

NEW GREEN PROFESSIONS IN BULGARIA IN THE CONTEXT OF TRANSITION TO GREEN ECONOMY¹

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Summary

Transition to green economy sets new requirements and challenges for the types of jobs, skills and knowledge.

The paper analyzes and evaluates the importance of categories of green professions by sectors in Bulgaria. The main applied methodical approach for analysis and evaluation of green professions is a system approach. Assessment and analysis of the importance of categories of green professions by sectors is made on the basis of structured interviews with municipal experts from regional government structures involved in the process of implementation of green jobs in the country. According to aggregated and analyzed information are proposed policy recommendations and general conclusions related to implementation of training programs for green employment, use of the best European and world practices for the application of new green professions, improvement of consulting services, changing legal framework of green jobs, etc.

Key words: *green jobs, skills, employment, policy recommendation*

JEL: *Q01, Q58, M53*

Introduction

EU outlines a plan for maximizing employment opportunities in green sectors and relevant employees in order economy to become a “greener”. “Green jobs” - include working with technology and materials that help the environment to be sustainable. Accordingly, the agreement of the plan explicitly states that Parties must take into account “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in

1 Paper is a part of research within the project Green jobs - tool of ecologisation of Bulgarian Economy (Miteva, Doichinova, Stoyanova, Kanchev, Harizanova, Peicheva, 2014).

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accordance with nationally defined development priorities” (International Labour Office, 2016). This type of jobs is among the fastest growing in Europe over the past 10 years (Cedefop, 2015) Most often they are in sectors as career, recycling, biodiversity, insulation to increase energy efficiency, improve air quality, renewable energy technologies (European Centre for the Development of Vocational Training, 2008). In the report is stressed that every job should be entitlement to professional courses – giving to people jobs and time they need to acquire the new skills.

Even during the world economy recession, the number of jobs in the noted reports increased with 20% (OECD, 2012). EU sets economic transition to green sectors as a key element for sustainable economic growth.

In a report for social benefits and workers’ rights (European Commission, 2015) is estimated that 20 million jobs could be created in the green economy by 2020 in Europe. In the EU, 14.6 million direct and indirect jobs exist in biodiversity protection and forest and national resource rehabilitation. The renewable energy sector employs over 8 million workers globally (International Labour Office, 2016). Greening the economy will include creating new types of jobs and transforming the existing ones. This will require workers with specialized skills, knowledge and training. The EU plan is aimed at supporting the creation of jobs in green sectors and support workers. The plan includes: anticipating the skills and knowledge that will be needed in these areas and how to help workers to acquire them; shifting the burden of tax from labor to tax pollution from activities of the business.

Greening the economy will include creating of new types of jobs and transforming existing ones. It will require workers with specialized skills, knowledge and training. The necessary skills have to be developed in order to meet the demands of the future low-carbon economy, which may require adjustments in education and skills development for youth in particular (International Labour Office, 2016). In addition to changes in the number of jobs, there may be impacts with respect to changes in job quality (International Labour Office, 2016).

The creation of green jobs is one way the world to deal with many environmental problems (Martinez-Fernandez, Hinojosa, Miranda, 2010). “Green Future” also provides huge potential for employment growth in green jobs. A study explores the potential for societies to create more green jobs for the disadvantaged and research how policy instruments can support green jobs (skills) and how green jobs can support the disadvantaged (VanWynsberghe, 2016). However, without adequate skills, this potential cannot be realized (Pestel, 2013).

Today, gaps in basic skills are recognized in many countries (Germany, UK, France) as the main obstacle in many sectors for the transition to a green economy, in terms such as renewable energies and energy and resource efficiency, green building and renovation, environmental services and green production (Strietska-Ilina, Hofmann, Durán, Mercedes, 2011).

The European Union observed processes of creation of many green jobs with their specificities and requirements. To clarify how it will achieve the set objectives, future and current workforce to be with the right skills and knowledge, the European Union developed a model that shows how and range, people will be trained and retrained.

In 2016 in update is a new statement of green jobs. They are divided by “the green shade” (International Labour Office, 2016). The shades of green concept acknowledge and represent this by depicting the decency and environmental friendliness of a green job along a green colour spectrum. As the job or enterprise minimizes waste and pollution, increases material and energy efficiency, and protects and provides social benefits to workers, the darker it features on the colour spectrum and the more it contributes to a sustainable future. Countries at different stages of development have varied capacity to implement the types of changes that are necessary to green jobs and economic activities. The national context must therefore be taken into account when determining the shade of green of a particular job. Creation of jobs should have pre-phase adaptation efforts to imply a range of policy interventions including social protection and public employment programs; micro-finance and micro-insurance; skills development; local markets and enterprise development, all of which should build on strong and effective social dialogue (Kamal , Fyfe, 2015). Empirical profiling reveals that green jobs use more intensively high-level cognitive and interpersonal skills compared to non-green jobs (Consoli, Marin, Marzucchi, Vona, 2016).

A several numbers of studies depend on the matrix of green jobs (European Commission-SYSDM network, 2013). Skills needed for creation of a green job should be supported on national and international level. Support mechanisms have as well some disadvantages like complicated procedure for applying to specific funds, not motivated employees to pre-qualification, lack of information of possible future and sustainability of gained new skills, lack of professionals who to lead the trainings, insufficient interest of business to invest in new skills to already employed people etc.

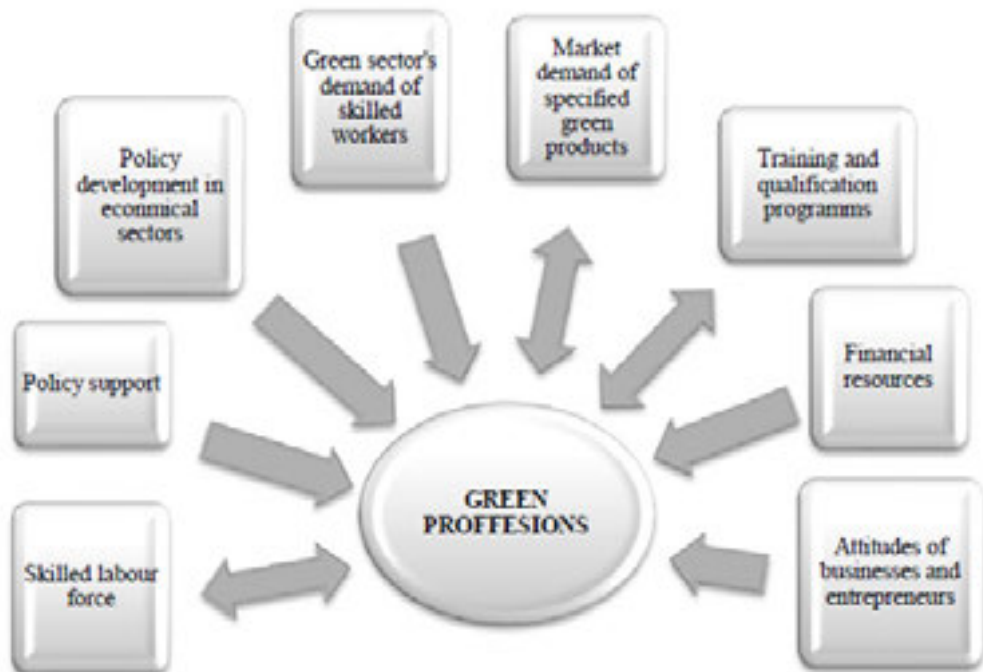
Full single model at EU level for green economy by green job employment cannot be set because the parties have different growth, different levels of implementation of green technology, different climatic characteristics, natural resources and others. The proposed model also noticed that they are deployed mainly training that will enable people to specialize. The target group takes all employed and unemployed, with any kind of education and qualifications, as well as training both within a day and over a year. In the report (30 counties were observed) (European Commission-SYSDM network, 2013) is tried to be covered the whole process of target groups that should fall into group of green jobs, who will train them for how long, which is the purpose of it and etc. Individual specifications and sub models each EU country is free to define themselves and follow.

Methodological framework

The main methodical applied analysis approach for evaluation of green jobs is a system approach. This is a methodology that examines the objects of research - green professions

as systems which is in a permanent connection with other systems. At the same time the systems are influenced both on the internal structure and the external environment (Stankov, 1997). For application of the research connected with evaluation and analysis of green jobs are taken into account the basic principles of system approach: focus group, integrity, organization, completeness, complexity. The system of green professions is presented on figure 1.

Figure 1. Green professions system



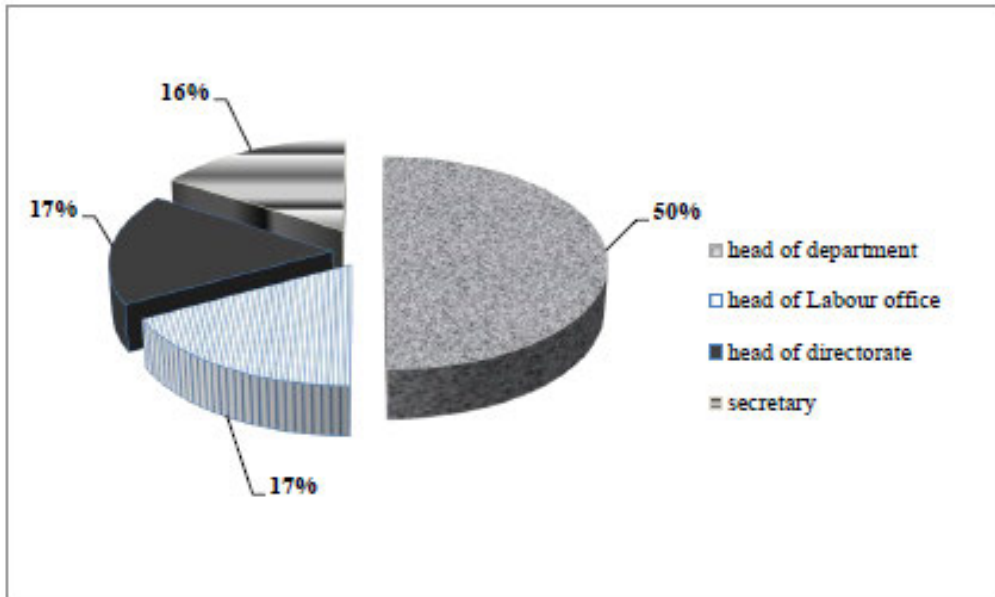
Source: own findings

The main aim of the paper is to analyze and evaluate the importance of categories of green professions by sectors in Bulgaria and on this basis to make general conclusions and policy recommendations about the created new professions which appear due to transition to green economy. Aim has the following tasks: 1) An overview of EU achievements in the field of creation and development of green professions 2) Analysis of types of green professions by sectors in EU 3) State of green professions in Bulgaria by sectors; 4) Assessment and analysis of the importance of categories of green professions by sectors 5) Based on the aggregated and analyzed information will be offered policy recommendations and general conclusions.

Findings and conclusions in the paper are part of the results of university research project "Green jobs - tool of ecologization of Bulgarian Economy". Information is summarized on the basis of structured interviews with municipal experts from regional government structures who are involved in the process of implementation of green jobs in the country.

The survey was conducted in the period 2014-2015 in order to analyze the state of green jobs and to evaluate the categories of green professions by economic sectors in Bulgaria. The distribution of respondents according to their position in the municipal administration shows that half of them - 50% are heads of departments in the surveyed government organizations (Figure 2). Positions – “head of the Labour office” and “head of directorate” occupied by respondents by 17% each of them. Secretaries from labour offices were 16% of respondents.

Figure 2. Distribution of respondents by working positions



Source: own findings

The choice of conducting a survey among representatives of labor offices is justified by their direct involvement in the application process to “green job” measure providing green employment.

Types of green jobs at European level

Need for skills is a major challenge at all possible levels in EU countries. They might be differentiated by the sector where they are created (Esposto, 2016). The most often analysis is on industrial and enterprise level. The point is that they are connected to government by the possible help of finding skilled employees. Opportunities taken up by businesses are mostly driven by the emergence of new markets and consumer demand, which often activate new production methods and processes.

Due to the different definitions adopted by countries for green job types revealed occupations also vary. In summary, it can be suggested division by sectors and qualification. Information is based on a study of 12 EU countries for which information is available (Table 1).

From international review (European Commission-SYSDM network, 2013) of achievements in the creation of green jobs, Germany is on first place. The country is one of the leaders in developing strategies for green jobs and develops job descriptions of employees in various sectors. Green jobs in Germany represent less than five percent of the German workforce, about two million workers, i.e. 4.8% were employed in jobs related to the environment. Consequently, this leads to doubt whether it can be expected large growth in gross employment in the green sector.

Table 1. New profession / specialists in EU by sectors

Sector	A new profession / specialists	Qualification / degree of education
Renewable energy	quality control, diagnostics, auditing, developer projects engineer, consultants and researchers; coordinators, field engineers (wind energy), geothermal technicians; nuclear engineers; sales and marketing, legal experts; computer specialists	management level; require high-level qualifications
Construction sector	organization of companies or approaches to project management (in construction) coordination and testing of the product prior to commissioning, diagnosis, control and performance measurement related to regulatory requirements (energy efficiency, air quality, acoustic measurement) interdisciplinary skills (regulatory impact of lower currents, metrology and software) renewable energy systems (solar, wind, geothermal energy)	require higher level skills associated with green technologies or complete project management
Energy efficiency	engineer (ingenieur thermicien), auditing and consulting	average and high qualification
Waste	prevention and management of waste operators industrial recycling	average and high qualification
Transport	managing inflows, logistics / ICT coordination of transport systems, carbon audit.	average and high qualification
Pollution prevention and cleaning environment	environmental engineers, technicians sector training of environmental problems, waste disposal specialists, transportation and experts in recycling materials specialists in hazardous substances	average and high qualification
Construction of green buildings	Engineers, carpenters, construction workers, construction and building inspectors, insulation specialists, electricians;	low to average qualification
Agriculture and landscape	specialists in landscape architecture, hydrologists, geologists, zoologists and biologists, specialists in conservation of forests technicians, specialists in fish and game	low to average qualification

Source: multiple authors and own findings

Green professions in France are related to waste and water management account for nearly half of green jobs, followed by the sector of renewable sources of energy. In subsequent periods France began to report numerous problems with green jobs such as lack of adequate skills, particularly in the construction industry where many are entering as new green jobs, which in turn hinders increasing the employment. Some findings show inability of firms to hire qualified personnel, as graduates (secondary or higher) are rarely trained in energy efficiency; lack of specialists familiar with new technologies that deal with personnel training etc.

These findings in France can be compared with Belgium, Austria, the Netherlands and Denmark, where initially there was an increase in the number of green jobs, then due to various problems this number began to decline.

In Italy is recognized the importance of green jobs and environmental politicians and economists start to think how appropriate is the disclosure so many green jobs. Based on an Italian study of labor costs by sectors, it is estimated that a green workplace equivalent of 6.9 jobs in the industry or an average of 4.8 economic sectors.

Czech Republic, Slovakia, Poland and Bulgaria at this stage have not reached the required performance for their transition to a green economy in most of their sectors, which resulted in a small number of jobs but in most cases the data are unofficial.

State of green employment by sectors at national level

The analysis of the sectors connected with created green jobs in Bulgaria shows that the highest share is in the sector water supply, sewerage, waste management and recovery (*Table 2*). The share of employers in this sector for the period 2011-2015 varies from 92.3% (2015) to 78.1% (2014). For the analyzed period they were average 69% of employers signed contracts under the promotion measure “Green jobs” of the sector E „Water supply, sewerage, waste management and recovery”. They vary from 55,5% (2011) to 79% (2015). The main activities where are the most signed contracts are in the sector Water supply, sewerage, waste management and recovery are collection, treatment and supply of water. Among the employers in this sector prevails also the number of these realizing activities related to collection of non-hazardous waste.

The second place by signed contracts is sector “Constructions”. The highest numbers in this sector are connected with “other specialized construction activities”. During 2011-2015 the number of signed contracts by employers in this subsector vary from 2 to 5.

For the analyzing period almost equal numbers of contracts were signed in sectors “Production and distribution of electricity, heat energy and gaseous fuels” in activities related to production of electricity, sector “Manufacturing” with activity “Production of devices for management and distribution of electricity” and also sector “Administrative and support services”, including activities related to “Formation and maintenance of green areas”. For all these sectors and subsectors the number of signed contracts varied from 1 to 3 for different years per sector.

Regardless of opportunity and conditions of the promotion measure “Green jobs”, two of the supported sectors did not get any interest among the employers - “Transportation and storage” and “Culture, sports and entertainment.” In these sectors has not been signed any contract.

Table 2. Employers financed by measure “Green jobs” by sectors, 2011-2015

Sectors	Years				
	2011	2012	2013	2014	2015
Manufacturing, including: Production of devices for management and distribution of electricity	1 1	2 2	3 3	1 1	1 1
Production and distribution of electricity, heat energy and gaseous fuels, including: Production of electricity	3 3	2 2	3 3	1 1	1 1
Water supply, sewerage, waste management and recovery, including: Collection, treatment and supply of water Collection, disposal and treatment of sewage Treatment and disposal of non-hazardous waste Disposal of waste Recycling of sorted waste	45 10 0 4 2 3	43 7 0 7 0 1	55 1 0 6 1 6	25 3 0 3 2 1	24 2 1 2 0 1
Constructions, including: Other specialized construction activities Construction of water supply, sewage, heating and air conditioning systems	3 2 1	3 2 1	5 5 0	4 3 1	3 2 1
Transportation and storage	0	0	0	0	0
Administrative and support services, including: Formation and maintenance of green areas	2 2	1 1	3 3	1 1	0 0
Culture, sports and entertainment	0	0	0	0	0
Total	54	51	69	32	26

Source: Ministry of Environment and Water

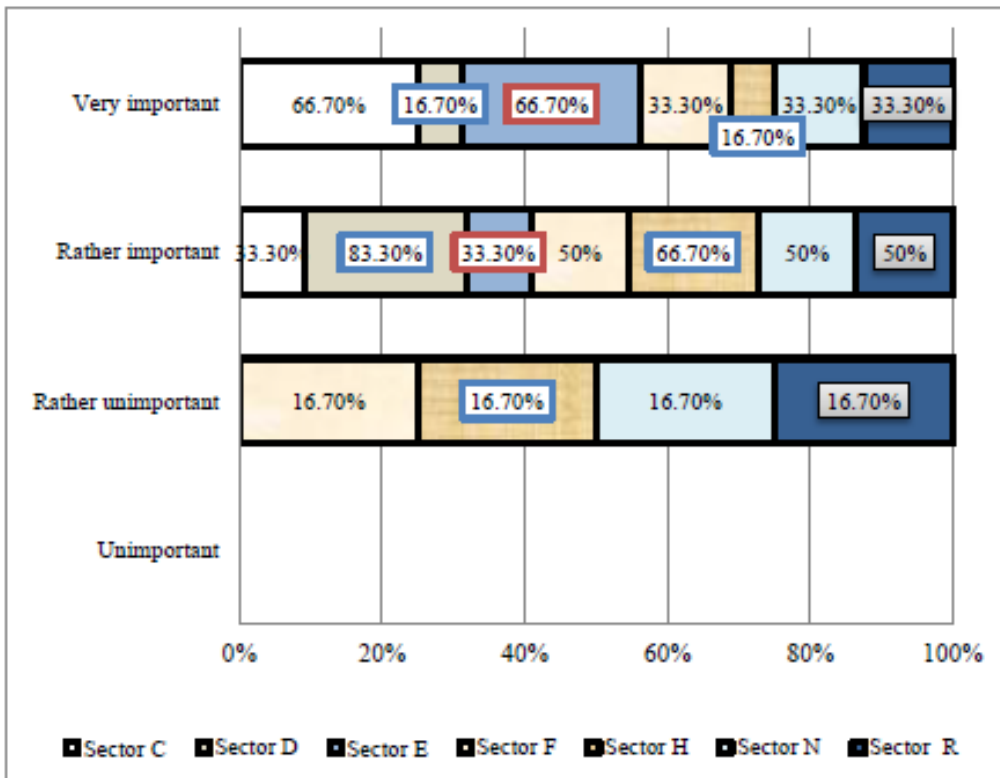
Evaluation of importance of green professions by sectors in Bulgaria

Economic activities linked to the production of goods and provision of services supporting environment are divided into seven sectors. Every sector is represented by national classificatory capital letter. Evaluation of the importance of sectors for creation of green employment is made through the ranking of each sector. Figure 3 present the ranking of the importance of the sectors (by capital letter and name) for the creation of green employment according expert’s opinion. The participant in the survey evaluated the importance of each sector and they chose importance between very important to not important divided in 4 possible ranks.

Very important for respondents are pointed sectors: C: Manufacturing and E: Water supply, sewerage, waste management. 66.7 % of the respondents believe that these are the three sectors that are rather important for the development of municipalities and one third of them (33%) believe that these sectors are the most important once (Table 3).

Sectors as D: Production and distribution of electricity, heat and gaseous fuels (83%) and H: Transportation and storage (66%) are identified from most of the experts as “rather important”. Half of the respondents - 50% believe that sectors N: Administrative and support service activities, F: Construction and R: Culture, sports and entertainment are also “rather important” for the development of green activities in the municipalities which take place in the survey. Only 17% of respondents consider that the sectors N: Administrative and support service activities, F: Construction, R: Culture, sports and entertainment and H: Transportation and storage are “rather unimportant” for the development of the municipality. There is no sector that is determined by the respondents as totally unimportant.

Figure 3. Ranking the importance of the sectors for creation green employment



Source: own findings

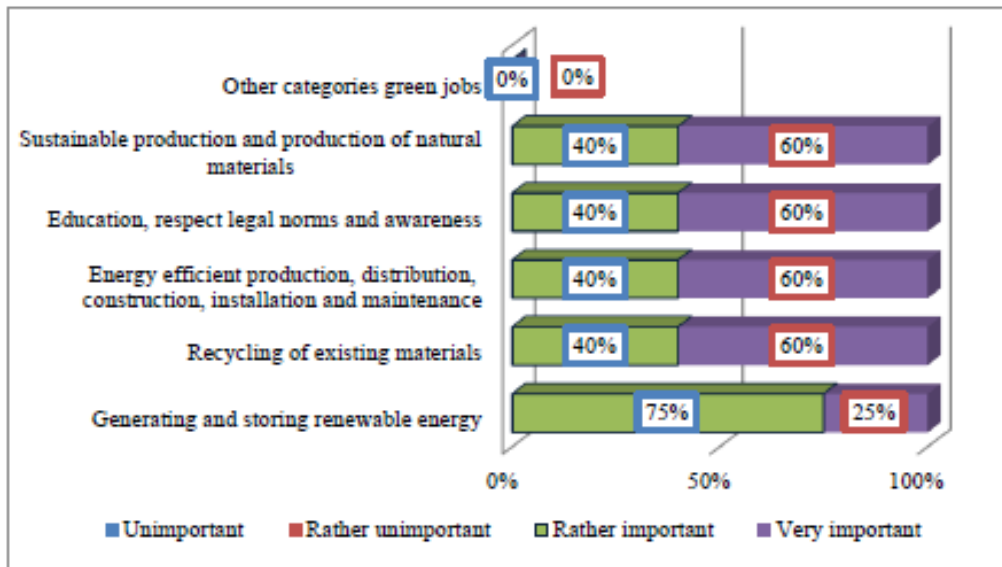
With respect to other sectors, representatives of labor offices indicate that it is important to be able to develop green jobs that operate in the tourism sector. This could contribute not only to the environment but also to better quality of service for consumers and increasing GDP for the economy. Another suggestion made by experts in municipalities is that the including of mining to sectors with an opportunity for potential implementation of environmental and/or green processes would help to neutralize the harmful effects of the industry.

In terms of defining the importance of the categories of green professions, 60% of the experts consider that the sectors related to sustainable production and production of natural

materials, energy-saving production, distribution, construction and installation, recycling such as the education sector, compliance with legal rules and information (Figure 4) are “very important”.

With respect to these categories, the rest of the respondents (40%) think they are “rather important”. Most of the experts (75%) agree that the generation and storage of renewable energy is a category that is “rather important” for municipalities.

Figure 4. Evaluation of importance of category green professions



Source: own findings

Experts are on the same opinion regarding the statements related to the labor market and the development of green professions (Figure 5). All respondents considered that the statement “the number of persons included in employment programs related to the development of green jobs is increasing every year over the previous three years” refers to the surveyed municipalities.

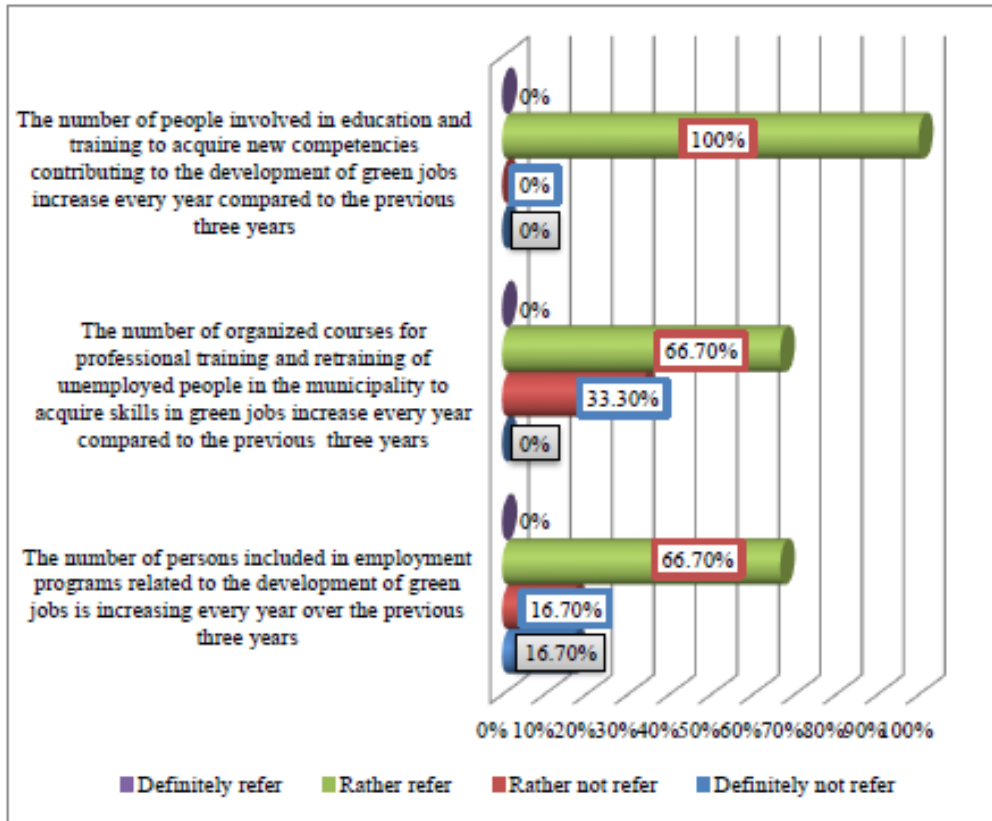
According to the statement that the number of organized courses for professional training and retraining of unemployed people in the municipality to acquire skills in green jobs increase every year compared to the previous three years. The evaluations given by the experts are distracted between the possible opinions. The data shows that 66.7 percent of respondents believe that the statement “refer rather” for the municipality and 33.3 % who believes in the opposite.

66,7% of experts consider that the number of people involved in education and training to acquire new competencies contributing to the development of green jobs increase every year compared to the previous three years. Respectively 16,7 % are on the opinion that this statement “rather not refer” and “definitely not refer” for the municipality of the

survived experts.

According to the respondents' opinion the needs of new skills and knowledge for the development of green jobs are different depending on the economic sector and the nature of the work. 75% of respondents consider that in the sectors "Waste Management", "Infrastructure", "Metal processing industry", "Landscaping" are necessary trainings regarding maintenance of vehicles.

Figure 5. Evaluation of statements related to labour market and development of green professions



Source: own findings

According the opinion 62 % of the respondents - the necessary competence is in the field of low-waste technologies and technologies to reduce and control pollution. In the sector "Tourism" due to specific activities of employees is determined the need for knowledge regarding the applicable standards and regulations (37.5%). 25% from the respondents consider that there is a need for skills in IT sector.

Conclusion and policy recommendations

Based on the analysis of the state of green professions in Bulgaria by sectors and evaluations of expert's opinion about the importance of green professions and sectors could be made conclusions and policy recommendations as follows:

Conclusions:

- ✓ The sectoral analysis of the new created green jobs shows that the highest share is in the sector water supply, sewerage, waste management and recovery. Among them prevails numerous employers realizing activities connected with collection of non-hazardous waste.
- ✓ Sectors "Transport and storage" and "Culture, sports and entertainment" are not attractive in terms of creating green jobs and the development of green professions. For the period 2011-2015 was not created any green job in these sectors.
- ✓ The sectors which have the greatest significance for the development of green professions in surveyed municipalities are C: Manufacturing, E: Water supply, sewerage, waste management and recovery and D: Production and distribution of electricity, heat and gas. At the same time there is no sector that is determined by the respondents as unimportant.
- ✓ Very important sectors for the development of green professions and categories of green jobs according experts opinion are related to sustainable production with natural materials, energy-saving production, distribution, construction and installation, recycling and education sector, compliance with legal standards and awareness.
- ✓ Regarding the statements related to the labor market and the development of green professions respondents considered that the number of persons included in employment programs related to the development of green jobs is increasing every year over the previous three years (100%), but as a nominal numbers still very low.
- ✓ The number of organized courses for professional training and retraining of unemployed people in the municipality to acquire skills in green jobs increase a lot compared to the previous three years (66.7 %) and the number of people involved in education and training to acquire new competencies contributing to the development of green jobs as well increased compared to the previous three years (66,7%).
- ✓ New required skills and knowledge that a worker must have to carry out green activities are different depending on the economic sector and nature of work. Companies from the sectors "Waste Management", "Infrastructure", "Metal processing industry", "Landscaping" need trainings regarding maintenance of vehicles, low-waste technologies and technologies to reduce and control pollution. In the sector "Tourism" due to specific activities of employees is determined the need for knowledge regarding the applicable standards and regulations.

Policy recommendations:

- ✓ The development of sectors of green professions could be realized by implementing training programs for green employment through:
 - Including the people from different age generations in education programs and trainings for acquiring new competencies for green employment in accordance with the demand of the labor market;
 - Organization of vocational training and retraining of unemployed people for green professions;
 - Specialized training courses for improvement the professional qualification and increasing the availability of qualified and experienced employment in the field of environmental protection and tourism services.
- ✓ Use of the best European and world practices from companies with similar activities, successfully applying new green professions could be defined as an opportunity for creation of new green jobs and development of new green professions in Bulgaria.
- ✓ It is necessary to improve consulting services regarding to green professions and implementing green practices. They can be carried out by Labour Offices, Regional inspectorate for environment and water and National agricultural advisory service. This will expand the competence of the applicable activities in environmental field.
- ✓ Including the mining to sectors is an opportunity for potential implementation of environmental and / or green processes. This could help to neutralize the harmful effects of industry and would promote the development of green activities and professions. This might help the municipalities to be more attractive as a place for living and residence.
- ✓ Changing the legal frame work of green jobs could bring positive effect of expanding green employment. The procedure should be more attractive and easy to apply for funding. As well if it is a possible transfer between different other employment measures could bring higher employment efficiency.

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