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GREEN JOBS – GOOD PRACTICES

1. Introduction

The “Europe 2020” strategy recognised the importance of transitioning to a green, low-carbon and resource efficient economy as essential for smart, sustainable and inclusive growth. The adoption of these goals is related to the inefficient use of resources, the excessive burden put on the environment and climate change, as well as exclusion and social inequality, which still constitutes a serious limitation to a long-term economic growth. For these reasons, the green growth model is used to represent structural economic transformations that mainly arise due to the scarcity of resources, technological change and innovation, new markets, changes in the industrial models, and changes in consumer demand. Green growth is both a challenge and an opportunity for the labour market and labour skills, which in turn are key factors enabling such a type of economic growth. It is assumed that such a model will eventually lead to fundamental changes in the overall economy in many of its areas and sectors; i.e. creation of new jobs, replacement of some others, or their redefinition.¹ It is essential for that matter to better target and coordinate the instruments and tools of the job market in order to create the necessary conditions for promoting green jobs, for bridging the shortage of skills and labour, and for predicting changes that will occur in terms of the demand for human capital.²

¹ *The jobs potential of a shift towards a low carbon economy*, OECD 2012; *OECD Employment Outlook 2012*, OECD 2012; *Skills for green jobs, a global view*, ILO 2011.

² See the Communication of the Commission to the European Parliament, to the European Economic and Social Committee and to the Committee of the Regions, Initiative on green employment: full potential of green economy in terms of creation of green jobs (COM (2014) 446 final).

The package on employment prepared by the Commission in 2012 presented a framework for a job-creative economic recovery. The package emphasised the need for further development of tools that would determine the labour market and the skills needed to support the transition to a green economy, and lead to progress in achieving the employment targets defined in the strategy “Europe 2020”.³ The Annual Growth Survey for the years 2013 and 2014 highlighted, firstly, the potential of the green economy in relation to job creation, and secondly the need to develop a strategic framework in which labour market policies and skills would play an active role in supporting job creation.⁴ However, an integrated policy framework combining the green economy and employment exists in only a few EU Member States, while the approach used in most countries, including Poland, is rather inconsistent and incomplete.⁵ In 2014, the European Platform for Effective Resources Management also highlighted the need for a broad strategy for an overall ‘greening’ of jobs, skills and education, calling thereby on the EU to include in its objectives sustainable development, the determination of labour market measures to accompany this change, the mobilisation of EU funding in order to support the exchange of good practices, promotion of awareness and commitment, and ensuring follow-up for the coordination of economic policy.⁶ These objectives highlight the necessity of including the continuous dissemination of issues related to green jobs at all levels of management and education.

Taking the above into consideration, the purpose of this paper is to present respectively: (1) the essence of green jobs defined as a priority in international and EU strategic documents, and an indication of Polish regulations in this area; (2) selected examples of good practices related to the creation of green jobs, and (3) indications of benefits associated with such developments. Having this aim, it is necessary to first analyse the documents and regulations referring to green jobs and, second, the relevant reports of the institutions involved in their creation.

³ *W kierunku odnowy gospodarczej sprzyjającej zatrudnieniu [Towards a job-rich recovery]*, (COM (2012) 173 final) – in Guideline No. 7 concerning employment it is stressed that Member States should support the creation of jobs in all areas, including the area of green jobs.

⁴ COM (2013) 800 final.

⁵ Draft Joint Employment Report (COM(2013) 801 final) and *Promoting green jobs throughout the crisis: a handbook of best practices in Europe*, EEO Review, European Commission, 2013. This manual sets out national or regional strategies and individual policy measures for the promotion of employment in green economy sectors, European Commission, 2013.

⁶ http://ec.europa.eu/environment/resource_efficiency/documents/erep_manifesto_and_policy_recommendations_31-03-2014.pdf [download 30.09.2014].

2. The essence of green jobs⁷

There are already several precise definitions of green jobs, although none of them are universally accepted. The United Nations Environment Programme (UNEP) defines them as “work in agricultural, manufacturing, research and development (R & D), administrative, and service activities, which substantially contributes to the preservation or restoration of environmental quality. It relates primarily, but not exclusively, to jobs that help protect ecosystems and biodiversity, as well as restrict the consumption of energy, materials and water resources through strategies with a high degree of efficiency, decarbonisation of economy and minimising or avoiding waste or pollutions.”⁸ This definition has been furthermore supplemented by pointing out sectors in which it should be implemented (see Table 1).

A slightly more general definition has been presented by the International Labour Organization (ILO), suggesting that green jobs are “those that help reduce negative impacts on the environment, leading ultimately to the development of sustainable, environmentally, socially and economically-oriented enterprises and economies.”⁹ Despite its generality, this definition frames green jobs in the larger perspective, suggesting that they should exert, on average, a lower impact on the environment and contribute to the improvement of overall economic performance, even if only on the margins of economic performance.

Another general definition has also been provided by the European Commission in 2012, considering green jobs as “any work place dependent on the environment or created, converted or extended (in terms of green skills, working methods, posts profile, etc.) in the process of moving towards a more green economy.”¹⁰ The Commission also added that this broad definition complements and does not rule out the above-mentioned definition of UNEP.

In turn, the American Bureau of Labour Statistics (BLS) defines green jobs as those based on research undertaken in two areas: (1) jobs in businesses that

⁷ Based on parts of my own study: *Czas na zielone kołnierzyki [Time for green collars]*, „Ekonomia i Środowisko” 2014, nr 3.

⁸ Report, *Green Jobs: Towards decent working a sustainable low-carbon world*, UNEP, ILO, IOE, ITUC 2008, www.unep.org/labour_environment/pdf [download 2.04.2014].

⁹ C. Hofmann, van der Ree K., *Green Jobs and the skills needed for them*, ILO Geneva, OECD Workshop, Local Strategies for greening jobs and skills, Trento 9–10 June 2010, <http://www.oecd.org/cfe/leed/4546771.pdf> [download 30.03.2014].

¹⁰ Report: *Zielone miejsca pracy a bezpieczeństwo i higiena pracy: Przewidywanie nowych i pojawiających się zagrożeń związanych z najnowszymi technologiami w perspektywie do roku 2020 [Green jobs and occupational health and safety: Foresight on new and emerging risks associated with new technologies by 2020]*, European Agency for Safety and Health at Work: Abstract, Luxembourg: Publications Office of the European Union, 2013, pdf.

produce goods or provide services, which are of benefit to the environment and preserve natural resources, and (2) jobs in accompanying production processes that are more environmentally friendly or consuming fewer natural resources.¹¹

The methodological definition given by Eurostat relating to the Environmental Goods and Services Sector has a similar character.¹² According to Eurostat, this sector is a diverse collection of different technological companies, goods and services, which eliminates or at least minimises the consumption of natural resources. Due to the huge variety of activities carried out by such entities they have been divided, to facilitate their classification, into two segments, i.e. environmental and resource management.

Along with the aforementioned direct definitions, there have been a number of indirect attempts to explain what green jobs are, mostly by identifying the sectors of economy that are or may be associated with them. Examples can be found in some of the documents listed in Table 1. Regardless of the nature of the definitions, their analysis shows that there are three categories of green jobs:

- directly related to environmental protection; these are seen as a result of primary changes in the products from target industries (e.g. organic food production, production of equipment for environmental protection, energy production from renewable sources, biological paths in national parks, management of valuable natural, ecological construction technologies);

- indirectly related to environmental protection; these result from secondary changes in employment, as for instance changes in expenditures required for the above-mentioned changes (e.g. production of cars with hybrid or electric engines, production in companies with standards of the ISO 14000, ISO 26000, or EMAS, and in agro-tourism);

- those determined by changes in income and consumer spending; e.g. food production in returnable packaging or so-called healthy food, or the demand for household appliances of a high energy class.

In each of these categories one can distinguish between sectors of the economy that, firstly, have long been “green” (e.g. workplaces protecting the environment, water, agriculture, forestry) and those, secondly, that are just “becoming green” (e.g. organic farming, green public procurement) or are created (modern). Among the latter, one can mention those workplaces that have to do with climate protection and new technologies, above all in the transportation, energy, and construction sectors (e.g. bio-fuels, intelligent transport systems, smart power networks, smart measuring systems and biotechnology) as well as with healthy lifestyles and a new culture of consumption (e.g. up-cycling, eco-marketing). A characteristic feature of green jobs is the fact that they include a wide range of needed workers, such as green-collar workers who work in environmental sectors.

¹¹ BLS Green Jobs Definition, <http://www.bls.gov/green> [download 30.03.2014].

¹² *The Environmental Goods and Services Sector*, Eurostat Methodologies and Working Papers, 2009, <http://epp.eurostat.ec.europa.eu/portal/eurostat/home/> [download 30.03.2014].

The enormous significance that is attached to green jobs is highlighted in the international and EU strategic documents praising the development of the green economy, which are listed in Table 1. The sheer number of these documents suggests the importance of the issue. These documents can be divided into three groups: horizontal, environmental and sectoral.

The horizontal documents refer to the creation of green jobs in the implementation of long-term ecological, economic and social goals. There are no specific plans or tools of their creation since such documents are rather focused on the process of participation and learning by combining the analysis of the current situation and the implementation of the concept, its related strategies and monitoring. Such horizontal strategies well serve for the monitoring of actions taken by politicians, governments and society, in this case mostly in terms of implementing the concept of a green economy and sustainable development through “green-collar” workers.

The environmental documents, more than the horizontal ones, specifically refer to the creation of green jobs in the context of environmental objectives in different areas of environmental policy. However most accurate records – along with an indication of the conditions, actions and various instruments conducive for “green collar workers” – are presented in the sectoral documents affecting the environment and implemented by different sectors of the economy.

Based on analysis of these documents, it can be seen that at least one important item already exists; namely that relevant areas/sectors have been identified to the creation of green jobs. In the European Union, agriculture, construction, energy, fisheries, forestry, industry, tourism, transport, waste management and water management are included. There are also other areas that contribute directly or indirectly to the reduction of pressure on the environment (e.g. the environmental conservation sector and its services, education, and environmental consumption).

When it comes to Poland, there is no official definition of green jobs. Attempts have been made to define them in the Institute for Sustainable Development, where they are understood as “jobs resulting from projects related to capital investment or capital that reduces the negative impact of the economy and public areas on the environment. Green jobs can arise in any economic sector, provided the employees will be directly or indirectly involved in improving the environment in the area and will endeavour to eliminate environmentally harmful activities in the short or long term.”¹³ This is a very broad definition of a ‘green collar’ worker, difficult to translate into concrete actions in the dimension of economic development and technology, where investment flows focus more on the preparation and implementation of specific and comprehensive projects and less on

¹³ *Zazielenienie lokalnych rynków pracy w Polsce – wykorzystanie doświadczeń Unii Europejskiej* [Greening of local labor markets in Poland – use the experience of the European Union], Instytut na Rzecz Ekorozwoju, Warszawa 2010.

Table 1. Key documents supporting the creation of green jobs

Documents	Areas concerning green jobs
1	Horizontal documents
<p>Strategy "Europe 2020" and its main initiatives, above all "Europe using its resources effectively" and "Union of innovation"</p>	<p>2</p> <p>The central element of the strategy is to support sustainable development in all areas of the economy, the environment and social life. A special role is attributed here to the low-carbon economy, to the increase of energy efficiency, and to energy savings, all of which are considered as determinants of green economy growth. These activities should be accompanied by the creation of many new jobs. The strategy is not clearly defined in terms of a green economy, green growth and green jobs, although those terms are often used in the documents describing the initiative in detail.</p>
<p>Strategy of sustained development in the EU</p>	<p>Although it uses the term "green jobs", it only refers to them indirectly.</p>
<p>Report "Green New Deal" (2008) issued by UNEP – United Nations Environmental Programme</p>	<p>The was the first document in which directly wrote, that needs are creation of thousands of green jobs for the reconstruction of infrastructure and in the low carbon economy. It identified six sectors with the greatest potential in the process of transformation towards a green economy; namely: (1) clean energy; new, cleaner technologies and recycling; (2) energy in rural areas, including renewable energy and sustainable extraction of biomass; (3) sustainable agriculture, including organic farming; (4) infrastructures needed for the use of ecosystems' resources; (5) reduction of carbon dioxide emissions as a result of the reduction/cessation of deforestation and forest degradation; (6) sustainable cities, including spatial planning, urban transport and sustainable construction.</p>
<p>Report "Green Jobs: Towards decent work in a sustainable low-carbon world" (2008 r.) issued on behalf of the UNEP by the World Watch Institute</p>	<p>This report referred to existing initiatives and instruments promoting sustainable development, and tried to identify "clean" sources of economic growth, such as for instance the development of green industries, green jobs and green technology. An attempt is included to define green jobs by indicating the sectors concerned. The sectors are classified differently than in the report "Green New Deal", i.e. (1) energy production, (transport); (2) construction; (3) basic industry; (4) management of materials (resources); (5) retail (including promotion of eco-efficiency, minimisation of consumption, new environmental services; (6) food and agriculture; and (7) forests. The report also stressed the fact that the transition to a "green economy" requires, <i>inter alia</i>, a better management of structural changes and specific changes in employment policies.</p>
<p>UNEP Report "Towards a Green Economy" (2011)</p>	<p>According to this report, the development of a "green economy" and the creation of green jobs are based on the transformation of ten main key sectors: agriculture, construction, energy, fisheries, forestry, tourism, transport, waste and water management, and energy-efficient industry.</p>

<p>Strategy of green development, OECD (2012)</p>	<p>This strategy considered the implementation of innovations as one of the key elements driving the green economy and the process of creating new jobs. The innovations require particular conditions for effective and multilateral cooperation, including science, education and technology. The strategy however did not define the green jobs. Moreover, it focused only on two sectors – energy and agriculture, and omitted the waste management sector, which greatly narrows the field of reference of this document.</p>
<p>Reports of the International Labour Organisation: – “Towards decent work in a sustainable low-carbon world” (2008), – “Working towards sustainable development: Opportunities for decent work and social inclusion in a green economy” (2012)</p>	<p>– the first report provided a specific, narrow and broad understanding of green jobs (discussed later in this contribution), without further precise definition. – the second report emphasised the role of green jobs in providing better working conditions for people and in reducing social exclusion.</p>
<p>Final document from the conference Rio+20, “The Future We Want” (2012)</p>	<p>This document refers to the creation of green jobs by considering the development of the green economy as an opportunity to escape the economic crisis and to improve the living conditions for all people.</p>
<p>Communication of the Commission to the European Parliament, to the European Economic and Social Committee and the Committee of the Regions, Towards a job-rich economic recovery (COM (2012) 173 final)</p>	<p>This Communication presented priorities for employment as set out in the annual growth survey about the medium-term policy guidelines concerning the employment objectives defined in the strategy “Europe 2020”. The Communication defined priority actions, including those concerning green jobs.</p>
<p>Communication of the Commission to the European Parliament, to the European Economic and Social Committee and the Committee of the Regions, Initiative for the green jobs: using the full potential of the green economy for job creation (COM (2014) 446 final)</p>	<p>The Communication specified the strategic framework conditions due to which labour market policy and skills’ development will actively promote employment and job creation in the green economy. It also presented targeted political solutions as well as tools to ensure the approximation of programs for employment and the environment, and to contribute to achieving the objectives of the “Europe 2020” strategy.</p>

Tab. 1 (cont.)

Environmental documents	
1	2
Roadmap for Moving to a Competitive Low-Carbon Economy in 2050	This document defines more precise climate change-related activities which should be accompanied by creation of green jobs.
Strategies of Biodiversity 2020 and policy of the EU on the air quality and emissions	Both documents list a number of economic activities that serve to achieve economic goals in terms of the creation of new green jobs.
EU Strategy on the Adaptation to Climate Change (COM (2013) and the Seventh Framework Programme in the area of environment 2020	Presentation of the Union's activities aiming at introducing the green economy and creation of new green jobs for its realisation.
Communication of the Commission on Employment "Exploiting the Employment Potential of Green Growth: Towards a job-rich recovery" (SWW 2012)92 final	This Communication contains a general definition of green jobs and identifies the sectors where benefits of the transition to a low carbon economy should be achieved, including the production of renewable and conventional energy, cement production, CCS, iron production, machinery and electrical equipment, building construction and transport.
Report prepared for the European Parliament on economisation – the creation of green jobs and the generation of growth due to policies of environmental protection (2012/2294 (INI))	This report stressed the role of green innovation in the creation of new jobs and listed examples of activities that have been accompanied by such a process.
Document prepared for the European Commission "The Environmental Goods and Services Sector", Eurostat Methodologies and Working Papers (2009)	This document contains a proposition for the classification of green jobs under the consideration of environmental goals. The sector is divided up into two segments: environmental protection and resource management.

Sectoral documents influencing the environment	
Climate energy package (2007)	The concepts of a “green economy” or “green jobs” were not used (although they became popular a little later), however scenarios are presented for a number of measures aiming at the implementation of its objectives, described as the 20/20/20 formula, which was linked to, among others, the change in the number of jobs and employment structures after the transition towards sustainable development.
EU energy policy (2007)	Here more focus was put on areas other than employment, and the term “green jobs”, while not used, was however indicated indirectly.
Energy 2050 (Energy Roadmap 2050); European Plan for Energy Efficiency; Leading Initiative: industrial policy in the globalization era; Action Plan for sustainable consumption and production and sustainable industrial policy; Communication: Tackling the challenges in goods and commodity markets	These documents more or less directly refer to the possibilities of creating green jobs. They also contain various attempts to estimate the number of green jobs in the sectors directly and indirectly related to different areas of the economy.

Source: own compilation.

the individual work places.¹⁴ One of the consequences, among others, is that here the problem is raised of precise quantification of the actual and forecasted number of green-collar workers, as well as the planning of appropriate measures for their work places. What's more, there is no concise document in Poland that would strictly apply to the green economy, including the matter of job creation associated with it. However, at this point one has to mention that there are a number of national documents referring to green jobs through regulations relating to the concept of sustainable development, which *suma summarum* leads to the green economy. Among the most important documents there are the Polish Constitution, the Environmental Protection Law from 2001, the Resolution of the Council of Ministers from 2009 on the issue of the Polish Energy Policy until 2030, the Council of Ministers document from 2010 on the Directions of Development of Agricultural Biogas Plants in Poland in the years 2010–2020, the Law from 2011 amending the acts to maintain cleanliness and order in municipalities, the Act from 2011 on Energy Efficiency, i.e. Second National Action Plan for Energy Efficiency for Poland 2030; the Third Wave of Modernity 2020; the Long-term Development Strategy for the Country from 2012 and the Second National Reform Programme. None of these documents however defines and identifies sectors and areas related to green jobs, which is necessary for, among others, the multivariate analyses of costs and benefits of their creation, as well as for updating and developing new policies of all kinds so that they become compatible with all the strategies used in the transition to a green economy. These documents are also insufficient in defining concrete activities relating to the promotion of good practices and to the creation of green jobs. It is however worthwhile to give examples of such actions.

3. Good practices in creating green jobs in European countries¹⁵

The creation of green jobs does not come about by itself. An important role is played here by, *inter alia*, the exchange of good practices, especially at the regional level. Therefore, below we present examples of two organisations that are pioneers in this field, having been active in these types of actions for a number of years.¹⁶

¹⁴ See: *Analiza zielonego rynku pracy w województwie podlaskim*, red. D. Śledź, Projekt raportu „Partnerstwo na rzecz rozwoju i promocji zielonych miejsc pracy”, WUP, Białystok 2012, www.zielonemijscapraczy.up.podlasie.pl, pdf [download 3.04.2014].

¹⁵ Based on parts of my own study: *Czas na zielone kołnierzyki [Time for green collars]*, „Ekonomia i Środowisko” 2014, nr 3.

¹⁶ Based on the experience of the Regional Labour Office in Białystok, see: *Playing Green. How do European Partners implement green jobs?*, (2012), WUP, Białystok.

One such organisation is the **Impact Housing Association (IHA)**, which operates in the region of Cumbria in the north-western part of the United Kingdom, active under the motto “Improvement Through Action”. This organisation operates as a non-profit organisation and provides housing to people in need. It disposes of its own apartments as well as those provided by the association of residential centres. It also offers communal apartments with packages of financial support. In addition to this core business, this association organises various training courses for people of all ages with different vocational training backgrounds and gives them the prospect of development and functioning in the labour market.

In the statute of the association there are separate provisions concerning activities related to environmental protection. Here, the association carries out programs from the European Social Fund, extending efforts to develop and provide new employment opportunities and skills for workers in green jobs. The IHA also runs one of the largest projects in Cumbria with respect to the recycling of furniture and household appliances, a project that was considered a great contribution to training people who want to develop their knowledge, skills and gain practical experience in this direction. In this project, a course “Introduction to recycling” has been conducted, which is aimed at developing links between local schools as well as at providing them with adequate technical facilities to carry out training in the field of renewable energy sources.

In the years 2009–2011, the IHA carried out a project concerning innovative training packages in three key areas:¹⁷

- energy efficiency,
- renewable energy,
- recycling.

The project was prepared and carried out for both businesses and households. In the former case, it dealt with a fundamental problem in the region, i.e. the lack of skilled entrepreneurs (SMEs) in the local labour market who would be able, firstly, to combine innovative technology with the renewable energy sources (RES) sector, and secondly to create a new sector of the local economy. This shortage has diminished the prospects for the development of the market. The region did not possess training institutions specialising in this field, and drawing on the expertise of external companies would generate additional costs.

With respect to households, the aim was to improve their general situation. It has been assumed that by the implementation of innovative technologies related to RES, household costs would go down, primarily those of heating homes, and that this would reduce the emission of pollutants into the atmosphere, which in turn would bring financial benefits, especially for lower income households. The pro-

¹⁷ *Green Ways to Work, Innovation Transnational & Mainstreaming, Delivering skills for climate change*, Impact Housing Association.

ject involved the training of 310 people for the skills needed to manage renewable energy and to change the consciousness of 2,500 households.

In addition to developing the training program to initiate, develop and convey knowledge about the opportunities offered by renewable energy, the association began working with West Cumbria's Energy Coast (an energy organisation on the west coast of Cumbria). Both organisations have undertaken actions with the aim of introducing new technology in the region, and thus of generating new jobs. These actions were associated with conducting practical and theoretical workshops with experts in the field of energy efficiency and renewable technologies. Cooperation was initiated with a local college capable of providing specialised equipment to facilitate the training. As a result of this collaboration, the college has become a regional leader in the field of training for the development of renewable energy and energy efficiency. The training activities involved the organisation of Cumbria Woods, which provided training in various forestry areas, designers and small businesses providing more effective forest management.

In addition, the Impact Housing Association provides various innovative recycling services, while at the same time offering training in this area for a wider audience, especially those unemployed and those who seek vocational re-training.

With regard to households and social groups, counselling and information campaigns have been conducted as well as courses encouraging local actions to protect the environment in the above mentioned key areas. In a project on recycling, for example, two types of courses were offered and carried out. One basic course was addressed to local residents, and one advanced course for people employed in the sector. The basic course topics included, among others, information from the fields "health and safety", "segregation" (manual handling) or "energy and waste awareness". The training also included simulations of practical everyday situations encountered in households, and ended up indicating the benefits of the actions taken.

In turn, a campaign on the reduction of use of expensive fossil fuels was designed to encourage the use of modern heating solutions related to renewable energy and wood fuel, which also aimed at reducing heating expenditures.

The above-mentioned projects were by and large successful and went beyond just creating new green jobs, bringing a number of many different additional benefits presented in the following section.

Another organisation creating green jobs is the Science and Technology Park, one of which acts as a non-profit foundation in the Extremadura region and its University in Spain, located in the town Bajdoz. It works on the principle of "business incubator" for new businesses and other organisations involved in a number of innovation activities. Soon new buildings will be provided for companies specialising in strategic sectors in the region, namely, concerning organic food, energy, health and ITC (thermal techniques based on renewable energy sources).

The goals of the foundation are: (1) organisation and governance of the park in the development of research, innovation and new technologies; (2) promotion of activities aimed to improve the efficiency of scientific research in the field of innovation; (3) to allow the inclusion of the research studies in the projects of other institutions and enterprises, in the sense of research integration; (4) to support the creation and development of enterprises with priorities on scientific and technological objectives. The organisation also provides services in the field of research, works with institutions of public administration, organises courses, conferences and seminars related to the operation of the park, and is involved in publishing.

The Science and Technology Park is very active in the Spanish region of Extremadura, which is a leader in the exploitation and production of energy from renewable sources. This region is one of the fastest growing regions in Spain. The base for the region's economy consists above all of services, but rich, old agricultural areas also well serve the agro-tourism industry and organic food production. However, the most important branch of industry in the region, to which the foundation provides the most support, is the production of electrical energy, particularly renewable energy. Since 2008, in the context of the development of this branch of industry, the Park, together with the local university, has been supporting the development of the regional labour market. One jointly-implemented project in this regard was the project "Innovation for the creation sustainable jobs in renewable energy in Extremadura". The main goal of this initiative has been to stimulate and improve the level of employment growth through the participation of regional enterprises in innovative projects related to environmental protection and to the use of the RES. Another accompanying goal has been the training of people desiring to, or forced to, change their professional qualifications, particularly in the sectors affected by economic crisis. In practice, the project promotes the modernisation of enterprises and sectors through innovation and cooperation, not only with help of the University of Extremadura but also with the assistance of other technological centres in the region. Re-training courses play an important role here since they lead to improvements of the skills of employees, enabling them to stay in the labour market, which also diminishes the problem of unemployment in the region.

A part of the Science and Technology Park makes also consists of an Agency for Energy, which cooperates with regional and national authorities and co-creates strategies for the sustainable use of energy, as well as provides forecasts concerning renewable energy sources. A training plan developed for the employed and unemployed in the areas of biomass stove installation and building energy-efficient homes also contributes to the achievement of its objectives. The Agency is also linked with a cluster of about 80 energy companies participating in the process of energy production, whose aims are to develop technologies that can be used at

different levels of management.

The strategic plan of these companies consists of four priorities:¹⁸

- education, above all trainings that specialise in the area of renewable energy sources and technology courses. So far about 40 trainings programmes have been organised;
- international cooperation concerning standardisation of qualifications (e.g. installers);
- internal cooperation;
- advocating the interests of the association.

This cluster of companies is involved in cooperation with other clusters of companies (e.g. the Polish forestry industry cluster in the town of Żory) and has the opportunity to buy technologies from other countries.

The IHA also runs the MAIMON private foundation, founded in Los Santos de Maimon, which serves the development and support of innovation at the local level. Its main objectives are to improve and modernise the local economy and to encourage the social activation of the population.¹⁹ The representatives of the foundation assist in, *inter alia*, the preparation of business plans, in strategic projects, in the planning of projects and in obtaining funds. In addition, they conduct specialised training and general management for professionals. Based on cooperation at the regional and national levels, the foundation's help is mainly provided to people, businesses and institutions engaged in innovation and technology transfer.

MAIMON carries out various projects, among others:

MAINOVA project designed to lead to further economic knowledge and innovation-run development. Its aim is to ensure the continuous growth of innovation and the creation of new models of relations between society, institutions and enterprises.

FENIX_RIEP project, which created a network to support innovations operating on two levels, with the first level being to create space for innovation and the second to carry out about 50–70 projects in support of innovation.

GexPurines project to support the creation of smaller biogas plants (up to 500kW), which is also of interest to Polish municipalities.

The private companies CEFOEX Innovation SI and CETIEX are partners of the MAIMON Foundation, also operating in the science and technology parks. The first of them conducts training with a focus on the provision of targeted training according to the current demand for specific specialised schooling (e.g. ag-

¹⁸ *Playing Green...*, p. 46.

¹⁹ M. Malecka-Dobrogowska, (2011), *Report on a study visit in the country transnational partner, at the headquarters of the Science-Technology Park in Extremadura*, The Regional Labour Office, Białystok.

riculture in the specific region). The company also carries out courses in green technology, for example, in fields such as the installation of solar panels, thermo-panels, biomass stoves, insulation, and many others.

The second partner is a foundation dedicated to development and research. Its main objectives are related to the development of technology in the region and to creating jobs for highly qualified specialists. All this is done in order to raise the level of regional technological infrastructure and the competitiveness of the Extremadura region.

In addition to companies operating in its territory, the IHA also works with the local government of the Extremadura region. This cooperation has led to the implementation of the program 3E – Empleo – Empresa – Empeador (employment – enterprise – entrepreneurship). This program creates a favourable environment for the development of entrepreneurship, especially among young people, graduates of schools of higher education, and women.²⁰

The last three years of studies also include summer internships, financed by the state, as a preparation programme for the profession. In order to keep the young, highly skilled workers in the region, the local government – from a pool of 60 million Euros allocated for employment – subsidises 80% of the salary of the new employees for a period of one year. Subsidies are also foreseen for pregnant women and women on maternity leave and child care. Each province has an information centre at its disposition to provide consultancy services and information and advice on the choice of occupation to the unemployed and school leavers.

The above description of good practices shows that the creation of “direct” green jobs is accompanied by the formation of many “indirect” green posts and the “greening” of areas previously not associated with the green economy. This alone indicates that this process generates multi-dimensional benefits for the economy.

4. The benefits of creating green jobs²¹

Summarising the activities of the above two organisations in creating green jobs, one can specifically name three types of benefits associated with them:

– social; which include reducing unemployment, stimulating community-based initiatives to work in a given region, and the implementation of specific objectives, including environmental, development / strengthening of cooperation between local community organisations and businesses, development of entrepre-

²⁰ *Ibidem.*

²¹ Based on parts of my own study: *Czas na zielone kolnierzyki...*

neurship in the sectors with green jobs, bettering the conditions and the quality of life by improving the state of the environment, increasing the qualifications and skills of the local population and entrepreneurs in the field of ecology and eco-related solutions, as well as increasing RSE ecological awareness.

– economic: the creation of new green jobs, which in consequence entails an increase in the income of citizens, businesses and local authorities, professional activation, stimulation of green production, the revival of the local economy and its overall growth, the economical and rational use of natural resources, cost reduction on heating and recycling, reduction of production costs as a result of the use of energy-efficient equipment and technologies, raising the technological level and competitiveness of the region, and the development of international contacts in the field of green technologies and solutions.

– ecological: reduction of emissions of various kinds of pollution, improvement of the environment, effective management of environmental resources, an increase in the number of installations using renewable energy sources and the development of eco-innovation.

It is very important that both regions make progress along precisely defined directions and that the actions undertaken by the above described organisations constitute part of an overall strategic direction.

5. Conclusions²²

Implementation of a green transformation, which generates desirable green jobs, is not easy. Prudent and consistent action, as well as provision of specific support, is essential to its success. Financial support may be obtained from the EU funds, although it is very important to use them effectively as well as to benefit from the experience of other organizations that have been successful in this field.

Given the above, and according to the needs and capabilities of individual countries, one should think about providing adequate support for the green transformation and green collar workers in terms of: the creation and improvement of the institutional framework; creating incentives for the development of green jobs; removing barriers to businesses and innovation for ecological modernisation of the economy; and by supporting and financing the green infrastructure as well as sustainable production and consumption.

²² *Ibidem.*

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²³ *Ibidem*.

ABSTRACT

The concept of green jobs began to spread along with the development of the concept of the green economy. The development of the green economy requires structural changes, including the creation of green jobs. Their creation is important from the economic, ecological and social points of view. For this reason, the article presents their essence, regulations associated with them, the good practices of European players in the creation of green jobs as well as the benefits associated with them.

Key words: green jobs, good practice.

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