Contribution of Poland to the mid-term review of the Rovaniemi Action Plan for the Forest Sector in a Green Economy for the period 2015-2017

Information submitted by Poland on 31 January 2018

WKŁAD POLSKI DO RAPORTU NT. IMPLEMENTACJI PLANU DZIAŁAŃ Z ROVANIEMI W LATACH 2015-2017, OPRACOWYWANEGO PRZEZ WSPÓLNĄ SEKCJĘ DS. LESNICTWA I DRZEWNICTWA EKG ONZ/FAO

(przygotowany na podstawie materiałów nadesłanych przez IBL, ITD., DGLP)

INPUT FROM POLAND FOR THE MID-TERM REVIEW OF THE ROVANIEMI ACTION PLAN FOR THE FOREST SECTOR IN A GREEN ECONOMY (2015-2017)				
Location	**Actor**	**Description of actions**	**Achieved results**	**Lessons learnt**
Pillar A: Sustainable Production and consumption of Forest Products				
Poland	Government, private sector, State Forest	A.0 - In 2017, Poland adopted the Strategy for Responsible Development (SRD) until 2020 (with 2030 perspective).	The Strategy for Responsible Development until 2020 (with prospects until 2030) is based on the potential of domestic companies. It indicates eco-construction (including wooden construction) as a strategic sector for the Polish economy. The Eco-building is the flagship project of SRD, under which, among others, wooden construction products are created, taking into account energy efficiency requirements for modern building materials. The SRD flagship project "Polish Furniture" is being also developed, where eco-design is promoted and wood is a raw material for furniture production.	It is necessary to constantly undertake actions aimed at public awareness raising, especially in the field of wooden construction.
Poland	Government, private sector, State Forest	A.0 - In 2014, Poland adopted the Strategy for Environment and Energy Safety (SEE).	The Strategy for Environment and Energy Safety (SEE) addresses the need of creating integrated approach to SFM taking into account: a) the risk of climate change affecting forest biodiversity; b) raw material base of wood and the structure of demand for wood as the basis for the development of industries based on this natural resource; c) the role of forestry as a factor for the development of rural areas; d) increasing the role of non-productive forest function. The State Forests Development Strategy for 2014-2030 (adopted in 2013) also promotes the development of timber industry sector and integration of forestry in the development of rural areas in line with the concept of green economy.	
Poland	Government, private sector, State Forest	A.0 - In 2012, Poland adopted the Strategy of Sustainable Development for Rural Areas, Agriculture and Fishery for 2012-2020.	This Strategy supports rational afforestation (for example: afforestation on low quality soils, creating ecological corridors by afforestation).	
Poland	The State Forest	A.0.3 - In 2017, the State Forest launched the development project "Wood for Energy Self-Sufficiency of Local Governments". <u>(both A and B pillars)</u>	This is a new project. The main objective of the project is to support the pro-ecological policy of the Polish state. It requires from the State Forests, within the framework of their mission, to build a system of 17 storage depots of woody biomass and to determine the technology of its optimal conversion into heat and electricity, at the maximum reduction or total elimination of pollution in the combustion process. As part of the pilot project, two installations will be built which use biomass as a fuel for electricity and heat.	The project is currently being implemented.

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Poznań	Wood Technology Institute	A.0.3 - On 16-17 October 2017, the 2nd International Scientific Conference "WOOD-SCIENCE-ECONOMY" was held in Poznań. It was organised by the Wood Technology Institute in cooperation with the State Forests.	The presentation of the most recent scientific achievements to the international audience of forestry and wood science experts. An exchange of experiences, indicating, inter alia, the research directions offering the highest application potential, including in the areas of the applications of wood products.	The complexity of research issues, including forestry and wood science, made it necessary to establish a cyclical forum for an exchange of knowledge and a discussion on the possibilities of using forest resources for the purposes of sustainable development in the context of new concepts of the use of woody biomass resources.
		On 8 June 2017, the Scientific Seminar "WOOD – Traditionally Modern" was held in Poznań (on the occasion of the 65th anniversary of the founding of the Wood Technology Institute).	The promotion of research and development activities in the wood industry, the intensification of cooperation between science and wood-based industries and an indication of the unique role of the forestry and wood sector in the Polish economy, including in the scope of the promotion of the use of sustainable forest products.	The promotion of the use of sustainable forest products in all the sectors of the economy requires the continuous raising of the issue of the significance and role of the forestry and wood sector in the economy.
Poznań	Wood Technology Institute, government	A.04 - Prof. Dr. Ewa Ratajczak, Ph.D., from the Wood Technology Institute, authorised by the Ministry of the Environment, is: - the national correspondent for the statistics on the forestry and wood sector of the UNECE/FAO Forestry and Timber Section/Eurostat; - a member of the Team of Specialists on Sustainable Forest Products of the UNECE/FAO Forestry and Timber Section, - a member of the Team of Specialists on the Forest Sector Outlook of the UNECE/FAO Forestry and Timber Section. Moreover, the Wood Technology Institute is a member, inter alia, of: - the European Network INNOVAWOOD, - the Forest-Based Sector Technology Platform, - the International Union of Forestry Research Organizations, - the European Forest Institute.	Support for the sustainable development of the wood products markets in Europe and in the world, as well as the promotion of their ecological significance. The monitoring of development of the European and global forestry and wood sectors, identification of emerging problems and launch of efforts to solve them, elaboration of long-term forecasts of the supply and demand for wood and products of its processing, preparation of analyses and materials for decision-making authorities/politicians.	Active participation in international bodies enables an exchange of knowledge and experiences and provides an opportunity for influencing the decisions taken.
Poznań	Wood Technology Institute	A.0.5 - As part of the Strategic Research and Development Programme "Environment, Agriculture and Forestry", the Wood Technology Institute has participated (in 2016-2018) in the implementation of project "Intelligent systems for breeding and cultivation of wheat, maize and poplar for optimized biomass production biofuels and modified wood" (CROPTECH).	The purpose of the research work underway is, inter alia, to assess the benefits produced by poplar cultivation for optimized biomass production biofuels and modified wood.	The complexity of issues requires the launch of new research initiatives to assess the risks and benefits related to the inclusion of genetically modified trees in sustainable forest management.

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Poland	Government, The State Forest, farmers, forest owners, private sector, NGOs, researches.	A.0.5 - Operational national forest genetic resources (FGR) inventory, forest genetic resources protection. GMO trees are prohibited by law.	The operational national FGR inventory is conducted and coordinated by the Forest Seed Office (Ministry of the Environment). It consists of different registers, e.g.: • National Register of the Basic Forest Material, • Register of the forest reproductive material certificates, • Register of the forest reproductive material suppliers. The research and development efforts are documented by the Forest Research Institute and universities. Areas of work include conservation of FGR, production of forest reproductive material, research and development efforts (provenance trials, tree breeding etc.), FGR transferred internationally. Regarding the policies and capacities supporting FGR conservation and use: • FGR conservation is integrated into the national biodiversity action plan (implemented in 2015). • FGR conservation and use is integrated into a national adaptation strategy for climate change. • Poland is a member of several networks, such as the European Forest Genetic Resources Programme, the European Information System on Forest Genetic Resources, the European Native Seed Conservation Network, International Seed Testing Association. • Poland has developed wide international cooperation in the field of FGR conservation.	
Poznań	Wood Technology Institute	A.1.1 – As part of its monitoring of developments in the Polish forestry and wood sector, the Wood Technology Institute also monitors developments in the certification of forests and wood products in Poland under the FSC and PEFC systems. Zbigniew Karaszewski from the Wood Technology Institute has been a member of the FSC IGI (International Generic Indicators) Group since December 2013.	Enhanced knowledge of the certification of forests and wood products in Poland under FSC and PEFC systems and its importance on the wood products market.	The monitoring of developments in the certification of forests and wood products is a continuous process and requires a systematic approach and continuous improvement.
Poland	The State Forest	A.1.1 - Certification (voluntary)	Both major certification schemes are widely recognised in Poland. Nearly all (98%) forests under the management of the State Forests are certified under the internationally recognised Forest Stewardship Council (FSC) programme, making Poland the fifth largest FSC-certified area in the world (FSC, 2014). The Programme for the Endorsement of Forest Certification (PEFC) was introduced in Poland in 2003. The Polish PEFC standards were accredited in 2008. Currently, PEFC is present in all Regional Directoarte of the State Forests.	Using voluntary certification schemes allows for effective promotion of sustainable forest management.

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Poland	Government, the State Forest, private sector	A.1.2 - Law regulation on the detailed rules for the marking of timber, equipment for wood marking and rules for its use, and a model document stating the legality of obtaining timber (1998)	Wood marking, obligatory in Poland, consists of permanently placing a graphic, a letter or a digital sign and another piece number or stack of wood on the wood obtained. The regulation defines the exact way of marking wood and contains graphic patterns of signs.	Having law regulation on timber marking is successful way of ensuring legality of wood obtained.
Poland	Bureau for Forest Management and Geodesy, Government, The State Forest, private sector, Forest Research Institute	A.3.1 - Generating and providing information for supporting effective forest planning and as a policy support. The scientific support of the national forest inventory (periods 2010-2014 and 2015-2019) is carried out.	Ensuring the sustainability of forests requires constant monitoring of forest resources and forest condition as well as constant assessment of forest management. Poland's National Forest Policy stated the need to build information system providing reliable information to: • carry out sustainable forest management at different levels of organization and management in forestry, • ensure government supervision over the forests of all forms of ownership. The Forest Act mandates the State Forests to perform national forest inventory, prepare yearly updates on forest resources, organize a data bank on forest resources and forest condition. The Forest Act delegates the implementation of the National Forest Inventory and Forest Data Bank to the Bureau for Forest Management and Geodesy. Both the NFI and Forest Data Bank play a crucial role in efforts that Poland undertakes in the framework of Rovaniemi Action Plan.	The national forest inventory should continue providing up-to-date information on forest research development in Poland.
Poznań	Wood Technology Institute	A.3.3 - In its research, the Wood Technology Institute addresses the issues of factors enabling higher wood supply while maintaining sustainable forest management. This research covers, inter alia: • the drivers of, and benefits from, a potential increase in wood harvesting as a result of its higher intensity relative to the increment of wood resources (Wood Study Poland, manuscript, 2015), • wood by-products in Poland – their resources and methods for their management (the resources of wood by-products arising in the wood sector in Poland, manuscript, 2016), • the resources of, and the need for, woody biomass from different sources and in different forms (the woody biomass market in Poland and the most important aspects of this market in selected European countries, manuscript, 2017). These problems are also analysed in domestic and international research projects, e.g.: • "Improvement of raw wood efficiency in the industrial production" (EFFRaWooD). The project was implemented (in 2016-2017) as part of BIOSTRATEG – the Strategic Research and	In cooperation with scientific institutions and wood companies, the Institute took efforts to determine the opportunities and conditions for increasing wood supply through: • enhancing the intensity of wood harvesting in relation to the increment of wood resources, • the optimum management of wood by-products, • the greater extent of the use of post-consumer wood waste than to date, • dissemination of the idea of efficient use of wood raw materials in the processes of their primary and secondary processing (by introducing innovative technologies, production processes and planning methods).	Under the conditions of emerging shortages of wood raw materials, the issue of increasing their supply while maintaining sustainable forest management has become extremely important. Research designed to solve it should be interdisciplinary in nature and carried out in cooperation among all the stakeholders: foresters, scientists and wood companies, both domestic and foreign. It should cover all types of biomass coming from different sources: wood from forests and afforestation, wood from plantations of fast-growing trees, wood by-products and post-consumer wood waste.

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		Development Programme "Environment, Agriculture and Forestry", • "Bridging Gaps between R2I in Resource Efficiency and Raw Materials" (RERAM). The project was implemented in 2014-2016 as part of the 7th EU Framework Programme. The following research was published: • "Resources of post-consumer wood waste originating from the construction sector in Poland" (Resources, Conservation and Recycling 2015 no. 97), • "Potential resources of post-consumer wood waste in Poland" (Journal of Material Cycles and Waste Management, 2017), • "Protection of wood against fungi" (Polish Association of Construction Mycologists, 2015) • "How to use wood effectively?" [in Polish] (Gazeta Przemysłu Drzewnego, 2016, nr 11).		
Poznań	Wood Technology Institute	A.3.4 - In its paper delivered at the scientific session convened on the occasion of the 117th Congress of the Polish Forest Society (Gniezno, 6-8 September 2017), the Wood Technology Institute presented the results of research on the socio-economic factors affecting the development of the wood sector in Poland "The socio-economic factors affecting the development of the wood sector in Poland".	The indication of the most important factors shaping the wood market in Poland on supply and demand sides, including the possibilities for increasing wood supply and its optimum adaptation to the continuously growing needs.	In Poland, forests and wood are recognised as resources of strategic importance for the functioning of the wood sector and the economy as a whole. The research on the socio-economic factors affecting the development of the wood market should be should be interdisciplinary in nature and carried out in cooperation among all the stakeholders: foresters, scientists and producers of materials and products.
Poland	The State Forest	A.4.1 - Showcase of innovative use of forest: development project of the State Forests: Road Construction (Innovation through the integration of forest management led by the State Forest and infrastructure managed by local governments)	The development of little urbanized areas depends to a very large extent on a due network of public roads owned by the local government. This, in turn, determines the prospects to perform sustainable forest management practices by the State Forests, including timber production and making forests publicly available. The aim of the State Forests' road construction programme is to lead to the pilot integration of the forest and local government road infrastructure through: • building or rebuilding selected forest roads on lands administered by the State Forests; • building or rebuilding selected local government roads functionally linked to the forest roads; • commissioning, starting from 2017, a multiannual program for the construction of an integrated system of forest and local government roads throughout Poland.	There is still strong need for further development projects in cooperation with local government.

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Poznań	Wood Technology Institute	A.4.1 - On 12 May 2016, at the Ministry of Economic Development, the Wood Technology Institute co-organised the nationwide scientific and technical conference "Innovation in the Polish Forestry and Wood Sector – Strengths and Weaknesses" (jointly orgnanized with the Ministry of Economic Development and the Wood Based Panels Producers Association of Poland).	An assessment of innovation potential in the Polish forestry and wood sector – in its core industries and main branches – and the possibilities for the further development of the sector and the existing constraints hampering continuous improvements in the innovativeness of the sector.	The commitment to continuously improve the innovativeness of the forestry and wood sector requires an ongoing exchange of experiences and continuous cooperation among all the stakeholders: science, business and decision-making authorities.
Poznań	Wood Technology Institute	A.4.2 - In its research, the Wood Technology Institute takes into account issues related to biofuels. These issues relate e.g. to: • biofuels from wood-based materials (solid fuels from wood-based materials, manuscript, 2016), • components of liquid biofuels from lignocellulosic materials (the production of components of liquid biofuels from lignocellulosic materials, manuscript, 2017).	An assessment of the potential and possibilities for the production of biofuels from woody biomass.	The limited resources of fossil fuels and the need to prevent adverse climate change as a result of increased emissions of greenhouse gases, including CO2, generate an interest in innovative fuels, including those produced from woody biomass (renewable and low-emission). This requires in-depth research on advanced biofuels and the possibilities for the development of biorefineries.
Poznań	Wood Technology Institute	A.4.3 - In 2013-2017, the Wood Technology Institute participated in the implementation of international project financed under the 7th EU Framework Programme "Eco-innovative, Safe and Energy Efficient wall panels and materials for a healthier indoor environment" (ECO-SEE). The project was coordinated by the University of Bath (United Kingdon).	The development of new products for environment-friendly construction which ensure improved indoor environmental quality (IEQ) in new and modernised buildings. The institute designed wood-based panels with formaldehyde content close to that in natural wood and characterised by reduced VOC emissions relative to those now produced. Moreover, the panels are characterised by higher moisture resistance.	The commitment to continuously improve the innovativeness of the forestry and wood sector requires an ongoing exchange of experiences and continuous cooperation among all the stakeholders: science, business and decision-making authorities, inter alia, through the implementation of national or international research projects.
Poznań (Poland)	Wood Technology Institute	A.4.4 - In 2016, the Wood Technology Institute participated in the preparations for the launch of the WoodINN Sectoral Programme at the National Centre for Research and Development – a programme financing research and development work for entrepreneurs from the forestry and wood sector, the furniture-making sector and the cooperating sectors.	The programme was launched in 2017. It supports innovative research and development projects concerned e.g. with advanced raw and intermediate materials for the forestry and wood and furniture-making sectors, innovative products of the forestry and wood and furniture-making sectors with unique and designed functions and utility properties, innovative production technologies and manufacturing processes in the forestry and wood and furniture-making sectors.	Higher innovativeness of the forestry and wood sector requires the introduction of instruments which would be conducive to it and the creation of conditions ensuring their effective functioning. Such tools should include, inter alia, special research programmes financing projects intended to improve the innovativeness of the forestry and wood sector.
Poznań (Poland)	Wood Technology Institute	A.5.2 - The Wood Technology Institute carries out research consisting in an environmental assessment of the life cycle of wood products using the LCA technique, such as "The identification of the environmental aspects of the technology for wood waste fluidisation using the LCA methodology" (manuscript, 2017).	The development of the own methodological approach to the identification, quantification and estimation of the adverse environmental impacts generated during the whole life cycle of wood products.	The complexity of the problems and the importance of issue require continuous enhancement of knowledge in this scope and an ongoing exchange of experiences at meetings of domestic and foreign researchers.

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Pillar B. The Low Carbon Forest Sector				
Poland	Forest Reseach Institute	B.0.2 - In 2015, elaboration of assumptions for the National Forest Programme was completed.	The need for including the forest sector into a green economy was highlighted. The necessary steps to be taken were identified and actions needed were proposed.	The issue of the forest sector and the green economy interface needs to be widely considered in the National Forest Programme.
Poland	Forest Research Institute	B.0.2 - In 2016, the project on further developments of the national forest policy in view of changing forest policies in Europe was completed.	The need of including the issue of the green economy into actual documents of the national forest policy was highlighted.	The issue of the green economy needs to be widely highlighted in the national forest policy.
Poznań	Wood Technology Institute	B.2.1 - In accordance with the new, "cascade" approach to resource use, the Wood Technology Institute assessed the quantity of wood resources in wood by-products arising in the wood sector (taking into account the places where they are generated, their types, forms and utility features) and determined the possibilities for their use/consumption in different fields of application, mostly for production /intermediate material-making purposes and as an energy carrier (The resources of wood by-products arising in the wood sector, manuscript, 2016)	The presentation of the idea of a circular economy – a new approach to the use of wood resources and – and the concept of "cascade" wood management in the wood sector. The development of a method for analysing the market of wood by-products in Poland (including the balancing of their supply and consumption).	The cascade model of management of wood raw material presents a simplified and ideal situation (the arising waste is returned to the technological process and, if it is not suitable for this purpose, it is burned with energy recovery; it may be disposed only in the case where it is impossible to use it on a secondary basis as raw material or for energy generation). In an ideal situation, the last stage should be eliminated due to technological progress.
Poznań	Wood Technology Institute	B.2.2 - In 2016, the Wood Technology Institute participated in the preparations for the new "Innovative Recycling" Sectoral Programme. The programme was launched in 2017.	The programme offers support for projects involving industrial research and experimental development work in which recycling is treated as a form of the protection of the natural environment, contributes to improving the quality of water, soil and air, and also enables entrepreneurs to enjoy economic benefits from the use of wood waste.	Increased efficiency and profitability of producing wood-based renewable energy requires the introduction of instruments which would be conducive to them and the creation of the conditions ensuring their effective functioning. Such tools should include, inter alia, special research programmes financing projects to ensure the optimum and rational management of wood raw material – for intermediate material making and energy generation purposes – while minimising the impacts of the natural environment.
Poznań	Wood Technology Institute	B.2.3 - In 2016, the Wood Technology Institute started the implementation of a 3-year international project called "Resource-efficient fuel additives for reducing ash related operational problems in waste wood combustion" (REFAWOOD). The project is coordinated by RISE (Research Institutes of Sweden).	The aim of the project is to improve the economic and environmental conditions and to enhance the market for the use of wood waste-based fuels in heat and power generating plants, using resource-efficient additives, such as recycled gypsum or halloysite, in the course of combustion.	The need to develop renewable energy sources in response to adverse climate change requires increased intensity of research, inter alia, on biochar, which should to an increasingly wide extent provide an alternative to fossil fuels.

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Poland	The State Forest, Government, private sector, banks	B.3.1 - Development of the project of the State Forests: Polish Wooden Houses – live in harmony with nature.	This project is also of great significance to the development of non-urbanized areas and the increase of employment. It is about popularizing energy-saving wooden constructions on the Polish market by creating financial instruments and removing legislative barriers to encourage the use of wood for house building. Its main objectives are: • reducing CO2 emissions through wider use of timber – the most pro-environmental building material, and carbon "container" as well; • promotion of wood in modern energy-saving technologies used in the construction industry with special public facilities (schools, nurseries, kindergartens, etc.) being into account; • identifying legislative barriers hindering the development of wooden building construction. The project is a core part of the national Strategy for Responsible Development, created in the Ministry of Development, especially of its flagship project Eco-buildings. It also complements the government program "Mieszkanie plus", thus responding to an insufficient number of flats on the Polish market, especially for young families. The project is also related to the creation of an offer of preferential mortgages for ecological construction. The partner of the program is Bank Ochrony Środowiska, which has prepared an offer of mortgages for individuals interested in ecological wooden construction.	The project is currently implemented.
Poland	Government, Forest Research Institute	B.3.2 – Active participation in work of Forest Europe Working Group on Climate Change	Participation in a workshop on climate change, presentation about adaptation to climate change in Poland, networking.	Different countries have different approaches to climate change, and it is very beneficial to have experiences and best practices sharing.
Poland	Government, The State Forest, private sector	B.3.5, B.3.7, B.3.8 - The program of adaptation of forests and forestry to climate change (PAFFCC)	Measures will be taken to counteract drainage of wet habitats, including peatlands, thereby limiting the process called peat mucking. Murshing or oxidized peat emits large amounts of carbon dioxide into the atmosphere, contributing to the greenhouse effect. In addition, the increase in the production of wood pulp, as well as planting and bushes at the construction of logging routes, roads, reservoirs and watercourses will result in greater absorption of carbon dioxide from the air, used in the process of photosynthesis. Increased photosynthesis process also applies to non-desiccated, living peat bogs absorbing CO2 from the atmosphere. Also activities related to forest fire protection will have an impact on reducing the risk of greenhouse gases released into the atmosphere, released during forest fires. One of the actions indicated PAFFCC is development of the identification system and rapid response to threats related to forest fires. • By 2020, the identification system for threats related to forest fires will be extended and modernized. Over 150 fire detectors will be built and modernized.	Adaptation of forests and forestry to climate change has to be based on a very complex and wide approach, with taking into account many factors, like for example wetlands protection and fighting fighting.

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			Modern cameras for fire hazard monitoring will be purchased. Equipment of over 100 PAD stands will be modernized (key target); • About 100 patrol firefighting cars will be purchased by 2020 (key target); • By 2020, information activities related to the prevention of forest fires will be intensified, as will the development of competences in the field of effective fire protection (complementary objective).	
Poland	Forest Research Institute	B.3.8 - In 2015-2017, there were two research projects on forest risk management related to wind.	The method of assessing the risk of damage caused by wind in tree stands in mountains was developed.	The method can be used to support decisions concerning risk management in forestry and taking adaptive steps in forest management.
Poland	Government, Bureau for Forest Management and Geodesy, The State Forest	B.4.2 – Improvements of national forest inventories and monitoring of carbon stocks in forests and harvested wood products.	Development and/or improvement of national greenhouse gas inventories, combined with forest inventories.	
Poland	The State Forest	B.4.8 - Development of the project of the State Forests: Forest Carbon Farms	Forest management as a tool for mitigating CO2 growth in the Earth's atmosphere. Specific forest management practices are to be employed in order to enhance carbon stock in forests. These include, for example, developing multi-annual programs for rebuilding a forest stand species composition and siliviculture practices aiming at shaping their multi-layer structure. As a result, additional amounts of organic carbon will be captured and will become either a part of the forest organic matter or will be held in timber gathered in energy storage facilities. Parts of the project include: • Demonstrating the role of forest areas in mitigating climate change and absorption of greenhouse gases in the environment; • Testing the effectiveness of additional activities aiming at increasing the retention of CO2 in Polish forests; • Improving the mode of reporting CO2 absorption in Polish forests.	The project is currently being implemented.
Poland	The State Forest	B.2.2.Use of renewable energy sources and electric cars to launch innovation and as a result to increase energy efficiency in the State Forest (as an enterprise)	The management of the State Forests expresses the wish for more than half of the electricity consumed by buildings and vehicles belonging to the company to derive from renewable sources. From autumn 2018, the company plans to erect electric car charging stations in its area. The thermo-modernization project is set to start in 2018, and the company would like to achieve its self-sufficiency in three or four years. The buildings operated by LP will be gradually modernized in terms of energy until 2021. Solar collectors and photovoltaic sources, heat pumps and biomass boilers will be mounted on them. As part of the reconstruction of its fleet, the company also intends to buy a dozen or so electric cars in 2018. It also plans to build its own network of charging stations for electric cars. They will be 39 and will be located on the areas belonging to the LP, and the first will be launched already in autumn 2018.	The project is currently being implemented.

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Poznań	Wood Technology Institute	B.4.5 - The Wood Technology Institute carries out research on the carbon content in wood products in Poland ("Carbon accumulation in wood products in Poland", manuscript, 2017).	The exploration of carbon accumulation in wood products and the development of a methodological approach to estimating the annual quantity of carbon absorbed in wood products manufactured in Poland, along with an assessment of the possibilities for determining wood resources and their change in a preset period of time. The applied methodological approach was based on recommendations of the Intergovernmental Panel on Climate Change (IPCC), considering, where possible, the specific circumstances in Poland.	The process of estimating the carbon accumulated in wood needs to be based on many adopted assumptions. Therefore, it is necessary to improve this process, mainly by drawing on international experiences and through further in-depth research and better use than to date of the system of public statistics to met the need for the required data.
Poznań	Wood Technology Institute	B.4.8 - In 2015-2018, the Wood Technology Institute has implemented the project called REMBIOFOR - "Remote Sensing Based Assessment of Woody Biomass and Carbon Storage in Forests" as part of the BIOSTRATEG Programme "Environment, Agriculture and Forestry". The project is led by the Forest Research Institute.	The development of a comprehensive method for determining selected forest stand descriptions, the aboveground biomass and the carbon content in it, using remote sensed data and state-of-the-art methods for their processing. The methods for determining stand features, biomass and carbon will be used for forest management planning and modifying measuring and analytical procedures laid down in "The forest management instructions". The implementation of the project will contribute, inter alia, to: • reducing the time of forest management work, particularly on inventories to determine stand volume, • achieving greater accuracy in estimating the carbon balance and CO2, • determining the volume and classification features for any forest area, • reducing the costs of forest management work.	The complexity of the problems requires the launch of new research initiatives linking many aspects related to woody biomass and the estimation of its resources, as well as the estimation of the carbon contained in it in the context of sustainable development of forests and preservation of their multifunctionality. There is also a need for an exchange of knowledge in this scope and continuous cooperation with different scientific centres in Poland and abroad.
Poland	Forest Research Institute	B.4.8 - Research project "Modelling Carbon Balance on a Local and Global Levels in the State Forests National Forest Holding" (2014-2017)	The models for determining carbon balance on a local and global levels in the State Forests National Forest Holding were developed.	The models can be used to support decisions concerning managing forests in view of carbon balance on a local and global levels in Poland.
Poland	Forest Research Institute	B.4.8 - Research project "Optimizing Forest Utilization in a View of Incomes from Timber Production and Carbon Accumulation in Forests" (2014-2018)	The project aims to develop models for optimizing forest utilization in view of incomes from timber production and carbon accumulation in forests.	The project is currently being implemented.
Poland	The State Forest	Development of the project of the State Forests: Improving energy efficiency of the State Forests' buildings (including the implementation of renewable energy solutions in buildings)	Aims of the project are: • Improving the quality of the use and of thermal efficiency of buildings managed by the State Forests National Forest Holding (forester lodges); • Promoting innovative energy-efficient and ecological solutions; • Increasing users' ecological awareness as well as their knowledge; • Preventing negative effects of climate change by reducing the use of energy in buildings and emissions of greenhouse gases into the atmosphere, CO2 in particular.	The project is currently being implemented.

INPUT FROM POLAND FOR THE MID-TERM REVIEW OF THE ROVANIEMI ACTION PLAN FOR THE FOREST SECTOR IN A GREEN ECONOMY (2015-2017)				
Location	**Actor**	**Description of actions**	**Achieved results**	**Lessons learnt**
Poland	The State Forest, local autorithy, local community	Development of the project of the State Forests: Wood for energy self-sufficiency of local governments and for energy security of Poland.	The main objective of the project is to support the pro-ecological policy. It requires the State Forests, within the framework of their mission, to build a system of storage depots of woody biomass and to conduct the research on technology of optimal wood conversion into heat and electricity, at the maximum reduction or total elimination of pollution in the combustion process. As part of the pilot project, two installations will be built which use biomass as a fuel for electricity and heat production. The aims of the project include: • Creating an infrastructure for energy wood trade (a network of multifunctional depots); • Developing procedures of collecting, storage, monitoring and sales of the biomass in energy wood depots; • Developing a technology of optimal biomass conversion into thermal and electrical energy.	The project is currently being implemented.
Pillar C. Decent Green Jobs in the Forest Sector				
Poland	Government, The State Forest	Implementation of a new "Development project of the State Forest" has created and is still continuously creating many green jobs.	The State Forests National Forest Holding operating mainly in rural, little urbanized areas is a major stimulator of social and economic development. This is particularly important in regions with the lowest development dynamics, poor infrastructure and high unemployment, but with a large forest cover at the same time. In such areas, the State Forests is most often the largest employer. It employs 25 thousand foresters and almost 50 thousand people are working in outsourced forest services, who are seasonally employed in nurseries, forest renewals, afforestation, for the care of plantations and logging operations. Each passing year, more and more people find jobs here as the number of tasks is increasing. In 2016 and in the first half of 2017, development projects were launched in the State Forests (partly as joint undertakings of forestry and local governments) as a result of which there will be a demand for new project related jobs, and in the near future – also jobs related to facilities planned for launching. The development of the service sector and tourist infrastructure will be an additional asset.	The forest sector is very important for the employment structure (and thus also for economic development) in rural areas.
Poznań	Wood Technology Institute	C.0.1 - The Wood Technology Institute carries out research on the workforce market in the wood sector – the quality of the existing human resources and the major needs related to new competences and skills in the future (An analysis of human resources of the furniture-making industry in Poland and the determination of the need for new competences and skills, manuscript, 2015).	Characteristics of human resources, the determination of qualifications and competences of human resources in the Polish furniture-making industry, including an indication of its major needs in this scope and the desirable directions of education and improvement of employees' competences at different education levels.	Globalisation processes, technological progress (including the digital revolution), the commitment to base economies on science and demographic change (ageing of society) require an assessment of the needs related to new competences and skills of human resources in the wood sector and its branches which are indispensable in the changing market conditions.

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Poznań	Wood Technology Institute	C.5.1 - In 2014-2017, the Wood Technology Institute implemented the project "Furniture New European Skills 2020" (FUNES). The project was co-financed with EU funds under Erasmus+/KA2-Cooperation and Innovation for Good Practices. The project was coordinated by AIDIMME – the Furniture Wood and Packaging Technology Institute.	The development of the models of new competences needed in the modern European furniture-making industry, including: • the identification of development scenarios for enterprises of the furniture-making industry, • an analysis of new skills needed by present and future employees, • the preparation of training modules (along with the corresponding materials), using an Internet-based platform to improve the acquisition of new competences in the European furniture-making industry.	The changing market conditions require an assessment of the situation on the workforce market in the wood sector, the exploration of the problems emerging in this market and an indication of the possible solutions to these problems, also as regards the needed competences and skills.
Pillar D. Long Term Provision of Forest Ecosystem services				
Poland	The State Forest, local small scale producers, bee-keepers, private sector	Development of the project of the State Forests "Promotion of Healthy Food and Food Products from Forests"	The aims of the project include: • Establishment of the network of shops promoting the venison, beekeeping and forest floor products; • Development of non-urbanised areas by creating conditions for employment in local companies and self-employment in individual holdings; • Promotion of beekeeping as a branch of economy affecting significantly the environmental diversification of forest areas and located in the immediate neighbourhood of forests, as well as affecting vocational activisation within non-urbanized regions in particular. • (Two hives were installed on the roof of the Headquarter of Directorate General of the State Forests in Warsaw in end of June 2017) As part of the project the State Forests opened in the end of 2017 a shop under the brand "Dobre z lasu" (Goods from the forest). Its offer mainly charcuterie and raw meat from wild boar, deer or venison, honey and other bee products, as well as preserves and juices from forest fruits, mushrooms, herbs and sweets, e.g. acorn cakes. More shops to be soon opened regionally. The branch of the State Forests attracts customers and receives a lot attention in media and press.	The project is currently being implemented.
Poland	Government, The State Forest, local authority, local enterpreneurs (agroturism)	Development of the project of the State Forest "The Great Forest Trail of Tourism, Recreation, History and Education"	The aim of the project is to increase the significance of the SF as an organizer of leisure both in forest areas and their immediate surroundings. The project includes: • preparing, in cooperation with local governments and local communities, a comprehensive tourist and educational offer based on a network of objects: recreational, educational, environmental, cultural heritage, accommodation and catering; • developing tourism infrastructure, together with monitoring of tourist traffic, which takes into account environmental, economic and aesthetic aspects via implementation of new techniques and technologies; • creating a tourist map of the State Forests with attractive offers for spending leisure time in the woods, and a multi-media guide with an application for mobile devices which includes tour offers masterminded on the basis of the forest tourist facilities network; • creating a modern and user-friendly portal of tourist information updated on a regular basis. The project will contribute to the improvement of management of	The project is currently implemented.

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			forest tourism and will provide safe access to the attractions and services. It is expected that its implementation will revive economic activity in rural areas and will contribute to the development of sustainable tourism, including agrotourism. The undertaking is assisted by three other development projects of the State Forests concerning the protection of black grouse, osprey and bison. Thanks to them, favourable conditions will be created for nature tourism in the habitats of these three species.	
Pillar E. Policy Development and Monitoring of the Forest Sector in Relation to a Green Economy				
Poznań	Wood Technology Institute	E.1.4 - As authorised by the Ministry of the Environment, for many years the Wood Technology Institute has monitored developments in the Polish forestry and wood sector, inter alia, analysing policy instruments at the national level and development drivers in this sector (Continuous monitoring of developments in the Polish forestry and wood sector in accordance with the standards of the UNECE Committee on Forests and the Forest Industry, manuscript, 2015, 2016, 2017).	A report on the state of the economy and wood market in Poland for successive annual sessions of the Committee on Forests and Forest Industry, containing: • a diagnosis of the state of the Polish economy and the wood market and a forecast of its development, • the state policy instruments affecting the forestry and wood sector, • the development drivers of the wood market, • the problems of the market of renewable energy from woody biomass etc.	There is a need for a systemic approach to the implementation of the principles of a green economy in economic practice. The dissemination of the awareness of the large and underappreciated role of forests and wood raw material in a green economy requires continuous research and the communication of its results to the general public.
Poznań	Wood Technology Institute	E.2.2 - In 2017, on commission from the Ministry of the Environment, the Wood Technology Institute carried out an analysis of the criteria and indicators of sustainable forest management, as laid down in the Opinion of the Standing Forestry Committee of the European Commission on woody biomass within the sustainable bioenergy development policy in the EU post 2020 (The woody biomass market in Poland and the major aspects of this market in selected European countries, manuscript, 2017).	The presentation of the pan-European criteria and indicators of sustainable forest management. A detailed analysis was performed on the indicators for the harvesting and management of roundwood, such as: • in criterion 3 “Maintenance and encouragement of productive functions of forests”, indicator 3.2 “Roundwood” (Quantity and market value of roundwood), • in criterion 6 “Maintenance of other socioeconomic functions and conditions”, indicators: - 6.7 “Wood consumption” (Consumption per head of wood and products derived from wood), - 6.8 “Trade in wood” (Imports and exports of wood and products derived from wood), - 6.9 “Wood energy” (Share of wood energy in total primary energy supply, classified by origin of wood).	Analyses of the criteria and indicators of sustainable forest management should be performed to an increasingly wide extent and in a continuous system in order to evaluate their change in time.
Poland	Forest Research Institute	E.2.4 - Elaborating the annual report on the state of forests and forest management in Poland	The report is published every year by the General Directorate of the State Forests	Information on the state of forests and forest management in Poland are available to the wider public.
Poland	Bureau for Forest Management and Geodesy, Government, general public, local	E.0.4Establishing Forest Data Bank	Primary functions of the Forest Data Bank are: • collecting, systematic supplementation, update and storing of data on forests of all forms of ownership, • data processing and aggregation to enable its interpretation, • analysis and forecasting resource development and future felling capacity in the macroscale,	

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	governments, The State Forest		• presentation, dissemination and sharing of information on forests, supporting research, • promoting standards for the collection and processing of data on forest and natural resources. Target users of the Forest Data Bank are: • Ministry of Environment, • Central Statistical Office, • organizational units of the State Forests, • nature conservation and environmental protection authorities • research institutions, • local governments, • Bureau for Forest Management and Geodesy, • non-governmental organizations, • general public. Pilot implementation of the Forest Data Bank was done in 2010-2012. From 2014, the Forest Data Bank became fully operational, covering the entire country and forests of all types of ownership. The Forest Data Bank is the principal data source for national and international forest statistics, including public statistics published by the Central Statistical Office.	
Poland	Bureau for Forest Management and Geodesy, Government, general public, local governments, The State Forest	E.0.4.National Forest Inventory	The National Forest Inventory (NFI) in Poland has been executed continuously from 2005. It provides: • assessment of the forest condition which is independent from forest management planning data • source of information on forests of all ownership forms • constant monitoring of trends in forest cover, stock volume and overall condition of forests • reliable data for public statistics. The main objective of the NFI is to assess the overall forest condition and its evolution on a large scale. The inventory is designed to provide reliable information on the forest, in particular on species structure, age, health status and presence of damage. The inventory is carried out in forests of all forms of ownership. In accordance with the inventory manual, plantings shown in the land register may also be included, but they have been left out during the first two inventory cycles. They may be included in the inventory in the future. Results of the NFI are presented by forms of ownership, physiographical divisions, units of the state administration (provinces) and units of the SF administration (regional directorates).	

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			The NFI is designed for continuous inventory. The inventory cycle length is 5 years, which means that yearly measurements and observations are carried out on 20% of all sample plots spread throughout the country. The are no gaps between cycles. Such a system provides that since the completion of the first cycle, any data set from five consecutive years has full statistical value. What is more important, this design continuously provides up-to-date information each year.	
Poznań	Wood Technology Institute	E.4.2 - The Wood Technology Institute participated in the preparations for the European Forest Week which took place as part of the Joint Session of the UNECE Committee on Forests and the Forest Industry and the FAO European Forestry Commission (on 8-13.10.2017 in Warsaw) coordinating the exhibition "Wooden Buildings”.	This was the first initiative of this type, which allowed the interested parties –session participants and Warsaw residents – to look for a week at interesting wood products and enabled the producers from the wood industry to make their appearance in the very centre of Warsaw.	Meetings, seminars, exhibitions etc. promoting Polish wood products and emphasising their environment-friendly character should accompany all the most important events – both national and international – related to the forestry and wood sector.