUR/m3) is also one of the lowest in the EU. Energy productivity (EUR/toe) in 2008 was 49% below the EU average. The material productivity of the economy has been however improving in the last few years. This indicator improvement is more related to the transformation of the Bulgarian economy rather than as a result of increased promotion of eco-innovation in the country. The growing service sector in the national economy leads to a proportional decrease in overall natural resources and material use, even though the industrial sector makes that process of reduction very slow. The GHG emissions intensity on the whole economy is still one of the highest in Europe, with its 0.93 kg of CO$_2$ equivalent/EUR for 2008, even it's one of the fast decreasing indicators (in 1995 was 2.26 kgCO$_2$e/EUR).

**Socio economic outcomes**

The socio-economic outcomes indicator is based on the performance of green industries. The information about the share of goods produced by eco-innovations in total export for the past 5 years (2004–2009) is not available for Bulgaria, but the size of the turnover in GDP for the “green” industries implementing eco-innovations is average for the EU27. The share of employment in the total Bulgarian labour force is at 7.11% and is the highest in the EU27 in 2008. It can be explained by the increased investments in the large renewable energy, waste management and water infrastructure projects in Bulgaria. The number of environmental responsible employers and the increase of aggregated markets and mall buildings with reduced environmental impact could be considered here additionally. Most likely this trend will decline, with the fall of the economy growth in Bulgaria, after all massive infrastructure and upgrade projects as part of the operational programs will complete. The overall performance of the Bulgaria in the socio-economic outcomes indicator is 110% above the EU average which is largely due to the high score in the “green jobs” indicator.
Part 3. Leading eco-innovation areas

The areas with the most active eco-innovation activities are energy efficiency in housing, renewable energy generation and waste recycling.

Energy efficiency in housing

More than 850,000 apartments in Bulgaria are located in residential buildings, which were built using the technology of industrialised large panel construction (the panel blocks). These apartments have poor energy efficiency and are connected to district heating systems, which operate on an outdated, inefficient heating infrastructure with significant network losses. Among crucial problems with heating efficiency is a poor insulation of walls and windows. As a result, the Bulgarian Energy Efficiency Fund (BEEF) was established through the Energy Efficiency Act adopted by the Bulgarian Parliament in February 2004. The BEEF is initially funded through credit funds, its major donors being the Global Environment Facility through the International Bank for Reconstruction and Development ($10m), the Government of Austria (€1.5m), the Government of Bulgaria (€1.5m) and several private Bulgarian companies. The programme adopted an individual approach and divided the possible clients to three strategic groups – municipalities, corporate clients and private individuals, where for private individuals for example the financial contribution should be up to 25% under a stand-alone financing. Specific measures with new or innovative approaches to improve energy efficiency are proposed. Each credit must have a payback time of up to five years.

In 2008-2010 there were several small initiatives aimed at improving energy efficiency of buildings. One was the financial aid for energy efficiency measures in the municipal educational infrastructure and promoting the use renewable energy sources (RES) in 178 small municipalities in Bulgaria. The program was launched as a part of priority axis 4 “Local development and cooperation” of the operational program “Regional development” 2007-2013, coordinated by the Ministry of Regional Development and Public Works and was aimed at reconstruction of buildings and audits of energy consumption and improving the access of people with disabilities. Another relevant initiative was the energy efficiency municipal centres network, financed by the Global environmental facility (GEF) and the United Nations Development Programme (UNDP), which established four municipal centres for building knowledge and skills for improving the energy efficiency of public and private buildings. Bulgaria is moving towards a national program and underlying granting instrument for financial support and contribution for improving the energy efficiency of public or private buildings in 2011.

“Bulgaria should adopt clear strategy for development of new investments and projects. The ministry of regional development and public works will work on programme for energy efficiency in housing” (SLP-BGC 2010). Within the frame of the first national action plan for energy efficiency, 2008–2010, specific measures are shown for improving the industrial energy efficiency, and also for the transport, services and households. These measures were adopted following the regulations described within the frame of 2006/32/EC directive on energy end-use efficiency and energy services. By the end of the period of 2008–2016 the saving are expected to reach 9% of the overall energy usage.

Renewable energy sources
For the period of 2000-2008 consumption from renewable energy sources (RES) in Bulgaria increased for 34.4% (NRSE, 2008). In 2009 a share of RES in the total energy produced was is 1.82% (NSI 2010). Bulgarian target for 2010 is to reach 11% of energy produced by RES and 16% in 2020. Specialized act on use of renewable and alternative energy sources was adopted in 2007 in compliance with the directive 2001/77/EC for use of renewable energy sources in the EU 27 countries. This sector could be described as the fast growing sector in Bulgaria, where many new investments have been introduced - hydropower plants, varying between small scale projects on the river banks to big scale river dams. Also significant investments were allocated for wind energy (mainly in the north-east Black sea coast regions), for photovoltaic stations, bio-fuel plants, and biomass installations for producing electricity primarily from firewood. Bulgaria has only 5MW installed capacities of photovoltaic panels, which is less than 1/1000 of the energy capacities of the country. This is despite the fact that there are hundreds of companies in this sector. (ING-BPA 2010). In 2010 the Ministry of environment and water announced their willingness to put transient moratorium on RES energy investments and appropriate strategies and legislation as the new Bulgaria’s Energy strategy 2020 and the National Action Plan for Renewable Energy (2011-2020) in order to secure the sustainable growth of the sector.

**Waste recycling**

In 2008 only 4.2% of the overall waste was recycled, this is equal to 152,057 tonnes out of 3m tonnes generated by public and building companies (NSI 2010). In 2010 there was a small increase in green investments allocated for recycling, which resulted for example, in a new waste recycling facility in central Bulgaria, covering areas of Plovdiv and Tsalapitsa, as well as in an initiative for battery recycling.

There were several green initiatives launched by the operators of the cell telecommunication in Bulgaria: among them so called “MTEL grant”, a newly established national fund for supporting environmental initiatives by MTEL, and “GLOBUL green” initiative for recycling cell phones and sustainable living (see examples below).
Example 1 Recycling initiatives under the Globul green strategy

Description of the product/service/technology:

GLOBUL Green is the first of its kind long-term ecological strategy focused on the implementation of practical solutions of environment protection issues by promoting such activities as:

recycling and re-using of materials and equipment (mobile phones, non-alkaline batteries, accessories for mobile phones, etc.);

Responsible usage of energy and other resources and materials;

Support to a Public ecological projects.

The first step of GLOBUL Green campaign that started at the beginning of November 2008 included the recycling of mobile phones, batteries (without alkaline ones), cables and accessories for mobile phones. Special mobile devices disposal containers were introduced in various locations.

Promoting the volunteer based initiative and the agreement with the Bulgarian branch of the WWF reached in 2009 awarded the initiative with strong public support and increased public awareness on responsible usage of products, and subjects as critical consumption and waste recycling.

“We know that the environment will not be preserved by implementing a few campaigns and we plan to add more initiatives and more measures to our strategy. We believe that all of our 4 million clients will support us so we all can have a better future in a better world.” (IHK-GCEO 2008).

Determinants

Barriers
Small public awareness on the recycling issues;
Lack of information about the recycling process of the products.

Drivers
improvement of company image;
the advantages of entering a new market.

Sustainable effect

increased public awareness about recycling
increased concern and awareness of the authorities about the recycling and re-using of materials
the initiative became an example to be followed in Bulgaria

Example 2 Eco-battery initiative
Description of the product/service/technology

Ecobattery AD is an organization for utilization of waste batteries and accumulators (WBA) and is holder of Resolution № 00p – 28 – 00/05.01.2009 issued by the Minister of Environment and Water. The objectives set with the founding of the organization for utilization of waste batteries and accumulators (WBA) include the construction of a network of sites for receiving and temporary storage of waste batteries and accumulators; creation of optimal logistic scheme for collection of WBA; environmentally friendly disposal of waste obtained after treatment of WBA; attraction of as many users and importers of batteries and accumulators as possible and achievement of their targets for recycling as members of the collective system of Ecobattery AD.

The organization allows producers and persons placing on the market batteries and accumulators to fulfill their obligations pursuant to the Waste Management Act for compliance with the requirements of art.11 and art.12. Also to achieve the objectives for recycling of WBA pursuant to art.13 of the Decree for placement on the market of batteries and accumulators and for treatment and transportation of waste by means of one well organized and efficient collective system. Ecobattery AD offers to municipalities a Framework Agreement for Separate Collection of Waste Batteries and Accumulators. Joint consultations on the specifics of separate collection systems are held followed by placement of containers for collection of waste batteries and accumulators on the territory of the respective municipality.

During the utilization of recycling of WBA strong informational and educational campaigns had been held. The organization regularly has campaigns and actions targeted at citizens to raise awareness of separate collection and utilization of waste batteries and accumulators. At present the utilization organization has signed agreements with more than 30 municipalities.

Determinants

Barriers
Small public awareness on the recycling issues.
Lack of information about the recycling process of the products.

Drivers
Improvement of the environmental status while collecting and recycling materials
The advantages of entering a new market

Sustainable effect

All member companies have no right to allocate profits. The funds accumulated from the membership fees within the eco-battery initiative are invested in the establishment of a sustainable system for collection, primary treatment, utilization and/or recycling of waste batteries and accumulators. In 2008 the share of recycled batteries among all collected in 80%.
Part 4. New trends: areas on the rise

Supporting the science work on innovations

In 2009 the Bulgarian council of ministers adopted National strategy for scientific research (2008–2018). Based on in-depths analysis of the science sector in Bulgaria and the available instruments for financing scientific research, the strategy describes three groups of scientific areas. Within the first group, all science fields with high innovative potential, which could affect the state index of economic development and to move the country to leading positions are gathered (it includes biotechnologies, renewable energy sources (RES), energy efficiency technologies, information and communication technologies (ICT), nanotechnologies, etc). Within the second group has been gathered all fields, which could affect the quality of life and could guarantee sustainable development, as ecology, climate sciences, sciences of the historical heritage, the national identity and the social environment. The third priority and the related group combine all initiatives for support of the Bulgarian industry. National consultative council on innovation was established. It is expected in 2014 to be organized an in-depth analysis of the effectiveness of national science policy and the priorities set in the above described strategy. As foreseen in the strategic document by 2014 at least 2/3 of the available public financials for science will be targeted to the above described priorities, and this share is expected to reach ¾ by the end of 2019. Following the strategy a systematic approach for increasing the public expenditure of science and innovations up to 0.6% of the GDP in 2010, 1% GDP in 2014 and 1.8% in 2019 could be described.

Eco labelling

There is currently a big rise of Eco-labeling initiatives in Bulgaria, taking place along with the promotion of the EMAS certification among the Bulgarian companies. The preparation for EMAS certification started after the EU accession by Bulgaria in 2007; the first several companies are expected to receive their EMAS certificates in 2011. EMAS has managed to obtain a good support from non-governmental organizations; this helped to launch several projects for promoting EMAS III for tourist destinations and to develop innovative products

Creating support for establishment of clusters and eco-industrial parks

As one of the main approach for reaching good innovation performance of the Bulgarian economy within the Bulgarian innovation strategy is the establishment of clusters at different levels in industrial parks. Following these foreseen tendencies several small initiatives were launched in the last two years for creating special services for eco-industrial parks, clusters, etc. Based on international pattern they aim at introduction of innovative approaches at several target countries including Bulgaria.
Example 1 The EMAS Easy MOVE IT initiative

**Description of the emerging eco-innovation**

The EMAS Easy MOVE IT initiative proposes an EMAS cluster certification applied to a regional tourist product and service offer. The unique branded product at regional scale will be marketed as an attractive and competitive, ‘all inclusive’ to national and international customers in the “value based tourism sector”. The term ‘value based’ refers to a set of ethical, environmental or cultural preferences, which dictate the consumption patterns and attitudes of individuals and organizations. The focus aims at regional offers: one on health and well-being, the other on living history and culture. These groups consume services and products of all specific fields of economy of a destination, often connected to the alternative health sector, with bio products, traditional medicine on one side, and on landscapes, access to nature, slow food, healing traditions and cultural patrimony on the other side.

The initiative aims at creating an eco-innovative support mechanisms to lower transaction costs for EMAS implementation for stimulating SMEs and reducing the dependency of SMEs on external expertise; to coach pilot applications in a representative cross section of European countries and to develop model for replication in different cultural environments throughout Europe; as well as to integrate and expand sector specific labels (e.g. Ecolabel, Green Key, or Biohotel) into EMAS for the boost of EU wide application and the anticipation of EMAS III regulation abroad in tourist destinations.

**History of the company**

TIME Foundation is registered non-governmental not-for-profit organization under the Bulgarian Law on NGOs. 1992 was the starting point for two projects on environmental protection in Bulgaria – Environmental Action Plan in Troyan and the Environmental Management Training Project, funded by the US government. During the following years, the projects’ coordinator Elena Petkova built a work team well aware of the characteristics and the problems of the natural environment in Bulgaria and capable of working continuously in the name of finding solutions to those problems. As a result, in the beginning of 1994 the team decided to establish a Bulgarian non-governmental and non-for-profit organization to work on issues related to sustainable development. It was decided that the organization be called “TIME”, abbreviation standing for ‘This Is My Environment’.

**Possible effects**

Coaching activities and methodologies for at least 12 clusters and 200 SME’s in 6 EU members states; new specific guidance and performance indicators available of the market; development of a new curricula for 30 regional development agents; and an online support and clustering SME’s.

**Barriers:**

high risk of entering a new market
concerns of SMEs in relation of effectiveness of the certificate.

**Drivers:**

profits from increased level of clients trust
Growing demand for certification of new and unique services
Example 2 The EPESUS initiative

Description of the emerging eco-innovation

Eco-Industrial Park Environmental Support System - EPESUS is an Eco-Innovation project under the Entrepreneurship and Innovation Programme (EIP) component of Competitiveness and Innovation Framework Programme (CIP). EPESUS project aims to serve Small and Medium Size Enterprises (SMEs) within an industrial park or any communication network, in improving their environmental requirements, managing their resource usage and waste treatment and improving their energy efficiency.

The activities include coaching activities and methodology provision for at least 12 clusters and 200 SME’s in six EU members states, development of new specific guidance and performance indicators, development of a new curricula for 30 regional development agents; and online support for SME’s.

Description of the consortia

The established consortia of the projects includes the following organizations:
Ekodenge Environmental Economic Social Research Consultancy Engineering, Turkey
Bulgarian Business Network (BBN), Bulgaria
DICON Consulting Ltd. Company (DICON), Bulgaria
General Directorate of Electrical Power Resources Survey and Development (EIE), Turkey
Milli Prodüktivite Merkezi (MPM), Turkey
Small and Medium Industry Development Organization (KOSGEB), Turkey
Tekport Software Engineering Construction Tourism Commerce Ltd. Company (TEKPORT), Turkey

Possible effects

An increase in the awareness about industries on environmental liabilities and improvement in implementation of the EU environmental Acquis at the industry level;
Benefits such as, cleaner production, pollution and waste reduction and reuse, energy saving, inter-company co-operations are expected to be provided;

Barriers:

high risk of entering a new market
concerns of SMEs in regarding the effectiveness of the certificate.

Drivers:

profits from increased trust and interest of the clients
growing need for certification of new and unique services
Part 5. Public policy in support of eco-innovation

There is no separate eco-innovation strategy, which could be described for Bulgaria, although there are number of strategic policy documents, described bellow addressing the topic. These policy documents are not always consistent with each other in terms of setting priority areas, objectives and necessary actions in the field of eco-innovation.

There is no special governmental institution that deals exclusively with eco-innovation. rather the following bodies deal with policies related to the eco-innovation area in various extent:

- the Ministry of Economy, Energy and Tourism (MEET);
- the Ministry of Education, Youth and Science (MEYS);
- the Ministry or Labour and Social Policy (MLSP)
- the Bulgarian small and medium-sized enterprises promotion executive agency (BSMEPA);
- the ICT development agency (ICTDA);
- the Invest Bulgaria executive agency (IBA);
- the Council of Economic Growth.

There is an operational council working on innovations at MEET, but no specific working group on eco-innovations could be described.

National Innovation Strategy. The main objectives of the national innovation policy are formulated in the National Innovation Strategy (NIS), adopted in 2004. This is the most important document that is crucial for the development of the innovation system and growth in the innovation potential of the Bulgarian economy. The detailed formulation of goals, activities, timeline and resources for their implementation presented in the strategy are the background for the development of the innovation capacity in the country and the eco-innovation as well. The major goals targeted with the implementation of the strategy could be summarised in the following directions:

- increase of the GDP;
- increase of the value added created by the Bulgarian industry;
- increase of the productivity;
- improvement of the balance of payments of the country;
- attracting foreign investments.
Regional Innovation Strategies (RIS). The task of the RIS is to build a critical mass of projects to work with the structural funds in the field of innovation in the period 2007-2013 to the benefit of the regions. The RIS should contribute to the implementation of the National Innovation Strategy in the regions, as well as to develop proposals for adequate measures for the implementation of the national innovation policy. The possible project areas and programs described in RIS are good instrument for the decentralised implementation of the National Innovation Strategy. All RIS has been developed on NUTS2 basis.

National Strategy for Scientific Research for the period 2008-2018. In March 2009 the Budget Commission within the Parliament adopted the draft of the National Strategy for Scientific Research (NSSR). The Strategy states the intentions and responsibilities of the Government, to develop science structures and to improve education. Its major objectives are the allocation of resources for carrying out scientific research, the development of human potential for scientific research, and the integration of Bulgaria into the European internal market. The document reflects Bulgaria’s intention to comply with the EU criteria in research by applying indicators for the efficiency of scientific research and by creating and sharing new knowledge. Taking into account the current state of the scientific research in Bulgaria, the amount of financing, available human resources, and results from the scientific activities the strategy addresses several goals and proposes measures for their achievement could be described:

integrating higher education in the scientific and research activity of the country;

development of the science and research potential;

setting the priorities for the scientific research;

achieving high-quality competitive scientific results;

establishment of effective relations and collaboration with other sectors;

supporting and improving international cooperation.

promoting openness, publicity and transparency regarding the scientific activities in Bulgaria.

According to the Strategy the State will also offer financial support to new innovative companies, introducing new high-tech decisions. Several instruments will be applied — venture funds, guaranty funds, etc.

National Reform Programme — Another document, which underlines the goals for the innovation policy is the National Reform Programme (NRP). In 2006 the Bulgarian government adopted its first National Reform Programme for 2007–2009. The targets of the National Reform Programme for 2007–2009 are defined as increasing the competitiveness of the national economy by creating mechanisms for funding of applied research, implementation of new technologies and innovative productive methods, and attaining of new knowledge and skills.

National energy strategy 2020 – this document aims to put in strategic frame the national targets for reduction of green house gas emissions; increasing the Renewable energy sources share in gross final consumption of energy; and energy efficiency improvement (the energy intensity of GDP in Bulgaria will be reduced by 50% before 2020) (NES 2008)
Operational Programme (OP) for the Development of the Competitiveness of the Bulgarian Economy 2007–2013. The OP Development of the Competitiveness is one of the seven operational programmes financed by the cohesion and the structural fund of the European Union. The total amount of the public financial resources for the programme will be about EUR 1.1 billion. The programme has been elaborated in the framework of the strategic and programme documents for the absorption of the structural funds (NSRF). The first priority of this programme has been identified as stimulation of creation and development of innovative enterprises and improvement of the pro-innovative business environment for increasing competitiveness of the Bulgarian enterprises and the national economy.

In 2008 a national procedure supporting innovative products, processes and innovative services was opened within the frame of the EU Structural Funds Operational Programme “Competitiveness”, as well as support for innovative enterprises, within the frame of axis 1 of the program. Generally most of the projects financed by this instrument were focused on improving the capacities of industrial processes and only few of them were aimed at introducing “green” innovations in the Bulgarian market. Furthermore the EU eco-innovation program was launched in 2009, which gave impetus to support the development of new practices and services in the innovations field in Bulgaria.

The National strategic reference framework with the seven operational programmes are also connected with the implementation of the national policy for innovations in line with the Lisbon Strategy, where major role for eco-innovations in particular play the operational programs “Regional development”, “Human resource development” and the “Rural development program” (INNO 2009).

In addition the Ministry of Environment and Water provides technical and methodological support to the development of eco-innovations to the applicants under the LIFE+ programme and additional information for other appropriate EU programs as Competitiveness and Innovation Framework Programme (CIP), 7th Research Framework Programme (FP7), Cohesion Fund, European Fisheries Fund etc.
Part 6. Understanding eco-innovation performance (1 page)

Bulgaria is having relatively small experience in the field of eco-innovation development. Only in the last years the government indicated that it has a more clear understanding about undertaking of measures for the implementation of an adequate innovation support policy according to the Lisbon Strategy on innovations; Europe 2020 and the National Innovation Strategy. The lack of coherence between the different strategic documents concerning research and innovation measures and the absence of clear national priorities, remains the most serious problem for developing a successful R&D and innovation policy (INNO 2009).

The three major challenges for the Bulgarian national innovation system in terms of innovation performance, identified in the EIS 2009 are related to:

- Low level of R&D expenditures and low commercialization of Bulgarian research base;
- Low competitiveness of Bulgarian enterprises due to low level of innovativeness;
- Insufficient cooperation between universities and business.

Based on previous investigations and activities, described above the major barriers for innovation development could be distinguished on two main groups internal for the companies or organizations, possible leaders of eco-innovations and external. The internal could be defined as those that depend on the condition and activity of the firms. According to their nature they can be systematized in several basic groups.

Internal barriers:

**Information barriers.** These are connected with the lack of information and the quality and quantity of information. The necessary information on innovation activities is connected with development of technologies, products and markets in the respective industry, the problems and needs of consumers, the emergence of new materials, etc.

**Employee competences.** Involving the lack of specialists with suitable education, professional experience, and additional qualifications.

**Organizational barriers.** The lack of suitable organizational forms may prove in many cases, to be a serious obstacle to the effective use of information sources and to the creative potential of the firm’s employees.

External barriers: These barriers are created by the organizational and economic environment in which the firm operates; they can by systematized in two basic groups.

**Barriers connected with the existing legislative and regulatory framework.** Although many companies assess these barriers as significant. It could be said that the laws existing in the country are indifferent rather than restrictive with regard to innovation. Many experts in Bulgaria are of the opinion that the country needs a uniform strategy for scientific, technological and innovation development, and green innovations in particular. Such strategy must develop the competences of all participants and call upon the expertise of
research and educational organisations, technological intermediaries and business circles. Priorities and expected results in the development of scientific research and innovation must be clearly outlined, the institutions responsible for their achievement also need to be identified (Innovation.bg 2010).

**Consumer barriers.** These barriers are connected with some specific features of consumer preferences which roots in many cultural, social or psychological particularities (BNIP 2006).

**Main drivers for socio-innovation in Bulgaria are:**

**Economic benefits.** As described by the Bulgarian national innovation policy (BNIP 2006) one of the main driver behind eco-innovation is the prospect to achieve large cost savings through process and system innovations. Another is to obtain profits from commercialisation of innovative products, services or systems. Eco-innovations lead to improvements of the company image and also could lead to direct economic benefits. The businesses that are active in green innovations are often driven by the need of increase their market shares, or to respond to the innovation of their competitors.

**Targeted funds,** such as the operational programmes funds or the available credit lines programme encourage businesses to engage in innovations. At the moment the impact of these programmes is not massive, however increasing the coverage and funding under these or similar funds and the intensive promotion of the European Green policy and support for eco-innovations might give a serious boost in spreading green innovative initiatives.
References:

National strategic reference framework (NSRF), 2007 – 2013;
National statistics institute (NSI) reports on R&D, 2002 – 2008;
Innovation.bg, annual reports, 2009; 2010; Applied research and communications (ARC) fund, Bulgaria, www.arcfund.net;
National report on the state of environment (NRSE), 2008, Executive Environmental Agency, Ministry of environment and water, Bulgaria;
INNO policy trend chart (INNO), Innovation policy report, 2009;
National statistics institute (NSI), report on innovation activities, 2006-2008;
Annual report of the conditions and development of SMEs in Bulgaria (CDSME), 2008;
Economic review of the Bulgarian national bank (ERBNB), February 2010;
National indicative aims for consumption of electricity, produced by RES report for 2008, March 2009;
Operational program “Development of the competitiveness of the Bulgarian economy” (OPC), 2007-2013;
Operational program “Rural development” (OPRD), 2007-2013;
Operational program “Human resource development” (OPHRD), 2007-2013;
Operational program “Environment” (OPE), 2007-2013;
Quarter report of the financial implementation of the operational programs (QRF), September 2010;
National innovation strategy (NIS), 2004;
Regional innovation strategies (RIS), severozapaden, severocentralen regions;
National Strategy for Scientific Research (NSSR), 2008-2018;
National reform program (NRP), 2007-2009;
National energy strategy by 2020 (NES);
Annual report of the Bulgarian national innovation policy (BNIP), 2006;
First national action plan for energy efficiency, 2008-2010
Interview with Mr. Nikola Gazdov, chairman of the Bulgarian photovoltaic association, 2010 (ING-BPA);
Interview, Mr. Haris Kotsibos, GLOBUL Chief Executive Officer (CEO), 10.09.2008 (IHK-GCEO);
Statement of the deputy minister of regional development, Ms Liliana Pavlova, BuildinGreen conference, March 2010 (SLP-BGC).


EIO country brief Hungary (EIOH), 2010.