

REPORT

for a territorial audit of the regional economic and job creation potential, diagnosing the level of skills and gaps in the labor market and assessing the potential / resources of the key stakeholders in the region, as well as other available support programs, focusing on green and digital jobs

-Polog Planning Region –



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Foreword

The making of green and digital economies are two challenges for this generation, and innovations will be key for the success of overcoming such challenges.

Climate change and environmental degradation threaten the sustainability of many economic activities around the world. At the same time, the transition toward a greener economy creates opportunities for new technologies, investments, and jobs. Digital technology and infrastructure play a key role in the private lives of people and businesses. People rely on them to communicate, to work, to advance science, and to address current environmental issues. That is why international organizations initiate as well as support the concept of green economy and digital transformation.

Skills development is one of the factors for unlocking the potential for new jobs. Timely supply of relevant and quality skills is essential for successful business transformations that foster productivity, growth, and employment development. It is needed that these challenges are confronted at all levels – national, regional and local – and tackling the transition processes and creating green and digital jobs¹ depends on the cooperation and coordination of all relevant stakeholders.

This report was prepared as part of the UNDP regional project "Promoting Inclusive Labor Market Solutions in the Western Balkans (ILMS II)" in order to establish the potential for green and digital economy in the Polog Planning Region and to support stakeholders in planning and implementation of activities for using the potential of the region for green and digital jobs.

¹ Green jobs are those that concern "preserving or restoring the environment", while digital jobs are those "created through the application of ICT to a new or existing activity or process".

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Abbreviations

ESA	Employment Service Agency of the Republic of North Macedonia
GVA	Gross value added
GDP	Gross Domestic Product
GV	Gostivar
ICT	Information computer technology
MSME	Micro, small, and medium enterprises
SMEs	Small and medium enterprises
RES	Renewable energy sources
PPR	Polog planning region
RNM	Republic of North Macedonia
CV	Curriculum Vitae
TE	Tetovo
UNDP	United Nations Development Program

1. Introduction

The UNDP regional project "Promoting Inclusive Labor Market Solutions in the Western Balkans (ILMS II)" aims to improve the level of inclusion offered on the national and local labor markets in the Western Balkans. In partnership with the private sector and civil society, the project aims to ensure that labor market institutions at the national and local levels have improved capacities to design and implement inclusive policies and programs for individuals experiencing multiple forms of social exclusion from the labor market. UNDP and ESA, as part of this project, will develop a program to enhance the knowledge and skills of the Employers Advisors in order for them to be able to offer effective support to employers who are seeking skilled labor in the areas of green and digital jobs.

The second component of the project is geographically focused on the Polog planning region and includes a series of activities to promote a green and digital economy. The initial activity, which will form the basis of the regional program, is the preparation of a territorial audit report on the regional economic potentials and potential for creations of jobs with a focus on the green and digital jobs, as well as the gaps and barriers for inclusive green and digital economy. Based on the input from the territorial audit, a Territorial Employment Plan will be developed - a local employment action plan – which will include activities for effective stimulation of inclusive labor market activation, primarily in the green and digital economy.

Regional development is the responsibility of the central government, the regional development centers, and the local self-government units, governed by strategic development documents. The Polog region, as one of the less developed regions, is subject to "territorial audit" to identify the development potentials of the region and to identify opportunities for creating green and digital jobs.

The "territorial audit" in the Polog region included collecting data, conducting interviews and consulting with the private sector, academia, financial institutions, local government, educational institutions, Employment Centers, Centers for Social Affairs, civil society organizations and other key stakeholders. Thus, this activity enabled the collection of inputs for priority and achievable activities to stimulate the green and digital economy in the region, which input will help in the preparation of the Territorial Employment Plan.

The report summarizes the level of development of the region in terms of population, existing economic characteristics, labor market and available support for the supply and demand of green and digital jobs.

The findings will be used to prepare the Territorial Employment Plan for the Polog region.

2. Characteristics of the Polog planning region

2.1. Geographical position

The Polog planning region is located in the northwest of Macedonia, and it covers the Polog valley, the Mavrovo plateau, the Bistra mountain range and the Radika river valley, spread over an area of 2,432 km², or 9.7% of the total area of the country.

The population of the region is 322,605 or 15.5% of the total population of the country (2019) and it is one of the most densely populated regions with 133.5 inhabitants per km². The rich hydrographic network represents a large hydropower potential, partially used by the hydropower plants on Lake Mavrovo. The vegetation of the Polog Valley and the surrounding mountains creates conditions for the development of agriculture, especially livestock, by which this region is recognizable. The high mountain terrains, the specific relief and the climatic conditions have created grounds for establishing the most frequented winter tourist-recreational centers in this region. However, the region is characterized by low GDP per capita, which accounts for only 7.2% of the total GDP of the country.

2.2. Population

The Polog planning region consists of nine municipalities: Bogovinje, Brvenica, Vrapchishte, Gostivar, Zhelino, Jegunovce, Mavrovo - Rostushe, Tearce and Tetovo, of which seven are rural and two are urban municipalities. These municipalities have 184 settlements, of which 182 are rural. There is a high concentration of population in two main towns, Tetovo and Gostivar and few other municipalities, which characterize the Polog region with high population density in urban centers and large uninhabited agricultural terrain. In the period from 2017-2019, the number of inhabitants has slightly increased by about 0.24%

Table 1 Total population in the Polog region in the period 2017-2019

	2017	2018	2019
Number of inhabitants	321,199	321,957	322,605
Change %	-	0.24	0.20

State Statistical Office, Regions in the Republic of North Macedonia 2020

The total population in the Polog planning region in 2019 was 322,605 inhabitants, which is 15% of the total population of the country. Polog is one of the most densely populated regions in Macedonia and it is characterized by a population density of 132.0 inhabitants / km² which is 1.6 times higher than the average population density in the Republic of North Macedonia.

Most of the population, or 73.8%, is 14-65 years of age, 17.4% of the population is under 14 years of age, and the population of 65 years of age or older is 8.8% (Additional Table 3).

The age dependency rate, defined as the ratio between the population older than 65 years and the population younger than 65 years, is 35.5%, which is lower than the national average, proving that the region is dominated by a young population, which is a potential for exploiting the young work force.

2.3. Economic characteristics

The region of Polog participates in the GDP of the country with 7.4%, and the GDP per capita is 47.7% of the national average and three times lower than the GDP per capita of the Skopje planning region (Additional Table 4). The share of the region in the Gross value added of the country is 7.4%, and only 5.05% in the investments in fixed assets (Additional Table 5).

In 2019, the following activities had a higher share in the gross value added and investments in fixed: Agriculture, forestry and fishing with 10.21% and 4.77% respectively; Real estate activities with 13.92%; Public Administration and Defense, Mandatory Social Insurance, Education; Health and social protection with 9.38% and 4.76%; Wholesale and retail, Repair of motor vehicles and motorcycles, Transportation and storage; Accommodation and food services 6.48% and 1.78% respectively (Additional Table 6).

The Polog planning region has a 13.2% share in the distribution of funds for financing projects for development of the planning regions in the period from 2018 to 2026, from the funds established with the annual program for balanced regional development, which is implemented by the Bureau for Regional Development of the Republic of North Macedonia².

Most of the enterprises in the Polog region are concentrated in the two largest municipalities, Tetovo (5,382) and Gostivar (3,232), whereby the total number of business entities in the Polog region for 2019 is 8,614, amounting to 11.35% of the total number of business entities in the country. Both at the state and at regional level, i.e., in the Polog region, micro and small businesses are in a dominant position, where from the total number of active entities at the end of 2019, 99.01% are micro and small enterprises in this region (78.15% micro and 20.86% small)³.

Analyzing the data on the number of active business entities by sectors of business activity, it is evident that the most common activities in the Polog region are: wholesale and retail trade; wholesale and retail trade of motor vehicles and repair of motorcycles (2,941 entities or 34.14%), manufacturing (1,164 entities or 13.51%), construction (899 entities or 10.44%), accommodation facilities and food services (767 entities or 8.90%) and professional, scientific and technical activities (630 entities or 7.31%)⁴.

2.4. Labor market

2.4.1. Labor market supply

The labor market in the Polog region is characterized by an activity rate of 51.9% (137,980 active population), an employment rate of 37.1% (98,633 employees), an unemployment rate of 28.5% (75,769 unemployed), and productivity (GDP per capita) 0.49% of the country average and a vacancy rate of 0.62%.⁵

The unemployment rate in the Polog region in 2019 is 28.5% and is one of the highest rates compared to the other seven planning regions (only the Northeast region has a higher rate of 33%). Compared to the national level of 17.3%, the unemployment rate in the Polog region is significantly higher. The number of unemployed persons in the Polog region is higher in rural

² Program for development of the Polog planning region 2021-2026, p.15

³ Ibid p.16

⁴ Ibid p.16

⁵ Ibid p.18

areas (in 2019 it was 10,262 or 53.31%) compared to urban areas (in 2019 it was 8,986 or 46.69%).

As a consequence of the pandemic, the number of unemployed persons in the Polog region in September 2021 was 26,747 persons, which was an increase of 7,506 persons or 39.00% compared to the total number of unemployed persons on 31.12.2019 (19,241 persons)⁶.

The gender structure of the unemployed in October 2020 (women's share is 50.73% which is slightly higher than the share of men is 49.27%) differs from the gender structure of the unemployed persons on 31.12.2019 (women 46.64% and men 53.35%).

From the ethnicity aspects of the registered unemployed persons in the Polog region, the number of Albanians is 69.89%, Macedonians 19.41%, followed by Roma with 4.36%, Turks with 4.32%, others with 1.89%, Serbs with 0.09% and Bosniaks with 0.04%.

The problem of unemployment is most acute in the age group of 25-29 years (3,603 people) and in those aged 55-59 years (3,834 people), due to the layoffs during the pandemic.

The most concern is raised around the fact that in the Polog region from the total of 26,747 unemployed persons, actually 18,554 or 69.36% have no education, or have only primary education and uncompleted secondary education, the number of unemployed who have completed secondary education is 6,240 or 23.32% and those with higher education is 1,825 or 6.82% of the total number of unemployed persons. Also, another worrisome fact is that 128 persons with master's degree and three persons with PhD are unemployed.

2.4.2. Labor market demand

The rate of vacancies in the private sector in the Polog region in the second quarter of 2021 was 1.39% or 392 vacancies, which is an increase of 237 vacancies compared to the second quarter of 2020.

Table 2 Vacancy rate by regions in second quarter 2020 and 2021

	2020T2			2021T2		
	Number of filled vacancies	Number of vacant positions	Rate of vacancies (%)	Number of filled vacancies	Number of vacant positions	Rate of vacancies (%)
Republic of North Macedonia	496678	6866	1.36	496546	8977	1.78
Vardar Region	43384	530	1.21	36842	573	1.53
East Region	33308	670	1.97	37155	608	1.61
Southwest Region	37426	738	1.93	31925	893	2.72
Southeast Region	30429	364	1.18	27851	465	1.64
Pelagonija Region	48828	627	1.27	48478	879	1.78
Polog Region	26866	155	0.57	27821	392	1.39
Northeast Region	22645	559	2.41	22389	354	1.56
Skopje Region	253792	3223	1.25	264084	4812	1.79

Source: MAKSTAT database

⁶ Statistical data ESA <https://e-rabota.av.gov.mk/PublicReports/PublicReports.aspx> =

According to the survey on necessary labor market skills in 2020 conducted by the ESA⁷, the most sought after occupations in the Polog region are: civil engineer, architect, mechanical engineer, food technologist engineer, economist, administrator, flour processing technician, mechanical technician, mechanical technician for maintenance of production equipment, pharmaceutical technician, salesman, seamstress, drivers (truck, bus), cook, waiter, carpenter, reinforcement, lacquer, general worker, bricklayer, hand packer, worker on a production line, distributor (in retail). The total number of new jobs during 2020 is 242 people.

2.4.3. Programs and measures for supporting employment

Operational plan for active programs and measures and services on the labor market

The operational employment plan includes several measures to support employment. With such support, in 2020⁸, the following results were achieved:

- 1,364 persons established their own business through the self-employment measure with a 5,000 euro grant (225 persons in the Polog region)⁹;
- 2,218 legal entities supported by wage subsidies for 2,853 unemployed persons (376 employments in the Polog region);
- 552 newly employed persons with the measure “Employment and growth of legal entities”;
- 114 trained unemployed persons with the measure “Training for a known employer” and 61 persons employed, 16 persons trained for professional qualifications; and 105 participants in vocational training according to the requirements of the employers;
- 281 persons trained for 17 demanded occupations, and 50 persons for drivers;
- 120 people trained in advanced IT skills and 60 people trained as digital marketers, graphic designers and web developers.
- 1,544 persons participated in the measure providing for internships.

The structure of the unemployed persons as mentioned above is presented through the data on vulnerable groups, young people up to 29 years, women, and persons with disabilities. Except for the measures for self-employment and wage subsidies, the data on the coverage of the unemployed persons by planning regions are missing.

Competitiveness, Innovation and Entrepreneurship Program

The Ministry of Economy's 2021 Competitiveness, Innovation and Entrepreneurship Program includes employment support measures for green and digital jobs.

- 101 companies subsidized (50% of the costs, up to a maximum of 400,000 denars) for procurement and installation of photovoltaic panels. Eleven companies were supported by the Polog region. This measure stimulates the demand for green jobs (installer of photovoltaic panels). The total budget was 30,700,000 denars, for support of a maximum of 76 companies.

⁷ <https://av.gov.mk/content/Dokumenti/Anketa%20za%20potreba%20od%20vestini%202020%20w.pdf>

⁸ ESA Annual Report for 2020

⁹ Estimation according to the state aid participation index of the region, 13.2% of 1364 supported persons

- Financial support for women entrepreneurs, 27 supported companies, four of which in the Polog region¹⁰. The total budget for the measure was 4,000,000 denars and the co-financing was a maximum of 150,000 denars per company.
- Development and implementation of projects for digital transformation of enterprises in the manufacturing industry (50% of the total costs, up to a maximum of 200,000 denars). The total budget was 6,000,000 denars, for a support of maximum of 30 companies.
- Support for projects for Clusters for innovative and internationally oriented business (60% of the total costs, up to a maximum of 240,000 denars). The total budget was 4,800,000 denars for a support of maximum of 20 companies.
- Co-financing the costs for procurement of training equipment (60% of the total costs up to a maximum of 480,000.00 denars). A total of 3,000,000 denars allocated for support of a maximum of 8 companies.
- Introduction of quality systems, ISO, and HALAL standards (50% of the costs, up to a maximum of 200,000.00 denars) and a certificate of social responsibility SA 8000 (up to 120,000.00 denars). Total budget 4,000,000 denars.
- Co-financing the costs for research institutions (for establishing partnerships with higher education and research institutions for development of innovative products in the amount of up to 200,000 denars. A total budget of 3,000,000 denars was allocated to support a maximum of 15 companies.

Other measures of the program include support to companies for better market performance and development of new products.

The Program for Entrepreneurship Support, Competitiveness and Innovation implemented by the Agency for Support and Promotion of Entrepreneurship in 2021 offers the following services for SMEs:

- Vouchers for consulting services for 40 SMEs (50% of the price, up to a maximum of 45,000 denars). Total budget 1,500,000 denars;
- Mentoring services for improving the production process of enterprises (maximum 220,000 denars per enterprise). Total budget 2,200,000 denars for the support of a maximum of 10 companies.
- Trainings for SMEs to increase competitiveness in the domestic and foreign markets.

The first two services contribute to the creation of green and digital jobs by SMEs:

Tourism Development Program

The Tourism Development Program¹¹ of the Ministry of Economy for 2021, among other measures, provides support to tourism companies for:

- Subsidies for digitalization of the tourism sector (co-financing of 60% of the costs for procurement of software solutions, up to a maximum of 5,000 euros)

¹⁰ Overview of supported enterprises in the Polog region [Link](#)

¹¹ <https://economy.gov.mk/doc/2903>

Rural Development Programs and IPARD

The IPARD Program 2014-2020¹² includes four measures for the support of agriculture and rural development: (1) investments in tangible assets of agricultural holdings; (2) investments in material assets for processing and marketing of agricultural and fishery products; (3) investments in rural public infrastructure; (4) farm diversification and business development.

The companies are given the chance to use of the funds from the program by applying the public calls for each specific measure, which stipulate financing of activities and costs.

The rural development program is implemented annually and includes support for young farmers, fostering of agricultural production, investments for modernization of agricultural production and introduction of new products.

Both programs stimulate indirectly the creation of green and digital jobs in the areas of organic production; product branding and marketing; circular economy, renewable energy sources, energy efficiency, social inclusion with a focus on youth, women, and vulnerable groups.

Fund for Technological Development and Innovation

In the period 2015-2020, FITR has awarded grants in the amount of 30 million euros for the instruments stipulated with their program. In 2021, the funds have been allocated for the following purposes:

- Co-financing of grants for commercialization of innovations¹³ (50% of the project costs);
- Co-financing grants for " Start-up and Spin-off 2'- companies¹⁴ (90% of the project costs, up to a maximum of 40,000 euros, for companies not older than 3 years and 85% of the costs, up to a maximum of 60,000 euros, for companies not older than 3 to 6 years);
- Co-financing technological development grants for accelerated economic growth¹⁵ (70% of the costs for purchasing new technology, up to a maximum of 85,000 euros);
- Digitization of agriculture¹⁶ (90% of the costs, up to a maximum of 25,000 euros).

These public calls directly affect the creation of green and digital jobs in the companies.

Credit lines

The Development Bank of the Republic of North Macedonia offers financial products for the support of companies, in the amount of 16.5 million euros for 2021¹⁷. Two of them refer to the support for restructuring of the companies that suffered from the COVID crisis.

- Interest-free credit line for micro, small and medium enterprises (for a period of up to 42 months with a grace period of 12 months, without administrative costs for the loan processing)¹⁸;
- SME loan for permanent working capital (1.6% interest rate, for a period up to 3 years and

¹² http://www.ipardpa.gov.mk/Root/mak/default_mak.asp

¹³ <https://fitr.mk/komercijalizacija2021/>

¹⁴ <https://fitr.mk/wp-content/uploads/2021/06/Faza-na-aplikacija-TR-za-startapuvaj3-Juni-2021.pdf>

¹⁵ https://fitr.mk/wp-content/uploads/2021/10/kofinansiranje-tabela_04_1210.pdf

¹⁶ <https://fitr.mk/wp-content/uploads/2021/11/Digitalization-of-Agriculture-2.pdf>

¹⁷ <https://www.mbdp.com.mk/mk/>

¹⁸ <https://www.mbdp.com.mk/mk/kreditiranje/kovid-4>

6 months grace period)¹⁹;

- Credit for supporting agriculture and agroindustry - primary production, processing, and export - through commercial banks or directly through Development Bank of the Republic of North Macedonia
- EBRD Credit Line for energy efficiency of households, executed through commercial banks²⁰.

There are no data on the distribution of these credit lines by planning regions.

Donor programs and projects

The following are active donor programs and projects in RNM, related to the creation of green and digital jobs:

- EDGE (Economic Development, Governance and Enterprise Growth Project). The core component activities promote regionalization, reduction of trade barriers, and support of SME growth in three key value chains (fruits and vegetables; incoming eco / rural / cultural tourism; and textiles and wood processing / furniture production). All core activities involve participants from at least two countries²¹;
- E4E (Education for Employment). The most popular tool that E4E uses for financial support is the fund where applicants can get full financial support for curriculum development and training for green and digital jobs. The purpose of the fund is to help companies provide a high-quality workforce, which can get fast and tailor-made results²²;
- The Market Employability Program aims to create 2,706 new and better jobs by developing selected high-growth sectors, including IT, agriculture, and tourism, as parts of the private sector. The support refers to expert advice, training in necessary skills and access to finance. This will contribute that more of the unemployed people in North Macedonia, especially young people and women, would gain sustainable, decent employment or self-employment and could earn higher incomes²³;
- USAID and the SOLAR Macedonia Association are partners in fighting climate change with increasing the use of renewable energy sources. Together, they foster the sustainable growth of the solar industry by promoting domestic production of solar equipment and helping the development of skilled local workforce by training installers of various types of solar energy systems²⁴;
- SEETheSkills The Sustainable Energy Skills in Construction: Visibility, Validation, Value Project is funded by EU HORIZON 2020, and offers skills-building services for energy efficient construction of new and renovation of existing buildings.

2.4.4. New employments

During 2020, the Employment Centers in Tetovo and Gostivar, registered a total of 7,914 applications for employment (5,687-TE and 2,227-GV), 5,278 of them for an indefinite duration

¹⁹ <https://www.mbdp.com.mk/mk/kreditiranje/msp>

²⁰ <https://ebrdgeff.com/macedonia/mk/>

²¹ <https://www.facebook.com/edgeusaidproject/>

²² www.e4e.mk

²³ <https://ime.org.mk>

²⁴ <https://solar.org.mk>

of employment and 2,636 for a definite period of employment. It is also noticeable that the number of submitted applications in the Employment Centers in Tetovo and Gostivar, but also for the entire Polog region, is higher for persons who are not on record as employees (4,866 persons or 61.5%) than those who are registered as unemployed in ESA (3,048 persons or 38.5%) (Additional Table 7).

2.1. Education

The Polog region has 52 central primary schools and 90 regional branches of schools. The institutional infrastructure for secondary education in the Polog region includes 19 schools. There are two universities in Tetovo: the State University of Tetovo and the South East European University. According to the State Statistical Office (<https://www.stat.gov.mk>), the number of graduates of higher education institutions and faculties in the Republic of North Macedonia in 2020 was 6,907 and compared to 2019 has decreased by 12%. In 2020, 1,040 students graduated from the State University of Tetovo, whereby the highest number of graduates are at the Faculty of Law (164), the Faculty of Medicine (157 students), then the Faculty of Natural Sciences and Mathematics (133) and the Faculty of Philology (126)²⁵. 457 students graduated from the South East European University in Tetovo (SEE) in 2020, with the highest number of graduates at the Faculty of Business and Economics (120), then the Faculty of Contemporary Social Sciences (102), the Faculty of Law (89), the Faculty of Languages and Culture (77), and the Faculty of Contemporary Sciences and Culture (58)²⁶.

2.2. Social policy

The Polog region has a poverty rate of 34.3%. In absolute numbers at the national level, the poorest people are in the Polog region, almost 119,000 people or 15.7 beneficiaries of social assistance per 1,000 inhabitants.

The rate of social exclusion of young people aged 15 to 29 who are not employed and who are not included in the educational process is 24.5%²⁷.

2.3. Waste management

The situation with solid waste management in all planning regions, including the Polog planning region can be characterized as substandard, insufficient and inefficient and hampered by serious shortcomings, including: lack of capacity and readiness of institutions for efficient and effective implementation of regulation and waste management policies, potentially the low public awareness of all stakeholders and the key challenge of not having a broader public consensus on regional landfill sites, resulting in continuing adverse effects on the environment and human health.

The highest amount of collected municipal waste in 2019 was recorded in the Skopje Region - 165 thousand tons or 26.1%, and the lowest amount of collected municipal waste in the same period, 39 thousand tons or 6.2%, was recorded in the Northeast Region while the Polog region participated with 89,000 tons or 14.0% of the total amount of collected municipal waste²⁸.

²⁵ MAKSTAT database, <http://makstat.stat.gov.mk/>

²⁶ MAKSTAT database, <http://makstat.stat.gov.mk/>

²⁷ Program for development of the Polog planning region 2021-2026 p.32-35

²⁸ Ibid p.60

3. Methodology

The methodological approach in determining the economic potential of the region and identifying opportunities for creating green and digital jobs included several steps:

- (1) Review of the relevant strategic documents at national, regional and local level, related to the strategic priorities for the Polog region. The relevance of the available materials and the period of publication were the main criteria for the selection of the analysis documents. This step identified the relevant stakeholders for organizing the consultations.

Organizing interviews and consultations with stakeholder based on semi-structured questionnaires for institutions and the private sector, in order to obtain feedback for mapping relevant issues for the use of economic, business and employment potential, as well as to diagnose the level of skills and labor market barriers to securing a green and digital jobs workforce. The findings of this step are presented in the Report on analyzed documents and feedback from interviews and consultations with 17 stakeholders;

- (2) Conducting "territorial audit" of the Polog planning region for the regional economic potential and the potential for job creation, with a focus on green and digital jobs. This step included collecting data (statistics and reports from relevant institutions) and organizing interviews and consultations with the private sector, academia, financial institutions, local government, educational institutions, Employment Centers, Centers for Social Affairs, civil society organizations and other key players.
- (3) Organizing a workshop with the stakeholders and presenting the draft "territorial audit" and the proposal of the Territorial Employment Plan for the Polog planning region. The workshop should enable the collection of inputs for the priority and achievable activities towards stimulating the green and digital economy in the region, which inputs would help in the preparation of the final version of the Territorial Employment Plan.
- (4) Territorial employment plan of the Polog planning region, with a focus on green and digital jobs. After the event, all ideas and initiatives will be noted and inserted in the final version of the territorial employment plan which will be developed in detail including the action plan of project activities, the budget for each initiative and the stakeholders involved in the project. Once the final version of the Territorial Employment Plan is developed, a Memorandum of Cooperation between the stakeholders will be signed to ensure commitment and ownership of the project activities and their implementation in the planned period.

4. Key Findings

Based on the analysis of the strategic documents and the information obtained from the consultations with the stakeholders, the findings of the "territorial audit" were presented in several areas: economic and business potential, employment potential, and labor market gaps and barriers. The advantages (+) and disadvantages (-) are presented for each of the mentioned areas.

4.1. Economic potential

The Polog planning region increases the share in the total GDP of the Republic of North Macedonia, from 7.25% in 2018 to 7.42% in 2019, as well as the share of GDP per capita from 46.7% to 47.7% respectively.

- However, the share of investments in fixed assets in the GDP (5.05%) is lower than the share in the GDP of RNM.
- + The number of inhabitants in the region is slightly increasing and the region is dominated by a young population, which shows potential for using the young workforce.
- + The number of active business entities is continuously increasing, to 8,408 in 2020 compared to 8,118 in 2017, a bigger increase compared to the national average (3.5% compared to 2.2% increase in RNM). Micro and small businesses make up as much as 99.1% of the total number of active entities. They are the drivers of the economic development of the region. In terms of sectors of activity, business entities are most numerous in the wholesale and retail trade, processing industry and construction.
- + Support to entrepreneurship, competitiveness, innovation of SMEs is a key strategic priority at local and regional level and the creation of new companies with the support of the self-employment program has a significant impact on the job creation.
 - A small number of newly established companies demonstrate growth and therefore remain in the category of micro enterprises with 0-9 employees;
- + Support for rural tourism, rural development, and sustainable and competitive agriculture in the Polog region; defined priorities in the Local Economic Development Strategies. The sectors for local economic development are given the authorization to prepare the projects for financing by donors, in coordination of enterprises and institutions. The support of the municipalities is by financing infrastructure, information points and promotion to investors. The funds are provided as part of the annual programs²⁹.
- + Strengthening the competitiveness of agriculture and animal husbandry with products with higher added value, organic food, and higher levels of processing. Support from the LED sector for access to IPARD programs. The Strategic goal 5, measure 3 of the Strategy for local economic development of the municipality of Gostivar. This is a strategic goal in the Program for development of the Polog planning region with support for access to IPARD, awarding sub-grants and branding of agricultural products³⁰;

²⁹ Strategy for Local Economic Development of the Municipality of Gostivar for 2021-2025, strategic goal 5 with a municipal budget of up to 214,000 euros in 5 years.

³⁰ Program for development of the Polog planning region 2021-2026, measure 2.1, p.140, no responsible body has been defined and no budget has been allocated.

- + Greater utilization of tourist sites through increased offer of tourist services, as a defined priority in the Tourism Strategies. The sectors for local economic development are given authorisations. The support refers to the development of internet portals, participation in tourist fairs, preparation of tourist guides and organization of promotional activities³¹;
- + Infrastructure for communication and support of business activities to attract new investors; included as a measure in the PPR Development Program with support for the establishment of economic zones, mapping of investment resources and organization of meetings with investors³².
- + Making greener the production in the existing industries, selection and recycling of the waste, energy efficient construction and renovation of the existing housing stock, utilization of renewable energy sources. This potential stems from the national action plans, the national waste management plan (65% of the waste in the municipalities to be collected and selected); and the national action plan for the renovation of the existing housing pool.
- + Digitalization of industries, greater use of ICT equipment and innovations to introduce solutions for industry 4.0 to increase productivity and access to new markets. In accordance with the EU strategic priority for digitalization of economic activities, the programs HORIZON Europe and Life +, with several sub-programs have been developed to support the automation and robotics of production processes. This is a potential that can be used for industries in the Polog region, whereby companies, individually or in partnerships, apply to the public call from such EU programs.

The utilization of economic potential is related to competencies for managing the potential and for project development, as well as mobilization of investments and financial resources.

- Detrimental to the economic potential is the overemphasis on external sources of funds. Due to limited budgets, municipalities are focused on supporting stakeholders in project preparation and raising funds from donors or central government programs. The basic approach is to follow the requirements of donors and international programs in defining the implementation of proposed measures and priorities.

4.2. Business Potential

The business potential is concentrated in the construction, agriculture, trade, and ICT industries and refers to:

- + **Energy efficient construction and renovation of buildings** as a result of the large housing pool and national legislation to increase the energy efficiency of privately owned and publicly owned buildings, as well as industrial buildings. The National Energy Efficiency Plan (2020-2020) envisages the reconstruction of public buildings. The implementation of this measure is given to the municipalities and public enterprises. The participation of the municipalities in RNM in financing this measure is 21.1 million euros.
- + **Use of renewable energy sources** for public buildings, installation of thermal and solar panels. The measures for energy efficiency and use of renewable energy sources are used in the documents of the municipalities and supported by programs for financing from the

³¹ Strategy for tourism development in the municipality of Tetovo 2017-2022, operational goal 2, measures 2.2 and 2.3 with a municipal budget of 7,000,000 denars for 5 years.

³² Program for development of the Polog planning region 2021-2026, measure 1.1.3 page 139, no responsible body has been defined and no budget has been allocated.

municipal budget; The plan for the Municipality of Gostivar is that all public institutions should install solar panels and have prepared projects therefore. The same trend will be followed by other municipalities in the Polog region.

- + Agroecological business with the **introduction of organic production** and a higher degree of product processing, and this potential should be subject to support through the LED offices of the municipalities;
- + **Facilitate access of SMEs to finances** in order to implement innovations and create green and digital jobs. Support should be provided through the SME Centers in Tetovo and Gotivar.
- + Lack of skilled workers needed by companies in conducting business activities.

4.3. Employment Potential

The employment potential has been identified in existing sectors and industries. According to the data of the Employment Agency in October 2021, the number of vacancies in the Polog region is 639 and most are in trade, construction, ICT and tourism. The most sought after occupations in the region for 2020 were: civil engineer, architect, mechanical engineer, food technologist engineer, economist, administrator, flour processing technician, mechanical technician, mechanical equipment maintenance technician, pharmaceutical technician, salesman, seamstress, driver of a freight vehicle (trucks-buses), cook, waiter, carpenter, reinforcement (construction worker for installation of reinforced concrete for concreting), lacquer, general worker, manual packer, distributor. The forecasts for new employments are around 300 new employees per year.³³

The **employers from larger companies invest in upgrading the skills of workers** by providing for training from external training organizations. Small and medium-sized companies are oriented to providing training within the company by experienced workers.

The greater utilization of the measures from the annual Operational Employment Plan of the ESA is a potential for greater employment in the Polog planning region.

In order to meet the employers' needs for employees, the actions should be implemented in two directions:

- Improving the supply of skilled workers to meet the needs of the companies and
- Increasing the competence and capacity of training providers and professional training staff.

Relevant issues for better utilization of the economic, business and employment potential of the Polog region are related to:

- Strengthen cooperation between all participants in the labor market at local and regional level in identifying activities, sharing responsibility for their implementation and mutual monitoring and evaluation of results leading to regional growth;
- Building better relationships between employers, the unemployed persons and training providers;
- Improving the competence and skills of local actors to mobilize external sources of

³³ Employment Agency of the Republic of North Macedonia, Labor Market Skills Needs Survey in the Republic of North Macedonia for 2020.

funding to support regional growth;

- Establishment of a regional body for coordination of activities and stakeholders involved in planning and execution of planned actions.

4.4. Level of skills and labor gaps in the region of Polog, with a focus on green and digital jobs

4.4.1. Needed skills for the green economy

The world transiting towards green economy can create millions of jobs but requires investments in upgrading skills in all types of occupations. Undoubtedly, this will affect the emergence of new occupations. Global forecasts are that 78 million jobs will be created in these processes and almost 71 million jobs could be destroyed if they are not upgraded with new skills³⁴. The drivers of these changes are climate change, government policies, technology, and markets.

Skills changes will occur at all levels of occupation: low-level, intermediate and high-level skills.

New skills	Type of change	Skill acquisition	EXAMPLES OF OCCUPATION
Occupations with low skill level	Requires increased awareness or simple adaptation of work procedures	On-the-job learning or short skills programs	Waste collectors, garbage collection, waste selection
Occupations with medium skill level	Some new green occupations, important changes to some existing occupations in terms of technical skills and knowledge	Short to longer training for upgrading existing or for new skills (courses)	New: wind turbine operator, solar panel installer Existing: Roof, facade, carpentry, electricians, heating, and cooling
Occupations with high skill level	More new occupations, Significant changes to some existing occupations, in terms of technical skills and knowledge	Faculty, longer skills development programs	New: environmental engineer, energy controller, energy manager Existing, architects, engineers, technology engineers.

The time necessary for the acquisition of a certain skill depends on the nature of the change and the needed skills. For occupations that require higher level of skills, the time of acquiring new skills is longer, due to the need to upgrade oneself with new knowledge and technical skills.

The degree of change in occupations varies in the key sectors.

- **Renewable energy sources.** One of the most important sectors for the development of

³⁴ International labor Office-Geneva ILO (2019), Skills for greener future – Key findings, page 9

new occupational profiles, such as solar / photovoltaic panel installers, wind turbine, propulsion managers, quality engineers;

- **Environmental goods and services, including water and waste management.** Significant professional change in waste treatment and recycling, including R&D functions to generate new or improved waste. New environmental occupations, consulting and environmental auditing;
- **Construction and artisan services.** Skills are added or adapted according to existing occupations. All major trades and professions are likely to be affected in some way;
- **Manufacturing industry.** New skills related to reducing the environmental impact are necessary and include new occupations as well as occupations related to the design and production of new products and systems;
- **Agriculture and forestry.** Skills are added to occupations that require intermediate skills or the skills are adapted according to existing occupations. New occupations like soil and water conservators are emerging for a higher level of skills; environmental renewal planners (certification specialists, economists), water resources and water specialists, wastewater engineers, agricultural meteorologists;
- **Transport.** Mostly changes of the existing occupations by adding knowledge and skills, e.g. use of electric vehicles; conversion of existing vehicles to new technologies and compressed natural gas;
- **Tourism.** Mostly changes of the existing occupations by adding knowledge and skills, e.g. eco-tourism.

The European Green Deal³⁵ as a strategic priority of the EU for the period 2021-2027 aims to achieve the well-being and health of citizens and future generations by providing: fresh air, clean water, healthy soil and biodiversity; renovated, energy efficient buildings; healthy and affordable food; more public transport; cleaner energy and new clean technologies; products with a longer shelf life that can be repaired, recycled and reused; future jobs and transition skills training; and a globally competitive industry.

This transformation of society includes actions that are financed through structural funds and community programs (HORIZON Europe, Life +, Erasmus +).

The planned changes will cover all industries and sectors and will cause changes in the way we live and work.

Developing countries will also face the challenge of a green economy. Therefore, special measures are needed to meet the demands of the green transition and the need to upgrade skills, such as:

- Raising the awareness of policy makers, business leaders and institutions of formal and non-formal education about the need to take coordinated actions and meet the needs for green skills;
- Capacity building of relevant stakeholders to strengthen dialogue in providing access to training for green jobs;
- Building the capacity of enterprises to introduce new green products and use new

³⁵ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

technologies to transform operations;

- Increase the capacity of formal and non-formal education to provide green skills training programs, including practical training and internships;
- Entrepreneurship and business mentoring training for young people and adults to start green businesses.

These measures can be implemented if resources are available. All stakeholders need to be involved in securing them, such as national, regional and local authorities; businesses, educational institutions and the NGO sector.

4.4.2. Need for digitalization skills

Digitization as a global process was accelerated by the COVID pandemic. Developed countries have their own digitalization strategies (EU strategic priority) as a result of the development of information and computer technology, the need for efficient management and operation; the implementation of the concept industry 4.0 - robotics and automation and the introduction of innovations in business processes.

The needs for skills are grouped into five areas:

- Leadership skills for planning and leading the digitalization process
- Skills for introduction and maintenance of IT systems, equipment and infrastructure;
- Professional / advanced IT skills (programming, database management, web design and maintenance, etc.);
- Skills for automation and robotics of production processes in enterprises;
- Upgrading digital skills of existing employees (production, marketing, sales, administration)

One of the EU's strategic priorities is the readiness³⁶ for digitalization processes and it applies to all industries. These processes will affect almost all occupations towards upgrading their digital skills.

The measures to meet the needs for digital skills should include a process of assessing the needs for digitalization, namely identifying the required digital skills by relevant stakeholders, and providing a quick response on how to upgrade employees with the required digital skills.

4.4.3. Level of skills of the workforce in the Polog region

In the absence of data on the qualifications and skills of the employees in the private sector in the Polog region, the assessment of the level of skills was performed from the interviews with the companies from that region³⁷. Companies had reservations in terms of defining the skills they require from job applicants. Also, they had reservations in predicting the required number of workers from the required occupations in the next six months. They justify this with the experience with the COVID-19 pandemic and the increase of the prices of inputs: the increased price of electricity, the increased prices of raw materials and the expected increase of the minimum guaranteed wage.

³⁶ <https://digital-strategy.ec.europa.eu/en/activities/digital-programme>

³⁷ Report on interviews with companies to determine the needs for green and digital skills and the introduction of green and digital practices / technologies in companies, 16 companies in the period from 28 January to 15 February, 2022

Most of the employees are with low skills acquired through education or short trainings for their posts, such as the use of equipment and tools and the use of materials. The next group are skills with secondary education, mechanical technicians, electrical technicians, construction technicians. The lack of higher education profiles is in the field of technical sciences.

Green skills are not recognized as important and necessary for the operation of enterprises compared to digital skills that are most often associated with communication and promotion.

The level of skills required for green and digital jobs is estimated for key sectors in the region based on the number of active business entities, the growth of gross value added and investments in fixed assets.

The industries are selected according to the forecasts for the number of active entities and the announcements on the ESA website for vacancies in the Polog region.

Table 3 Level of skills for green and digital jobs by industries in the Polog region

Industry	Green skills	Digital skills
Agriculture, hunting and forestry	Waste management RES maintenance Energy efficiency Organic production In the long run soil and water conservators; water and water specialists, wastewater engineers, agricultural meteorologists;	Internet promotion and e-trade of agricultural products <i>In the long run:</i> smart digital devices for regulating water and fertilizers
Manufacturing	Use of environmentally friendly and recycled materials employing technologies with lower energy consumption, Waste selection and disposal Energy Manager Using RES <i>Long term:</i> introduction of circular economy	Digitization of operations Internet promotion and sales Sales using mobile applications IT systems and equipment maintenance, web designer <i>In the long run:</i> Automation and robotics of the production process, introduction, and maintenance Cutting templates in CAD
Energy supply, Renewable energy sources	Installation of Photovoltaics, maintenance of technology	Using BIM software
Construction	Construction Technician (Insulation) Facade, Windows and Doors Plasterboard Roofing, Heating, Cooling & Ventilation, HVAC	Use of BIM software in design and construction.
Wholesale and retail	Energy efficiency and RES	Using digital inventory management tools
Repair of vehicles, motorcycles, personal and household items	Repair of hybrid and electric vehicles	Vehicle dispatcher Use of GPS.
Hotels and restaurants	Energy Manager Using RES Waste selection and disposal	
Transportation and storage	Drivers of environmentally friendly or hybrid motor vehicles	Vehicle dispatcher Use of GPS.

Industry	Green skills	Digital skills
Information and communication		Developer, web designers, marketing agent, system administrator, graphic designer
Financial mediation	Evaluation of credit applications	E-banking

Skills of the unemployed persons registered in ESA. The skills of the unemployed are assessed according to the level of education, most of the unemployed are without education and with primary education (59.68%), followed by those with completed secondary education (25.95%), then those with higher education 7.83 %, and with unfinished secondary education 5.44%. The other barriers to the labor supply side are given in section 4.5. Barriers to employment.

The assessment of the level of skills also takes into account the indications of the companies about the problems they face in securing workers:

- Companies from the industries in question face a shortage of skilled labor;
- Use technologies that need to be upgraded with machines for "green" products that require digital and green skills;
- Companies are forced to hire unskilled staff, without training and practice due to lack of skilled labor;
- Companies need additional training for future employment and the use of technology and new environmental materials, due to lack of proper education;
- Companies develop their own mentoring and in-house training programs to bridge the skills gap;
- Establishing an internship program can help bridge the practical skills gap for new employees;
- Employers prefer training programs of three to six months;
- Workers are slow in adopting new technologies and changes,
- During the hiring process, soft skills (communication, problem solving) are needed, not just job-specific skills.
- Immigration is a major problem for retaining skilled workers in the country,

4.4.4. Labor gaps in the Polog region, with a focus on green and digital jobs

The gaps in the workforce in relation to green and digital occupations relate to:

- Low awareness of environmental protection and willingness and ability to learn about sustainable development
- Lack of skills for new technologies and processes needed for green jobs
- Absence of teamwork that reflects the need to raise awareness for collective handling of environmental consequences
- Resistance to perceiving and accepting necessary changes
- Low level of entrepreneurial skills that could take advantage of low carbon technologies

and mitigate the effects on the environment

Regarding the qualified staff, the gaps are seen in:

- Lack of management and business skills that can include interdisciplinary approaches to economic, social, and environmental goals
- Lack of skills for innovations to identify opportunities and create new strategies to respond to green challenges
- Insufficient marketing skills to promote greener products and services
- Networking and IT skills to enter global markets

The gaps in the need for green and digital skills in selected industries are estimated by the number of companies in the industry, the trends of the GDP and investments, and vacancies. Although the ESA does not list the requirements for green or digital skills in its announcements for vacancies, these are still taken as a basis for predicting the gap for the required workforce in the region of Polog.

- Agriculture in the medium term (3 years) will need 300 workers for the skills as per Table 3, due to the introduction of the mandatory standard for good agricultural practice.
- The manufacturing industry will need 2,000-2,500 workers in the medium term for the skills in Table 5, because of rising energy costs and the application of B environmental permits. Among the most sought-after occupations are mechanical engineer for maintenance of technological processes, RES manager and operator, and automation and engineer and technician for automation and robotics engineer and introduction of new technologies using environmentally friendly materials.
- It is estimated that the renewable energy sources in the medium term will need 100-150 workers for the skills from Table 5, due to the orientation of companies, public institutions, and households to use RES installer of solar and photovoltaic panels, thermal pumps, biomass.
- In the medium-term, the construction sector would need 1,000 workers for green and digital skills from Table 3, due to the announced investments for renovation of public buildings in the municipalities and construction of about 500 apartments per year in the region (construction technician, heating and cooling installer, energy controller, architect / engineer with skills for using BIM);
- The gap in the wholesale and retail trade is 500 workers in the medium term for the skills in Table 3.
- The gap in the repair of vehicles and motorcycles is 100 workers in the medium term primarily for maintenance and repair of hybrid and electric vehicles;
- Hotels and restaurants will need 300 workers in the medium term for the skills in Table 3: energy manager, RES operator and waste selection and disposal workers;
- Information and communications, need of 400 workers in the medium term.

Formal education

When it comes to provision of workforce it should be mentioned that there are gaps in formal vocational education as well. There are two secondary vocational schools in the region, of which the Secondary Technical School Gostivar turns out technicians for design and urban planning, construction, maintenance of electrical installations, development of software solutions in production and service companies, computer service, hardware and software and computer networks. The Secondary School Moshe Pijade Tetovo educates transport technicians, mechanical technicians, and computer technicians.

The sector of formal education is more traditional and slow in accepting changes due to strict curricula to which it is obligated to abide by, Although such curricula have been developed to meet the needs of the sector they lack the practical training.

The formal education is not enough for advanced knowledge and skills and cannot offer all the necessary profiles for green and digital jobs.

Non-formal education

The institutions of the non-formal education are more oriented towards foreign language courses, while for the professional skills they the exams can be taken with the Civic University of Gostivar. The Adult Education Center has verified 7 curricula³⁸ of service providers from the Polog region, primarily for construction and service activities.

The skills gap in the supply of non-formal education institutions is seen as the absence of necessary curricula and fulfillment of the requirements for the certification of the curricula because the verification system requires clear training curricula.

Local policy makers

The gap of skills related to green and digital occupations also exists among local policy makers in terms of planning activities, coordinating with other relevant stakeholders, and mobilizing local resources to implement the planned actions.

4.5. Employment barriers

- **Limited jobs created by companies in the private sector:** The dominant share of micro and small companies (99.1% of the total number of enterprises in the region) means limited opportunities for creation of jobs. Most of the companies are family owned with limited growth capacity, and as a result the number of announced vacancies is very small.
- **Mismatch of the interests of the employers with the interests of the unemployed persons.** Those companies that have vacancies, point out as reasons for not finding suitable candidates for employment the disinterest and lack of motivation of candidates to execute the offered tasks, lack of candidates with practical knowledge and skills needed for required occupations, lack of candidates with experience and appropriate education, and lack of candidates willing to accept the offered salary. On the other hand, the unemployed persons state their reasons to be unfavorable working conditions (undefined working hours, distance to the workplace, transportation costs to the workplace) and low wages as reasons for not accepting the offered jobs.
- **Lack of motivation of the unemployed with low education to upgrade their skills and qualifications.** The largest percentage of the unemployed persons are those without education and with primary education (59.68%), who hardly participate in the employment

³⁸ Registry of verified curricula <http://cov.gov.mk/all-courses/>

measures for upgrading skills and qualifications. The inclusion of this category of unemployed persons in the green and digital jobs requires a more comprehensive and intensive upgrade of their skills through vocational training.

- **No career guidance programs:** Municipalities do not provide career guidance programs, either in educational institutions or in the municipality itself. The limited number of labor market information is provided by the Employment Agency, but access to it is very difficult, especially for people with disabilities and Roma who have no primary education. These programs are especially important for green and digital jobs.
- **Lack of employment skills training:** According to employers in the region, employment skills, such as writing a CV and a cover letter, knowing how to behave on a job interview and how to communicate with employers, are considered very important in job application. Like the *occupation and skills survey*, it was found that achieving good results on the post depends mostly upon personal characteristics that are taught in school. Therefore, it is very important to provide training for developing employment for job applicants.
- **Lack of job-related skills:** In addition to formal levels of education, the lack of basic and specific job skills makes filling of vacancies harder. Obtaining a degree does not always guarantee employers that all the necessary skills for a certain job have been acquired, especially at a time when skill requirements are changing rapidly in several occupations.
- **Lack of skills for green and digital jobs in formal education.** Green skills for secondary and higher occupational profiles are not present in secondary vocational education and higher education. There are two secondary vocational schools in the region, Moshe Pijade-Tetovo and Secondary Technical School Gostivar, both have a decreasing trend of completed participants.
- **Lack of information on skills needs and job opportunities:** Lack of data on what skills exist and what skills will be needed in the future is a long-term concern at national, regional, and local level, especially for green and digital green jobs. On the short run, providing information on new skills needs in the Polog planning region is crucial, especially as several sectors already face skills shortages (agriculture, food processing, construction), while in the long run providing information on future skills and competencies development is of even greater importance for future job applicants.
- **Mobility:** Mobility and flexibility among vulnerable groups are very low. These groups are reluctant to consider working outside their hometown because wages and compensation packages are less attractive given the nature of the jobs. In addition, limited mobility, especially for women, is an important barrier.
- **Capacity of training providers and consulting companies:** During the consultations with the stakeholders, it was confirmed that one of the biggest obstacles for the SMEs to participate in the development of skills and training activities is the lack of tailored training. In consultation with adult training providers in the region, it is evident that they are not oriented towards company training but rather towards individuals and for the most sought-after programs on the market (foreign languages, Microsoft office, etc.).
- **Poor coordination of actions of stakeholders to support employment.** There is no horizontal cooperation at the municipal level for greater utilization of available programs and measures to support entrepreneurship and employment, as well as financial support from government programs. Many programs and measures at the national level can be coordinated

and directed at achieving the strategic priorities of the municipalities (rural development, tourism, green jobs, digitalization of enterprises, energy efficiency projects, etc.).

4.5.1. Barriers to green and digital employment

The main barriers to accelerated growth of green and digital employment in the region are:

(1) Low awareness level and insufficient law enforcement

- Low awareness level at all three levels of government regarding the need to implement environmental legislation, reduce pollution and implement energy efficiency. Raising the awareness level should be part of the training for government officials, civil society and business;
- Avoiding the implementation of environmental legislation allows companies not to implement the required standards, and thus create green jobs;

(2) High initial investment for creation of jobs

- Green and digital jobs require high initial investments from companies in equipment and in skilled workers. Deciding on these investments, without financial incentives and favorable financial resources, slows down the companies in their decision to create jobs;
- The high cost of training to acquire green and digital skills prevents employers from financing the training of existing and new workers;
- Lack of curricula and qualified trainers for practical training to acquire skills affects the small supply of skilled workers for green and digital jobs;
- Misperception that the cost-benefit ratio of training is unfavorable for the employer because the time spent on training is considered lost man hours, which instead could be used to perform tasks in the company and not seeing as an investment that will bring benefits to the business in the long run.

(3) Qualifications and skills of the unemployed

- Green and digital jobs require basic educational qualifications that can be upgraded with green and digital skills. The current qualifications of most unemployed people do not meet those requirements and training is needed.
- The motivation of the unemployed persons for training in areas with employment potential is not high, even among young people.
- Lack of curricula specifically designed and implemented to streamline business processes and innovate products, as well as promote and support employees in gaining green and digital skills.

5. Conclusions and recommendations

- (1) Exploiting the potential of the region for accelerated economic development and creating employment opportunities requires the **application of a bottom-up approach** to mobilize stakeholders in promoting development and employment. The bottom-up approach would include two types of activities:

- Establishing a horizontal level partnership to implement the strategic priorities of the region and municipalities through a formalized pact / partnership of relevant stakeholders (region, municipalities, businesses, financial institutions, NGOs, formal and non-formal educational institutions) as a contribution to the green and digital agenda and creating green and digital jobs;
- Development of a territorial employment plan with activities to support the private sector with a focus on industries with the greatest potential for growth and utilization of available programs for opening green and digital jobs (tax incentives, access to active ESA measures, access to IPARD program, annual programs of the Government, etc.).

Recommendation: Organize activities and trainings to raise awareness of the need and benefits of the green economy and digitalization for economic development and employment in the region and build the capacity of partners for planning and implementing actions at the local level related to the Territorial Employment Plan.

(2) **The employment potential** is most manifest in construction, ICT sector, agriculture and rural development, tourism, renewable energy sources, processing industry and waste management. The support of these sectors opens employment opportunities in the green and digital occupations for the vulnerable groups of unemployed, young people up to 29 years old, Roma and people with disabilities), as follows:

- The potential in **construction** is in building facilities and renovation of existing facilities with lower CO₂ emissions, use of sustainable materials and energy efficiency (construction according to the standards for energy performance of buildings). These processes increase the demand for green and digital skills. Upgrading the skills of the unemployed is needed for works facades, roofs, ventilation, heating and cooling installers, electricians, and technicians. For these occupations there is a need for upgrading the skills of existing occupations with skills in the use of sustainable materials, insulation for energy efficiency and increasing awareness of energy sustainable construction. For profiles with higher education (engineers and architects) the skills are focused on using digital tools (BIM, 3D) for sustainable design and construction.
- The **agriculture** needs to apply the standards for good agricultural practice, support for organic production and waste management. Skills development is related to the use of fertilizers and pesticides, soil, water and air protection, waste management and recycling, and agricultural waste recycling, covering higher education profiles (environmental engineers, technologists, agricultural engineers) as well as lower education profiles (general workers for fertilizer and pesticide use, and waste collection, sorting and recycling).
- The trends in the sector of **sources of renewable energy** are focused on decarbonisation and energy efficiency. The lack of skills refers to the design and installation of thermal, solar, and photovoltaic panels. The strategic documents at national, regional, and local level contain projects related to the installation of thermal and solar panels in public institutions.
- The **manufacturing industry** is focused on decarbonization, energy efficiency, circular economy, guided by environmental standards, new technological processes, and the use of recycled materials. The lack of skills refers to the use of environmentally friendly materials, technologies with lower energy consumption, and waste management throughout the product life cycle.

- The **recycling industry** is an underdeveloped sector, where most of the activities are focused on waste collection and selection, and the recycling sector is missing due to lack of recycling facilities (except for paper recycling) and therefore the selected waste is exported to other countries.
- The **ICT sector** has a constant shortage of workers with advanced IT skills, and the need for them will increase in the coming period. This sector offers the more opportunities for young people up to 29 years old.

Recommendation: Establish a system for monitoring the needs of companies for green and digital jobs and enable a quick response to provide candidates according to the required skills,

- (3) Formal and non-formal education does not provide enough qualified staff according to the needs of the companies. There are no curricula for acquiring new green and digital skills.

Recommendation: Raise the awareness of institutions in formal and non-formal education about the need to develop new programs to overcome the labor force gap for green and digital jobs and build their capacity for rapid response in providing the required new skills.

- (4) The **employment opportunities for vulnerable groups** are open for all three types of occupations, with low, medium and high level of skills:

- General workers with green skills for waste disposal and selection, collectors of secondary raw materials (Roma and unemployed with primary education);
- Employees in marketing and sales with digital skills (digital marketer, web developer, graphic designer) with employment opportunities for young people up to 29 years and people with disabilities;
- Installers of solar and photovoltaic panels, as new occupations with opportunities for young people up to 29 years;
- Engineers (civil, mechanical, agricultural, ICT, electrical, technologists) for young people up to 29 years with a university degree.

- (5) **The types of support / business lines for green and digital employment** in the region to be provided to the private sector refer to:

- Advisory services to support entrepreneurship and businesses in taking initiatives from the green and digital agenda;
- Free training for acquiring green and digital skills;
- Access to finance (grants for job creation and favorable financial resources for transforming business activities);
- Tax incentives for salaries and / or training and investments for green and digital jobs;
- Subsidizing salaries for green and digital jobs;
- Creation of favorable local regulations (lower property tax for EE facilities, stimulation of e-operation of municipalities and local public institutions, funds and support programs, benefits for investors), for the created green and digital jobs.

- (6) **The process of preparation of a territorial employment plan** shall include the following steps in order to ensure the relevance of the plan and to create a basis for its full implementation through coordinated actions of the key stakeholders in Polog:

- Identification of the support sectors in the Polog planning region;
- Initiate and promote dialogue and cooperation among representatives of relevant institutions in the region to seek commitment from those who have the resources and responsibilities for the future development of the region and the community;
- Identification of a working group / development agency that will be responsible for implementing the territorial employment plan. This body will also be responsible for continuous monitoring and evaluation in the implementation of the plan.
- In consultation with local stakeholders, selection of a package of interventions that will be implemented over a period of time and will have a measurable impact in terms of generating employment. This will be formalized with a Memorandum of Understanding with a list of agreed actions.
- Mobilization of adequate capacity and organizations for implementation of the agreed actions. In this context, the responsible body and local authorities will take responsibility for simplifying the procedures for involving all stakeholders and service beneficiaries in executing activities from the territorial employment plan.

Annex Tables

Table 4 Population in the Polog region on 31.12.2019, by gender and by five-year age groups

Age	Total population	Men	Women
Total	322,872	162,577	160,295
0	3,013	1,579	1,434
1-4	13,213	6,932	6,281
5-9	17,886	9,317	8,569
10-14	17,290	9,056	8,234
15-19	19,760	10,407	9,353
20-24	24,436	12,782	11,654
25-29	29,736	15,382	14,354
30-34	28,926	14,630	14,296
35-39	26,467	13,650	12,817
40-44	24,281	12,432	11,849
45-49	23,409	11,494	11,915
50-54	23,517	11,491	12,026
55-59	21,341	10,516	10,825
60-64	16,910	8,191	8,719
65-69	12,713	5,970	6,743
70-74	9,013	4,002	5,011
75-79	5,943	2,594	3,349

Source: State Statistical Office - MAKSTAT database

Table 5 GDP of the Polog region for the period 2016-2018

Year	Region	GDP in million den	GDP structure RNM =100%	GDP per resident, in million den	GDP per resident RNM
2019	Polog	44,370.00	7.4	158,575.00	47.7
2018	Polog	41,600.00	7.25	148,785.00	46.7
2017	Polog	39,165.00	7.31	140,068.00	47.2
2016	Polog	36,830.00	7.14	132,538.00	46.2
2019	Republic of North Macedonia	689,425.00	100%	331,982.00	100%

Source: State Statistical Office - MAKSTAT database

Table 6 Participation in the gross value added of the Polog region by sectors, 2017-2019

	2017			2018			2019		
	RNM	Polog	Share	RNM	Polog	Share	RNM	Polog	Share
Total	535726	39165	7.31%	573922	41600	7.25%	598204	44370	7.42%
Agriculture, forestry; fishing	48664	5151	10.58%	55979	5638	10.07%	55477	5665	10.21%
Mining and quarrying; processing industry; Electricity, gas, steam and air conditioning supply	109870	5005	4.56%	123187	6328	5.14%	123854	6344	5.12%
Construction	40076	2287	5.71%	35757	2787	7.79%	38161	3133	8.21%
Wholesale and retail trade; Repair of motor vehicles and motorcycles; Transport and storage; Accommodation facilities and food service activities	122945	8373	6.81%	131737	8623	6.55%	139773	9054	6.48%
Information and communication	20974	109	0.52%	22612	316	1.40%	25520	427	1.67%
Financial and insurance activities	19313	160	0.83%	19276	196	1.02%	19221	232	1.21%
Real estate activities	59432	8266	13.91%	66152	8791	13.29%	68399	9524	13.92%
Professional, scientific and technical activities; Administrative and support service activities	22054	1109	5.03%	23822	1045	4.39%	25953	1205	4.64%
Public administration and defense; mandatory social insurance; Education; Health and social protection activities	74933	8110	10.82%	76943	7210	9.37%	82027	7694	9.38%
Arts, entertainment and recreation, Other service activities	17463	594	3.40%	18458	665	3.60%	19819	1092	5.51%

Source: State Statistical Office - MAKSTAT database

Table 7 Participation of the gross value added and investments in fixed assets of Polog region by sectors, 2017-2019

	2017	2018	2019		2019	
	RNM	RNM	RNM	Polog region	Share of GDP	Share in investments
<i>Total</i>	139018	132387	146078	7375	7.42%	5.05%
<i>Agriculture, forestry; fishing</i>	2909	3798	4067	194	10.21%	4.77%
<i>Mining and quarrying; processing industry; Electricity, gas, steam and air conditioning supply</i>	30531	31233	33175	1675	5.12%	5.05%
<i>Construction</i>	51091	45539	53702	4000	8.21%	7.45%
<i>Wholesale and retail trade; Repair of motor vehicles and motorcycles; Transport and storage; Accommodation facilities and food service activities</i>	24244	21060	25727	457	6.48%	1.78%
<i>Information and communication</i>	7233	7482	8069	116	1.67%	1.44%
<i>Financial and insurance activities</i>	1851	1864	1739	15	1.21%	0.86%
<i>Real estate activities</i>	1675	2290	874	0	13.92%	0.00%
<i>Professional, scientific and technical activities; Administrative and support service activities</i>	4172	3541	3196	264	4.64%	8.26%
<i>Public administration and defense; mandatory social insurance; Education; Health and social protection activities</i>	10045	11627	12154	578	9.38%	4.76%
<i>Arts, entertainment and recreation, Other service activities</i>	5267	3952	3376	75	5.51%	2.22%

Source: State Statistical Office - MAKSTAT database

Table 8 Registered applications for employments, Polog region in the period 01.01 - 31.10.2020

Category	Tetovo		Gostivar		Polog	
	2020	%	2020	%	2020	%
Employment applications	5687	100%	2227	100%	7914	100%
Indefinite employment	3736	65.7	1542	69.2	5278	66.7
Definite employment and seasonal workers	1951	34.3	685	30.8	2636	33.3
From the Unemployed Records of ESA	2076	100%	972	100%	3048	100%
Indefinite employment	1254	60.4	627	64.5	1881	61.7
Definite employment and seasonal workers	822	39.6	345	35.5	1167	38.3
Not in the records of the Unemployed Records of ESA	3611	100%	1255	100%	4866	100%
Indefinite employment	2482	68.7	915	72.9	3397	69.8
Definite employment and seasonal workers	1129	31.3	340	27.1	1469	30.2

Source: Operational Program of the Polog Planning Region 2021-2026, page 24

Table 9 Number of active business entities per types of activities in the Polog Region, 2018-2020

	2018	2019	2020
Total	8272	8614	8408
A Agriculture, forestry and fishing	189	197	182
B Mining and quarrying	17	14	15
C Manufacturing	1109	1164	1132
D Electricity, gas, steam, and air conditioning supply	19	20	16
E Water supply; waste disposal, waste management; sanitation of the environment	31	35	31
F Construction	832	899	905
G Wholesale and retail trade; Repair of motor vehicles and motorcycles	2943	2941	2858
H Transport and storage	453	446	417
I Accommodation facilities and food service activities	749	767	767
J Information and communication	102	104	113
K Financial and insurance activities	34	33	30
L Real estate activities	23	27	25
M Professional, scientific and technical activities	605	630	642
N Administrative and support service activities	140	154	165
O Public administration and defense; mandatory social insurance	18	18	18
P Education	119	122	121
Q Health and social protection activities	399	395	401
R Arts, entertainment and recreation	103	141	129
S Other services	387	507	441