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# RENEWABLE ENERGY SOURCES AS A BASIS FOR SUSTAINABLE DEVELOPMENT OF RURAL AREAS

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**ABSTRACT:** Poland has a problem with a low economic growth rate. This particularly applies to low income and quality of life in rural areas where there is a high level of unemployment (including hidden). Increasing economic development in rural areas requires the creation of jobs in non-agricultural areas. Opportunities for positive changes in this area may be the actions taken in the context of local low carbon economy plans, aimed at the development of renewable energy sources. The purpose of the study was a synthetic analysis of the situation in terms of unemployment in rural areas and identify the opportunities created by renewable energy sources in order to eliminate this unemployment.

**KEY WORDS:** sustainable economic development, agricultural employment

## Introduction

From the beginning of the systemic transformation, the basic goal is to quickly equate the standard of living in Poland with the high-developed European countries. However, in practice, this target was reduced only to changes in the growth rate and no attention was paid to quality changes. As a result, the level of economic development is low, which manifests itself primarily in:

- poverty level (nearly 7% of the population affects extreme poverty, more than 12% statutory and almost 16% – relative) (GUS, 2016a),
- social inequalities (we have a much higher income differentiation than other European countries) (Jankiewicz, 2014, p. 98-99; Jankiewicz, Pająk, 2014),
- level of remuneration (in terms of dominant value),
- Difficult access to health care (including prevention and rehabilitation) (Jankiewicz, 2014, p. 97; Jankiewicz, 2016, p. 251-252).

From a spatial perspective, the problem of low income and quality of life occurs in the countryside. Opportunities for positive change may be the actions taken in the context of local low carbon economy plans that will increase the pace of sustainable development in these areas.

The aim of the study was synthetic analysis of unemployment in the rural and the presentation of renewable energy sources (RES) as a basis for employment growth and income growth in the rural population. Especially, that in the current financial perspective, significant EU funds have been allocated to activities related to the broadly defined reduction of emissions of harmful gases and dusts to the atmosphere. Whereas the government plans to introduce programs to support the development of RES.

The work is descriptive-analytical and based on method of observative, intuitive and critical analysis.

## Characteristics of unemployment in rural areas

There is a conviction that in Poland unemployment is no longer a problem, which is not true. Despite the overall low unemployment rate, there are regions where there are considerable difficulties in finding a job (in some areas unemployment remains even three times higher than the national average). It is characteristic that for many years we have problems in the same regions (GUS and Reports: Territorial diversification of unemployment in Poland, MRPiPS).

When analyzing the labor market in the context of economic development, attention should be paid to the low level of professional activity of society (Sytuacja, 2012), relatively high hidden unemployment (GUS, 2016b; Poczta, 2013; Jóźwiak, Ziętara, 2013), low salaries, large economic emigration (estimated at 2-3 million people) and a significant (almost 20%) share of employed people with fixed-term employment contracts (which are not usually converted to permanent employment) and working only on casual work contract or specific-task contract (total about 5%) (Palczyńska, 2016).

Indicated above problems mainly concern the rural areas. Approximately 39% of the Polish population lives in rural areas, and among the unemployed, they constitute about 43-45%. At the end of 2014, unemployment in rural areas reached 812.1 thousand people, while the dynamics of decline was slower than in cities. The only exception are the villages near large cities, which de facto become urbanized urban areas while remaining villages in the administrative sense. This problem does not apply to them.

Of the 1000 people working in the countryside in 2014, even 944 were unemployed. The highest (at 85.6%), the level of occupational activity of the population living in rural areas was 40-44 years old, relatively low (37.4%) was among young people (15-24 years) and the post-working age population (60 years and more for women and 65 and more for men) – 5.9%.

Spatial differentiation of unemployment in the countryside is also important. In 2014, the percentage of rural population in the total number of unemployed people ranged from 22.0% (in Śląskie voivodeship) to 63.1% (in Podkarpackie voivodship), where in 9 voivodships exceeded the average for the country (in Świętokrzyskie – 56.3%, Lubelskie – 55.9%, Małopolskie – 54.1% and Warmińsko-Mazurskie – 50.6%) (MPiPS, 2015).

In addition, there is a large hidden unemployment in rural areas. According to estimates, it amounts from 600 thousand to 1,500 thousand people (Kołodziejczak, p. 130; Frenkel, 2013; Karwat-Woźniak, Chmieliński, 2013; Kołodziejczak, 2015; Nurzyńska, Poczta, 2014; Bański, 2013). The surplus of labor supply in agriculture will be released in the next 10 years, regardless of the situation on the local labor market (i.e. whether non-agricultural jobs will be created or not<sup>1</sup>). This will be the result of changes in the agricultural policy of the Community, which is promulgated (and include, inter alia, the liquidation of direct payments).

Spatial analysis shows that the „release” of labor resources in agriculture will not be uniform. Most of them will be in the Lubuskie, Podkarpackie and Małopolskie voivodeships (about 200 thousand people each). Large influxes

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<sup>1</sup> In the latter case, unemployment will increase and will reduce the life quality of the population.

(100-150 thousand people) can also be expected in the Mazowieckie, Wielkopolska, Świętokrzyskie, Łódzkie and Podlaskie voivodships.

Without solving the problems of the rural labor market, the pace of economic development and prosperity of the majority of society will not be significantly improved. Opportunities in this case may be the development of RES, which will also ensure that it will be sustainable.

## RES as a basis for increasing employment in rural areas

Primary energy production in Poland is based primarily on fossil fuels (PAliIZ, 2013, p. 4-5), what is the problem. Our country is committed to reducing carbon-based production to green energy sources (Bukowski, 2013; Górniak, Kossowska, 2013). By 2020, the share of renewable energy is expected to increase to 15% and in 2030 to reach 20% (PE, 2009). In addition, the European Union has adopted a reduction of 30% CO<sub>2</sub> emissions by 2020.

Another problem is the current state of the infrastructure of electricity generation and distribution, which creates a barrier to dynamic economic development. Many areas remote from the power plant experience periodic shortages in the supply of electricity, which effectively excludes them from the modern economy.

Obstacles mentioned above will be abolished due to the development of RES. This will be possible due to technological development, which results in more and more efficient power plants of this type and systematically decreasing investment costs (Krawiec, 2010). At present they are relatively high (it is estimated to be about \$ 250 per megawatt hour), which lowers the profitability of such ventures (Bloomberg, 2017). However, within a few years they should (according to forecasts) decrease significantly. The British government assumes that the investment costs for one megawatt hour will fall to £ 100 (\$ 167) to 2020<sup>2</sup>.

Similarly as in the field of renewable energy, progress will be possible in other areas of the low carbon economy (especially in the field of waste management) (Bank Światowy, 2011).

The construction of renewable energy and low-carbon economy creates an opportunity for the development of many regions in Poland, especially in rural areas. These changes will generate demand for specialists in the field of, inter alia, new energy technologies, infrastructure security, logistics and

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<sup>2</sup> Many analysts (such as Sophia von Waldow, a BNEF analyst) believe that it is possible to reach costs under 110 pounds by that time, and only a few big companies such as Dong will get 100 euros (\$ 137) per megawatt hour to 2020.

energy agriculture (Matusiak, Kuciński, Gryzik, 2009, p. 14; Jankiewicz, 2014, p. 15-22). Increasing investment in a low-carbon economy will require well-educated engineering staff and qualified employees. Workplaces will be mainly created in small businesses and will be characterized by relatively high remuneration.

There are no obstacles, and it is advisable to invest in RES in rural areas. People will not have to change their place of residence to get a job. This is especially true for young people who have a technical education (even on a secondary level, because they will not need higher education) will be guaranteed long-term employment with relatively high remuneration (Węglarz, Winowska, Wójcik, 2015). It is estimated that up to a few million new jobs will be created, so-called green.

Those who remain in agriculture will gain additional income through the installation of RES on their farms. The availability of that solution will be possible thanks to financial support from the EU and national funds and the assistance of energy companies interested in the development of the market for micro-installations of RES. This will create a positive feedback loop, which will further increase the pace of sustainable economic development in the countryside.

## Summary

Poland, in pursuit of further economic development, enhancing innovation, ensuring energy security and fulfilling environmental obligations (especially within the European Union), must increase the supply of electricity produced by RES. The optimum area of investment in this type of source is rural, which will allow long-term employment growth in non-agricultural activities and increase in income. It will also affect:

- improving the local environment,
- increasing the competitiveness and economic efficiency of the local economy,
- implementation of innovative technical solutions in the local energy sector,
- building social capital,
- development of distributed energy and local sources of RES,
- reducing the risk of energy poverty in rural areas.

This will lead to a development in which „the satisfaction of current social needs and the needs of future generations will be treated equally ...” and „... will harmoniously combine care for the preservation of the natural and cultural heritage of the nation with civilization and economic progress being the participation of all social groups” (Ministerstwo Środowiska, 1999). It can be called sustainable.

## The contribution of the authors

Sławomir Jankiewicz, Prof. – 50%

Dominika Mierzwa, PhD – 50%

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