

Improving Access to Green Funding in CEE and Ukraine

Country Fiche on Access to Green Funding

POLAND

March 2014



REGIONAL ENVIRONMENTAL CENTER

Table of Contents

1.	Introduction.....	3
1.1	Brief overview of the sources of green financing on a country level	3
1.1.1.	National Public environmental funds in Poland.....	3
1.1.2.	International Public Finance.....	4
1.1.3.	The share of the green economy/ green jobs in the overall economy	8
1.1.4.	Green jobs programmes and initiatives	8
1.1.5.	Indicators.....	9
2.	Financing for Sustainable Energy.....	9
2.1.	Existing national financial mechanisms and strategies regarding low-carbon economic development in the country	9
2.2.	Public finance schemes and sources (e.g. subsidies to stimulate innovations, fiscal facilities, green taxes, public procurement) supporting low-carbon development	10
2.3.	The key areas of interventions of EU funds regarding low-carbon measures planned for 2014-2020 programming period.....	12
2.4.	The role of international financing of low-carbon development.....	12
2.5.	The role of the private financing in supporting the shift to a low-carbon economy	15
2.6.	Available mechanisms and strategies for carbon financing.....	15
2.7.	The main barriers in terms of financing low-carbon economy	16
2.8.	Indicators.....	16
3.	Financing Sustainable transport	17
3.1.	Existing national financial mechanisms and strategies regarding sustainable transport	17
3.2.	Public finance sources (e.g. subsidies to stimulate ITS and innovations, fiscal facilities, green taxes, public procurement) for supporting public transport	18
3.3.	Key areas of interventions of EU funds regarding public transport development	19
3.4.	The role of international financing of public transport.....	19
3.5.	Examples of good practices on sustainable transport	20
3.6.	The main barriers identified in terms of financing public transport improvement.....	20
3.7.	Indicators.....	21
4.	Financing adaptation to climate change	21
4.1.	The existing national mechanisms and strategies regarding reducing the vulnerability to climate change	22
4.2.	Key areas of interventions of EU funds regarding reducing the vulnerability and increasing adaptive capacity	23
4.3.	The role of international financing of regarding reducing the vulnerability and increasing adaptive capacity	23
4.4.	Examples of good practices on financing adaptation to climate change Error! Bookmark not defined.	
4.5.	The main barriers identified in terms of adapting to climate change.....	24
4.6.	Indicators.....	25

5.	Ecosystems protection	26
5.1.	Existing national mechanisms and strategies regarding nature conservation.....	26
5.2.	Public finance sources for supporting ecosystems protection	27
5.3.	Key areas of interventions of EU funds for ecosystems protection.....	27
5.4.	The role of international financing for nature protection and eco-system conservation	28
5.5.	Main barriers in terms of financing ecosystems protection	28
5.6.	Indicators.....	28
6.	Financing of eco-innovation in SMEs.....	29
6.1.	Existing national mechanisms and strategies for supporting eco-innovations in the country	29
6.2.	Available national instruments (e.g. guarantees, grants, loans, subsidies, fiscal incentives, venture capital, etc.) for supporting businesses in carrying out eco-innovation projects	30
6.3.	The role of international financing for supporting eco-innovation	30
6.4.	The role of partnerships between public and private sectors in increasing eco-innovation	31
6.5.	Mechanisms for facilitating entry of eco-innovations into the market and better exploitation of results from research activities	32
6.6.	Examples of good practices on financing eco-innovation.....	32
6.7.	The main barriers identified that SMEs are facing in terms of eco-innovations.....	33
6.8.	Indicators.....	33

1. Introduction

1.1 Brief overview of the sources of green financing on a country level

1.1.1. National Public environmental funds in Poland

- 1) The National Fund for Environmental Protection and Water Management (National Fund),
- 2) Provincial Funds for Environmental Protection and Water Management,
- 3) County funds for environmental protection;
- 4) Municipal environmental protection funds;
- 5) The Ministry of Environment.

The budgets of the first four funds are generated mainly from:

- Natural resource fees: the fee is based on a natural resource fee (water consumption, air pollution and waste production, etc) in accordance with rates set by the Ministry of Environment. Limit values regulates individual companies resource use. The charges are published annually in the Ministry of Environment's regulation which defines the unit rates. E.g. in 2013, the unit rate for gases or dust emitted into the atmosphere was 371,43 PLN/kg.
- penalties for exceeding the limit values paid by the companies that use larger amounts of natural resources on the environment than they are allowed. Penalties are also paid by all other institutions not complying with the environmental regulations.

The National Fund for Environmental Protection and Water Management and the Provincial Environmental Protection Fund are their own legal entities. County and municipal funds operate within the structure of local government. Measures managed by the Ministry of the Environment is part of the state budget.

The National Fund for Environmental Protection and Water Management is an independent financial institution set up to support environmental projects. It was established under the amended "Law on Environmental Protection and Management" dated April 27, 1989. The National Fund supervises the activities performed by the Ministry of Environment. The bodies of the Fund are the National Fund Supervisory Board and the Management Board. The Supervisory Board consists of 13 to 15 members appointed and dismissed by the Ministry of Environment. The environmental NGOs have their own representative. The National Board of the Fund shall consist of five persons, the President and four Vice-Presidents, who are appointed and dismissed by the Ministry of Environment. The National Fund for Environmental Protection and Water Management manages funds from:

- fees for the use of the environment and the penalties for exceeding the emission limits;
- repayment of loans granted for environmental purposes and their interest rates ,
- fees for mineral exploration;
- financial operations and share in the companies .

The National Fund also administers the foreign funds allocated to environment in Poland, originating from e.g. the World Bank, PHARE, PHARE Partnership Fund, the Partnership Fund BITS Finnish Fund. The funds are allocated by the National Fund for projects that:

- is implemented on a national and regional level;
- is having local significance, but the cost of which exceeds the financial capacity of local authorities and local businesses;
- is focused on environmental protection.

The Provincial Funds for Environmental Protection and Water Management falls under the umbrella of the National Fund and also here, the primary source of revenue for provincial funds are the proceeds of the natural resource fees and the penalty charges. Provincial funds are allocated in accordance with the Law on Environmental Protection and Management (Article 88) and the priorities are set by the National Fund for Environmental Protection and Water Management.

The National Fund supervises the management of provincial funds councils. Cooperation in the implementation of the common tasks associated with the National Environmental Policy is implemented through the participation in the National Fund of nine boards of provincial funds. Meetings between the management representatives of the provincial funds and the National Fund are regularly organised for exchanges of experience.

Currently there are 16 Polish provincial funds for environmental protection and water management, one in each of the provinces. Municipal and county funds for environmental protection and water management are available to municipalities and counties. 50% of the funding is consisting of proceedings from waste disposal and 10% originates from the county's environmental protection fund. In addition, revenues of the municipal fund originates from revenues of municipal fines and fees for the removal of trees and shrubs. Proceeds from fees and penalties from e.g. modification of the environment, and the special use of water and water facilities which represent 20% of the municipal fund and 10% of the county fund. In total, the districts will have available funds ranging between 9% and 22% (depending on the local impact) of all municipal funds accumulated in the fund created in this way.

1.1.2. International Public Finance

European Union:

The key external public finance providing the basis for the financing of projects in the field of environmental protection in Poland are:

- European Union Structural Funds:
- European Regional Development Fund,
- European Social Fund,
- European Agricultural Guidance and Guarantee Agricultural section "Guidance"
- The Financial Instrument for Fisheries Guidance

The basis for the financing of projects in the field of environmental protection in Poland, in the new programming period for 2014-2020, is the Operational Programme for Infrastructure and Environment (OPIE). For its implementation in 2014-2020, Poland receives more than 21 billion EUR from the EU budget. Funds available for investments into environmental protection are more than 4 billion EUR. EU funds for OPIE comes from two sources of financing: the Cohesion Fund (EUR 18.9 billion) and the European Regional Development Fund (EUR 2.3 billion). For environmental protection investment will also be able to obtain funds from the 16 regional operational programmes.

The Regional Operational Programmes have the main objectives to:

- Increase the competitiveness of regions,
- Promoting sustainable development,
- Improving social and economic cohesion and spatial areas

EU PROGRAMMING 2014-2020 main goals related to environmental protection:

Themes in legislation documents	% of allocation 2007-2013	% of allocation 2014-2020
4 Supporting the transition to a low carbon economy in all sectors	2,02	4,8-9,3
5 Promoting the adaptation to climate change risk prevention and risk management	1,35	1,3 to 2
6 Protecting the environment and promoting resource efficiency	13,61	9,9-12,4
7 Promoting sustainable transport and removing bottlenecks in key network infrastructures	38,52	28,6-32,3

Source:http://www.mrr.gov.pl/fundusze/Fundusze_Europejskie_2014_2020/Programowanie_2014_2020/Documents/uwarunkowania_strategiczne.pdf

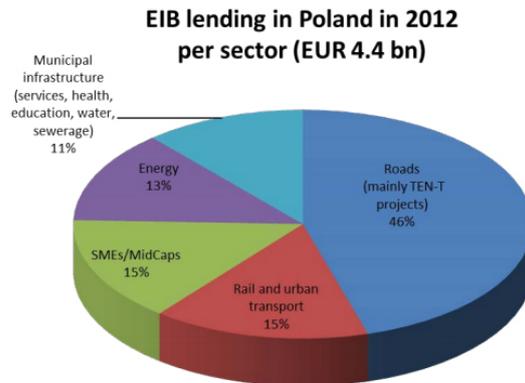
European Investment Bank (EIB)

In the period 2008–2012, the Bank pledged to provide funds totaling EUR 22.8 billion for projects promoting European objectives in Poland.

EIB is the long-term lending institution of the European Union owned by its Member States. It makes long-term finance available for sound investment in order to contribute towards EU policy goals, particularly in the areas of climate action, support for SMEs, innovation and cohesion. In its financing activities in the EU, the EIB pursues six priority objectives:

- Support for economic and social cohesion;
- Support for small and medium-sized enterprises (SMEs);
- Environmental sustainability;
- Innovation and the knowledge economy;
- Development of the trans-European transport and energy networks (TENs);
- Sustainable, competitive and secure energy supplies.

The division of EIB lending in Poland 2012



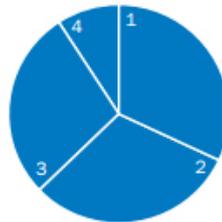
Source: http://www.eib.org/attachments/country/factsheet_poland_2012_en.pdf

European Bank for Reconstruction and Development

The EBRD is a large investor in Poland. The country is the EBRD's fourth largest exposure, representing approximately 7.5 % of its total commitments. The Bank is helping to support the growth of the private sector in Poland and in particular its financial, energy and environment sectors. By the end of December 2012, the Bank's total cumulative business in Poland had surpassed 6 billion EUR and has been well diversified across sectors. The corporate sector represents 39 % of the portfolio, financial institutions 31 %, infrastructure 13 % and energy 17 %. Of the EBRD's operating portfolio approximately 1,738 billion EUR is in equity, representing 32 % of the portfolio.

Sector breakdown of EBRD projects in Poland 2012

Sector breakdown of current projects



1	Industry, Commerce & Agribusiness	32%
2	Energy	31%
3	Financial sector	28%
4	Infrastructure	9%

1 Corporate comprises agribusiness, manufacturing and services, property and tourism and telecommunications
2 Energy comprises natural resources and the power sector
3 Financial sector includes investments in micro, small and medium-sized enterprises via financial intermediaries
4 Infrastructure comprises municipal environmental infrastructure and transport

Source: <http://www.ebrd.com/downloads/research/factsheets/poland.pdf>

Poland also contributed via EBRD with over 700,000 EUR to the Eastern Europe Energy Efficiency Environment Partnership, having supported energy efficiency investments in Ukraine and other eastern European countries since 2010.

World Bank

The World Bank has in Poland financed in 9 projects which refer to:

- Energy efficiency in Heat and Power
- Pollution management and environmental health
- Climate change

<u>PL - GIS - GREEN INVESTMENT SCHEME</u>	Poland	P117333	30.0	Closed	October 3, 2011
<u>Energy Efficiency Development Policy Loan</u>	Poland	P115426	1114.5	Closed	June 7, 2011
<u>Energy Efficiency GEF Project</u>	Poland	P070246	11.0	Closed	October 14, 2004
<u>Krakow Energy Efficiency Project</u>	Poland	P065059	15.0	Closed	June 7, 2001
<u>Podhale Geothermal District Heating & Environment Project</u>	Poland	P037339	38.2	Closed	May 11, 2000
<u>Podhale Geothermal District Heating & Environment GEF Project</u>	Poland	P057993	5.4	Closed	May 11, 2000
<u>Katowice Heat Supply & Conservation Project</u>	Poland	P008614	45.0	Closed	November 17, 1994
<u>Coal to Gas Conversion GEF Project</u>	Poland	P008563	25.0	Closed	November 11, 1994
<u>Heat Supply Restructuring & Conservation Project</u>	Poland	P008576	340.0	Closed	June 26, 1991

Source:

http://www.worldbank.org/projects/searchlang=en&searchTerm=&countrycode_exact=PL

1.1.3. The share of the green economy/ green jobs in the overall economy

In 2007, which is the latest available data, the total employment in the field of environmental protection was 373 832 people, representing about 2.5% of total employment in Poland (<http://www.greenpeace.org/poland/PageFiles/351912/pracujac-dla-klimatu.pdf>).

1.1.4. Green jobs programmes and initiatives

At the national level a number of strategic documents include measures aimed at increasing the potential for creating green jobs. Some of the documents refer to the creation of green jobs in general terms, without clear or detailed policies. For example, the **National Development Strategy for years 2007-2015** (under Priority 3: Employment growth and rising its quality) underlines that to achieve truly sustainable growth, it is necessary to focus on policies promoting employment in pro-environmental areas of the economy. Also the **National Action Plan for employment for years 2012-2014** provides support to green jobs.

Additionally, national level developments of RES policies have to be mentioned as they can influence the potential for green job creation. Two outstanding documents can be enumerated:

- New draft law on renewable energy sources (last draft from October 2012) – changes in the support system for the creation of RES installations;
- Directions of the development of agricultural biogas plants in Poland in the years 2010-2020, from the Ministry of Economy.

At the regional level the need to invest in green jobs is highlighted in both Regional Employment Action Plans as well as Regional Operational Programmes.

Annually, each of the 16 province labour offices are obligated to create a Regional Employment Action Plan. During the period 2009 to 2012, 5 out of 16 offices included projects related to promoting employment in green economy, in their regional employment action plans.

Other labour offices can support the creation of new jobs in the green economy under the basic scope of active labour market policy measures. For example, they can support the start-up of businesses in the area of green economy or subsidise the employment in companies reporting a need for extra staff in these sectors of economy. However, these are not measures targeted directly at the creation of green jobs (<http://www.eu-employment-observatory.net/resources/reviews/Poland-EEO-GJH-2013.pdf>).

1.1.5. Indicators

The proportion of environmental protection spending in fiscal expenditure:

Environmental protection expenditures for 2013 year: 5 480 million PLN

Total budget expenditures for 2013 year: 299 385,3 million PLN

2. Financing for Sustainable Energy

The following strategic framework provides the framework for low-carbon economic development in Poland, giving focus to energy efficiency improvements and investments in renewables.

2.1. Existing national financial mechanisms and strategies regarding low-carbon economic development in the country

National Ecology Programme (2009-2012, extension to 2016)

The programme is supporting the following measures:

- the use of low emission and high efficiency, alternative propulsion energy and the development of solutions
- elimination of a number of obsolete industrial plants technologies,
- reduction of coal production and reduce production in energy-and material-consuming industries,
- regulation of energy prices causing energy and raw materials savings,
- improving the quality of coal supplied to the power system,
- liquidation in many cities, small boilers and in - house furnaces and the development of central heating systems;
- construction of high desulphurisation and dedusting combustion gases
- widespread use of catalytic converters in cars and the elimination of lead in gasoline.

National Programme for the Development of Low-Carbon Economy (2011)

The main goal of the programme is the development of low-carbon economy while ensuring sustainable development of the country by:

- development of low-carbon energy sources
- improving energy efficiency
- Improving the efficiency of the management of resources and materials
- development and use of low carbon technologies
- Prevention and improvement of waste management efficiency
- promotion of new consumer models

National Greenhouse Gas Reduction Program Emissions.

The proposed program aims to identify actions to reduce greenhouse gas emissions in all areas of the country, in the most cost-effective way possible. The aim of this program is to explore all the areas in which it is possible to reduce greenhouse gas emissions, including changing the basic approach to the business, or a major revision of consumer and social behavior. An additional two goals assume that the reduction of greenhouse gas emissions will be a driving force for economic development and that emission reductions will be achieved in the most efficient in terms of costs incurred.

Polish Energy Policy 2030

The energy policy until 2030 has the objectives of:

- increasing the share of energy from renewable sources (among all energy sources) to at least 15% in 2020, and then gradually increase the level in the following years,
- increasing the share of biofuels in the transport fuel market to 10% in 2020 and increase the use of second generation biofuels,
- protection of forests from over-exploitation in order to obtain biomass, as well as the sustainable use of areas for the production of energy from renewable sources, including biofuels, in order to avoid competition between the production of energy from renewable sources and agriculture, as well as to protect biodiversity use of existing dams held by the Treasury in order to produce electricity.

5. Polish Energy Policy (PEP) 205

Improving the efficiency and innovation is the most important challenges the Polish energy sector. The overriding principals that according to The Polish Electricity Association should be reflected at all stages of the PEP, is to improve the energy efficiency (including costs), and innovation through increased spending on research and development of domestic technological ideas in the field of energy. Currently, the domestic energy sector is far less innovative than the leading EU countries. In times of increasing requirements of EU climate policy, it will be of critical importance for Poland, in particular, to develop clean coal technologies, smart grids and energy storage. PEP 2050 should strengthen the economic growth of the country (http://www.esmap.org/sites/esmap.org/files/ESMAP-LCCGP_POLAND%20_Web.pdf, <http://www.mg.gov.pl/files/upload/10460/NPRGN.pdf>, http://www.ewaluacja.gov.pl/Wyniki/Documents/Zatrudnienie_i_rozwoj_lokalny_w_Polsce_w_kontekście_zmian_klimatycznych_OECD_9012013.pdf, http://www.mos.gov.pl/g2/big/2009_04/795c8de385204a0afd1e387e453831b7.pdf)

2.2. Public finance schemes and sources (e.g. subsidies to stimulate innovations, fiscal facilities, green taxes, public procurement) supporting low-carbon development

GIS – Green Investment Scheme

The entity that supports green investment in Poland is the National Fund for Environmental Protection and Water (National Fund). Tasks of the National Fund include: overseeing the

implementation of programs and projects and an assessment of the environmental effects, control over the use of resources by the beneficiaries; agreements with the beneficiaries of the program. The implementation of the GIS is still in the very initial phase.

There are four priorities under the green investment scheme:

- energy management in public buildings,
- works for agricultural biogas,
- plants fueled by biomass,
- building and modernization of electrical networks for connecting renewable energy sources, e.g. wind energy.

Each priority has a detailed description of priorities and an action plan implementation.

National Action Plan of Green Public Procurement

The Action Plan promotes of solutions for contract award procedures which can positively influence the eco-innovations and pro-social behaviour.

Detailed objectives:

- increase of awareness of Green Public Procurement (GPP), measured by the number of trained persons and the increase of the level of contract award procedures integrating environmental considerations (*objective: increase in the GPP percentage to the level of 20%, increase of trained persons by 20%*);
- increase in number of units applying a verified environmental management system (EMS), (e.g. EMAS or PN-EN ISO 14001:2005) (*by 20% in relation to the current state*);
- increase in number of national products certified by the Polish *Ekoznak* and/or EU *Ecolabel* (*by 50% in relation to the current state*).

Green Taxes

To date, no Green Tax Reform is being conducted or planned in Poland. From the beginning of 2000 there is a concept of Ecological Tax reform with is beyond the scope of traditional economic instruments in environmental policy. It is a mechanism that aims to implement legal, administrative, financial means and above all lead to a shift of the tax burden from labor and capital used up or destroyed in the production and consumption of resources and environmental values.

In Poland there is however a variety of Environment Protection taxes. Environmentally related taxes are connected with sludge, contaminated surfaces, surface water, charges for gas or dust emitted into the air, charges for the gas introduced into the air resulting in handling petrol, charges for gas or dust emitted into the atmosphere from the combustion of fuels in internal combustion engines, charges for gas or dust emitted into the air from rearing of poultry (http://www.gofin.pl/graf/509/pdf/MP2012_766_zal2.pdf).

KAWKA PROJECT 2013 – 2018 (National Fund)

Removal of low-emission energy efficiency promotes growth and development of distributed renewable energy sources. The main goal of the project is to reduce exposure to the effects of air pollution in areas significantly exceeding the limit concentration levels for those pollutants for which they were designed air protection programs. The program objective will be achieved by reducing emissions, in particular particulate matter PM 2.5, PM 10, and CO 2 emissions. The project's budget is 100 million EUR which is supported by the National fund for Environment (<http://www.nfosigw.gov.pl/srodki-krajowe/programy-priorytetowe/kawka/>).

PONE programme (Regional funds)

The primary objective of the PONE programme is to reduce emissions of harmful substances into the atmosphere through a comprehensive removal of existing, inefficient heat sources. The programme is supported by regional funds (<http://www.niskaemisja.pl/o-programach/informacje-ogolne.html>).

2.3. The key areas of interventions of EU funds regarding low-carbon measures planned for 2014-2020 programming period

In this area, the focus will be on activities related to the reduction of emissions in all sectors of the economy. This is due primarily to changes in the energy structure (in particular increasing the share of RES - including identification, comprehensive inventory and site selection key is to be introduced), to improve the energy efficiency of manufacturing processes and transport (modernization of regional and local infrastructure, transmission and distribution of electricity (first steps towards smart grid are being undertaken), this allows the use of renewable energy, distributed energy development within the existing grid using local renewable energy sources), the minimization of energy and fuel use by the different sectors of the economy (mainly transport, housing, industry), as well as increasing the use of energy-efficient equipment and technologies (white certificates are being introduced, support and implementation of integrated systems energy demand management and heat). To lower the emission intensity of the economy, so called "clean coal technology" systems are being promoted and introduced (http://www.mrr.gov.pl/fundusze/Fundusze_Europejskie_2014_2020/Programowanie_2014_2020/Documents/uwarunkowania_strategiczne.pdf).

2.4. The role of international financing of low-carbon development

The most prominent projects financed by external funds in the area of low-carbon development are listed below:

EBRD

Sustainable Energy Initiative (SEI) Track Record in Poland 2006-2009

In Poland, the most significant share of SEI funds has been allocated to the power sector. Poland is also the first country in which the Bank has been involved in supporting Greening Investment Scheme. In November 2009, with the Bank's assistance and through the EBRD/EIB MCCF, the Polish Government signed an AAUs sale agreement with the Government of Spain. Poland has accounted only for about 7% of the total SEI volume 2006 to 2009 (<http://www.ebrd.com/downloads/country/strategy/poland.pdf>).

PEPSA WIND PORTFOLIO

The EBRD is considering providing a senior long-term loan to finance the construction and operation of a portfolio of three wind farm projects with the total capacity of 103.5MW, to be located in Gawlowice, Skurpie and Rajgrad, Poland. The project will be developed in two phases. Phase I, consisting of the Gawlowice (41.4MW) and Rajgrad (25.3MW) projects is expected to be completed by the end of 2014. Phase II, consisting of the Skurpie (36.8MW) wind farm by the end of 2015.

The loan is to be made available to respective special purpose companies, namely Grupa PEP

– Farma Wiatrowa 1 Sp. z o.o., Grupa PEP – Farma Wiatrowa 4 Sp. z o.o. and Grupa PEP – Farma Wiatrowa 6 Sp. z o.o. (together the “Borrowers”) created to own, construct and operate respectively Gawlowice, Skurpie and Rajgrad wind farms. The Borrowers are fully owned by the Polish Energy Partners S.A..

Provision of a limited-recourse long-term financing denominated in Polish Zloty, to the amount of up to PLN 280 million (EUR 66 million equivalent). This represents up to 35% of the total project cost and will be used for the financing of construction and operation of phase I of the project. The remaining funding for the project is expected to be provided by other financial institutions and the Polish Energy Partners (<http://www.ebrd.com/english/pages/project/psd/2013/44923.shtml>).

PAWLOWO WIND FARM

The EBRD is considering providing a long-term loan of up to 68 million EUR equivalent to finance the construction and operation of a 120MW greenfield Pawlowo wind farm in north-west Poland. The project is being developed in two phases: Phase I of 79.5MW located in the municipality of Gotańcz to be completed in 2013 and Phase II of 40.5MW located in the municipality of Budzyń to become operational in 2015. The project will assist Poland in increasing its renewable energy capacity to meet EU’s green energy quotas.

Polish Zloty long-term debt financing of up to 68 million EUR equivalent. The project is expected to be financed along commercial banks (<http://www.ebrd.com/english/pages/project/psd/2013/44335.shtml>).

WINSKO BIOMASS

The EBRD is considering providing a senior long-term loan to finance the construction and operation of a greenfield project of 31MW biomass fired power plant in Winsko, Poland, the first independent, stand-alone dedicated biomass fired unit in Poland. The loan is to be made available to “Grupa PEP – Bioelektrownia 2 Spółka z ograniczoną odpowiedzialnością Spółka Komandytowa” private limited liability partnership, a special purpose company owning 100% interest in the project. Project cost: Approx. PLN 480 million (EUR 115 million) (<http://www.ebrd.com/english/pages/project/psd/2013/43331.shtml>).

KUKINIA WIND

The EBRD is considering providing a senior loan to finance the construction and operation of a 52.9 MW Kukinia wind farm located in northern Poland. The loan is to be made available to Aeolus Sp. z o.o., a special purpose company owning 100% interest in the project. The borrower is indirectly owned by RP Global Holding S.L. and the 2020 European Fund for Energy, Climate Change and Infrastructure (“Fund Marguerite”). In addition to the fully developed Kukinia wind farm, the Borrower is expected to own a 50MW operational wind farm in Tychowo, northern Poland. The Borrower’s intention is to consolidate financing for both wind assets, and therefore the refinancing of the Tychowo wind farm by commercial co-lender constitutes part of the Project financing package. Project cost Up to approx. PLN 826 million (EUR 190 million) (<http://www.ebrd.com/english/pages/project/psd/2012/43819.shtml>).

The International Bank for Reconstruction and Development (IBRD)

On January 18, 2013, the Minister of Economy signed an agreement between the Polish Republic and the International Bank for Reconstruction and Development for an Institutional Development Fund (IDF) grant to support the institutional capacity to develop a National Programme for the Development of Low-Carbon Economy (NPRGN). The activities to be financed by the grant will be implemented within two priority components:

1) Support the work of the NPRGN in the form of learning through practical activities (lifting capacity of the public administration in the development and implementation of policies for the transition to a low-carbon economy).

2) Create a web platform for the exchange of knowledge between government and key stakeholders, support to establish and maintain contacts and to ensure the flow of information in the field of low-carbon economy.

THE WORLD BANK

GIS - GREEN INVESTMENT SCHEME

The main objective of the project, supported by the World Bank, is to reduce CO2 emissions and air pollutants by providing support for investments that would improve energy efficiency in Poland. The areas of support primarily include energy saving and energy efficiency investments in the country's public sector. Subsidies would be provided to owners and users for the implementation of the thermal modernization (improvement of energy efficiency) of public buildings, including equipping the buildings with the highest, economically justified and energy effective systems directly related to the thermal modernization of buildings. The key stakeholders are the NFEP&WM –National Fund of Environmental Protection and Water Management of Poland, and the Department of Climate Change and Atmosphere Protection of the Ministry of Environment. Secondary stakeholders will include the public entities and authorities who will be participating in the GIS. The total project costs is 30.00 million US dollar (<http://www.worldbank.org/projects/P117333/green-investment-scheme?lang=en>).

Energy Efficiency Development Policy Loan

Poland was in 2011 approved of a 750 million EUR loan by the World Bank in the form of a Energy Efficiency Development Policy Loan. Through this loan, the World Bank is supporting Poland's implementation of critical components of the Energy Policy of Poland Until 2030 adopted by the Government in November 2009. The program's objective is to help decrease energy consumption by 20 percent by 2020, compared to business as usual, and to increase the share of renewable energy in final energy consumption to 15 percent by 2020. Meeting these targets will also help Poland to meet its 20 percent reduction in greenhouse gas emission target by 2020. Poland has made commitments with the EU to meet these three major targets. The World Bank's report entitled "Transition to a Low Emission Economy in Poland" helped guide the policy agenda that would enable these targets to be met, while respecting the fiscal constraints currently being faced by Poland.

The program and the policies that this DPL supports are expected to help: (i) improve the efficiency of the energy sector, reducing the cost of energy services; (ii) create "green jobs" through significant energy efficiency and renewable energy investments, stimulating economic development; and (iii) reduce air pollution, diminishing its impacts on human health (<http://www.worldbank.org/projects/P115426/energy-efficiency-development-policy-loan?lang=en>).

2.5. The role of private financing in supporting the shift to a low-carbon economy

Bank of Environmental Protection - Bank Ochrony Środowiska S.A.

The Bank is a leading financial institution that specialises in the financing of various environmental protection investments, e.g. water protection, air protection or land surface protection. Together with KfW, the bank has prepared subsidised loans under the following two programmes:

- Programme for energy efficiency in buildings;
- Boiler modernisation programme.

The most important conditions for both programmes are as follows: an investment applying for such a loan cannot be supported from public funds (e.g. National and Regional Funds for Environmental Protection and Water Management, Thermo-modernisation and Renovation Fund). Loans are provided for up to 10 years, depending on the investment's implementation period and the client's credit rating (a standard investment loan is granted for 5-8 years).

Biogas Plant in Koczergi

The village Koczergi near Parczewa (Lublin Province) operates a biogas plant, which - as the first in Poland - provides heat for greenhouses, mainly from tomatoes, covering app. four hectares. This seems to be one of the best ways to use thermal energy produced from biogas. Biogas is a cogeneration installation, meaning that it produces both electricity and heat. The problem is that the latter is often not as fully utilized. In any case, part of the heat produced from the biogas consumed for heating the digester plant. The question is what to do with the rest. A good idea, already used in Poland, is located adjacent to the heating of buildings. But for various reasons it is not always profitable. It does not pay, for example, when biogas is too far away from the buildings, which could be heated.

This applies to agricultural biogas plant in Koczergi, which is distant from the nearest houses half a mile away. The investor, the company DMG, chose a different method of development of heat generation, building a biogas heat pipeline to nearby greenhouses, located in the same place. Heating them, making the total thermal energy for its installation. This significantly improves the "economics of their project (<http://www.chronmyklimat.pl/biogazownia/aktualnosci-biogazownia/16344-biogazownia-ktora-ogrzewa-szklarnie>).

2.6. Available mechanisms and strategies for carbon financing

World Bank/Carbon Finance Unit Poland: Stargard Geothermal Project

The proposed project established a geothermal base-load heating plant in Stargard which is a city of about 75,000 people located about 30 km east of Szczecin in the North-West of Poland. The Project consists of two components. First is the "underground plant" consisting of a new geothermal doublet which is located close to the existing coal fired DH-plant; and the second one is the "above-ground plant" and connections, comprising a plant building which houses heat exchangers, electrical equipment and installations, process equipment and controls, as well as internal piping; and the connection to the existing district heating (DH) network of Stargard. The baseline used for evaluation of this project assumes continuing supply of district heat from the recently modernized coal boilers and is expected to remain valid over the next 15-20 years. The geothermal heat, with an installed capacity of 14 megawatts, will displace more than 36% of the total district heat demand of Stargard that was provided from heat only coal boilers. The project displaces substantial coal burning in Stargard with attendant

reductions in carbon dioxide (CO₂) emissions, ash disposal, coal transport and storage impacts. Other key air pollutants that are reduced are SO₂, PM₁₀ and NO_x. The Prototype Carbon Fund (PCF) is negotiating to purchase 240,000 tons of carbon dioxide equivalent emission reductions through the Kyoto Protocol's Joint Implementation mechanism. The project is sponsored by Geotermia Stargard, an international joint venture company (Danish and Polish shareholders) which will implement, own and operate the project, and EcoFund, a state owned fund that has supported around 80 projects in the field of renewable energy during the last eight years (www.ekofundusz.org.pl and <https://wbcarbonfinance.org/Router.cfm?Page=Projport&ProjID=9621>).

2.7. The main barriers in terms of financing low-carbon economy

The main barriers in this area are weak diversification of both energy sources (predominance of coal) as well as supply lines (direction east). There are still inadequate storage of natural gas. In terms of energy efficiency the infrastructure is outdated and is requiring replacement - infrastructure. The high level of pollution is also influenced by the dominant road transport. Previous difficulties in the smooth implementation of projects in the energy sector, has been mainly due to the complexity of the process project preparation. The delays are related to the problems occurring with public (the need to notify individual projects) and environmental regulations (including investments by extending protected areas, need to re-prepare investment in line with new environmental regulations). There are also problems related to the legal conditions associated with the acquisition of land for investment. A strong public opposition is often created by many myths around clean energies or such investments. Secondly the procedure which is steering the consultations and project development is unclear for the public which is creating potential for conflicts.

2.8. Indicators

1. Energy consumption (toe) per capita

Energy use (kg of oil equivalent)	2008	2009	2010	2011	2012
<u>Poland</u>	156.0	147.5	153.1	146.2	136.8

Source: WorldBank: <http://data.worldbank.org/indicator/EG.USE.COMM.GD.PP.KD>

2. Energy intensity (toe/unit of GDP)

Gross inland consumption of energy divided by GDP (kg of oil equivalent per 1 000 EUR

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poland	427.7	425.7	414.5	409.3	389.6	380.8	377.0	351.4	339.7	321.8	330.8	317.7

Source: Eurostat:

<http://epp.eurostat.ec.europa.eu/tgm/table.dotab=table&init=1&language=en&pcode=tsdec360&plugin=1>

3. Renewable energy in total energy consumption (toe and percentage).

	2004	2005	2006	2007	2008	2009	2010	2011	2010
Poland	7,0	7,0	7,0	7,0	7,9	8.8	9.3	10,4	15,0

4. Energy import dependency/energy resilience (percentage of energy use/TPES).

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poland	10,6	10,4	11,3	13,1	14,6	17,6	20	25,6	30,6	31,7	31,6	33,7

Source:

Eurostat:<http://epp.eurostat.ec.europa.eu/tgm/table.dotab=table&init=1&language=en&pcode=tsdcc310&plugin=0>

3. Financing Sustainable transport

This section focuses on urban public transport and intercity road and rail transport.

3.1. Existing national financial mechanisms and strategies regarding sustainable transport

The National Transport Policy for 2001-2015

The National Transport Policy is focused on introducing regulatory and economic instruments to reduce emissions from individual vehicles. The policy elaborates the concept of sustainable transport and presents a comprehensive set of policy measures including regulatory instruments (e.g. emission/ fuel quality standards/ inspections requirement), economic instruments (e.g. pricing), physical planning and strategic environmental assessment (SEA), technology development and public awareness rising (e.g. with respect to driving behavior).

National Strategy of Regional Development 2010–2020 (NSRD)

The NSRD establishes the objectives and manner of action of the public entities, and especially of the government and province self-governments, in relation to the Polish territory. NSRD sets out the objectives of the regional development policy and defines their relationships with other public policies that have an explicit territorial focus. Main goals include:

- a) strengthening of the metropolitan functions of the province cities and their functional areas,
- b) establishing conditions for dissemination and absorption of the development processes,
- c) support reconstruction and revitalisation of cities and other areas losing the socio-economic functions,
- d) support the increase in the spatial accessibility of the province centres within areas of the lowest accessibility. (<http://www.espon-usespon.eu/library,national-regional-development-strategy-2010-2020-regions-cities-rural-areas-nsrd-f7da>)

Act on Public Collective Transport (of 16 December 2010)

The act specifies statutory requirements for local authorities and the Ministry of Infrastructure regarding the organisation of public transport markets, transport planning, and the financing and management of public transport services. The act specifies local and national authorities' obligations in the following areas:

- Planning of the transport development
- Organizing of the public transport
- Management of public transport
- Financing of public transport

In addition, the act requires local authorities (communes - gminy and counties - powiaty) to develop and implement a 'Plan for Sustainable Public Transport'. Public consultation is a key requirement for the development of these plans. The act also defines requirements for the selection of the public transport operators, based on:

- Polish public procurement law
- Concession for construction activities and services Act
- Public service contracts with public transport operators - the contract has to be for a definite period of time not longer than 10 years (for road transport) and 15 years (for rail, maritime, inland waters transport)

3.2. Public finance sources for supporting public transport

National Action Plan of Green Public Procurement

The action plan promotes solutions for contract award procedures which can positively influence the eco-innovations and pro-social behavior. The measures implemented under the plan support sustainable transportation by:

- increasing the level of integration of environmental considerations in public procurement,
- market development of environmentally friendly products and expand the market for the technology industry, environmental protection and service sectors about environmental
- promoting sustainable patterns of production and consumption.

Taxes supporting sustainable transport

Tax incentives are used to encourage the vehicle manufacturers to reuse and recycle, to encourage purchase of cleaner vehicle and fuels (http://www.gofin.pl/graf/509/pdf/MP2012_766_zal2.pdf).

System for Transport and Infrastructure Financing

The conclusion of agreements between the authorities and operators gives rise to negotiations aimed at controlling cost and improve the quality of service provided to passengers. Structure in consideration, it must be constructed based on:

- efficient use of resources;
- set targets for the quality of services with a system of penalties and bonuses (bonus when objective will be achieved, and liquidated damages, if not) allow to provide passengers better services, taking into account more their expectations. The system is based on effective means an element a key strategy to modernize the transport system in the context.

3.3. Key areas of interventions of EU funds regarding public transport development

One of the priorities in the new cohesion policy for 2014-2020 is to increase the accessibility of transport - as to complete the process of modernization and development of transport links between the provincial cities and national networks for including the TEN-T network. Availability of transport will foster the spread of development processes, creating conditions for better use of human capital.

	Share of the allocation 2007-2013 (%)	Share of the allocation 2014-2020 (%)
Promoting sustainable transport and removing bottlenecks in key network infrastructures	38,52	28,6-32,3

Source: Ministry of Regional Development:

http://www.mrr.gov.pl/fundusze/Fundusze_Europejskie_2014_2020/Programowanie_2014_2020/Documents/uwarunkowania_strategiczne.pdf

Although still, a largest share of the allocation has the objective of promoting sustainable transportation, the share has been significantly reduced. This will result in consequences on the investment priority regarding mobility by combining the regional secondary and tertiary nodes of TEN-T infrastructure. This decrease has resulted primarily from the fact that a smaller share of the total ERDF allocation as a mean of buffering also is imposed for purposes related to innovation, R & D, entrepreneurship and low-carbon economy. The loss of the possibility of roads financed locally will have to be compensated by national public funds.

3.4. The role of international financing of public transport

EBRD

PKP CARGO (FORMER PROJECT TAMARIND), public private partnership in the rail transport sector

The project involves an equity investment by the EBRD in the Initial Public Offering (IPO) of the rail company PKP Cargo S.A. and its listing on the Warsaw Stock Exchange ("WSE") through the subscription to existing shares offered by the current sole shareholder (PKP S.A.) in the company's partial privatisation process (PKP S.A. is owned by the Polish State). Up to 50 % minus one share in the company will be privatised in a public offering (with all company's shares to be listed on the WSE) while 50 % plus one share will be retained by PKP S.A.

The IPO of PKP Cargo is the introduction of private ownership in the company, which will be achieved by this partial privatisation. EBRD's participation is expected to improve the company's corporate governance, support the restructuring and improvement of performance standards. The IPO is a landmark transaction in the rail sector in Central and Eastern Europe.

An independent environmental audit assessment of the company was completed as part of the pre-privatisation study on request of PKP S.A. in 2010. As part of the current project,

EBRD undertook an additional Environmental and Social Due Diligence (ESDD), this included a corporate review and a series of site visits by the Bank. An Environmental and Social Action Plan (ESAP) has been developed to address environmental and social issues identified during the ESDD. A Corporate Stakeholder Engagement Plan will be developed under the ESAP and publicly disclosed. The company will provide to EBRD annual reports on the implementation of the ESAP and environmental and social performance. EBRD will monitor the company's compliance with the agreed environmental and social commitments through reviewing these reports and periodic monitoring visits.

3.5. Examples of good practices on sustainable transport

CAPRICE project

A good practice example in terms of sustainable transport to be highlighted is the European interregional cooperation project (INTERREG IVC) and aimed at promoting integrated public transport systems, with a view to improved method of using energy. The CAPRICE partners have drawn conclusions based on the following themes:

- the organisation and financing of public transport;
- the tendering and contracting of passenger transport services;
- sustainable energy and implementation of clean vehicles in public transport;
- integrated passenger information;
- integrated ticketing;
- public transport planning for integrated services of improved quality;
- accessibility for people with specific needs.

The good practices in the different areas have been summed up in the Decision Maker's Guide (http://www.caprice-project.info/IMG/swf/GBP_electronique.swf) (http://www.caprice-project.info/IMG/pdf/GPG_polish_version.pdf).

3.6. The main barriers identified in terms of financing public transport improvement

The basic barriers in the sector is primarily the lack of a coherent network of roads and railways. Investments are carried on an ad-hoc manner. This largely means that the investments are not developed in a networked way but as single lines from one important city to the other. It is still possible to discover borders from XVIII century! In addition, the problem is the quality of management in the transport sector, especially concerning timely finishing of strategic projects. The main obstacle in the implementation of projects aimed at modernizing the railway infrastructure is scarcity of prepared pipelined investments. The reason for this is the complexity of the investment, environmental issues, as well as institutional capacity of the beneficiary (the state owned PKP PLK SA). The PLK has many regional departments as well as complicated senior managerial structure. In most cases it delays or paralyzes the investment process or fund absorption process.

3.7. Indicators

1. Modal split of passenger transportation (also by purpose), measured in passenger-km and percentage. This indicator is defined as the percentage share of each mode of transport in total inland transport, expressed in passenger-kilometres (pkm).

Modal split of passenger transportation % in total inland passenger-km 2011			
geo/vehicle	Trains	Passenger cars	Motor coaches, buses and trolley buses
Poland	5	89,1	5,9

Source: Eurostat:

<http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsdtr210&language=en>

2. Modal split of freight transport (also by group of goods), measured in ton-km and percentage. This indicator is defined as the percentage share of each mode of transport in total inland transport expressed in tonne-kilometres (tkm).

GEO/TIME	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poland	37,2	35,5	33,7	30,8	29,4	26,4	24	19,4	19,4	20,5

Source: Eurostat:

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsdtr220&plugin=1>

3. GHG emissions from transport (million tons CO2 equivalents). This indicator shows trends in total man-made emissions of the "Kyoto basket" of greenhouse gases. It presents annual total emissions in relation to "Kyoto base year".

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poland	89,51	87,27	84,38	83,66	80,81	83,65	84,67	85,47	88,99	89,4	87,79	83,47	88,09	87,56

Source:

Eurostat: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdcc100>

4. Financing adaptation to climate change

This section focus on interventions that lead to reduction of the territory's vulnerability to climate change (e.g. measures that aim to reduce and manage the risk of floods, forest fires, droughts and other natural disasters. Despite the fact that this type of financing is still limited in the region and is mainly coming from the Cohesion Funds, there are still a number of national mechanisms that can be highlighted.

4.1. The existing national mechanisms and strategies regarding reducing the vulnerability to climate change

Poland does not have any direct climate-change policy. The related policies are listed below.

National Ecology Programme (2009-2012, extension to 2016)

With regards to climate change mitigation efforts, the national Ecology programme supports the use of low emission and high efficiency alternative propulsion energy and the development of solutions and the reduction of coal production and reduce production in energy-and material-consuming industries as well as it supports the phasing out of obsolete industrial technologies and improving combustions systems. For further details please see section 1.

National Programme for the Development of Low-Carbon Economy (2011)

The main goal is the development of low-carbon economy while ensuring sustainable development of the country by:

- development of low-carbon energy sources
- improving energy efficiency
- Improving the efficiency of the management of resources and materials
- development and use of low carbon technologies
- Prevention and improvement of waste management efficiency
- promotion of new consumer models

National Greenhouse Gas Reduction Program Emissions.

The proposed program aims to identify actions to reduce greenhouse gas emissions in all areas of the country, in the most cost-effective way. The aim of this program is explore all the areas in which it is possible to reduce greenhouse gas emissions, including by changing the basic approach to the business, or a major revision of the philosophy of thinking and social behavior. Additional two goals assume that the reduction of greenhouse gas emissions will be a driving force for economic development and that emission reductions will be achieved in the most efficient in terms of costs incurred.

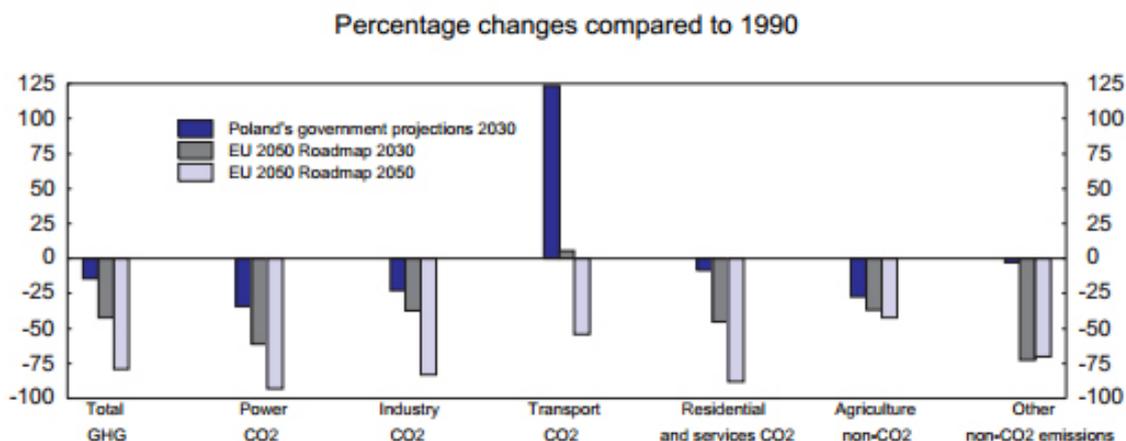
Polish Energy Policy 2030

- increasing the share of energy from renewable sources (among all energy sources) to at least 15% in 2020, and then gradually increase the level in the following years,
- increasing the share of biofuels in the transport fuel market to 10% in 2020 and increase the use of biofuels second generation,
- protection of forests from over-exploitation in order to obtain biomass, as well as the sustainable use of areas farm for the production of energy from renewable sources, including biofuels, in order to avoid
- competition between the production of energy from renewable sources and agriculture, as well as to protect biodiversity use of existing dams there and held by the Treasury in order to produce electricity,

Polish Energy Policy 2050

Aims to improve the efficiency (including cost), and innovation through increased spending on research and development of domestic technological ideas in the field of energy as well as the development of clean coal technologies , smart grids and energy storage.

Figure 3. Changes in Poland's emissions implied by the European Commission's proposal on the Low Carbon Roadmap 2050 and by government projections¹



1. Government projections show outcomes based on current and new policies.

Source: Polish Government (2011), "Projections of greenhouse gas emissions and removals up to 2030"; European Commission (2011), A roadmap for moving to a competitive low carbon economy in 2050, Brussels, 8.3.2011, COM(2011) 112 final; UNFCCC.

4.2. Key areas of interventions of EU funds regarding reducing the vulnerability and increasing adaptive capacity

The investments targeted at specific risks related to climate change will be promoted, ensuring disaster resilience and the development of disaster management systems - complex projects related to the assessment and management of flood risks including protection against risk of drought, construction and development of effective warning and response systems in situation of extreme events (warning and evacuation system below the dam in the event of hydrological disasters and flow forecasting systems, catchment tank and control of the flood wave). These projects include improving the security existing facilities (complex repairs, adjustment to current standards), demolition of objects whose technical life came to an end; infrastructure activities designed aimed to increasing natural retention of river valleys, preventing drought and reducing emissions from desiccated peat lands; conducting educational campaigns; Support organization of early warning systems and rescue in case of an outbreak of natural disturbances

4.3. The role of international financing of regarding reducing the vulnerability and increasing adaptive capacity

In addition to the above mentioned projects from EBRD and EIB connected with low-carbon economy and transport the following could be highlighted.

LIFE PROJECT

LIFE is one of the key funds for environmental protection in the EU. In order to maximize and optimize the use of its potential and improve the effectiveness of achieving the objectives of environmental policy, the European Commission started to work on the shape of the future LIFE program (continuation of LIFE + in 2014-2020) that best accommodate the needs of the environment and the climate.

The general objectives on climate change, which inspire the creation of the subroutine are:

- contribute to the transition to a low carbon / low carbon and climate resilient economy;
- the development, implementation and enforcement of EU legislation and policies relating to climate change and promote the integration and inclusion of climate objectives into other EU policies and practices in the public and private sectors;
- promote better management of climate and environment at all levels.

LIFE +

Component II LIFE + Environment Policy and Governance ENVIRONMENT

The second component is expected to finance innovative or demonstration projects relating to the wider environment, in particular to address climate change, health and improving quality of life, protection of water, air quality, soil protection, noise protection, monitoring and protection of forests fires; sustainable management of natural resources and waste, as well as the development, implementation and evaluation of policies and EU law on environmental protection.

EEA Grants and Norway Grants 2009-2014

The area of support within the new programme is broad. The largest part of the funding has been allocated for the protection of environment – EUR 247 million. EUR 110 million of this sum shall be used for financing projects focused on protection of the biological diversity and ecosystems, improvement of environmental monitoring and inspection as well as on saving energy and promoting renewable energy sources. The Operator for the above mentioned grants is the Ministry of Environment in cooperation with the National Fund for Environmental Protection and Water Management. EUR 137 million has been earmarked for the carbon capture and storage programme (CCS) implemented with the Ministry of Economy acting as the Programme Operator.

EEA Grants	
programme	allocation
PL02 The protection of the biological diversity and ecosystems	EUR 20 000 000
PL03 Improving environmental monitoring and inspection	EUR 15 000 000
PL04 Saving energy and promoting renewable energy sources	EUR 75 000 000

Source: <http://www.nfosigw.gov.pl/en/eea-grants/>

4.4. The main barriers identified in terms of adapting to climate change

Difficulties in the implementation of interventions in the prevention related to natural hazards to the drafting of the level of maturity. The main reasons for this state of affairs is related to both environmental and social issues; the availability of land, and the emerging issues related to the institutional capacity of the beneficiaries. Since the 70' many houses were built in the areas exposed to climate change risks. These are now populated with low income families

which makes it difficult to either relocate them or to improve the security of the buildings both from legal point of view as well as from lack of financing. The other issue is that in public perception where there is a fundamental knowledge gap linking natural disasters to severe weather events related to climate change. It is important to note that many of the EU programs are biased because the goals will be reformulated towards this mindset. Support will focus on specialized investments for adaptation to climate change - adaptation in agriculture, forestry, construction, transport road and urban infrastructure (including storm water management programs, construction/modernization of drainage and storm of sufficient bandwidth, resurfacing the openwork construction of reservoirs with permeable bottom and walls for water runoff from sealed surfaces and to counteract anthropogenic sealing land).

4.5. Indicators

1. Rate of afforestation/deforestation

Afforestation

Forest Area (1000 ha)			Annual rate of change (1000 ha yr-1)	
1990	2000	2005	1990-2000	1996-2002
8881	9059	9192	18000	19857

Source: http://www.ieep.eu/assets/298/wp4_nd_afforestation_in_europe.pdf

Deforestation

	FOREST COVER (excluding planted forests) (1000 ha)				ANNUAL CHANGE RATE (1000 ha) <i>Negative number represents deforestation</i>		
	1990	2000	2005	2010	1990-2000	2000-2005	2005-2010
Poland	370	414	433	448	4	4	3

Source: <http://rainforests.mongabay.com/deforestation/2000/Poland.htm>

2. Number of floods

	Number of floods	
	1981-1990	1990-2001
Poland	134	101

Source: Institute Of Meteorology And Water Management Water Resources Center In Warsaw:
Http://www3.imgw.pl/wl/internet/zz/zz_xpages/hydrografia/zasoby_wodne_pliki/poster_03.html

3. Percentage of agricultural land and arable land

Percentage of agricultural land

Poland	2007	2008	2009	2010	2011
% of land area	51,7	53,1	53	48	48,6

Source: <http://en.worldstat.info/Europe/Poland/Land> and
<http://data.worldbank.org/indicator/AG.LND.AGRI.ZS>

Percentage of arable land

Poland	2007	2008	2009	2010	2011
% of land area	40	41,3	41,2	35,9	36,5

Source: <http://en.worldstat.info/Europe/Poland/Land> and
<http://data.worldbank.org/indicator/AG.LND.AGRI.ZS>

5. Ecosystems protection

This section focus on available mechanisms for different financing options for supporting investments in natural capital including protected areas and wider green infrastructure elements

5.1. Existing national mechanisms and strategies regarding nature conservation

The legislative base for biodiversity conservation regulates the following environmental matters:

- environmental permits (relating to environmental pollution, waste management etc.);
- environmental impact assessment for individual interventions;
- environmental taxes on: the pollution of air with carbon dioxide emissions, the use of lubricating oils and fluids, landfilling with scrap motor vehicles, landfilling with scrap pneumatic tyres, landfilling with scrap packaging, landfilling with waste electrical and electronic appliances, and environmental pollution due to the use of volatile organic compounds; tradable emission permits (regulatory scheme for the sources of pollutants): trading the entitlements to release substances in water, the air or the land (emission coupons).

National Ecological Policy (2000)

The document stated that the protection of biodiversity and landscape is essential to ensure the environmental safety of the state, and therefore the task of government is to create an environment conducive to the protection. For main objectives taken in this regard, it is considered:

- Improving the environment by removing or reducing the risks for the sake of biological and landscape diversity,
- Preservation, restoration and enhancement of natural resources,
- Achieve universal acceptance for the sake of all natural heritage and Polish culture

National Ecological Policy 2006-2012

The primary objective of the 2006-2012 policy is to preserve the rich biodiversity of Polish nature at various levels of the organization: at the level of interspecies (genetic), species and ecosystems level, along with enabling sustainable economic development a country that coexists in a conflict-of biodiversity.

National Biodiversity Strategy and Action Plan

The National Biodiversity Strategy and Action Plan's overriding objective states that all actions taken should preserve the full native wealth of its natural resources and the safeguarding of the continuity and possibilities for development at all levels at which it is organized (within the species, between species, and above the level of species). The four fundamental strategic activities are: the recognition and monitoring of the status of biological diversity and the existing or potential threats; the removal or limitation of current and potential threats to biodiversity; the preservation and/or enhancement of existing elements of biodiversity, and the reinstatement of those that are disappearing; and the integration of actions for biodiversity conservation with emphasis on those of importance in the sectors of economy, public administration and society in general. The operational activity is divided into sectoral targets. Environment, water management, agriculture, construction planning and housing, tourism, education, science, transport, economy, and national defense constitute most of the sectors involved (<http://www.cbd.int/countries/profile/default.shtml?country=pl#nbsap>).

Natura 2000 in 2014-2020 programming – By LIFE+ PROGRAMME

5.2. Public finance sources for supporting ecosystems protection

National Fund for Environmental Protection and Water Management

The National Fund provides financial support mostly for projects which implement environmental obligations of Poland transpiring from the membership in the European Union. It also supports the Minister of the Environment in executing Polish obligations under e.g.: the Climate Convention, the Convention on Biodiversity, the NATURA 2000 programme. Management of the finance of the National Fund by priority programmes guarantees transparent, EU funds 2014-2020 objective and impartial process of granting co-funding. In 1989-2011 the National Fund co-funded ecological initiatives with the amount of PLN 42.4 billion (including foreign grants managed by the National Fund). The most funds were allocated for water protection and water management as well as for air conservation. These activities have contributed to an explicit improvement of environmental conditions in Poland. Only large, long-term investment in water and wastewater management, completed in 2011 (and mostly co-funded since 2000 from the Cohesion Fund of the EU) improved the service standard in this area for over 12 million people in Poland.

5.3. Key areas of interventions of EU funds for ecosystems protection

Comprehensive support for water and wastewater management including the development of sewage (including storm water drainage), raising the efficiency of wastewater treatment and industrial sewage sludge management support, preventing runoff to surface contamination. Support for waste management - improving the management of municipal waste, management of municipal sewage sludge on the use of advanced technology, action to steer more waste from landfills for further processing (construction of installations for the recovery, recycling and disposal of waste), especially in the use of technology related to land municipal sewage sludge (including incinerators). With regards to the protection of biological diversity, emphasis is placed on the development of green infrastructure, including the creation of ecological corridors, enabling the migration of fauna and flora in regional, national and international, and soil conservation. Support should be to create so-called green infrastructure in areas outside the system of protected areas, natural regeneration adversely

transformed ecosystems. Specific support for the rehabilitation of brownfield sites and reduce air emissions in urban areas.

5.4. The role of international financing for nature protection and eco-system conservation

EEA Grants and Norway Grants 2009-2014

20 million EUR is earmarked for the protection of the biological diversity and ecosystems. For further details see section X above (<http://www.nfosigw.gov.pl/en/eea-grants/>).

Component I LIFE + NATURE AND BIODIVERSITY

The first component provides for the financing of projects related to the protection, retention or restoration of natural ecosystems, natural habitats, wild flora and fauna and biodiversity, including diversity of genetic resources, with particular emphasis on the NATURA 2000. Sub Nature focuses on the implementation of the two EU Directives: No. 79/409/EC on the protection of birds, the so-called "wild" and No. 92/43/EEC, on the conservation of the so-called. "Habitats". Sub biodiversity fund innovative and demonstration projects that contribute to the achievement of the objective set out in the Communication from the Commission COM (2006) 216 "Halting the loss of biodiversity in Europe by 2010 and beyond - Sustaining ecosystem services for human well-being".

5.5. Main barriers in terms of financing ecosystems protection

Significant problems are encountered in the supply of projects ready for execution, mainly due to environmental and social problems associated with investments of thermal utilization of waste (i.e. incineration plants). In the case of such projects it is also a matter of known "financing gap" - due to the profitability of waste recovery it is difficult to prove validity of Community support.

5.6. Indicators

1. Area devoted to organic farming

Poland	2004	2005	2006	2007	2008	2009	2010
Agricultural holdings	3760	7182	9194	12121	15206	17423	20956

Source: <http://www.ijhars.gov.pl/pliki/biuletyn/2011/IJHRS%20Raport%20o%20stanie%20rolnictwa%20ekologicznego%20w%20Polsce%202009-2010.pdf>

6. Financing of eco-innovation in SMEs

This section focus on eco-innovation and barriers for its financing within SMEs.

6.1. Existing national mechanisms and strategies for supporting eco-innovations in the country

National Reform Programme for 2008-2011 and the subsequent National Reform Programme to Implement Europe 2020 Strategy, adopted in 2011.

The programmes aim to prioritise development and implementation of environmental technologies, as they are necessary for complying with the EU legislation (the EU energy and climate package) and have a positive impact on the national energy security, public health, transition to a low-carbon economy and for addressing global sustainable development challenges.

The 2007–15 National Development Strategy

The National Development Strategy sees intensified environmental protection as support for eco-innovations in investment, production, technological and organisational activities that should contribute to higher GDP and improvement of the standard of living with a lower use of natural resources and decreased emission of pollutants.

National Environmental Policy for 2009–12 and its 2016 Outlook

The aim is to enhance the role of the Polish research units in implementation of eco-innovations in industry and in manufacture of environmentally friendly products as well as to lead to a satisfactory status of the environmental monitoring system.

The Energy Security and Environment Strategy -, 2020

The Outlook attaches importance to utilising all the opportunities for developing Polish environmental technologies, as they will significantly increase the innovativeness of the Polish economy, thereby improving its competitiveness.

Road Map implementation of the EU Environmental Technologies Action Plan (ETAP) in Poland (KETAP)

Specifies activities in the KETAP are related to environmental technologies and innovations, how they should be coordinated and how information exchange in this area should be improved.

Strategy for Changing Production and Consumption Patterns to Support Durable and Sustainable Development

The strategy aims to de-materialise production, actively reduce the economy's negative environmental impact, especially through higher innovativeness, and eliminate the energy sector's negative impact on the environment

Accelerator GreenEvo Green Technology

GreenEvo is an initiative of the Ministry of Environment in support of Polish eco-innovators entry on the global market. The initiative is not limiting itself to direct support for participants of the application calls organized by GreenEvo in a form of competitions, but also forming

global perspective by providing knowledge about foreign eco-innovation markets for Polish SMEs. More information available at <http://greenevo.gov.pl/en/>.

National Research and Development Center

The two out of five National Research and Development Center programmes are in the area of eco-innovation: sustainable generation and use of energy:

- Advanced technologies for energy
- Integrated system to reduce operational energy consumption in buildings)

6.2. Available national instruments (e.g. guarantees, grants, loans, subsidies, fiscal incentives, venture capital, etc.) for supporting businesses in carrying out eco-innovation projects

Green public procurement

Financial support under the strategy for Changing Production and Consumption Patterns to Support Durable and Sustainable Development. The financial support covers mainly established environmental technologies and is provided under:

- National OP Innovative Economy and 16 Regional OPs (co-funded by the SF);
- National Environmental Protection and Water Management Fund as well as Regional
- Environmental Protection and Water Management Funds;
- Bank Ochrony Środowiska (Bank for Environmental Protection)

Polish Sustainable Energy Financing Facility (PoSEFF)

PoSEFF aim to facilitate the process of financing eco-innovations and has a credit line of 150 million EUR. The offer of PoSEFF is addressed to small and medium-size enterprises (SMEs) interested in investments in new technologies and equipment decreasing energy consumption or generating energy from renewable sources by the European Bank for Reconstruction and Development.

National Fund has launched the green investment scheme

The funds obtained from the sale of surplus emission allowances under the Kyoto Protocol can be allocated for (following the Act of 17 July 2009 on a management system for emission of greenhouse gases and other substances) [NFOŚiGW]: energy management in public buildings; agricultural biogas plants; biomass heat and power generation plants and thermal power stations; construction and reconstruction of electricity grids in order to connect renewable sources of wind energy.

Technology Credit Fund

This support will take the form of a technological bonus. Around €410 million EUR has been earmarked for this purpose for 2007-13. It is mainly aimed at medium sized enterprises that will form some kind of bond with technologic partners i.e. Technology transfer centres but their new technology has to be implemented and profitable (both actors can be beneficiaries). Bank Gospodarstwa Krajowego is the operator.

6.3. The role of international financing for supporting eco-innovation

EIB

GETIN NOBLE BANK LOAN FOR SMES III

Financing of small and medium-scale projects carried out by SMEs and Mid-Caps. Final beneficiaries will be requested to comply with applicable national and EU legislation, as appropriate. EUR 200 million is available (<http://www.eib.org/projects/pipeline/2013/20130526.htm>).

BRE BANK LOAN FOR SME AND MID-CAPS III

Dedicated loan to support BRE Group's lending and leasing program for SMEs, micro-enterprises and mid-caps in Poland. Financing of small/medium projects carried out by SMEs and mid-caps. Final beneficiaries will be requested to comply with applicable national and EU legislation, as appropriate (<http://www.eib.org/projects/pipeline/2012/20120613.htm>).

6.4. The role of partnerships between public and private sectors in increasing eco-innovation

Eco-innovation Platform

The platform was established in 2005 under the auspices of the Ministry of Environment a voluntary organisation of stakeholders involved in the process of development and implementation of innovative environmental technologies for over 100 member organisations.

Polish Platform of Eco-innovation

One of the major aims is to settle an effective public and private partnership for the implementation of already prepared strategies. Technology Platforms are one of the milestones of the Seventh Framework Programme for Research and Development of the European Union. Currently 34 technology platforms operate in Europe and 28 in Poland. The platform supports the:

- preparation of ambitious national R&D programmes concerning strategic economy sectors which would become a part of the National Framework Programme,
- integration of key economic and research partners within created strategies,
- mobilisation of essential public and private as well as national and foreign resources,
- optimal use of structural funds regarding the competitiveness of economy in 2007-2013,
- promotion and lobbying of R&D activities profitable for sectors of economy represented by the Platforms (<http://www.ppts.pl/>).

Clean Business Programme

The programme is operated by the Polish Environmental Partnership Foundation, responds to environmental needs of Poland's small and medium-sized enterprises (SMEs). The Programme demonstrates through practical example that improving environmental performance does not necessarily mean higher costs and bureaucracy. On the contrary, good management means making environmental considerations part of day-to-day operations in order to make business operations more cost-effective and profitable. Good environmental practice is a key to improving competitiveness and profitability (<http://czystybiznes.pl/en/about-us>).

6.5. Mechanisms for facilitating entry of eco-innovations into the market and better exploitation of results from research activities

Innovation Union (EU plan to create Union by 2020) main goals:

- Promoting excellence in education and skills development
- Building the European Research Area
- Innovation Union as a EU financial instruments
- Promoting the European Institute of Innovation and Technology (EIT), as model of innovation management in Europe
- Easier access to finance for innovative companies

(<http://www.mg.gov.pl/files/upload/8418/Unia%20innowacji.pdf>)

6.6. Examples of good practices on financing eco-innovation

The Watt company

The Watt company has been specialising in new solar energy technologies since 1998. Its modern solutions are aimed at safe and highly effective application of this type of energy. Watt is the third largest global producer of solar panels (in terms of production space). Moreover, this is the only company in Poland that produces two types of solar collectors and has taken the lead in sales of these products in Poland. Apart from the more popular flat-plate collectors, used for efficient pool water heating and supporting low-temperature central heating systems, the company also offers vacuum tube collectors, which enable preparation of hot domestic water and can support central heating in single and multifamily houses, hotels, boarding houses, health or religious facilities. They are also suitable for heating pool water. They are highly efficient throughout the whole year, which makes them one of the most popular collectors chosen for solar energy investments in Poland. Construction of the WATT 4000 S flat-plate collector, which is the most efficient collector world-wide, constitutes one of WATT's most significant achievements. The company applied in this product a unique, patented solution for connecting copper pipes with absorber by means of soldering (http://www.eco-innovation.eu/index.php?option=com_content&view=article&id=121:watt-producer-of-solar-collectors&catid=20:good-practice&Itemid=129).

Producer of solar sewage sludge dryers, Ekotop Roman Sobczyk

The company designs and manufactures solar and hybrid sewage sludge dryers. They utilise solar energy and hybrid drying (which makes additional use of energy from biogas combustion, co-generator cooling, ground heat and energy recovered from sludge) and constitute one of the few available solutions for further sewage sludge processing. A solar drying system resembles a horticulture greenhouse. Unlike in a greenhouse, in order to support the drying process, the floor may be heated by means of a heating pump which recovers energy from the treated sewage or earth. Sludge drying in sun is one of the cheapest methods for reducing water content in sludge. Evaporation of a tonne of water in a solar drying system requires about 20-30 kWh, while in a conventional drying system based on traditional fuels – above 800 kWh. Dried sludge decreases four times in its volume, and its consistency resembles dry lumpy earth (granulate), which is suitable for agricultural use (when maintaining a relevant level of heavy metal content and microbiological and parasitological quality) as well as energy use. EKOTOP has designed over twelve solar drying facilities for municipal sewage sludge. Development in this field is determined by barriers such as small market demand and low awareness of the sewage sludge problem. As EU support is granted for construction of many

municipal sewage treatment plants, the issue of sewage sludge management will have to be tackled sooner or later. This creates opportunities for wider application of the above solution (http://www.eco-innovation.eu/index.php?option=com_content&view=article&id=122:producer-of-solar-sewage-sludge-dryers-ekotop-roman-sobczyk-&catid=69:poland).

6.7. The main barriers identified that SMEs are facing in terms of eco-innovations

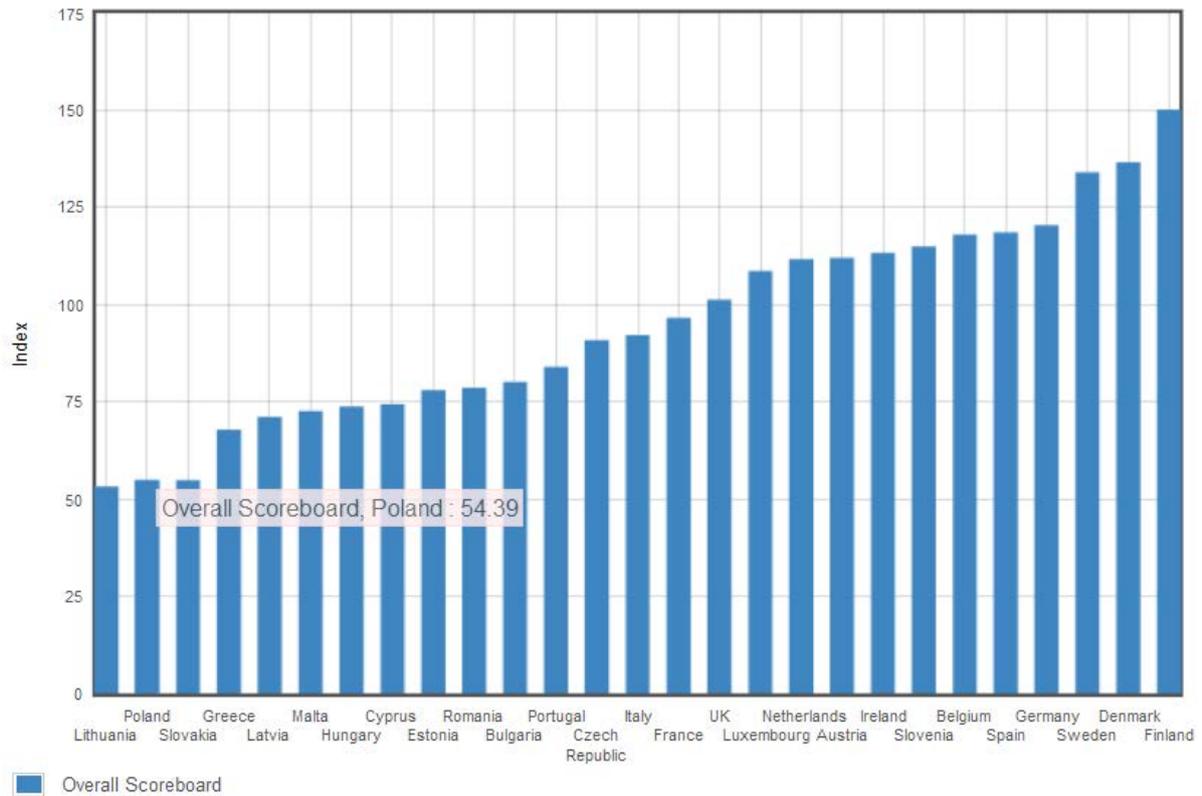
A major problem for national Operational Programme (OP) is the weak link of environmental issues with innovation. IE OP does not put emphasis on achieving innovation and Innovative Economy through the environmentally friendly solutions (PARP 2009). The result is a gap in support between these two areas, which halts eco-innovative projects. On top of the support gap for innovative projects in general– it suffers from a mismatch between forms of assistance and the barriers to innovation (especially excessive use of grants – there is an “industry that can win a project call but the solution is only to “absorb” money but not to produce real innovative solutions and be profitable) and inefficient selection of beneficiaries (the dominance of large companies and less ambitious – fully feasible projects- this is largely due to problematic and not transparent enough call procedures and heavy penalties during project implementation). On the other hand, the eco-innovators use the same infrastructure and human resources resulting in potential drop in support for the general innovation. It is also the question of the degree of understanding of what eco-innovation really is. Incorrect interpretation of this concept may lead to projects financed from funds allocated for the implementation of eco-existing solutions i.e. traditional products (eco-innovation is perceived as new to the company or municipality), which weakens the support for the true efforts of innovative companies and R & D for the development of truly innovative solutions.

6.8. Indicators

2. Ranking on the European Innovation Scoreboard

The eco-innovation index includes eco-innovation inputs, eco-innovation activities, eco-innovation outputs, environmental outcomes and socio-economic outcomes.

Poland is the least eco-innovated country in Europe.



Source: <http://database.eco-innovation.eu/#view:indicator>

3. Number of companies registered under EMAS

The indicator reflects the level of awareness among companies of the fact that environmental management is good for business.

41 organizations in Poland are registered under EMAS.

Source: <http://ec.europa.eu/environment/emas/register/reports/reports.do>