Eco-innovation in Poland

EIO Country Profile
2014-2015
Eco-Innovation Observatory

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) and [ec.europa.eu/environment/ecoap](http://ec.europa.eu/environment/ecoap)

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

Country Profile 2014-2015: Poland

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A note to Readers

Any views or opinions expressed in this report are solely those of the authors and do not necessarily reflect the position of the European Union. A number of companies are presented as illustrative examples of eco-innovation in this report. The EIO does not endorse these companies and is not an exhaustive source of information on innovation at the company level.

This brief is available for downloaded from https://ec.europa.eu/environment/ecoap/poland
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Summary

The Polish economy is among the least resource- and energy-efficient economies in the EU. The per capita domestic material consumption grew since the early 2000s to reach 20.7 tonnes per capita, compared to the EU average of 14.5 tonnes, but has since decreased to 17.2 tonnes in 2014. These trends present both a challenge and a considerable economic opportunity for the country, which is still undergoing the process of economic modernisation. Eco-innovation, leading to cost savings and higher productivity in both production and service-delivery, emerges as one of the key strategic options for business and policy makers. This opportunity remains largely untapped but increased investments from national and EU sources as well as developing a legislative framework should encourage eco-innovation and circular economy initiatives in the coming years.

Poland is among the countries that have scored lowest in the European Eco-Innovation Scoreboard (Eco-IS) since 2010. In the 2015 edition, it came second to last in the EU with a score well below the EU average (59 out of 100). The country underperforms in all the scoreboard components, particularly in R&D and innovation investments and early-stage investments in green technologies, as well as in economic activities related to eco-innovation. The Polish green technology market is in the early phase of development and is considered to have sizable growth potential.

The most significant barriers to eco-innovation in Poland are mainly of an economic nature, including high cost of implementation, difficult access to capital, uncertain return on investment and the weak system of economic and fiscal incentives encouraging eco-innovation. Other problems include administrative barriers as well as insufficient knowledge on potential economic benefits from the implementation of an eco-innovation. Several drivers were also identified; the most important being significant investment from structural funds (Operational Programme Innovative Economy and Operational Programme Infrastructure and Environment implemented centrally and Regional Operational Programmes implemented regionally) and national sources, mainly from the National Fund for Environmental Protection and Water Management and its regional branches.

Although Poland has not developed an integrated approach to eco-innovation policy, the development and implementation of eco-innovative technologies are now supported by the objectives of key national and regional strategy documents. The main strategic document that touches upon eco-innovation issues is ‘dynamic Poland 2020’ (Strategy for Efficiency and Innovation Economy). Several goals of the strategy focus on the need for increasing material efficiency and innovation in green technologies. Additionally, the implementation programme Entrepreneurship Development Programme indicates the need to increase eco-innovation that contributes to resource efficiency. Moreover, the National Smart Specialisation (NSS) announced in April 2014 includes priorities relevant for eco-innovation and circular economy, such as waste reduction, re-use and recycling, sustainable transport, energy-efficient construction, water efficiency technologies as well as material substitution. The priorities in NSS were identified based on its potential to become Polish key technologies and most measures in Operating Programme Smart Development are dedicated to these technologies.

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1 Cleantech 2012-2015 (access available upon subscription)
The modernisation of the last 25 years has been driven mainly by economic growth. Investments in a more knowledge intensive economy have been made but often have not gone hand-in-hand with long-term thinking about sustainability in terms of investments. While Poland may expect improvements in eco-innovation investments and activities in the coming years, the overall shift towards a more resource-efficient economy will require long systemic innovation efforts. Implementing eco-innovation should be seen as an economic opportunity rather than a cost – particularly for the private sector, which could be further encouraged and supported by the public authorities. With its considerable cost savings and market creation potential, eco-innovation can add new vigour to the process of socioeconomic transformation in Poland.
Introduction

The Environmental Protection Index ranked the Poland at 38th position globally in 2016, with best scores achieved in biodiversity and habitat, water and sanitation, water resources and climate and energy – showing an overall improvement of the score of 8% since 10 years. Despite a significant improvement in air quality, Poland is still very low in the ranking2. The Polish economy is among the least resource-efficient economies in the EU. Resource efficiency has not improved substantially since 2000. It results mainly form vast infrastructure investment, in particular in transport. On the other hand, the per capita domestic material consumption has grown since early 2000s to 20.7 tonnes per capita compared to the EU average of 14.5 tonnes in 2011 and since has decreased to reach 17.2 tonnes in 20143. The current trend suits to the developments of the more advanced EU countries where the absolute consumption per capita has stabilised or has been, albeit slowly, decreasing. In addition, Poland ranks relatively poorly in energy and carbon efficiency, based on the scores from the Environmental Protection Index2. One of the key explanatory factors of this performance is high share of coal (around 80%) in energy mix.

R&D intensity was 0.94% of GDP in 2014, showing a substantial increase, although it is still lower than the EU average of 2.07%. Since 2007, Poland has increased its investment in R&D and improved its excellence in science and technology, while focusing on key technologies relevant to industry. However, the investment by the private sector with business R&D expenditure accounted for only 0.33% of GDP (which may be underestimated due to the lack of appropriate incentives for businesses to report them). The government and the EU structural funds remain the main sources of R&D funding (European Commission, 2014).

Modernisation of the last 25 years in Poland has been driven mainly by economic growth and the need to ‘catch up to the West’. This growth often relied on relatively cheap labour and cheap resources. Investments in a more knowledge-intensive economy have been made, especially in the last decade, but have not often gone hand-in-hand with long-term thinking about sustainability. Concentrating public intervention on improving both labour and resource productivity could offer the Polish economy both a competitive advantage and environmental benefits in the medium and long term. Eco-innovation should be thus considered among the major societal, economic and technological innovations, rather than being associated mostly with the curative environmental technologies.

Although the overall picture is rather challenging, the trends indicate a considerable economic opportunity in modernising the production processes across various economic sectors, notably in most energy- and resource-intensive sectors in Poland. Eco-innovation, leading to considerable cost savings and higher resource productivity in both production and service-delivery, emerges as one of the key strategic policy options for the country.

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2 Environmental Performance Index, 2016, Poland. Available at http://epi.yale.edu/country/poland
3 Domestic material consumption - tonnes per capita, data from EUROSTAT accessed on 5 April 2016 at http://ec.europa.eu/eurostat/web/products-datasets/-/T2020_r1110
1 | Eco-innovation performance

The analysis in this section is based on the EU-28 Eco-innovation scoreboard (Eco-IS) for the year 2015. Via its composite Eco-innovation index, produced by the Eco-Innovation Observatory (EIO), Eco-IS demonstrates the eco-innovation performance of a country compared with the EU average and with the EU top performers. Eco-IS is based on 16 indicators, aggregated into five components: eco-innovation inputs, activities and outputs, environmental and socio-economic outcomes.

Poland is among the countries scoring persistently low in the European Eco-innovation Scoreboard since 2010. In the 2015 edition, Poland came second last among EU countries, with a score significantly below the EU average (59 out of 100). The overall low score in the index, especially in terms of eco-innovation inputs and activities, reflects the low innovativeness of the country in general (Szpor and Sniegocki 2012).

Poland performs significantly below the EU average in all the scoreboard components. The country’s performance is particularly weak in terms of inputs to eco-innovation activities, including R&D investments and R&D personnel and early-stage investments in green technologies. Private early-stage green investments have been among the lowest in the EU – levels similar to other countries in Central and Eastern Europe. Poland exceeds the EU average only in one indicator: revenues in eco-industries (as a percentage of total revenues across all companies).
Eco-innovation input

The eco-innovation input score consists of aggregated figures from three indicators, as compared with the EU average in each case: “Government environmental and energy R&D appropriations and outlays” (as a share of GDP) with a value of 64, “Total R&D personnel and researchers” (as a share of total employment) with a value of 52, and “Total value of green early-stage investments” (in US dollars per capita) with a value of 3. The input component’s value of 40 puts the country in 22nd place just behind Latvia and Lithuania.

Poland’s score is mainly brought down by the very low value of green investments during the period 2012-2015.

Eco-innovation activities

The eco-innovation activities index has a score of 54. This positions Poland with Cyprus and above Greece (37). Very low positioning of Poland here is due to the relatively low value for the indicator “ISO 14001 registered organisations” (per million of population) at 30, significantly lower than the EU average. The other two indicators of this component – “Firms having implemented innovation activities aiming at a reduction of material input per unit output” (as a percentage of total firms) and “Firms having implemented innovation activities aiming at a reduction of energy input per unit output” (percentage of total firms) represent respectively the scores of 68 and 66. Those results could be explained by the support provided from government and EU funds to improve eco-innovation initiatives and the rise in awareness about the benefit of such initiatives.

Eco-innovation output

With an average score of 58 in terms of eco-innovation output, Poland is in 21st position, just behind Lithuania. Poland is a below average performer in eco-innovation-related patents, with
13.21 patents per million inhabitants produced in 2012, although this ranks the country in the top 10 in the EU and in the top 5 in absolute terms – the total number of patents developed being 503.

In terms of eco-innovation-related publications, Poland performs poorly, with only 5.29 publications per million inhabitants in 2014, placing the country third least active in this category. The media interest for eco-innovation in 2015 is not high compared to top 10 EU performers, however it is still much higher than in more than half countries.

**Resource-efficiency outcomes**

The resource-efficiency outcomes index is based on combined national statistics on domestic material productivity, domestic water productivity, inland energy productivity, and greenhouse gas (GHG) emissions intensity. With 62 points for this component, Poland is very low in the ranking, third last. It is explained in particular by a low material productivity, expressed in terms of GDP (in euros) per kilogramme of domestic material consumption, with 1.03 EUR/kg, compared to the EU average 1.93 EUR/kg, and a low performance in terms of its water footprint, with a water productivity of 6.53 EUR/m², almost three times less than ranking leaders UK and Ireland. In terms of energy productivity (GDP generated per domestic energy use), Poland ranks not far from the EU average with 7.24 EUR/tonne of oil equivalent in 2013. Finally, GHG emissions intensity is 0.59 tonnes of CO₂ equivalent per euro of GDP in 2013, ranking the country among the four countries with the highest GHG emissions generated per unit of GDP.

**Socioeconomic outcomes**

With a socioeconomic outcome index of 77, Poland ranks 20th. The score is particularly low for employment in eco-industries (0.85% of total employment in 2014). On the other hand, the size of the eco-industry is quite important since it accounts for 2.44% of total revenue across all companies in 2014, comparable to the EU average of 2.19%. In addition, eco-industry exports from Poland amounted to €945 million and represented 0.57% of all exports, but still slightly below the EU average where eco-industry exports accounts for 0.67% of all exports.

The low score in the eco-innovation activities may be underestimated and not always objective as it can be difficult to measure the level of eco-innovation in Poland. For example, patents for green technologies are very difficult to identify, as there is no clear distinction for this category in national statistics. In addition, companies do not always report information relevant for eco-innovation, for example, it is suspected that many companies do not report their research and development (R&D) expenses separately, but rather report them as general operating costs. In addition, some companies consider initiatives that may be accounted for as eco-innovations as simply “incremental rationalisation”.

While improvements in eco-innovation inputs and activities can be expected in the coming years, the improvement of resource-efficiency outcomes would require lasting systemic innovation efforts before any substantial improvements become visible in statistics. The relatively poor performance is caused by many structural factors rarely associated with the natural environment (e.g. science-industry collaboration, absorption capacity of SMEs, the lack of economic and fiscal incentives, etc.). These are sometimes referred to as ‘bottlenecks’ in the innovation system. Removing systemic barriers to innovation while adding a strong sustainable strategic direction in the policy framework could reinvigorate the ongoing process of socioeconomic transformation in Poland. Poland has been taking this direction for the last two years, with many provisions in the strategic policy documents about the important role of eco-innovation and increasing systemic support for eco-innovation initiatives.
2 | Selected circular economy and eco-innovation areas and new trends

The Polish green technology and eco-innovation markets are still in the phase of development and have considerable growth potential (Wrzesiewski & Miler 2010). According to estimates from 2010, there were 510 suppliers of environmental technologies in Poland in 2009 (ibid). The study provided for the first time the basic figures for the emerging market. Total sales volumes of the analysed companies amounted to PLN 1.14 billion (about €264 million) with an average producer’s annual sales at PLN 4.6 million (about €1.1 million). Local producers accounted for 49% of sales of environmental products. The total employment in the sector in 2009 was estimated between 24,000 and 27,000 – i.e., about 0.17% of total employment. The study shows that 85% of the employees were employed in the companies with Polish capital.

Environmental technologies represented an investment of 0.38% of GDP from the public sector and 0.29% of GDP from private sector in 2011. It resulted mainly from implementing dedicated instruments funded by the National Fund for Environmental Protection and Water Management. The Polish government sees the investment in environmental technologies as an important element of operational programmes’ investments for 2014-2020 (Klincewicz et al., 2013). The same study examined feedback from 40 participants of the GreenEvo initiative (see Section 4) coordinated by the Ministry of the Environment. For most of the companies, R&D efforts constitute obvious and indispensable activities and are regarded as everyday practice. The companies employed on average 4.88 R&D specialists, and 90% of companies were funding R&D projects primarily from their own sources. The average share of the company’s sales from foreign markets went up by 15.25% between 2011 and 2012, and on average, each company signed 21.35 foreign contracts in 2012. The study shows also that 80% of the companies maintain cooperation with higher education and research institutions. On the other hand, 82.5% of the companies claimed that their customers do not really consider environmental benefits when making their technological purchases.

According to the Central Statistical Office study (2015) on innovation activities of enterprises in the years 2012-2014, the most frequently indicated environmental benefit obtained by industrial enterprises were reuse of waste, water, or material for their own use or sale (8.0%), while by the service companies it was reduction of energy consumption or CO₂ emissions (4.6%).

In addition, it can be observed that all types of environmental benefits were achieved most often by big companies (above 250 employees).

Regarding environmental benefits achieved during consumption or use of a product or service by the end user, the most frequently indicated benefit was reduction of energy consumption and CO₂ emissions.
An empirical study by Ratman-Kłosinska (2013) indicated the most **typical areas of supply and demand of environmental technologies in Poland.** The suppliers sell their technologies mostly in the following areas:

- renewable energy technologies (biomass, bio-fuels, biogas and PVs)
- biotechnology (environmental protection and industrial use)
- energy-saving technologies in manufacturing (notably traditional sectors)
- energy-efficient construction.

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4 The survey had a sample of 100 companies, including 72 technology suppliers, 33 technology purchasers and 5 organisations who both sell and buy technologies. The respondents included private companies (53), R&D units (34), municipalities (10) and state-owned companies (2) (Ratman-Kłosinska 2013:54)
The purchasers indicated their interest in the following technology areas (starting from the most often indicated):

- renewable energy technologies (PVs, solar collectors and heat pumps)
- energy-saving technologies in manufacturing
- biotechnology (industry, medicine and agriculture)
- material efficiency in manufacturing
- energy technologies in construction
- energy storage.

**Trends in Circular Economy**

With adoption of the Act on Waste of 14 December 2012 (coming into force in 2013) and further modifications of Polish legislation relating to waste, sustainable waste management is a priority for Poland. It should be noted that trends in circular economy are not well documented or developed for Poland due to lack of information on achievements in circular economy. This is because the concept is quite new for some Member States, especially in Poland, and the strategies at EU and national levels are only starting to be conceived and implemented. The modification of the legislative framework changed the system to allocate the responsibilities for waste management to municipalities. The Polish government believes that these changes would ensure better quality of recovered materials as they are an important source of resources and have a big economic potential. The objective is to have more resource-efficient products and give to businesses the opportunity to have access to good quality and low-price secondary raw materials.

**Bio-Com System**

Microbiological Aerobic Treatment of organic matter in a closed reactor made of low-density polyethylene (LDPE) film with two stage aeration, effective filtration of process air and with advanced computer-driven control and data archiving system.

The purpose of the Bio-Com system is to transform organic active material – mixed municipal waste – into stable material with acceptable microbiological activity. This mechanical-biological treatment (MBT) of waste considerably reduces possibility of methane emissions into the atmosphere and, as it is carried out in a closed reactor, also reduces emissions of unwanted odours.

Key words: organic waste management, composting

Sources (including the picture):


Contact: SELMA sp. z o.o. sp. k., Piotr Jurkowiecki piotr.j@bio-com.pl
**BIOMASSER® briquetting machines**

The BIOMASSER® technology has been developed for converting non-wood wet biomass without its drying to produce renewable biofuel in the form of briquettes, using a briquetting machine called BIOMASSER® BSX14. The main part of the machine is a processing screw with a forming head coupled with a driving unit.

Depending on the number of the briquettes forming heads the briquetting machine BIOMASSER® BSX14 exists in different versions. The number of the briquettes forming heads may vary from 1 to 4, depending on the required production output. Letter "X" in the machine name indicates the number of the forming heads. A machine with one forming head is marked as BS 114, with two heads as BS214, with three heads as BS314 and with four heads as BS414. Additionally, the machine with one head is called SOLO, with two heads DUO, with three heads TRIO and with four heads OUATTRO.

For the purpose of technology verification, the BIOMASSER® BS114 SOLO machine was tested. Additionally, for some tests the BIOMASSER® BS214 DUO machine was used. The BIOMASSER® BSX14 briquetting machine integrates the input material into the form of briquettes by volumetric compression of the shredded biomass material in an elevated temperature without any additional filler or binder.

Key words: biomass, renewable energy

Sources (including the picture):


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**AGATA**

The celluguard® technology is addressed to coal-fired power plants, heat and power generating plants, mines and factories which face the problem of secondary dust emissions from stockpiles. This method involves spraying of dust-emitting surfaces with a flexible, reinforced and liquid coating. Compared with traditional methods, the company offers a solution that is much cheaper, more sustainable and environmentally sound.

The celluguard® technology is an innovative solution to the problem of onerous dust emissions from sand, fly-ash, slag and sludge stockpiles. It is cheaper than the technologies
applied to date on the market at the time of both its purchase and operation, since the preparation is applied only once a year. At the same time, this guarantees protection against secondary dust emissions.

Both the implementation of the technology and its integration with the existing equipment are extremely simple. In addition, the protection is much more durable compared with traditional methods, e.g. water sprays, and much better than bituminous mass, since the coating is built from natural cellulose fibres which form its reinforcement. Due to this, the coating is durable, flexible and actively responds in case that the weather changes. It can also be used on sloping surfaces, i.e. escarpments and embankments.

The celluguard® technology has been approved by leading companies in Poland. For example, the company applied the solutions at the post-flotation waste reservoir of KGHM Polska Miedź S.A., the slag and sludge stockpile at ENEA Wytwarzanie S.A. Kozienice Power Plant, the post-production waste stockpile at the Michelin Tyre Factory in Olsztyn, the mine waste dumps at TAURON Wydobyte and the mines and quarries of LAFARGE.

Key words: dust emissions control, air quality, soil stabilisation, protection of contaminated areas


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**Centrum Zaawansowanych Materialów i Technologii CEZAMAT**

The project is a unique research centre, which will enable interdisciplinary research on future-oriented materials and technologies. The centre will be equipped with advanced technological lines and platforms of design, simulation, diagnosis and characterisation. CEZAMAT will offer access to ultramodern tools, not only for the consortium members but also other leading Polish and foreign researchers.

The main beneficiary of the project is The Warsaw University of Technology. Due to the financial and organisational dimension and interdisciplinary character of CEZAMAT project, it is implemented by a consortium of nine prestigious Warsaw research centres.

The main goal of CEZAMAT project is to provide the platform to integrate research and society, and enable development of interdisciplinary research on modern materials and technologies. The research infrastructure and integrated research programs will enable
research and development work at the highest level, and promote and implement new technologies. The centre is dedicated to all, both Polish and international, scientific communities and companies that use innovative technologies and products.

Another important goal of CEZAMAT project will be transferring advanced technologies and commercialising developed ideas. The centre is to be the centre of improving cooperation between regional and national research centres and business. CEZAMAT also will take care of development activities in the region. This project has been funded in the framework of the Operating Programme Innovative Economy 2007-2013.

Key words: research centre, R&D, advanced materials and technologies


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3 | Barriers and drivers to circular economy and eco-innovation in Poland

Barriers to eco-innovation and circular economy

The main barrier to eco-innovation in Poland is the overall low level of innovativeness of the Polish economy (Szpor and Śniegocki, 2012). The most significant barriers faced by companies that implement eco-innovation were of economic nature. They include lack of funds, difficult access to capital, the relatively high cost of eco-innovative technologies, uncertain market demand and uncertain return on investment, the lack of economic and fiscal incentives as well as the growing competition (see Wrzesiewski & Miler 2010, EC 2011, IBS 2012, Klincewicz et al 2012, Ratman-Kłosinska 2013). Companies also indicate administrative barriers as being a problem, often in relation to the risk-averse public procurement practices (Ratman-Kłosinska 2013).

According to the Ministry of Economic Development and the Ministry of Environment, barriers also include insufficient awareness in companies about benefits (including financial benefits) from implementing eco-innovative solutions and reluctance to take the risk of adopting eco-innovations. The lack of sufficient knowledge may lead to perception of eco-innovation as a cost rather than potential benefit to the company, which removes the main incentive to invest in innovation activity (Szpor and Śniegocki 2012).

Another barrier signalled by a sample of companies developing environmental technologies5 was the perception that their customers did not consider environmental benefits when making purchasing decisions. Paradoxically, the great majority of the same sample would routinely point

5 The research involved in-depth semi-structured interviews with representatives of 40 companies-participants of the GreenEvo - Green Technology Accelerator, a governmental project, run by the Ministry of Environment (Klincewicz 2013).
to the environmental benefits of their technologies in their marketing activities (Klincewicz et al 2013).

In addition, lessons learned from development of the EU ETV system in Poland show important barriers that companies implementing eco-innovations face. Entering the market with a new technology and gaining the confidence of investors and consumers, as well as high costs for testing the technology, are pointed out as most significant.

**Drivers and opportunities to eco-innovation and circular economy**

The key drivers of eco-innovation and circular economy for companies in Poland include **high operating costs**, the willingness to reduce material and energy costs, and the willingness of companies to access new markets, increase competitiveness and improve company reputation (PARP, CSO 2015). The companies developing environmental technologies also pointed to the importance of customer demands, even if only a minority of customers would consider environmental benefits key to their purchasing decisions (Klincewicz et al 2013).

A recent study from the Central Statistical Office (CSO, 2015) shows that among factors driving companies’ decision to introduce eco-innovations in the years 2012-2014, the most important were (in order of importance):

- High cost of energy, water and materials (highly important to 36.7% of industrial and 42.3% of service companies that introduced eco-innovation)
- Improving company reputation
- Existing environmental regulations
- Voluntary initiatives for environmental good practice within the sector
- Existing environmental taxes, charges or fees
- Environmental regulations or taxes expected in the future
- Current or expected market demand for environmental innovations
- Need to meet requirements for public procurement contracts
- Government grants, subsidies or other financial incentives for introducing innovations with environmental benefits.

Regarding the policy side, the most important drivers are the following:

- Planned increase in overall R&D budgetary expenses – expected 2% GDP by 2020 (currently 0.8%) as part of the National Plan for Sustainable Development

- Sustainable waste management as a priority – adoption of the Act on Waste and further modifications of Polish legislation relating to waste set legislative framework that should enhance waste management performance and achievement of targets set by the EU.

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4 | Policy landscape: towards circular economy in Poland

Whereas there is no explicit eco-innovation policy or dedicated strategy in Poland, eco-innovation is mentioned in several major national and regional strategy documents. The Polish National Development Strategy 2030 mentions eco-innovation as a possible area of emerging specialisation of the country, placing it in the context of energy efficiency and renewable and clean energy generation (NDS 2012:75). “Dynamic Poland”, the Strategy for Innovative and Efficient Economy, includes eco-innovation in a couple of its objectives, including increasing resource efficiency in production and services and adjusting the regulatory and financial environment to the needs of innovative and efficient economy (Dynamic Poland 2014).

In addition, in January 2016, the Polish government established the “Council for Innovation”, an inter-departmental coordinator of innovation policy realised by the government (composed of Ministers of Economic Development, Culture, Science, Digitalisation, Treasury, Health and Education). The tasks of the council include coordinating pro-innovation policy instruments (strategic programmes and financial instruments), proposing a set of support measures that will increase R&D spending and finally, and actively influencing public procurement policy. Innovation is considered key for Polish economic development. In this view, an Act on support to innovation was voted in 2015. The aim of this horizontal document is to eliminate barriers for innovation in Polish law. In the beginning of 2016, a public consultation was organised in order to support preparation of the White Book of Innovation that should be used in further legislative works.

Eco-innovation is among the horizontal objectives of the Enterprise Development Programme, including National Smart Specialisation (NSS) areas selected as priority on the national level for the 2014-2020 Operational Programmes (KIS 2014). The 18 national priorities in the field of research, development and innovation (R&D&I) are grouped in 5 thematic areas. The following areas – sustainable energy, natural resources and waste management, and innovative technologies and industrial processes – include topics directly relevant for eco-innovation and circular economy:

**Sustainable energy**

- High efficiency, low-emission and integrated energy production, storage, transmission and distribution systems
- Smart and energy efficient construction
- Environmentally friendly transport solutions.

**Natural resources and waste management**

- Modern technologies for sourcing, processing and use of natural resources and production of substitutes thereof
- Minimising waste, including waste unfit for processing and use of waste for material and energy purposes (recycling and other recovery methods)
- Innovative technologies for processing and recovery of water and reducing its consumption.
Innovative technologies and industrial processes

- Multifunctional materials and composites with advanced properties, including nano-processes and nano-products
- Sensors (including biosensors) and smart sensor networks
- Smart grids and geo-information technologies
- Electronics based on conducting polymers
- Automation and robotics in technological processes
- Optoelectronic systems and materials.

Other areas are indirectly linked with eco-innovation and a circular economy approach and might enhance better performance of materials and therefore reduce their environmental impact.

In addition, the NSS is part of strategic objectives set out in the National Strategy for Innovation and Economic Efficiency (SIEE). One of the objectives is directly relevant for eco-innovation and circular economy: increase in efficiency of use of natural resources and raw materials.

The main EU-funded Operating Programmes that provide the main financial source of supporting projects in eco-innovation for years 2014-2020 are:

- Operating Programme Innovative Growth (*Program Operacyjny Innowacyjny Rozwój* – POIR) – the main objective of the programme is to foster innovativeness and competitiveness of the Polish economy by increasing resources for R&D. Eco-innovations are a priority in this programme as one of the criteria of selecting projects for financing is having positive impact on the environment and climate. The Ministry for Economic Development is responsible for managing the programme and the funds dedicated are over €10 billion (of which €8.6 billion is from the EU). In the years 2007-2013, the predecessor of POIR, the Operating Programme Innovative Economy, was the first fund of such size targeted mainly at realisation of innovative projects.

- Operating Programme Infrastructure and Environment (*Program Operacyjny Infrastruktura Środowisko* – POIŚ) – this framework supports projects in the following areas: low-emission economy, environmental protection, adaptation to climate change, transport, energy security and health and culture. The EU allocated €27.41 billion to this programme, managed by the National Fund for Environmental Protection and Water Management.

Below, the report briefly introduces selected country-level instruments: programmes implemented by the National Fund for Environmental Protection and Water Management, the Ministry of the Environment and the Polish Agency for Enterprise Development.

The National Fund for Environmental Protection and Water Management (NFEP&WM; see [www.nfosigw.gov.pl/en/](http://www.nfosigw.gov.pl/en/)) is the main pillar of the Polish environmental protection financing system. Eco-innovation is identified in the fund’s strategy for 2013-2016 as one of the main priorities. The fund has established a number of programmes for years 2015-2020 with the objective of improving the state of environment and the management of natural resources. Each year, the fund establishes a list of priority programmes that covers programmes:

- Protection and sustainable management of water resources
- Sustainable waste management and soil protection
• Atmosphere protection
• Biodiversity and ecosystems protection
• Cross-domain, e.g. environmental monitoring, ecological education, innovative environmental technologies.

Several programmes directly relevant for eco-innovation are described below.

**GEKON – Generator Koncepcji Ekologicznych**

The GEKON programme (the Generator of Ecological Concepts; see [http://program-gekon.pl/](http://program-gekon.pl/) and [http://ncbir.gov.pl/programy-krajowe/gekon/](http://ncbir.gov.pl/programy-krajowe/gekon/)) was a joint initiative by the fund and the National Centre for Research & Development (NCRD) from 2011 to 2015. The programme was one of the new initiatives aiming at supporting innovative projects implemented by companies and consortia grouping science and industry. GEKON supported environmentally friendly unconventional gas extraction, energy efficiency and energy storage systems, water protection and sustainable water management, renewable energy, as well as innovative methods of obtaining fuel and energy from waste and recycling. The programme’s budget is PLN 400 million (about €96 million). The Programme is a two-phase instrument: the NCRD focuses on R&D whereas the NFEPWM oversees the implementation (including demonstration and commercialisation of the results).

Key words: pro-innovation fund, R&D, environmental technologies

Sources (including the picture): [http://program-gekon.pl/o-programie/](http://program-gekon.pl/o-programie/)
Contact: Agnieszka Karwat, coordinator [a.karwat@nfosigw.gov.pl](mailto:a.karwat@nfosigw.gov.pl)

Among many programmes starting from 2016, the Fund plans realisation of the following:

- **SOKÔŁ**, with a budget of PLN 1 billion (€240 million) allocated, aims at implementation of innovative environmental technologies that reduce impact of facilities/installations/appliances on the environment. The technologies must be assimilated with one of the National Smart Specialisation areas: sustainable energy, natural resources and waste management. Funds in the form of credits, in the range PLN 0.5-90 million (€0.12-21.6 million), on preferential terms, with remission up to 20%, are planned to be spent until 2023.

- **GAZELA BIS** (low-emission urban public transport) is addressed to cities and offers PLN 300 million (€72 million) in the form of credits for development of low emission public transport infrastructure. This framework promotes projects generating the greatest ecological benefit.

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• KAWKA, with a budget of PLN 120 million (€29 million), aims at replacing coal stoves by low-emission heat sources, the objective is to increase energy efficiency and develop dispersed renewable energy sources.

• LEMUR (energy-efficient public buildings) aims at reducing energy consumption, and in consequence CO₂ emissions, by designing and construction of new energy-efficient public buildings.

• Energy-efficient investments in SMEs, with a budget of over PLN 40 million (€9.6 million) in the form of direct subsidies) aims at reducing energy consumption and development of renewable energy sources for SMEs.

• BIOCIAN, dispersed renewable energy sources, budget of PLN 570 million (€137 million), aims at reducing CO₂ emissions by developing energy production of renewable energy installations.

• E-KUMULATOR (Ekologiczny Akumulator dla Przemysłu), supports initiatives for companies in the framework of low-emission and resource-efficient economy, with a budget of PLN 1 billion (€240 million), and aims at reducing negative impact on the environment. In the component “reducing use of primary resources”, initiatives that qualify for this support consist for example in: construction or modification of installations in order to use less primary resources, use of secondary materials or use of technologies that reduce waste generation.

In addition, the fund has managed the consultation platforms, Energy – Effect – Environment, Good practices in waste management and Ecology – Education – Eco-innovations, that allow exchange of experience and information on innovative technologies on the market.

The Ministry of Environment implemented the GreenEvo programme (the Green Technology Accelerator; see http://greenevo.gov.pl/) that had been carried out from 2009 to 2015.

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GreenEvo - Green Technology Accelerator

The programme supported internationalisation of the Polish companies that successfully developed and implemented economically sound green technologies. Apart from economic profits, the technologies generate environmental benefits. GreenEvo technologies operated in six fields, i.e. renewable energy sources, air protection, energy efficiency (including passive housing), waste management, biodiversity protection, water and wastewater management. They either help restore the natural state of the environment or limit environmental impact of human activities, including greenhouse gas emissions.

The services offered to participating companies include: providing support in identifying relevant sources of co-financing, using GreenEvo brand in their business activities, developing marketing material, supporting commercial missions abroad and providing market intelligence, providing specialised training as well as advice in IPR protection. In total, 748...
Polish eco-innovations have been selected as winners during six editions of the programme since 2010. According to the evaluation of the programme in 2014, exports of GreenEvo participants increased by 40% while their turnover grew on average by 24%. About 36% of the companies created new green jobs⁹. GreenEvo was awarded the European Award for Best Practice 2014 by the European Society for Quality Research. The prizes are given for “the outstanding commitment, support and results” in quality management strategies in both public and private organisations (see http://www.esqr.org/en/).

Key words: pro-innovation fund, R&D, environmental technologies

Sources (including the picture): http://greenevo.gov.pl/

Contact: info@greenevo.gov.pl

Since 2012, Poland is among seven EU countries participating in the development and implementation of the EU ETV Pilot Programme. The objective of Environmental Technology Verification (ETV) is to promote environmental technologies by providing technology developers, manufacturers and investors access to third-party validation of the performance of innovative environmental technologies. Verification is carried out by the verification bodies accredited to carry out the procedure covering the selected technology areas of the pilot program in one of the following areas: water treatment and monitoring, materials, waste and resources as well as energy technologies. Among 12 so far verified technologies, two are Polish: Bio-Com System and BIOMASSER®.

The programme became operational in June 2013 when the first Polish verification body established by the Institute of Technology and Life Sciences in Poznań received an accreditation to verify biomass products and biomass-based energy technologies. Since then two other verification bodies have been accredited, the Institute of Environmental Protection – National Research Institute in Warsaw, and PIMOT – Automotive Industry Institute, one is preparing for accreditation (Environmental Technology Verification Body – Institute for Ecology of Industrial Areas). Since 2013 efforts were undertaken to promote the ETV programme and identify the funding schemes that could potentially support SMEs willing to take part in the verification procedure. Poland has been involved in the activities aiming at mutual recognition of the EU’s ETV programme with similar systems operating elsewhere in the world, e.g. Canada, USA, South Korea and Japan. This will be achieved by development and adoption of an ISO standard (ISO 14034 Environmental management – Environmental technology verification) that is currently under development with the active participation of Poland.

The National Fund for Environmental Protection and Water Management also coordinates funds dedicated to environmental programmes from Norway Grants and EEA Grants. This framework supports, among others, operation programmes to reduce waste generation and pollution emission to air, water and soil mainly by replacing energy sources, and to improve energy efficiency of buildings. For the years 2009-2014, Poland received €578 million in funding¹⁰.

Projects in the POIR framework are also supported by the Polish Agency for Enterprise Development (Polska Agencja Rozwoju Przedsiębiorczości – PARP). Several measures in the framework of innovation financing programme POIR have a direct impact on eco-innovation:

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• Measure 3.2.1 Research for the market – the aim is to increase innovation and competitiveness through increasing funds on R&D, R&I.

• Measure 2.3.2 Innovation vouchers for SMEs – the aim is to enhance cooperation between research and business; support is granted to finance services for SME carried out by research/scientific bodies contributing to the development of their products (goods and services).

• Measure 2.4.1 Centre for analyses and pilot projects for new instruments INNO_LAB – the main objective is to develop and test new tools for supporting innovations and to strengthen the capacity of participants of the national innovation system.

In addition, PARP manages the following instruments with an indirect impact on eco-innovation:

• Measure 2.3.1 Pro-innovation services for SMEs – the aim is to provide consulting services in the area of innovation, including eco-innovations.

• Operating Programme Eastern Poland 2014-2010, Measure 1.3.1 Implementing innovations through SMEs (budget of €100 million) that aims at supporting projects that implement innovative products based on R&D results. Subsidies are dedicated to companies for different stages of investment process that results in introducing a new product on the market\(^\text{11}\).

• Polish-Swiss cooperation programme 2012-2016: Enhancement of regional competitiveness through Corporate Social Responsibility (CSR). This framework aims to increase awareness about sustainable development and CSR among SMEs and local authorities and increase competitiveness of Polish SMEs. Funds dedicated to this programme reached PLN 13.8 million (€3.31 million)\(^\text{12}\).

PARP is also coordinating a web portal on innovation: Portal Innowacji (www.pi.gov.pl) – a source of knowledge on supporting innovativeness and technology transfer. It includes information on availability of new technologies, sources of financing for innovations, institutions and programmes supporting innovativeness, among others.

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References


Narodowy Fundusz Ochrony Środowiska i Gospodarki Wodnej (2016) Przewodnik po programach priorytetowych NFOŚiGW


## ANNEX: Policy measures addressing circular economy and eco-innovations in Poland

<table>
<thead>
<tr>
<th>Group of policy measures</th>
<th>Type of policy measure</th>
<th>Specific measure</th>
<th>Focus of policy measure (tick if relevant)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Circumferential economy</td>
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<tr>
<td>SUPPLY SIDES</td>
<td>Publicly co-funded venture capital funds</td>
<td>There are 12 seed funds in Poland. Over half of them give preference to biotechnology, ecology and environmental protection, while a few prioritise bio-energy. Eight networks of Business Angels operate in Poland, out of which two belong to EBAN (European Trade Association for Business Angels, Seed Funds and other Early Stage Market Players). More than 86% focus in the activities on ecology, environmental protection and biotechnologies.</td>
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</tbody>
</table>
|                          | Equity/business support | Public guarantee funds | **Green Investments Scheme** - the resources generated from the sales of AAUs to be used to implement programmes and projects in the following areas:  
  - improving energy efficiency in the various sectors of the national economy;  
  - improving the efficiency of coal use, including efficiency related to clean coal technologies;  
  - replacing fuels by low-emission ones;  
  - avoiding or reducing greenhouse gas emissions in the transport sector;  
  - using renewable energy sources;  
  - avoiding or reducing methane emissions through its recovery and use in the mining sector, solid waste and wastewater management and farming as well as through its use for generating energy;  
  - The First RES Programme of the National Fund for Environmental Protection and Water Management – provides low-interest loans for | x | x | x | x |
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<th>Group of policy</th>
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<td></td>
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<td>15 years covering up to 75% of the eligible costs, available for investments with the cost over €2.4 million. The Second RES Programme of the National Fund for Environmental Protection and Water Management – 10 voivodship funds that have signed agreements with the National Fund will offer support for RES investments through loans with a payback period of 10 years and a fixed interest rate of 3%, covering up to 75% of the eligible costs. This scheme is available for investments with the cost of €0.1-2.4 million. The National Fund for Environmental Protection and Water Management - the main pillar of the Polish environmental protection financing system. Eco-innovation is identified in the Fund’s strategy for 2013-2016 as one of the main priorities. The Fund has established a number of programmes for years 2015-2020 with the objective of improving the state of environment and the management of natural resources. - SOKÓŁ (PLN 1 billion, or around €230 million, allocated) aims at implementation of innovative environmental technologies that reduce impact of facilities/installations/appliances on the environment. The technologies must be assimilated with one of the National Smart Specialisation areas: sustainable energy as well as natural resources and waste management. Funds in form of credits (PLN 0.5-90 million, or between €100,000 and €20 million, on preferential terms, with remission up to 20%) are planned to be spend until 2023. - GAZELA BIS (low emission urban public transport) is addressed to cities and offers PLN 300 million (about €68 million), in the form of credits, for development of low emission public transport infrastructure. This framework promotes projects generating highest ecological benefit. - KAWKA, with a budget of PLN 120 million (€27 million), aims at replacing coal stoves by low emission heat sources, the objective is to increase energy efficiency and develop disperse renewable energy sources. - LEMUR (energy-efficient public buildings) aims at reducing energy consumption and in consequence CO₂ emissions by designing and construction of new energy-efficient public buildings. - Energy-efficient investments in SMEs, with a budget of over PLN 40 million (€9 million) in the form of direct subsidies, aims at reducing energy consumption and development of</td>
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<td>renewable energy sources for SMEs.</td>
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<td>- BIOCIAN, for dispersed renewable energy sources, with a budget of PLN 570 million (about €130 million) aims at reducing CO₂ emissions by developing energy production of renewable energy installations.</td>
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<td>- E-KUMULATOR (Ekologiczny Akumulator dla Przemysłu), support initiatives for companies in the framework of a low-emission and resource-efficient economy, with a budget of PLN 1 billion (€230 million), aims at reducing negative impact on the environment. In the component &quot;reducing use of primary resources&quot;, initiatives that qualify for this support consist for example in: construction or modification of installations in order to use less primary resources, use secondary materials or use technologies that reduce waste generation.</td>
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<td>Operational Programme Infrastructure and Environment (2014-2020) supports projects in the following areas: low emission economy, environmental protection, adaptation to climate change, transport, energy security and health and culture (€27.41 billion allocated from EU funds).</td>
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<td>Operating Programme Innovative Growth (2014-2020) – its main objective is to foster innovativeness and competitiveness of Polish economy by increasing resources for R&amp;D. Eco-innovations are a priority in this programme as one of the criteria of selecting projects for financing is having positive impact on the environment and climate. The Ministry for Economic Development is responsible for managing the programme and funds dedicated are over €10 billion (of which €8.6 billion is from the EU).</td>
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<td>Operating Programme Innovative Economy (2007-2013) was the first fund of such size targeted mainly at realisation of innovative projects</td>
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<td>Norwegian and EEA grants support, among others, operation programmes to reduce waste generation and pollution emission to air, water and soil mainly by replacing energy sources, and to improve energy efficiency of buildings. For years 2009-2014, Poland received €578 million of funds</td>
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<td></td>
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<td>Swiss-Polish Cooperation Programme – subsidies for energy efficiency improvement and reduction of emissions, in particular, emissions of greenhouse gases and hazardous substances (including RES investments).</td>
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<td>Polish Agency for Enterprise Development (PARP) manages several measures in the framework of innovation financing programme POIR have</td>
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<td>Group of policy measure</td>
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<tr>
<td>Support for R&amp;D in public sector and industry</td>
<td>R&amp;D funding</td>
<td>Green Investments Scheme - the resources generated from the sales of AAUs to be used to implement programmes and projects in the following areas: conducting of research and development works relating to the use of renewable energy sources as well as advanced and innovative environmentally-friendly technologies.</td>
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<td></td>
<td></td>
<td>National Fund for Environmental Protection and Water Management – Priority Programme: Energy Use of Geothermal Resources – subsidies for companies (also owned by local governments) for research work.</td>
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</table>

- Measure 3.2.1 Research for the market – the aim is to increase innovation and competitiveness through increasing funds on R&D, R&I.
- Measure 2.3.2 Innovation vouchers for SMEs – the aim is to enhance cooperation between research and business (support is granted to finance services for SME carried out by research/scientific bodies contributing to the development of their products (goods and services)).
- Measure 2.4.1 Centre for analyses and pilot projects for new instruments INNO_LAB – the main objective is to develop and test new tools for supporting innovations and to strengthen the capacity of participants of the national innovation system.

Bank Gospodarstwa Krajowego – Energy Efficiency Programme, GEF – provides partial guarantees for the loans taken in a commercial bank for energy efficiency investments (50-70%).

16 Regional Operational Programmes, which provide support for energy efficiency improvement and renewable energy development.

Within the Rural Development Plan, the Agricultural Market Agency offers payments for energy processing of agricultural produce:

50% of eligible expenses (but not more than €1.8 million) can be refunded for micro-enterprises and 25% (but not more than €1 million) for SMEs.

Polish Sustainable Energy Financing Facility – established by the European Bank for Reconstruction and Development, provides SMEs with loans for energy efficiency improvement and RES utilisation.

LIFE + Component II, Environmental Policy and Governance – within the second component support is granted for innovative or demonstration projects in widely understood environmental protection.
<table>
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<th>Group of policy measure</th>
<th>Type of policy measure</th>
<th>Specific measure</th>
<th>Focus of policy measure (tick if relevant)</th>
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<tr>
<td>Fiscal measures</td>
<td>Collaborative grants</td>
<td>The GEKON programme (the Generator of Ecological Concepts) has been joint initiative by the NFEOWM and the National Centre for Research &amp; Development (NCRD) from 2011 to 2015. The programme was one of the new initiatives aiming at supporting innovative projects implemented by companies and consortia grouping science and industry. GEKON supported environmentally friendly unconventional gas extraction, energy efficiency and energy storage systems, water protection and sustainable water management, renewable energy, as well as innovative methods of obtaining fuel and energy from waste and recycling. The Programme’s budget is PLN 400 million (about €96 million). The Programme is a two-phase instrument: the NCRD focuses on R&amp;D whereas the NFEPWM oversees the implementation (including demonstration and commercialisation of the results).</td>
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<tr>
<td>R&amp;D infrastructure</td>
<td>Tax incentives for R&amp;D and start-ups</td>
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<td></td>
<td>Tax incentives for R&amp;D personnel</td>
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<tr>
<td>Education, training and mobility</td>
<td>Tailored training courses for companies, entrepreneurs</td>
<td>LIFE+ Component III – Information and Communication – if the negative trends that are occurring in the natural environment are to be reversed, it is necessary not only to introduce system changes reconciling social and economic development with limited environmental capacity but also to involve institutions and society in changing their patterns behaviour so that their negative environmental impact is minimised.</td>
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<td>Group of policy</td>
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<tr>
<td>Advice/consulting for start-ups, companies, entrepreneurs</td>
<td>The GreenEvo programme (the Green Technology Accelerator) - the programme implemented by the Ministry of Environment supported internationalisation of the Polish companies developing green technologies. The services offered to participating companies include providing support in identifying relevant sources of co-financing, using GreenEvo brand in their business activities, developing marketing material, supporting commercial missions abroad and providing market intelligence, providing specialised training as well as advice in IPR protection. In total, 74 Polish eco-innovations have been selected as winners during six editions of the programme since 2010. StartInPoland programme initiated by the Ministry of Economic Development aims at supporting start-ups.</td>
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<tr>
<td>Placement schemes for students</td>
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<tr>
<td>Support for R&amp;D workers recruitments</td>
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<tr>
<td>Networks and partnerships</td>
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<tr>
<td>Competence centres, clusters, science-technology parks</td>
<td>There are 71 clusters functioning in Poland. Usually they are active at the regional, supra-regional or national levels. At least 15 are involved in eco-innovations, in particular, in renewable energy.</td>
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<tr>
<td>Technology platforms and innovation networks</td>
<td>Among the many technology platforms, eight is strongly involved in developing environmentally friendly solutions, including eco-innovations. Their interests focus around: environmental protection technologies, biotechnology, biofuels, biocomponents, energy and resource efficient construction technologies, intelligent transport systems, energy efficient and environmentally-friendly production processes, sustainable energy systems and clean coal technologies.</td>
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<td>Foresight and common</td>
<td>National Foresight Programme “Poland 2020” among other things covers the following research areas:</td>
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<td>Group of policy</td>
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|               | vision building        | • utilisation of various energy resources  
• key environmental problems  
• environmental protection technologies  
• natural resources  
• new materials and technologies  
• transport  
• integration of the environmental protection policy with various sector policies.  |
|               |                        |                  | x  
|               |                        |                  | x  
|               |                        |                  | x  
|               |                        |                  | x  
|               |                        |                  | x  
|               |                        |                  | x  |
| Demand side focus | Regulations and standards | Adoption of the Act on Waste of 14 December 2012 (coming into force in 2013) and a series of other waste management acts and regulations relating to waste, developing foundations for sustainable waste management. | x  
Energy Labelling Directive 2010/30/EC transposed to Polish law by Act on  |
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<th>Focus of policy measure (tick if relevant)</th>
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<tbody>
<tr>
<td>Public procurement</td>
<td>“Green” public procurement of goods and services</td>
<td>The obligations to provide information on energy consumption of energy-using products of 14 September 2012. EMAS ISO 14001 EU Ecolabel WEEE Directive transposed to Polish law by Act on waste electrical and electronic equipment of 11 September 2015.</td>
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<td>R&amp;D procurement</td>
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<td>Pre-commercial procurement</td>
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<tr>
<td>Technology Transfer</td>
<td>Advisory support for technology adopters</td>
<td>EU Environmental Technology Verification (ETV) programme helps SMEs develop innovative technologies with environmental benefits and to accelerate their market entry</td>
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<td></td>
<td>Financial or fiscal support for technology adopters</td>
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<td>Group of policy</td>
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<tr>
<td>Support of private demand</td>
<td>Tax incentives for consumers (e.g. for purchasing environmentally efficient products)</td>
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<tr>
<td>Support of private demand</td>
<td>Tax reductions for products and services (e.g. VAT reductions)</td>
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<tr>
<td>Support of private demand</td>
<td>Demand subsidies (e.g. eco-vouchers, consumer subsidies)</td>
<td>National Fund for Environmental Protection and Water Management – subsidies for partial repayment of the principal of bank loans taken by natural persons and housing associations for purchasing and installation of solar collectors. Thermo-modernisation bonus – Bank Gospodarstwa Krajobrego offers subsidies of up to 16% of the costs of a thermal modernisation project. This can also include conversion of energy sources to RES</td>
<td>x</td>
</tr>
<tr>
<td>Support of private demand</td>
<td>Awareness raising and information provision</td>
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About the Eco-Innovation Observatory (EIO)

The Eco-Innovation Observatory (EIO) is the initiative financed by the European Commission’s Directorate-General for the Environment. The Observatory is developing an integrated information source and a series of analyses on eco-innovation trends and markets, targeting business, innovation service providers, policy makers as well as researchers and analysts.

Visit EIO and DG ENV Eco-innovation Action Plan (EcoAP) website and register to get access to more information and to access all EIO reports, briefs and databases.

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ec.europa.eu/environment/ecoap