



ANALYSIS OF HUMAN CAPITAL AND LABOUR MARKET IN THE COAL & HEAVY INDUSTRY SECTOR AND SHIFTING POTENTIAL TO ALTERNATIVE SECTORS IN HUNGARY FOCUSING ON BAZ COUNTY



Beáta Siskáné Dr. Szilasi
Geográfusokért Alapítvány



• supported by

• Visegrad Fund



Commissioned and edited by: NSC-FoE Hungary
November, 2018

Tartalom

1. Labour market analysis.....	3
1.1. The antecedents of the situation in BAZ county and its unique structure	3
2. The characteristics of human capital and labour market between 2000-2018, in Hungary and in BAZ.....	5
2.1. Placing the BAZ county situation within the labour market of Hungary	5
2.2. Labour market characteristics in BAZ	7
3. Labour management and main related problems in BAZ county.....	8
4. Conclusions, recommendations, the possibilities of re-allocation of labour	10
4.1 Recommendations	12
5. BAZ Strategic documents to rely on and Resources used.....	14
5.1 Key available Strategic documents, measures working in BAZ	14
5.2 Resources used for this study (only in Hungarian).....	15

The project is co-financed by the Governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from International Visegrad Fund. The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe



1. Labour market analysis

There is an increasing need during both planning and decision-making for exploring the current state of affairs regarding the demand and supply on the labour market. Even though there are current requirements in employment, most cases imply longer-term ones.¹ The present study examines the characteristics of the labour market, focusing on Borsod-Abaúj-Zemplén (BAZ) county and the potential of human resources in mining and heavy industry, or whether this kind of employment group can be shifted to alternative sectors as well. Changing economic factors always contribute to the so called progressive and regressive sectors; that is, sectors that are characterized by a more differentiated and more dynamic growth than the average, or rather by regression.²

The change of regime in 1990 brought the most significant change in Hungary's economic structure, as in the previous years and the ones preceding 1990 mines were continuously being closed and the heavy industry sectors gradually disappeared (or were liquidated).

Problems related to the closures of mines have been present throughout Europe since the 1960s, and the changes in coal and ore mining have been particularly noticeable. The depletion of mines was among the reasons for the abolition of production as much as the changes in the economic judgment of the mined raw material, or the increase in the costs of production beyond an acceptable degree (Siskáné Szilasi, B. 2005). The abandoned mines, the former mining facilities, buildings and industrial sites have raised both environmental and socio-economic problems.³

1.1. The antecedents of the situation in BAZ county and its unique structure

BAZ county has always had a unique role in the country's economic structure, as its share of economic performance has been different from one sector to another. After the change of regime, this feature resulted to have a negative effect as the county's coal mining and heavy industry potential dropped. One major consequence was the very high rate of unemployment (oftentimes over 20%), which required the transfer of the released labour to positions in alternative sectors.

In spite of the decline, statistical data show that even until the 2000s, the two sectors managed to keep some of their power. The material prepared for crisis management⁴ shed light on the fact that in the 1990s BAZ county accounted for 31% of lignite and 13% of electricity production (the latter value had been 25% in 1985) of the domestic consumption. A similar regression was observed in crude iron and crude steel production, as in the nineties the county's share was 28-28%, while in 1985 it had been 65%.

¹ Belyó P.-Ékes I. 2008.: A munkaerő-piaci kereslet és kínálat. in: Lengyel J. et al: Munkaerő-piaci kutatások 2008. ÁFSZ jelentés

² Belyó P.-Ékes I. 2008.: A munkaerő-piaci kereslet és kínálat. in: Lengyel J. et al: Munkaerő-piaci kutatások 2008. ÁFSZ jelentés

³ Siskáné Sz. B. et al. 2013: Észak-Magyarország felhagyott bányászati területeinek hasznosítási lehetőségei in: Észak-magyarországi Stratégiai Füzetek

⁴ Kalocsai Kornél 2001: Magyarország válságrégiói és menedzselésük jellemzői

This situation significantly transformed the employment structure and characteristics of the county. The solution of the situation was also difficult because a strong concentration dominated three important areas, having an effect on the characteristics of the workforce: the two sectors were characterized by a strong geographical concentration within Hungary; the companies were large in size and were also predominant in employment and production; it resulted in a one-sided industry structure, characterized by the predominance of heavy industry.

The first signs of crisis appeared in the 1980s, which in case of the Borsod Coal Mines (Borsodi Szénbányák) were mainly due to the changed economic environment, the regression of economic growth and later the weakening of the central economic governance. Symptoms of the crisis were the following: decline in production – deterioration of quality; the appearance of “hidden unemployment”; inappropriate industrial background; lack of technological development.

The worst economic, employment and social problems emerged in BAZ county due to the crisis in steel industry (heavy industry). While in the 1980s 35,000 people worked in metallurgy, nearly 25,000 people lost their jobs by 1995. Meanwhile, in other industries, the number of dismissals was around 50%, and was 40% even in the leading chemical industry.⁵

The most serious problem in BAZ county was that the labour dismissed from the mines that ceased operations faced difficulties in finding a new job and restarting their lives. The strategy to handle the problem was different in case of the Central-Eastern European countries before and after 1990. Prior to 1990, unemployment did not exist in its present

form, therefore when the mines were closed, the repositioning and shifting of the released workforce had to be solved by all means. As gradual downsizing of staff was not usually the case, there was a sudden need to provide jobs for a large number of people with different qualifications.

After 1990, the increase in the unemployment rate was significantly influenced by former mining or metallurgical workers, due to economic and political reasons unrelated to them (Siskáné Szilasi, B. 2005). Following the closure of mines and the decline in the number of factories in the heavy industry, former employees who did not leave their place of residence, as a result of the changed standard of living and quality of life, found themselves on the social periphery. The extent of the drop in employment is well demonstrated in the Central Statistical Office (Központi Statisztikai Hivatal, KSH) data, both in terms of mining and metallurgy (Figure 1).

⁵ Kalocsai Kornél 2001: Magyarország válságrégiói és menedzselésük jellemzői

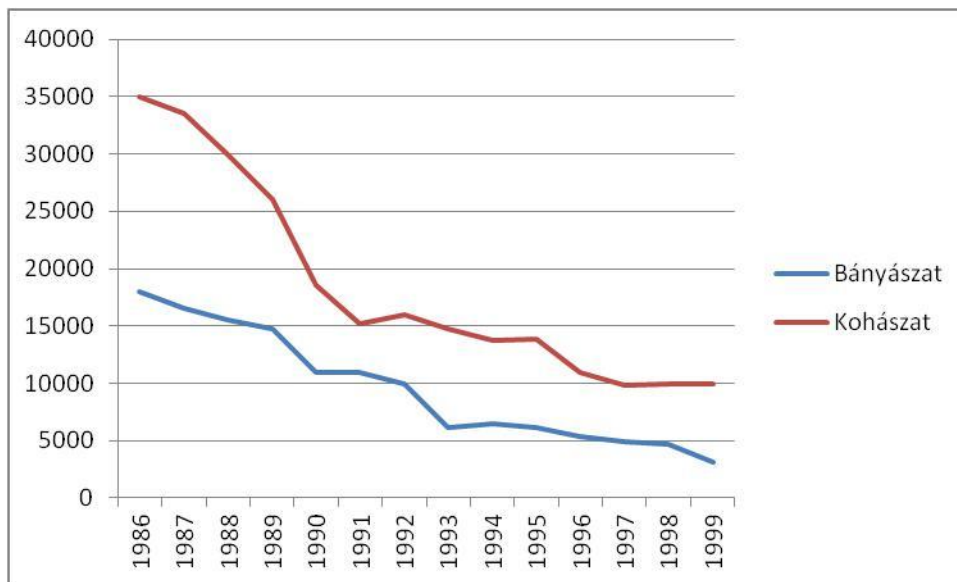


Figure 1. Development of the number of employees in mining (blue) and metallurgy (red) in BAZ county between 1986 and 1999 (per person) Resource: KSH, based on Kalocsai K., edited by Siskáné Szilasi B. 2018

By the end of the 2000s, however, these problems were less present in the county, as workers in the affected age group had either retired or found their place in other sectors, or looked for new employment opportunities through internal migration.

2. The characteristics of human capital and labour market between 2000-2018, in Hungary and in BAZ

Having outlined the relevant processes in the previous chapter, we are able to track and analyze the situation of the past and the present based on the data of the Central Statistical Office. The basic indicators that I use in describing processes are: the distribution of employees by sectors, territorial distribution, employment rate, activity rate, human capital ratio. Concepts are to be understood according to the methodology used by the Central Statistical Office to analyze labour market.

2.1. Placing the BAZ county situation within the labour market of Hungary

According to the European Commission economic forecast for the autumn of 2017, the Hungarian economy is growing at a significant pace in 2017, driven by the consumption of households and the increasing investment activity. GDP growth for 2017 is estimated at 3.7 per cent, while 2018 is estimated at 3.6 per cent. There is prognosis for further decline in unemployment (4.2 per cent) and rising inflation (2.3 per cent in 2017, 2.6 in 2018).

Employment in the construction industry sector has increased, in the industry sector has not changed, in trade and service sector have decreased. The fear of unemployment of the

population is slightly strengthened, although the main obstacle to increase production is the labour shortage in all sectors.

The regional inequalities experienced in assessing the business status did not change significantly compared to last year's results, 2017 had a favourable business climate in each county. Balancing indicators measuring the current and future business situation are amongst the lowest in BAZ county (37 and 28 points) and highest in Western Hungary (Győr-Moson-Sopron County 62 and 51 points, Budapest 60 and 46 points).⁶

Territorial differences in employment and unemployment rates within the country have already emerged during the global financial crisis. In the case of BAZ county, the labor market features were also apparent in 2010.

The unemployment rate in BAZ county (16.9%) significantly exceeded the national average (10.8%). Regarding employment, the county's indicator remained below the national 49.5% rate, which was 42.7%. Regarding the indicators only Szabolcs-Szatmár-Bereg and Nógrád counties had worse parameters. BAZ county's unique position within the country was apparent, which was another challenge for the labour market. As regards employment, it

should also be taken into account that 15 of the most disadvantaged areas are located in Northern Hungary, including 10 in BAZ county. The number of registered jobseekers in 2011 was in the highest category in BAZ. This meant that the number of jobseekers was between 9300 and 1600 in Western counties (eg. Győr-Moson-Sopron, Vas), in the BAZ county it was between 49 300 and 72 000 persons.

In 2017, the situation has improved a lot, but this includes the launch of the public benefit work program in BAZ. As a consequence, the unemployment rate has significantly improved, compared to the national 5.03%, while the value of BAZ county is 6.5%. The employment rate (53.7%) lags short of the national average (60.04%). The special situation of BAZ is characterized by the high number of economically inactive people within the county. At the same time, according to the 2016 report by the KSH, 2342 positions were expected to be filled in BAZ, which is 1.7-1.8%. Thus labour shortages are also present in regions where there is unemployment and a high proportion of public benefit employees, including in BAZ county.

Out of a total of 660,549 residents in BAZ, 154,060 persons were employed in 2016. With regard to the type of work, physical "blue collar" work and workforce dominates. Regarding qualifications, there is a high proportion of job-seekers with only primary education, followed by vocational and vocational training graduates, ie. professionals. However, the large number of people with primary education shows that the labour potential in the county is unfortunately unqualified, with no occupation. BAZ county has the highest proportion of unemployed jobseekers: 14%.⁷

⁶ Rövidtávú munkaerő-piaci prognózis – 2018, MKIK Gazdaság- és Vállalkozáskutató Intézet

⁷ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

2.2. Labour market characteristics in BAZ

In recent years significant demographic changes have taken place in BAZ county, which, in addition to the decline of the population, meant a decrease in the number of economically active people belonging to the age group of 15 to 74 years. In the Central Statistical Office's publication⁸, aggregate figures show that the population of the county in 2014 was 675,000 (while in 2000 this was still 753,497). Labour market data show that there were 243,500 employees in 2014, of whom nearly 64% had secondary education, 21.8% were graduates and 14.1% had lower qualifications. The group of people with no qualification or with primary education, who used to be characteristic for the region and were employed in mining and heavy industry previously as unskilled or trained labour, has been transformed for present days. In 2014, the activity rate was 53.9%, the employment rate was 47.8% and the unemployment rate was 11.3%. The distribution of employees according to merged economic sectors shows that BAZ county was also characterized by a 5-6% share in agriculture. In addition, the service sector accounted for more than 54.6%, and the

previously dominant industries and construction industry was at 40.4%. Concerning the distribution of employees when examining the sectoral structure where the processing industry is regarded as 100%, metallurgy and metal processing was 14.2%, machine and equipment production was 7.6%.

According to the 2016 microcensus statistics of the Central Statistical Office⁹, and its data focusing on the economic activity of the population, the employment rate of the North Hungarian region was 42.7% (42.4% in BAZ county). These values are much higher than those registered in the 2001 census where the same figure for the county was only 28.1%. The number of employees in mining was very low, only 6,700. Regarding the rank of sectors, manufacturing industry (884,500 employees) was ranked as first, followed by trade (588,100 employees) and public administration (488,900 employees).

The following figures and the information above reveal that the classic problem present during the change of regime is not so typical in our county, or in its previous form. As already indicated, in the 1990s it was a serious problem to shift the unqualified, unskilled trained workers from the mining and heavy industry to other sectors of the economy, which resulted in the still present structural disparities in BAZ county. After the collapse of heavy industry and mining, some of the employees were transferred from the primary and secondary sectors to the tertiary. For the unemployed, the emergence of new jobs created by sectoral changes was important, but this was a slow process in the county.

⁸ Borsod-Abaúj-Zemplén megye számokban 2014, KSH kiadvány 2015 30 p.

⁹ Mikrocenzus 2016, KSH, 5. A népesség gazdasági aktivitása

The distribution of employees indicate that there are 325 people working in the mining industry, while 35,712 in the manufacturing industry, the latter being a complex category (Table 1).

Among the sectors employing a larger number of physical workers, transportation and storage (5,498 people), building industry (4,772 people), agriculture (3,152 people) and water supply (2,840 people) are present. Most of the people are employed in the social and health care sector (40,392 people), of which 28,941 are physical workers.

Table 1. Distribution of employees in various sectors (in the order of the sectors with the highest number of employees) ¹⁰

Categories from top to bottom: Q – human health and social services, C – Processing industry, O – Public administration, P – Education, G – Trade, car maintenance, H – Transport, storage, F- Buildings industry, N – Admin and services, A- Agriculture, forestry and fishing, E – Water and wastewater, I – Tourism, M - Scientific-engineering, R – Art and leisure, D – energy generation, S- Other Services, K – Financial and insurance, L – Property service, J – Info-communications, B – Mining
Fizikai: blue collar work, Szellemi: white collar work, Összesen: total (per person)

Gazdasági ág	Az alkalmazásban állók száma (fő) gazdasági ág szerint, 2016. I-IV. negyedév	Fizikai foglalkozású (fő)	Szellemi foglalkozású (fő)	Összesen (fő)
Q	Humán-egészségügyi, szociális ellátás	28 941	11 451	40 392
C	Feldolgozóipar	25 376	10 337	35 712
O	Közigazgatás, védelem; kötelező társadalombizt.	5 952	10 199	16 151
P	Oktatás	2 708	12 172	14 880
G	Kereskedelem, gépjárműjavítás	7 028	3 383	10 412
H	Szállítás, raktározás	5 498	1 258	6 756
F	Építőipar	4 772	1 354	6 126
N	Adminisztratív és szolgáltatást támogató tev.	4 309	709	5 018
A	Mezőgazdaság, erdőgazdálkodás, halászat	3 152	1 110	4 262
E	Vízellátás, szennyvíz gyűjtése, kezelése	2 840	1 024	3 864
I	Szálláshely-szolgáltatás, vendéglátás	2 272	487	2 759
M	Szakmai, tudományos, műszaki tevékenység	604	1 131	1 734
R	Művészet, szórakoztatás, szabad idő	438	940	1 378
D	Villamosenergia-, gáz-, gőzellátás, légkondic.	676	594	1 271
S	Egyéb szolgáltatás	605	302	907
K	Pénzügyi, biztosítási tevékenység	93	671	764
L	Ingatlanügyletek	394	296	689
J	Információ, kommunikáció	51	620	670
B	Bányászat, kőfejtés	240	85	325
Összesen		95 949	58 123	154 070

Forrás: KSH;

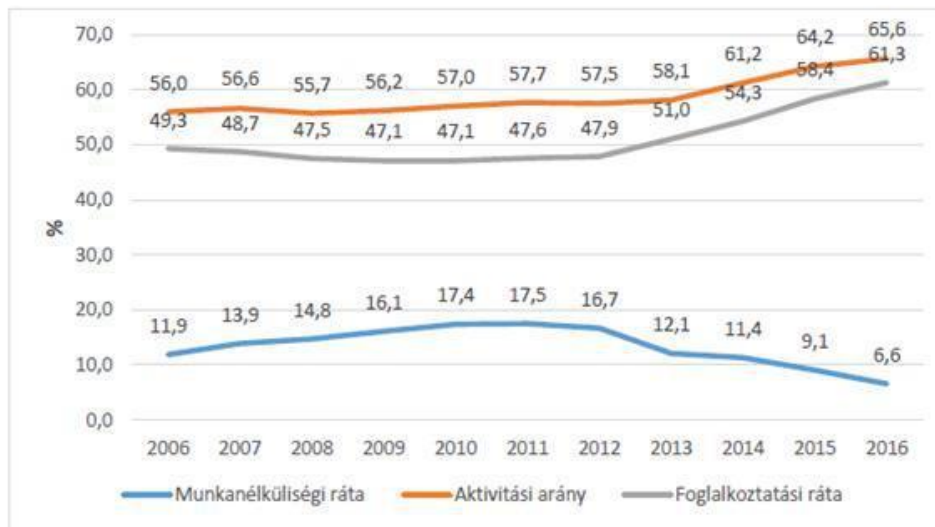
Data show that the shifting of labour from mining and heavy industry is possible to sectors where the rate of physical workers is higher.

3. Labour management and main related problems in BAZ county

There has been a change in the employment and unemployment rates since 2006; between 2006 and 2009, the rate of employment has started to decline and the unemployment rate to rise as the global economic crisis was unfolding. In BAZ county, the employment rate

¹⁰ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

decreased to 47.1% in 2009, while the unemployment rate increased to 16.1% (Figure 2). The situation persisted until 2013 and the direction of the processes remained unchanged. During the crisis, the negative effect was more dominant in the industrial sector (eg. building, automotive sectors).



Forrás: KSH - STADAT táblák;

Figure 2. Labour market tendencies in BAZ county¹¹

Blue: unemployment rate, brown: activity rate (rate of active people), grey: employment rate

The employment and the unemployment rates have improved during 2013, the former increased by 1.4 percentage points, while the latter decreased by 0.8 percentage points nationally, compared to 2011, due to the positive effect of the significant growth in public employment.¹² Labour market processes were favourably influenced by the introduction of public employment: it was a possible response in the crisis to form a socially useful, value-creating form of employment based on the principle of “work instead of aid”¹³.

Figure 2 demonstrates that the employment rate started to grow in 2013, reaching 61.3% by 2016. Meanwhile, the unemployment rate fell from to 6.6% in 2016. The improvement is mainly related to public employment: the average number of public employees in 2016 was the highest in Szabolcs-Szatmár-Bereg (Northern Great Plain) and BAZ (Northern Hungary) counties, almost one third of public employees (32.3%) could be related to these two counties.¹⁴ The problem is however that public work can only be integrated into the treatment of employment problems as a necessary response and not as a long-term alternative. The main objective is to shift the majority of public employees to the primary

¹¹ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

¹² Kádár K. szerk. 2018: Elemzés az aktivitási ráta alakulásáról, Állami Számvevőszék, Budapest, 54 p

¹³ Siskáné Sz. B. –Halász L. 2017: Globális munkaerőpiaci kihívások az új gazdaságföldrajzi folyamatok tükrében. in: Földrajzi Közlemények, pp 263-274

¹⁴ Kádár K. szerk. 2018: Elemzés az aktivitási ráta alakulásáról, Állami Számvevőszék, Budapest, 54 p

labour market to take up employment there. In BAZ county, the number of public employees was over 36,000 in 2015 and 2016 as well, which is a significant workforce potential.

In addition to this group, we must also consider the fact that, in our county, more than a quarter of the job seekers are permanently unemployed (since they have not been able to find a job for more than a year). It is also a significant problem that there are groups that have never worked. Those who are long-term unemployed are difficult to employ, the reasons for which are:

- a significant number of them are unskilled or unqualified, having primary education at most,
- a part of them completely lacks occupational socialization, have no relevant experience
- they live socially isolated, and as a result have no access to information related to job search, or the conditions of employment
- are hardly mobilized – due to habits and/or lack of financial capital¹⁵

Since 2013, processes have been greatly affected and changed by the growing number of work abroad, especially in the younger age group (18-39 years), which resulted in a lack of workforce and unfilled positions in the last two years.

4. Conclusions, recommendations, the possibilities of re-allocation of labour

At present, 0.26% of ventures belong to the mining sector due to the closure of the major coal mines (Lyukóbánya, Fekete-völgy, Putnok, Rudolftelep, Szuhakálló, Múcsony-Mákvölgyi külfejtés, Borsod-és Ózd vidéki-medence) and the termination of activities there. Currently there is production of lignite in Bükkábrány, and there are smaller mines that produce the volume of residential coal production, while others continue to produce stone-gravel and other mineral raw materials (eg. Mád - zeolite, Pálháza - perlite).

Examining the composition of job seekers based on their qualification, it can be stated that in the county there is a high proportion of them with only primary school qualifications. There is also a significant group with vocational training, but the existing labour potential is largely untrained, unskilled, with no profession. Low skilled and qualified people can primarily do physical work, therefore can hold jobs in industry, transportation, warehousing, construction, trade and catering.¹⁶

The role of the processing industry is decisive in the county in terms of the number of employees because in the first half of 2016 approximately 35,000 people were employed.

¹⁵ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

¹⁶ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

Based on a corporate survey, 28% of the vacancies (349) were in the processing industry. In this sector, despite the high labour demand, only a small amount of jobs are filled by support. There was a significant number of employees in the administrative and support services, construction, transportation, warehousing, trade, and vehicle service and repair sectors. In the county, mainly in Miskolc, additional jobs are expected in the automotive industry and due to government incentives, in the construction industry as well. There is continuous labour demand also in customer relations and business administration. Furthermore, there is a need for job creation in sectors where fluctuation is typically high: agriculture, trade, catering, transportation, construction. Based on surveys, there is a significant demand of new workforce in the following positions: product assembly, mechanical assembling, locksmithing, welding.

Therefore, the way out for job seekers in BAZ county is shifting into sectors with a significant number of and a persistent demand for physical workers. Such sectors are the following:

- agriculture
- machinery
- construction
- trade and commerce
- transportation
- storage
- administrative support
- public administration (settlement operations)
- social and health care

Employers indicated need for labour in the processing industry, especially in metal processing and the manufacture of electronic products and machinery. Further significant labour demand was reported in agriculture, forestry, transportation, and warehousing. It is important that these jobs are linked to the primary labour market.

So-called labour-intensive jobs can be shifted to sectors with former structural and production traditions and working culture. In case of traditional sectors, the two most important are the machinery and chemical industries, furthermore the manufacture of electronic products and machine equipment are also important. Vegetable and fruit cultivation, animal breeding and forestry also carry some possibilities. In 2016, most of the reported positions in BAZ county were in public administration, where the demand for the participation in the public employment program was announced.¹⁷

Types of occupations that are currently in the public work program, which provide the opportunity for the workforce, mainly for physical work, can also be pursued on the primary labour market. In 2015, these were the ones that could employ significant, potentially sustainable numbers in the future as well. The 2015 staff figures (monthly averages) are the following in these sectors: agricultural (15,080 people); inland drainage (1,167 people);

¹⁷ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

maintenance of agricultural dirt roads (447 people); elimination of illegal landfills (412 people); bio and renewable energy (1,150 people).

4.1 Recommendations

1. **Recommendation Nr. 1:** Shifting unskilled workforce to primary sectors of the labour market facing labour demand: production of machinery, automotive and construction industries. Condition: motivation for learning, in order to avoid the negative activity and social spiral.

Also, the number of public employees was over 36,000 in 2015 and 2016, which is a significant labour force to be utilized better.

In the county, mainly in Miskolc, further work is expected in the automotive industry and as a result of government incentives in the construction industry. There is a continuous labour demand also in customer relations and business administration. Furthermore, there is a need for job creation in sectors where fluctuations are typically high: agriculture, trade, hospitality, transport and construction. According to the surveys, there is a significant number of new workforces in the following positions: product assembly, mechanical assembling, locksmith, welding.

2. **Recommendation Nr 2:** Shifting skilled workers to the tertiary sector - during the economic crisis, tourism was the sector with a positive balance over the process. Assessment and development of potential for local tourism. It is important to note that this sector is strongly seasonal, so there may be a seasonal change in the labour demand as well.

In this respect, education of adults could play an important role - not only for public employees - by organizing rapid retraining and further training. Such training could also develop vocational/non-professional but also other work competences.

In case of tourism, however, it should be taken into account that the workforce in the county is difficult to mobilize, that is to say, local development should be emphasized.

Good practices:

- Rudabánya: Mining History Museum since 1965. The city has carried out new tourism developments, with a major focus on the mine lake of previous mining site and the paleontological findings there. Today there are several developments which also create jobs: Rudapithecus spectacle and showroom; "Rudapithecus Visitor, Education and Research Center."
- Kopalnia Złota Złoty Stok, Poland: At the location of the former gold mine, significant tourism development has been performed which, beyond the possibility of panning, enables visits to the mine routes, where the visitor can get

to know the beauty of the profession. Several employees operate the former mine, which is popular among tourists.

3. **Recommendation Nr. 3:** (Re)development of brownfield sites, creation of new job opportunities through transformation, both in construction and operational terms.

Looking at the composition of jobseekers according to their qualifications in BAZ, there is a high proportion of job-seekers with only primary school qualifications. There is also a significant group of people with vocational education and vocational training, but the existing labour potential is largely untrained, with no occupation. However, the workforce of construction work could be met by this layer.

- **Good practice:** Turning a former factory in Luxembourg into a university, involving new businesses (SMEs). In 2003, the University of Luxembourg was established in a former heavy industry site, creating new employment, including physical jobs. Luxembourg was a steel producer on the international market but after 1980 it changed its economic structure to become a financial centre. The government strategy has made research, development and higher education a cornerstone of economic diversification, competitiveness and the creation of a knowledge-based society. In this context, one of the campuses of the university redeveloped the area of the former steel production site.

4. **Recommendation Nr. 4:** Opportunities related to the developments and necessary infrastructure in the renewable energy sector. There is an increased attention given to the expansion of the potential of renewable energy use. In BAZ county, there is a great opportunity to expand solar collectors and solar panel parks, or utilize geothermal energy.

The labour demand of the energy industry cannot be accurately identified as statistics do not break employment data into renewable or non-renewable categories. Nationally in the energy sector (Electricity, gas, steam and air conditioning) in 2016 there were 184 vacancies.

- **Good practice:** There are attempts at biomass (Miskolc biomass power plant) and geothermal energy (Extraction Well of Mály, Kistokaj Thermal Center). However, developments are largely dependent on central regulation, therefore wind power recovery capacity cannot be expanded at present.

5. Recommendation Nr. 5. The proximity of the Slovak border also provides cross-border employment. The traditional Miskolc-Kassa line can foster employment by increasing the number of businesses or by developing existing industrial, commercial, and tourism sectors. The highway which is still under construction at the moment will also improve the conditions for the transportation sector, which may also help further business cooperation.

- **Good practice:** The employment strategy of BAZ county includes the Hungary-Croatia IPA Cross-border Cooperation Program, which was run under the name “MOBIL Region” between 2007-2013. Career orientation, the matching of labour market demand and supply data reviewed by the chambers are also part of these programs. BAZ county also participates in similar initiatives in the framework of the MA-SLO-W project.

5. BAZ Strategic documents to rely on and Resources used

5.1 Key available Strategic documents, measures working in BAZ¹⁸

Borsod-Abaúj-Zemplén County Territorial Development Concept (Borsod-Abaúj-Zemplén County Local Government, 2013)

Comprehensive Objectives: to significantly improve the ability and competence of groups of cumulatively disadvantaged groups on external and internal peripheries to become a major player in the expanding labor market. Development of rural areas: maintaining local employment, providing basic services by supporting part-time employment and micro-businesses and agriculture-based activities;

To operate a training and vocational training system responsive to the needs of the economy and to meet market challenges: building up a system of public education capable of eliminating basic competences and disadvantages; practice-oriented, flexible vocational training system;

Borsod-Abaúj-Zemplén County "Strategy for the Social Inclusion and Mobility of Disadvantaged People - Borsod-Abaúj-Zemplén County State Administration College, 2012

Objectives: Close cooperation between the county and local organizations and NGOs is needed to fulfill the tasks to increase employment, which may have an impact on the number of jobs; in the improvement of the employment situation, the county employment agency cooperates with the primary partners to increase the number of open labour market placements with employers in the county.

Borsod-Abaúj-Zemplén County Vocational Training Development Concept - B.-A.-Z. County Development and Training Committee, 2013

The vocational training development concept aims at aligning the needs of vocational training and the labour market with vocational training, and there are several goals that support the development of employment and employability.

Miskolc County Labour Pact Program, Employment Strategy 2017

¹⁸ BORSOD-ABAÚJ-ZEMPLÉN MEGYE FOGLALKOZTATÁSI STRATÉGIÁJA 2016-2021, Miskolc, 2017

Its aim is to expand employment by implementing local action plans and to employ job seekers; in addition to promoting employment for the community, increasing the social economy, boosting the economy of the given region, increasing the level of employment and the standard of living of the population. The level of education of the adult population of the county needs to be increased in order for the tens of thousands of job-seekers, who are currently in employment, and who are at risk (at risk), have a chance to enter the primary labour market.

On a final note, labour demand assessment is a complex task, on the one hand, it is constantly changing over time, and the needs of the employer's side can be analyzed by questionnaire surveys with a high resource requirement. During the tests conducted in the county in 2017, 4500 businesses were searched, but only 505 companies filled out the questionnaire, out of which 377 were anonymous, ie. it was not possible to identify which company / firm was the required workforce. Quantifiable data is thus not available.

Potentially **6. Recommendation Nr. 6:** Adapting just transition aspects – see just-transition.info, articles and recommendations about Hungary¹⁹

5.2 Resources used for this study (only in Hungarian)

Belyó P.- Ékes I. 2008.: A munkaerő-piaci kereslet és kínálat. in: Lengyel J. et al: Munkaerő-piaci kutatások 2008 , ÁFSZ jelentés, Budapest, pp 13-24

Borsod-Abaúj-Zemplén megye számokban 2014, KSH kiadvány 2015 30 p.

Borsod-Abaúj-Zemplén megye foglalkoztatási stratégiája 2016-2021, a Borsod-Abaúj-Zemplén Megyei Önkormányzat kiadványa, Miskolc, 2017 júniusa, 20 p

Borsod-Abaúj-Zemplén megye számokban, 2014, KSH Budapest, 30 p

Energetikai helyzetkép, Borsod-Abaúj-Zemplén és Heves megye. 2017, WWF, 47 p

Kalocsai K. 2001: Válságkezelési gyakorlat: Borsod-Abaúj-Zemplén megye. in: 3.4. Magyarország válságrégiói és menedzselésük jellemzői, Miskolci Egyetem, 56 p

Kádár K. szerk. 2018: Elemzés az aktivitási ráta alakulásáról, Állami Számvevőszék, Budapest, 54 p

Kovács M. szerk. 2017: Mikrocenzus 2016. KSH, 5. A népesség gazdasági aktivitása, Budapest, 29 p

Siskáné Sz. B. et al. 2013: Észak-Magyarország felhagyott bányászati területeinek hasznosítási lehetőségei. in: Észak-magyarországi Stratégiai Füzetek, X. évfolyam 1. szám, pp 26-37

Siskáné Sz. B. –Halász L. 2017: Globális munkaerőpiaci kihívások az új gazdaságföldrajzi folyamatok tükrében. in: Földrajzi Közlemények, Budapest, pp 263-274

¹⁹ <http://www.just-transition.info/hungary-slovakia-signal-intentions-for-moving-beyond-coal>

Siskáné Sz. B. 2005: A bányabezárások társadalomföldrajzi szempontú vizsgálata Rudabánya és Bad Bleiberg környékén, PhD értekezés, Miskolci Egyetem, Társadalomföldrajz Tanszék, 140 p.

T. Kiss Judit, A humán tőke statisztikai mérhetősége. Statisztikai Szemle 90. évf. 1. szám pp 64-88

Tóth I. J. et al. 2017: Rövidtávú munkaerő-piaci prognózis – 2018. MKIK Gazdaság- és Vállalkozáskutató Intézet, Budapest, 154 p

KSH Statisztikai Tükör 2016: Betöltésre váró álláshelyek, Budapest, 5 p

<https://www.ksh.hu/docs/hun/modsz/modsz21.html>