



REGIONAL DEVELOPMENT STRATEGY „MAŁOPOLSKA 2030”

VOLUME 1

**DIAGNOSIS AND
DEVELOPMENT
FORECASTS**

Part I

**DIAGNOSIS
AND DEVELOPMENT
FORECASTS**

*Annex to Resolution No. XXXI/422/ 20 Sejmiku Województwa Małopolskiego
of 17 December 2020.*

**Małopolska 2030. Family space.
Your space for success.**

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INTRODUCTION

The Regional Development Strategy „Małopolska 2030“ is an update of the Małopolska Region Development Strategy for 2011-2020 (SRWM 2011-2020). The document represents the fourth generation of strategies developed by regional government. The evolution of the Małopolska Region Development Strategy illustrates the increasing importance, and hence the responsibility, of regional government authorities for the development of Małopolska. The first generation of the strategy was a symbol of the newly created local government taking over responsibility for the socio-economic development of the region. Public intervention described in the second generation strategy focused on defining the path of economic modernisation in the region and on ways to make use of opportunities for social development. In turn, the third generation of the strategy was a symbol of local government assuming responsibility for the Region's development.

The Regional Development Strategy „Małopolska 2030“ is a symbol of regional government's will to further strengthen its position as a coordinator and animator of development activities undertaken in the region. The policy directions described herein comprise public intervention, which assumes harmonious development, within the social, economic and environmental spheres of the entire Małopolska Region, fulfilling its territorial potential and eliminating barriers to development in individual areas (territorially balanced development). This implies that the beneficiaries of the development will be all residents of Małopolska, while its priority will be to guarantee the best possible quality of life for Małopolska families (socially sensitive development). Thus, the implementation of public intervention described in the Strategy should not lead to an increase in territorial and social disproportions; instead, it will focus on reducing or even eliminating them.

This document is the result of analytical work performed at the Department of Sustainable Development of the Marshal's Office

of the Małopolska Region as well as extensive social consultations, some of which took place during two editions of the regional debate on the future of Małopolska for the year 2030. The draft strategy was also presented at meetings with Councillors of the Małopolska Region, during advisory forums of the local Regional Government, and discussed with local government units (including those of neighbouring regions: Śląskie (Silesian), Świętokrzyskie and Podkarpackie), the Joint Commission of National Government and Local Government, and also with the authorities of the Prešov Region of Slovakia. The document contains a number of conclusions and remarks made during extensive public consultations, reinforced with recommendations formulated during the process of ex-ante evaluation and strategic environmental assessment. A detailed description of the entire process of social consultations, together with the position of the Board of the Małopolska Region, on particular comments and postulates is contained in the Report on the course and results of social consultations of the draft update

This document is structured as follows:

- I. A diagnostic and forecast part, which presents the current development situation of Małopolska and the main trends that will determine the development of the region for 2030.
- II. the strategic part, where, on the basis of conclusions resulting from Part I, the vision of Małopolska development and main directions of activities aimed at its implementation were defined, together with figures showing projected levels of success.

of Małopolska Region Strategy for 2011-2020, entitled: "Małopolska 2030"¹.

In order to ensure optimal formula of works on the document, the Team for "Małopolska 2030" Strategy and the Regional Operational Programme for the Małopolska Region for 2021-2027 was established, consisting of the Steering Committee for Strategic Considerations and Strategic Teams. The Team for the "Małopolska 2030" Strategy and the Regional Operational Programme for the Małopolska Region for 2021-2027 includes, representatives of the Board of the Małopolska Region, representatives of the relevant departments of the Office of the Marshal of the Małopolska Region and selected organisational units of the Małopolska Region, as well as key regional institutions and external experts.

In addition, as part of work on the Strategy, the selection of projects for the Supra-local Projects Bank was carried out. It was aimed at identifying development needs in the region and, on this basis, defining the scope for public intervention described in the Strategy. This made it possible to identify the types of projects that could potentially be supported using the resources of the Regional Operational Programme for the Małopolska Region for 2021-2027 (ROP WM 2021-2027) and may be helpful in formulating the postulates of the Regional Government regarding instruments and programmes developed at central level.

The Regional Development Strategy "Małopolska 2030" is coherent with the objectives set out in the currently binding medium-term national development strategy, i.e. Strategy for Responsible Development until 2020 (with an outlook until 2030) and the National Strategy for Regional Development 2030. In connection with ongoing work on strategic documents

1 Resolution No. 515/20 of the Board of the Małopolskie Region of 7 April 2020 on adopting the Report on the course and results of social consultations of the draft update of Małopolska Region Strategy for 2011-2020, entitled "Małopolska 2030".

defining the framework for national development policy for 2030 perspective and the ongoing negotiations of the Multiannual Financial Framework of the European Union for 2021-2027, including the budget and the rules for the implementation of cohesion policy, the provisions of the most up-to-date draft documents created by the Government and the European Commission were taken into account while working on the Strategy. This applies in particular to:

- > draft integrated national strategies;
- > the draft of the "cohesion policy" legislative package for 2021-2027.

The diagnostic and forecast part presented, as far as possible, the socio-economic effects and challenges related to the coronavirus pandemic, and the strategic part defined the actions constituting the response to them, although, when the document was adopted, the consequences of COVID-19 were still unknown. An action aimed at limiting the negative effects of the pandemic was the rapid launch of the Małopolska Anti-Crisis Shield by the Region's authorities, for which approximately one billion zloties were earmarked. Six aid packages were developed: medical, entrepreneurship, financial liquidity, social, educational, development. The money came from European funds as well as state and regional budgets. In the Regional Development Strategy "Małopolska 2030", actions were planned, which in the long term will represent the response of the Regional Government to the current and possible future effects of the pandemic.

The Board of the Małopolska Region shares the view that the Strategy is not the exclusive property of regional administration, but of the whole regional and local government community, which, by law, includes inhabitants of the Region. Therefore, one of the priorities of the Board was to create conditions that would enable the widest possible group of Małopolska residents and organisations, institutions and communities representing their interests to have their say on the directions proposed for the Region's development.

RATIONALE FOR UPDATING THE MAŁPOLSKA REGION DEVELOPMENT STRATEGY FOR 2011-2020

The Małopolska Region Development Strategy for 2011-2020, adopted by the Sejmik of the Małopolska Region on 26th September 2011 is the longest-lasting document of this type developed so far by the Region's Government. Not only has the strategy become a catalyst for many activities and initiatives supporting the development of Małopolska, but also a platform for cross-sectoral cooperation between entities working for the benefit of our region. The effectiveness of public policies, especially those designed and implemented on the basis of the Strategy's provisions, however, requires that the content of this document keeps up with changes taking place within its environment.

- › increasing the share of low-carbon and cleaner energy production;
- › the need to continue the search for resources that provide a competitive advantage for the region;
- › the need to increase research and innovation capacity and to use advanced technologies to transform the economy into a more productive and greener one;
- › the dynamic processes of automation and digitisation and their consequences for social relations and the functioning of the economy.

In the last decade, there were also changes in the formal and legal environment of the Małopolska Region Development Strategy for 2011-2020, which justified the need to update the public intervention described in it.

Owing to the contemporary dynamics of development processes, during the decade of implementation of the SRWM 2011-2020, changes occurred in both real and formal-legal spheres, which revealed the need to start updating the public intervention described in it.

Among the processes and factors that shape the real sphere of the Strategy's environment, the following should be mentioned in particular:

- › the dynamic development of the Małopolska Region, accompanied by the deepening of differences in the pace of development of its individual areas;
- › the need for more precise targeting of public policies so as to effectively solve problems hindering the development of particular areas as well as communities living there;
- › the increasingly visible effects of slow development of medium-sized cities and their surroundings (in relation to their potential);
- › demographic change and its consequences for the social and economic spheres – including an ageing population;
- › increasingly acute labour market deficits, with an increase in the number of economically inactive people;
- › security threats to health, social and public spheres and the environment, including epidemics, e.g. the COVID-19 pandemic;
- › the consequences of climate change and the need to prevent the resulting risks and threats by increasing resilience to natural disasters;
- › the increasingly noticeable effects of human exploitation of environmental resources, including air pollution, hydrological droughts and the resulting water deficits;

In this context, particular mention should be made of the new national model of development policy described in the Strategy for Responsible Development until 2020 (with an outlook until 2030) and the National Strategy for Regional Development 2030. The model of responsible development arising from both documents assumes building competitive strength using new development factors, while ensuring participation and benefits of all social groups. This type of development makes effective use of local resources and potential of all territories and, in particular, supports the development of those areas which, being less resistant to crises, cannot fully develop their potential or have lost their social and economic functions.

The Regional Development Strategy "Małopolska 2030" is coherent with the Strategy for Responsible Development until 2020 (with an outlook until 2030) as well as the National Strategy for Regional Development 2030, which satisfies the requirements of the provisions of the Act on Regional Government and the Act on the Principles of Development Policy.

Moreover, the decision to update the Małopolska Region Development Strategy for 2011-2020 was made in view of the need to extend its timescale to 2030, i.e. to the year determining the validity period for medium-term national

development strategy. Thus, the requirement set out in the Act on Regional Government was met.

Furthermore, with the multi-year period of European Union funding for 2014-2020 coming to an end, the required financial preparation for 2021-2027 constituted another formal premise for updating the Małopolska Regional

development strategy. The main objective of the study was to analyse the progress of implementing the public intervention described in the Strategy, to assess the effectiveness of the instruments supporting its implementation, to identify threats to the achievement of strategic objectives, and to formulate recommendations on how to further implement the Strategy or how to amend it where applicable.

The analysis, carried out by external evaluators, showed the correctness of development trends identified in the development scenarios in most areas of the Strategy and the effectiveness and relevance of public intervention described in them.

Development Strategy for 2011-2020. Funds transferred to Poland as part of successive EU schemes were an invaluable incentive for development, whose positive effects can be seen in economic, social, spatial, as well as cultural, political, and sometimes even civilisational spheres. Thanks to European cohesion policy, significant potential has been built up at regional and local level, including the following sectors: businesses, public administration, public benefit organisations, the scientific community and business environment institutions etc. This success would not have been possible without the proper targeting of the stream of European funds flowing into Poland and Małopolska in recent years. It was successive regional development strategies that constituted a rational plan enabling effective use of these funds. The Regional Development Strategy "Małopolska 2030" also has the ambition to set out development objectives and define the methods and mechanisms for achieving them using of European funds, which will make it possible to accelerate the pace of socio-economic development in time while respecting the principles of socially responsible development and territorially sustainable development.

EVALUATION OF THE EFFECTIVENESS OF IMPLEMENTATION OF THE MAŁOPOLSKA REGION DEVELOPMENT STRATEGY FOR 2011-2020

In 2017, a mid-term evaluation of the implementation of the Development Strategy for the Małopolska Region 2011-2020 was carried out.

2 The conclusions of the evaluation can be found in the report Mid-term study on the effectiveness of the implementation of the objectives of the Małopolska Region Development Strategy for 2011-2020, Małopolskie Obserwatorium Rozwoju Regionalnego, Krakow

Most figures showing the progress of implementing the main objective and strategic goals exceeded the target value assumed for 2020. However, the assessors noted that higher than initially anticipated individual indicators were not only the result of activities undertaken while implementing the Strategy but also the effect of mistakes made while estimating some target figures; these turned out to be greater than the dynamics of change in some areas anticipated when the Strategy was created (this applies especially to Area 1. Knowledge and activity economy and Area 2. Heritage and leisure industries).

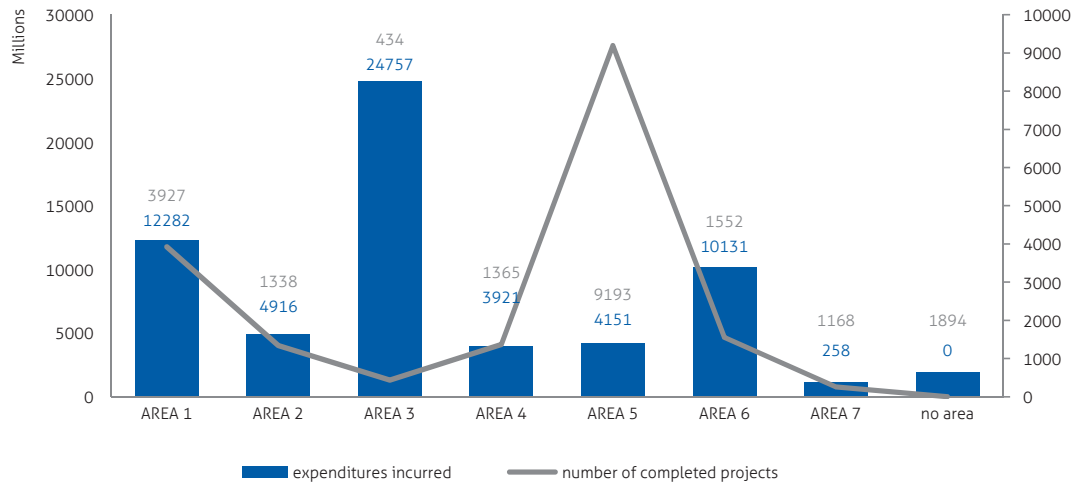
During the assessment, 14,021 completed projects of a total value of PLN 60,3 billion were identified, which contributed to the implementation of the objectives described in the Strategy. The largest number of projects was identified in Area 5: Development of cities and rural areas (9193 projects), bearing in mind that the vast majority of them (78%) were consolidating decisions issued under RDP 2007-2013. In turn, the largest value of expenditure – nearly PLN 25 billion – was registered in Area 3: Infrastructure for communication accessibility.

When assessing the activities undertaken within the individual areas of the SRWM 2011-2020 and their effects, it was noted that:

› In Area 1. Knowledge and activity economy, the full implementation of the assumed scenario was identified. However, the unfavourable issue of an increasing development gap between Krakow, including its surrounding area, and other parts of the region. It has

2017. The entire report is available at the following link: https://www.malopolska.pl/_userfiles/uploads/Rozwoj%20Regionalny/RK_mid%20term%20SRWM_ostateczny_www.pdf

Figure 1. Number of projects and expenditures incurred in each area of the SRWM 2011-2020



Source: Mid-term study on the effectiveness of implementation of the objectives of the Małopolska Region Development Strategy for 2011-2020, Małopolskie Obserwatorium Rozwoju Regionalnego, Krakow 2017

- been pointed out that, over the coming years, it will be necessary to translate more resources earmarked for research and development into their commercialisation and use, to strengthen cluster and sectoral cooperation between companies, and to support private investment (including social economy) through regional debt instruments, even outside the scope for European funds;
- › In Area 2. Cultural heritage and leisure time industries, Krakow, Zakopane, Wieliczka, Oświęcim and Kalwaria Zebrzydowska were found to be dominant in the field of generating tourist traffic. The projects implemented contributed to fulfilling the potential of religious tourism and business tourism in the Region (the former applied to Krakow, Wadowice, Kalwaria Zebrzydowska, while the latter applied to Krakow only). Among the recommendations formulated for this area, it was deemed necessary to strengthen cooperation between individual areas of the region in developing supra-local tourist products, continuing innovative promotion and integration of tourist products into tourist packages in order to extend tourist stays;
 - › In Area 3. Infrastructure for transport accessibility, implementation of the assumed scenario (with the exception of increasing rail access to Krakow and Katowice) and some areas with road access showed a high level of effectiveness. However, attention was drawn to the need to increase road and rail accessibility of northern and southern counties of Małopolska and border areas, as well as the level of intermodal transport integration. In the field of transport, attention should be paid to the creation of an integrated, interconnected transport network by filling in investment gaps;
 - › In Area 4: Krakow Metropolitan Area and other sub-regions, implementing objectives for development outside the Krakow Metropolitan Area (KOM) showed a low level of effectiveness. The disproportions between the KOM and other parts of Małopolska have increased. Therefore, it is increasingly difficult to formulate mechanisms for integrating supra-local development undertakings and dispersing development projects from the KOM to the remaining parts of the region, with particular emphasis on economic and tourist undertakings;
 - › In Area 5. Development of cities and rural areas, the implementation of objectives in the field of local development centres, including medium-sized and small towns, showed a low level of effectiveness. According to the assessors, it was necessary to attach more importance to actions undertaken in this field. In the case of rural areas, progress in the implementation of the assumed strategy was identified;
 - › In Area 6. Ecological, health and social safety, the implementation of the objectives of the SRWM 2011-2020 was found to be very effective. The main concern is to adapt intersectoral policies to the challenges of an ageing society;
 - › in Area 7 Managing the development of the Region, the coordination activities undertaken by the Region Government to increase the level of social capital and civic activity, as well as to strengthen Małopolska's position at national and European level, were

rated highly. The assessors recommended continuing these initiatives as part of the civic budget and promotion of the Małopolska brand.

When performing an overall assessment of the implementation of the SRWM 2011-2020, it was found that the objectives set in this document proved to be accurate with regard to changes to the socio-economic environment, while their implementation was largely consistent with the anticipated scenario. However, not all the planned directions of intervention were implemented in accordance with the assumed logic, and new development challenges and changes in the institutional and legal environment proved to be one of the reasons for updating the SRWM. The disproportions between the Krakow Metropolitan Area and other areas of the Region have increased, and it is increasingly difficult to formulate mechanisms for integrating supra-regional development undertakings and to develop instruments supporting the sustainable development of the entire region.

The SRWM 2011-2020 contains a List of Strategic Tasks considered in 2011 to be of key importance to "achieving a step change" in the development of Małopolska. It includes 19 items in various strategic areas, with a total of 38 diversified undertakings within them, both single investment tasks and programmes of a complex nature. These differed in terms of the status of the task at the time when the SRWM 2011-2020 was adopted (new or under implementation), in terms of the entity deciding on implementation (local government, national government or other), the level of complexity and territorial scope, etc. According to the State, in the third quarter of 2020, seven of these undertakings can be considered fully implemented, 22 are still being implemented, while the remaining nine have not been implemented as yet.

A permanent element of monitoring the SRWM 2011-2020 through the most important un-

dertakings implemented by the Government of the Małopolska Region is the annual report on the implementation of the Małopolska Investment Plan for 2015-2023, containing information on the progress of implementation within the 10 areas of the ICI registered as at 31 December of a given year. At the end of December 2019, 184 projects worth nearly PLN 4 billion were registered in the MPI. An analysis of the statuses of all the projects showed that 109 of them were under implementation; 7 had not been started and 68 had been completed.

The implementation status of the SRWM 2011-2020 is also presented in the Małopolska Region Status Report for the given year³. The structure of this document reflects the system of strategic and programme documents used in Małopolska since 2011, which set the framework for actions taken by the Region's Government. This approach was based on the conviction that the Region's development strategy, together with a set of documents established for the implementation of objectives arising from it, are the fundamental determinant of the activities of the Region's Self-Government bodies. The total value of projects co-financed by EU funds amounted to PLN 34.7 billion at the end of 2019. The largest resources were involved in the implementation of projects classified as PS Transport and Communication – 30.3% of the total value of all projects. The second place was taken by projects included in the Regional Innovation Strategy – 27.4%, and the third place was taken by projects under the PS Environmental Protection – 18.4%.

3 The Act of 11 January 2018 on amending certain laws to increase the participation of citizens in the process of electing, functioning and controlling certain public authorities introduced provisions in Article 34a of the Act on Provincial Self-Government concerning the obligation to prepare a report on the state of the province.



DIAGNOSIS AND ANALYSIS OF DEVELOPMENT TRENDS

MAŁOPOLSKA REGION

Małopolska is one of the smallest regions in Poland in terms of area (12th place with 15.2 thousand km²), but one of the largest in terms of population (4th place with 3.4 million people), which makes it the second most densely populated region after the Silesian Region (224 people/km²).

Małopolska is located in the south-eastern part of Poland, bordered by the Silesian Region to the west, the Świętokrzyskie Region to the north and the Podkarpackie Region to the east. The region's southern neighbour is the Slovak Republic or, more specifically, the Žilina and Prešov Regions.

The capital of the region is Krakow, the second most populous city in Poland (771,000 inhabitants) - an important scientific, cultural and economic centre.

The region's capital city is 350 km from Warsaw and not much further from Vienna, Prague,

Bratislava or Budapest, which, combined with its location at the intersection of major east-west and south-north transport routes, ensures good accessibility and builds its position as a strong centre in this part of Europe.

MAŁOPOLANIE (MALOPOLANS)

DEMOGRAPHIC CHANGE

The Małopolska Region had a population of 3 410 901 in 2019 (10 324 more than in 2018 and 123 765 more than in 2008). On a national scale, the Małopolska Region is ranked 4th in terms of the largest population (after the Mazovian, Silesian and Greater Poland Regions). The region is experiencing steady population growth, which is the result of a positive natural increase rate and positive migration balance maintained for many years.

The relatively high level of natural increase – at a rate of 1.59 per 1 thousand inhabitants - is much higher than the national level, which has shown negative figures for several years. In 2018, the natural increase rate was positive in 15 counties, the highest in Nowy Sącz (5.37‰) and Limanowa (5.21‰). A negative natural increase rate was recorded in 7 districts, the lowest in Miechów district (-4.67‰). In 2019, the natural increase rate remained positive, and with a coefficient of 1.2 per 1,000 inhabitants, Małopolska was ranked 2nd in the country (after the Pomeranian Region).

The difference between migration inflow and outflow in the region was 5,521 people in 2018. Figures exceeding the average overall migration balance per 1,000 inhabitants in Małopolska (1.63) were recorded in the Wieliczka district (12.13), Krakow district (6.46), City of Krakow (6.13) and Myślenice district (1.78). In 16 counties

the migration balance was negative, the lowest in Nowy Sącz (-4.25) and Tarnów (-3.99).

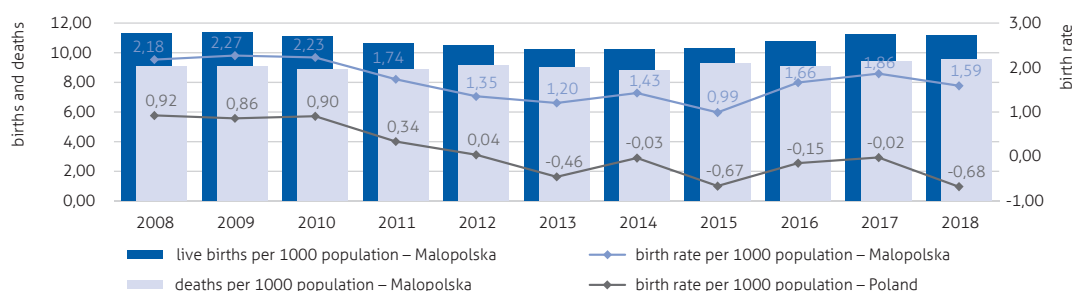
Population growth in the Region is very unevenly distributed. The highest population growth dynamics in the period 2008-2018 was observed in municipalities around Krakow: Niepotomice (42.37%), Zielonki (34.64%), Michałowice (28.58%) and Wielka Wieś (27.21%). Relatively high dynamics were also shown by municipalities around Nowy Sącz – Łabowa (13.81%), Chęlmiec (12.12%) and Podegrodzie (11.50%) – as well as the rural municipality of Tarnów (10.80%). High population growth, resulting from a relatively high number of births, was also recorded in the southern and central parts of the region. On the other hand, in the northern part of the Region, mainly in the Miechów, Proszowice and Dąbrowa counties, the population is clearly decreasing. A decrease in the population of some other towns and cities was also evident between 2008 and 2018, as many as 21 centres experienced a decrease in population, the largest in: Szczawnica, Chrzanów, Andrychów, Wojnicz, Wolbrom and Olkusz.

Although Małopolska is currently in a relatively good demographic situation compared to the rest of the country, unfavourable changes in the population structure are already visible. The fertility rate in the region has for years been below the threshold ensuring the replacement of generations (it is assumed that the minimum value should be 2.1, which means a value of the coefficient exceeding two children per woman). Between 2008 and 2018, this reached a low of 1.29 in 2013 and a high of 1:50 in 2018; in 2019, it was 1.49.

The effect of increasing life expectancy, with a relatively low fertility rate, is an ageing population.

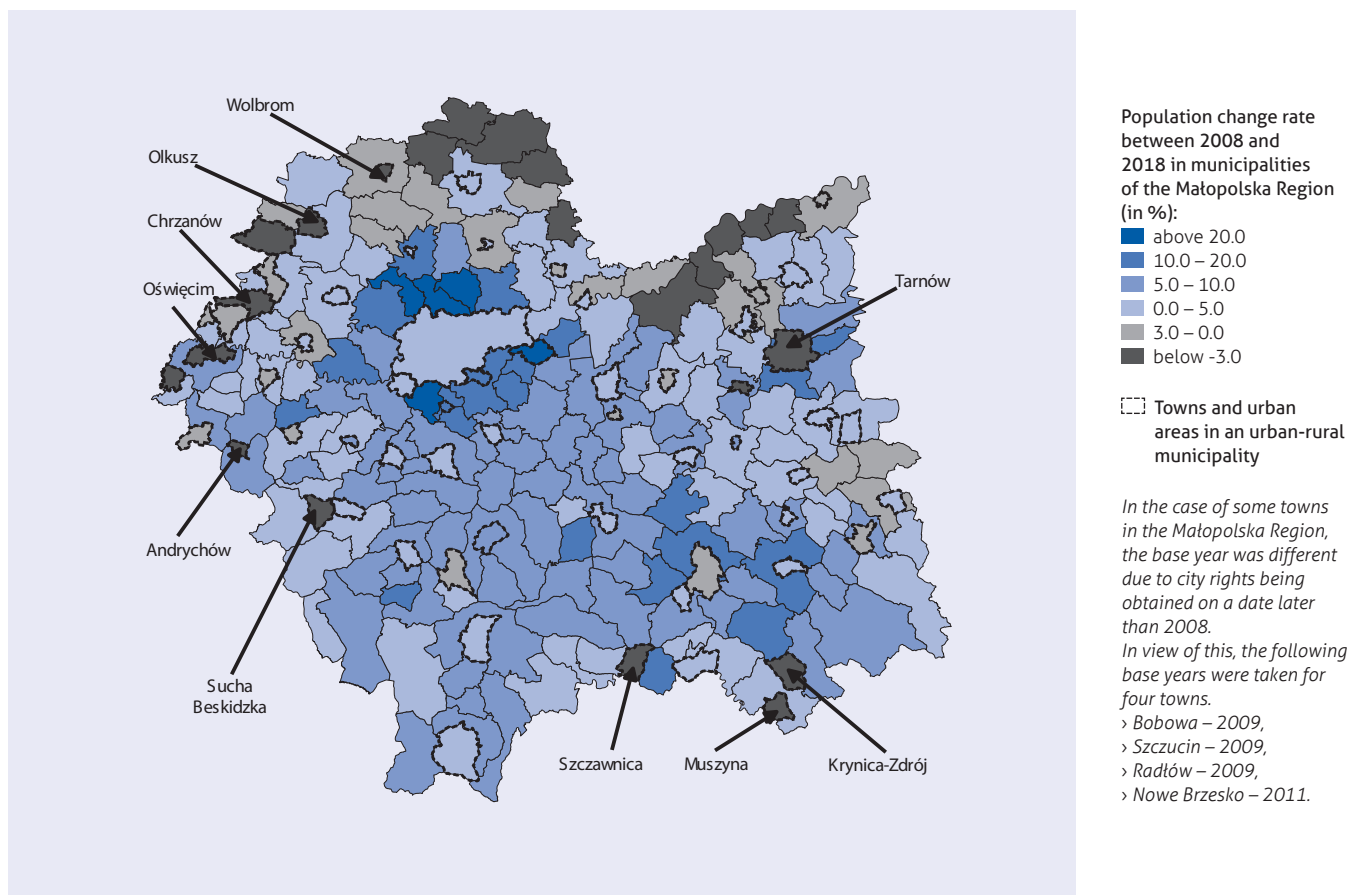
The consequence of this process is a systematic increase of the number of people

Figure 2: Live births, deaths and birth rate per 1,000 population



Source: own elaboration based on CSO data

Map 1. 2008-2018 population change in Małopolska

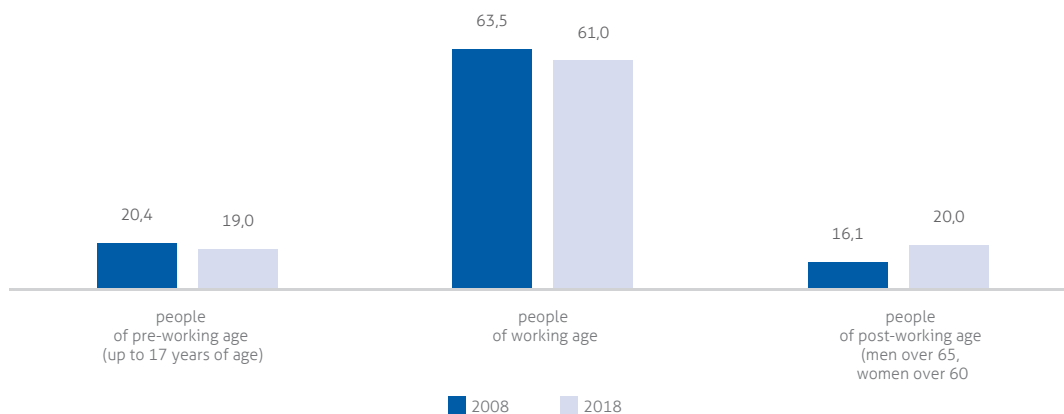


Source: own elaboration based on CSO data

in the post-working age per 100 people in the working age. A particular accumulation of unfavourable phenomena can be observed in Tarnów and the following counties: Chrzanów, Miechów, Olkusz and Oświęcim. These coun-

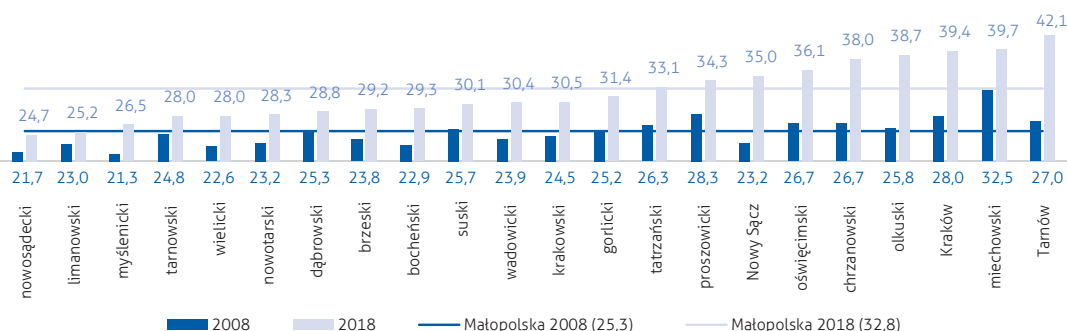
ties show a decreasing population, a negative natural increase rate and a high dependency ratio, as well as a negative migration balance (except for the Miechów county).

Chart 3. Change in the structure of the population by economic age groups between 2008-2018 in the Małopolska Region (share in the total population in %)



Source: own elaboration based on CSO data

Figure 4: Post-working age population per 100 persons of working age (in persons)



Source: own compilation based on CSO data. Ranked according to the figures for 2018

CHALLENGES:

- The need for multi-faceted measures to ensure that an adequate number of people remain active on the labour market in the face of a decreasing number of people of working age.
- Ensuring access to high quality social and health services that meet the needs of a growing group of elderly people.

FAMILIES OF MAŁOPOLSKA

1. The situation of families

In the absence of up-to-date data depicting the condition of families in Małopolska (the latest data comes from the 2011 National Census), a survey on the socio-economic condition of Małopolska families was conducted in 2019. It showed that 31.9% of households in the region are families with at least one underage child. Among families with children, families raising one child dominate (57.1%), while families with two children make up 37.1%. The least numerous are families with at least three children (5.8%).

Those planning to have children in the future prefer a small number of children. The most common desire was to have two children (over 60%), followed by three (almost 30%). At the same time, only a little over 3% of respondents expressed the desire to have four children, while no one declared the will to raise a greater number of offspring. Among families with children, those with one child (every third family) are most likely to plan further offspring. Only 5% of families with two children plan to further enlarge their family.

The decline in fertility may be influenced by the observed tendency of young people to postpone marriage and procreation decisions.

More marriages per 1,000 inhabitants were made in Małopolska than the national average, but their number is decreasing over the years. In 2018, there were 18.5 thousand marriages, giving a coefficient of 5.4‰ per 1 thousand inhabitants (compared to a national average of 5.0‰). In 2019, the number of marriages concluded decreased to 17.9 thousand (the coefficient per 1 thousand population was 5.3‰ (compared to a national average of 4.8‰). From 2008 to 2019, a decrease in the number of marriages per 1,000 population was recorded in all districts of Małopolska (except Krakow).

The number of women marrying for the first time decreased by 47.5% between 2008 and 2018, and by a further 11% in 2019 (compared to 2018). No major differences were observed in the 25-29 age group. However, there were significant increases in the number of women marrying for the first time in the 30-39 age group (this figure increased by 58.2% between 2008 and 2018 and a further 3% in 2019) and in those aged 40 and over (between 2008 and 2018 by 84.2%, in 2019 by a further 6.8%). Among men, declines are observed among all age groups under 30.

The trend of delaying the decision to have a baby may be one of the reasons for fewer or no children. In Małopolska in 2018, the average age of mothers was 30.4 years. Over the decade (2008-2018), the number of women giving birth

who were aged up to 20 years decreased by 54.2% (in 2019, this figure decreased by another 9.6%), and women giving birth aged 21-30 years decreased by 14.7% (in 2019, this figure decreased by another 3.7%). At the same time, the number of women giving birth aged 31-40 increased by 48.8% and women giving birth over 40 by 53.7% (in 2019, these figures increased by a further 0.8 and 6.3% respectively).

There were fewer divorces per 1,000 inhabitants in Małopolska than the national average. In 2018, the courts announced 4.4 thousand divorces (the ratio per 1 thousand population was 1.3‰ (compared to a national average of 1.6‰)). A year later, 4.7 thousand divorces were announced (the ratio per 1 thousand population was 1.4‰ (compared to a national average of 1.7‰)). In the years 2008-2019 an increase in the number of divorces per 1 thousand population was noted in most of the counties of Małopolska (16 out of 22).

The increasing number of divorces is quite a serious social problem, especially for marriages with minor children. In 2019, 1540 divorces were pronounced in families with one minor child, 945 divorces in families with two minor children and 178 divorces in large families (with three or more children).

The assessment of the material situation of households is not unequivocal. According to the LFS household budget survey, the issue of poverty and the resulting risk of social exclusion still affects a significant proportion of the population. CSO data indicate an increase in the extent of poverty in 2018 and 2017. Between 2010 and 2013, the relative poverty risk indicator for Małopolska was lower than the national average. However, since 2014 the situation in the region has been worse than the national average (156% in 2018). The extreme poverty risk index for Małopolska is similarly unfavourable. Since 2015, it has been higher than the national average (170% in 2018). As a result, Małopolska has jumped from seventh position in the country (2015 and 2016) to second position (after the Warmińsko-Mazurskie Region) in terms of poverty risk, both relative (22.2%) and extreme (9.2%).

In contrast to CSO analyses, the results of the study conducted by the Centre for Evaluation and Analysis of Public Policies at the Jagiellonian University indicate an improvement in Małopolska's position in the rankings of provinces regarding the poverty rate. According to this study, the extent of poverty, both in absolute and relative terms, was decreasing in successive years (2014-2018), both on a national scale and in the Małopolska Region.

Irrespective of methods used to perform these studies, the surveys indicate that, in 2018, households living on unearned sources other than pensions were most at risk of extreme poverty (mainly the unemployed living on various types of benefits, particularly those provided under the Social Assistance Act).

Living conditions of the inhabitants of particular EU regions in terms of material situation are reflected by the level of primary income per capita in households, converted into comparable measures according to the Purchasing power standard (pps). According to this conventional currency, per capita income in Małopolska amounted to 12.4 thousand pps, putting the region in 227th place in the ranking (out of 281 regions).

One should be aware of possible changes in the income situation of households, both during and after the COVID-19 epidemic. Nearly 40% of Małopolska residents declare that the financial situation of their households has worsened as a result of the pandemic. Maintaining the trend of decreasing the extent of poverty in the region, while at the same time maintaining Małopolska's position in the group of regions with a low poverty rate, especially in the context of the expected effects of the epidemic, will require the development of an effective strategy for combatting poverty, primarily addressed to those most affected by it.

Undoubtedly, the level of families' wealth is influenced by the government programme Family 500+ implemented in April 2016. In Małopolska, in 2018, a total of 253.9 thousand families and 408.4 thousand children in these families were covered by this programme. Income-based benefits (for the first child) in 2018 were received by 58.2% of all families that benefitted from the programme, for more than 147.8 thousand children, which is 21.7% of Małopolska's 0-18 year olds. In 2019, the programme covered almost 380.8 thousand families and almost 646.9 thousand children in these families. The significant increase in the number of children covered by the programme is due to the fact that, as of July 2019, the income criterion has been abolished and the benefit is granted for all children in the family.

In 2018, 162.4 thousand people benefitted from the social assistance system, which accounted for 4.8% of the region's population (74 thousand people and 2.1 p.p. less than in 2012). In 2019, the downward trend continued, with 151.5 thousand people (4.4% of the population) receiving assistance. Over the years, a change can be seen in the reasons for using social assistance - it is less often unemployment and poverty and helplessness in care and child-rear-

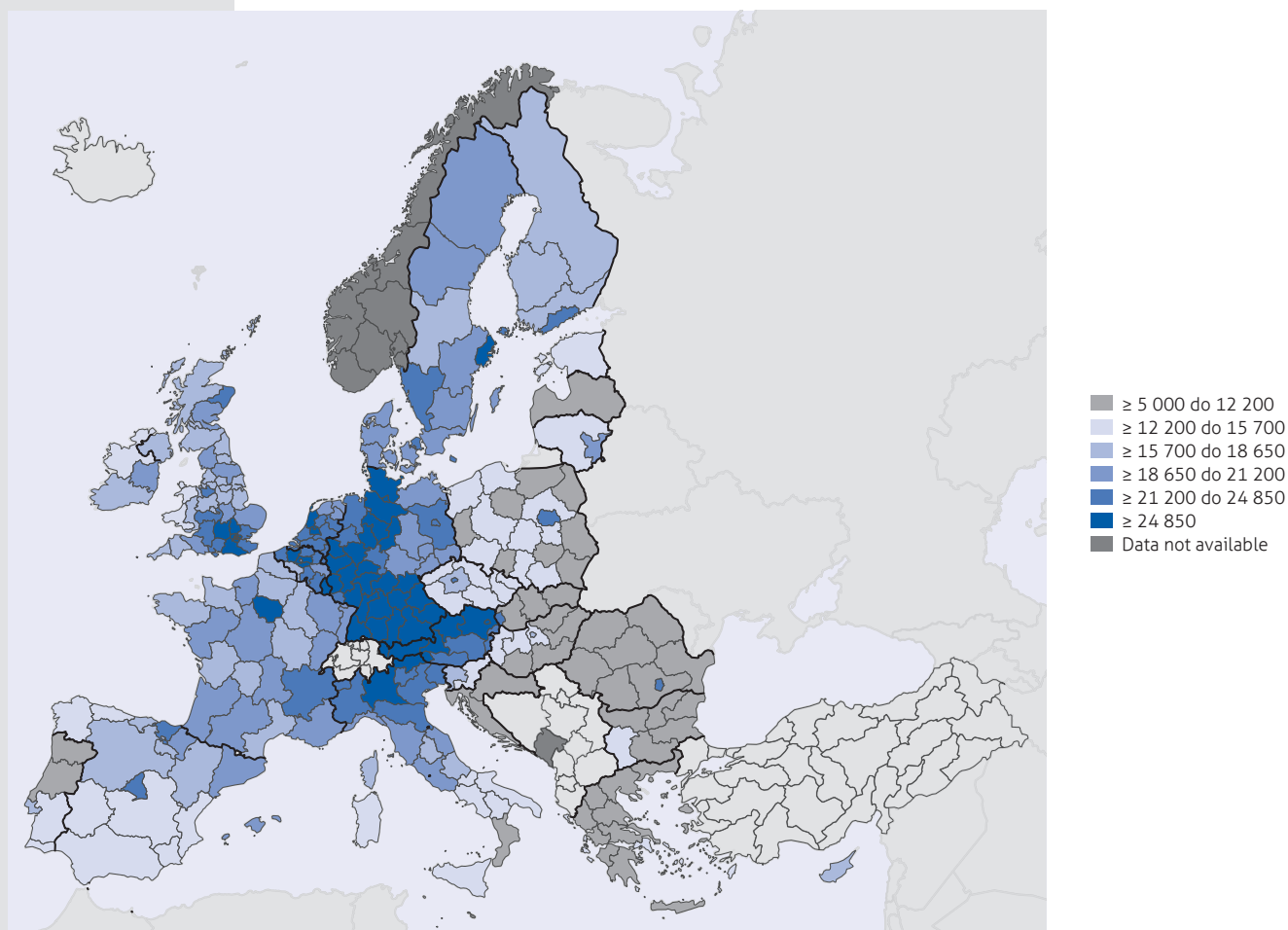
ing matters; more often illness and disability, as well as the need for maternity protection. The CSO's research on poverty and income inequality in Poland shows that, according to public opinion, the most preferred forms of assistance addressed to the poor are, in descending order: assistance in finding a job, care for the disabled and chronically ill, increased access to free medical services, assistance in running the household for the elderly and cash benefits. Compared to 2015, a decrease in the importance of cash benefits as the preferred form of assistance to the poor is noteworthy and also clearly visible in the opinions of those affected by income poverty.

The 2019 survey of the condition of families in Małopolska shows that the families in the most difficult financial situation are primarily those affected by disability and/or inability to work for a living due to the poor

health of the adults running the household. This problem particularly affects families in which one or more members require ongoing treatment and rehabilitation. Respondents dealing with such difficulties on a daily basis pointed to the lack of systemic, comprehensive and, at the same time, individualised support mechanisms. Single-person households also experience financial difficulties, especially lonely elderly people.

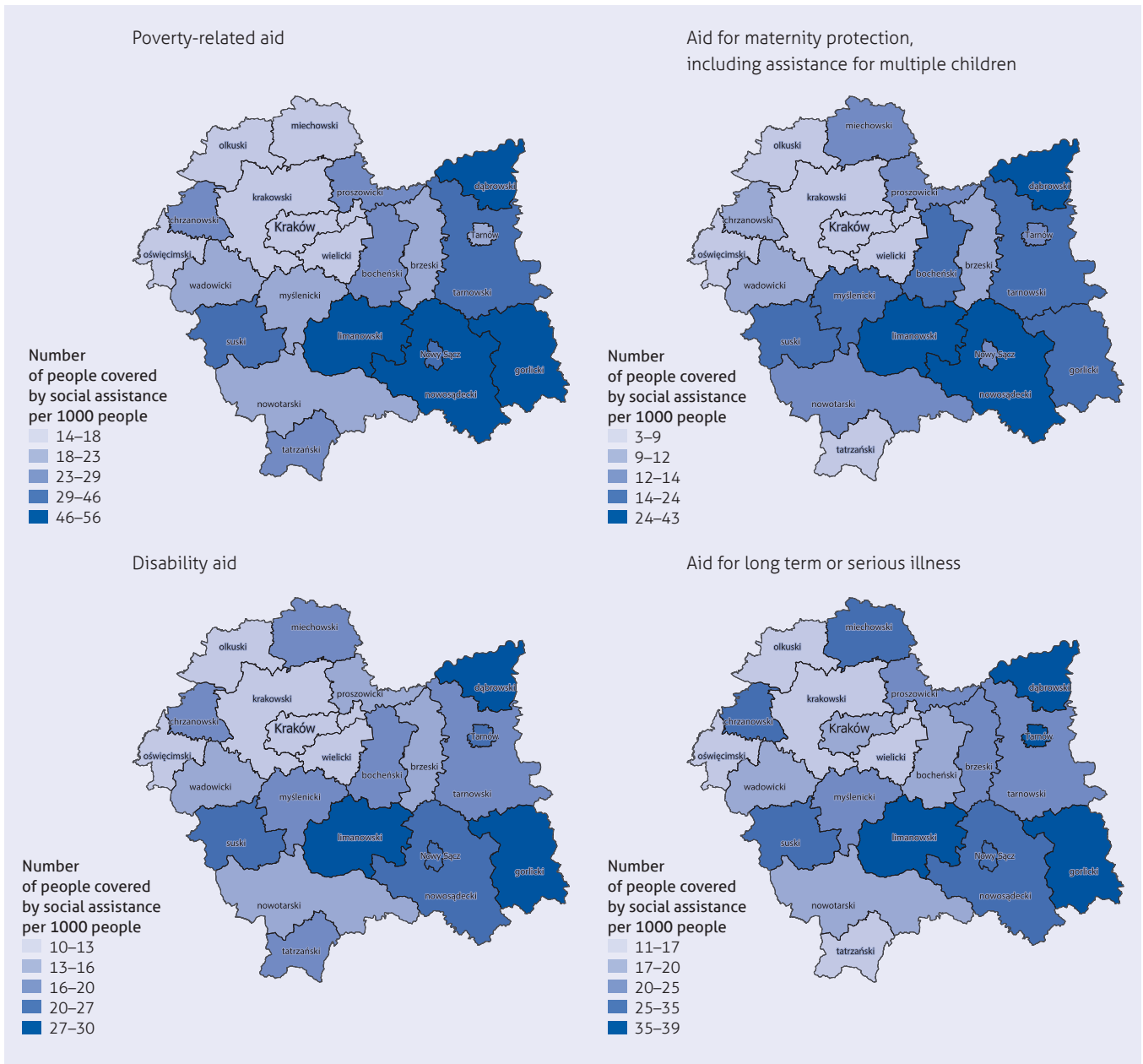
Significant intra-regional variation of social problems remains a problem. The situation is particularly unfavourable in the south-eastern and north-eastern part of the Region, in particular in the following counties: Dąbrowa, Nowy Sąd, Gorlice and Limanowa, as (despite a general improvement in this respect) they still show the highest number of beneficiaries of social assistance compared to the total number of inhabitants.

Map 2. Primary income per capita in households by purchasing power standard (pps) in 2017: Małopolska compared to the EU



Source: Eurostat

Map 3: Number of persons in families covered by social assistance per 1,000 population



Source: own compilation based on MRPIPS-03-R report for 2018

CHALLENGES

- Coordination of activities in the field of support for high quality employment, social services and social benefits for people in particularly difficult life situations, enabling effective fulfilment of social roles and activity on the labour market, and ultimately resulting in a permanent reduction in the number of people threatened by poverty.

2. Support for families in fulfilling their caring and upbringing duties

The change in the family model also results in changes in the ways in which the family carries out its duties related to caring for children.

With women returning to the labour market after childbirth as well as grandparents being unable to provide care for the youngest members of the family, the demand for care from outside the family is increasing. There is also a growing tendency to transfer care-related

duties to various types of institutions among families with children up to the age of six (widespread use of pre-school care) and at school age (day-care facilities, growing interest in extracurricular activities).

In 10 years, accessibility to care for the youngest children has improved significantly - in 2008 only 2.4% of children in the region (in 8 cities) were covered by crèche care; in 2018 this percentage increased to 10.7%, and in 2019 it was 12.0%. For part of the population, these services are still difficult to access due to the limited number of nursery places as well as their concentration in larger cities. In urban areas, 19.8% of children received crèche care in 2018, compared to only 2.5% in rural areas. In 2019, these differences widened, with the urban rate increasing by 1.9 p.p. (to 21.7%) and in rural areas by 0.6% (3.1%). In response to these deficits, the Region Self-Government has been implementing the Małopolska Nanny project since 2017. It involves supporting families in combining work and family life by providing financial assistance to subsidise childcare for children up to the age of 3. By the end of March 2020, a total of 445 families were covered by the project.

An important element in helping families is to provide early multi-specialist support for children with disabilities or at risk of disabilities or non-harmonious development. The scale of needs is shown by figures such as the number of children covered by early development support, which in Małopolska has more than tripled over the decade (from 1526 in 2008

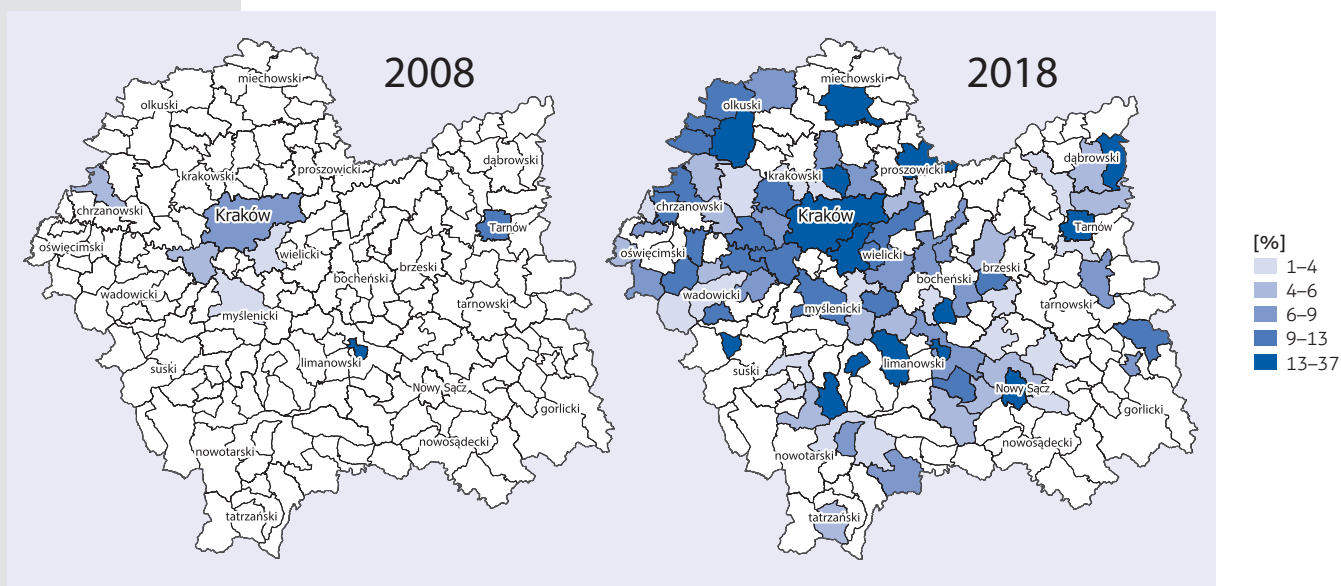
to 5038 in 2018). The problem is the intra-regional variation in the availability of services and the "dispersion" of assistance (with many types of institutions whose activities are not coordinated), as well as the waiting time for assistance and lack of continuous support.

Strengthening the caring and educational functions of the family requires both preventive measures and support in the event of a crisis. Most importantly, this support should not be limited to families at risk of poverty and social exclusion, as difficulties in taking care of a child may also result from frequent absence of working parents from home and weakened family relations. At the same time, statistics show that children are increasingly experiencing various types of mental health problems resulting from psychosocial factors, of which the family (alongside school and the peer group) is a key element.

Day care centres for children and young people play an important role in supporting parents in their caring and upbringing duties. They are run in the form of care, specialised care or yard work. In Małopolska in 2018, there were 173 day-care centres offering 6.5 thousand places, used by almost 11 thousand children during the year. In 2019, there were 216 centres offering 8.3 thousand places, used by almost 12.4 thousand children).

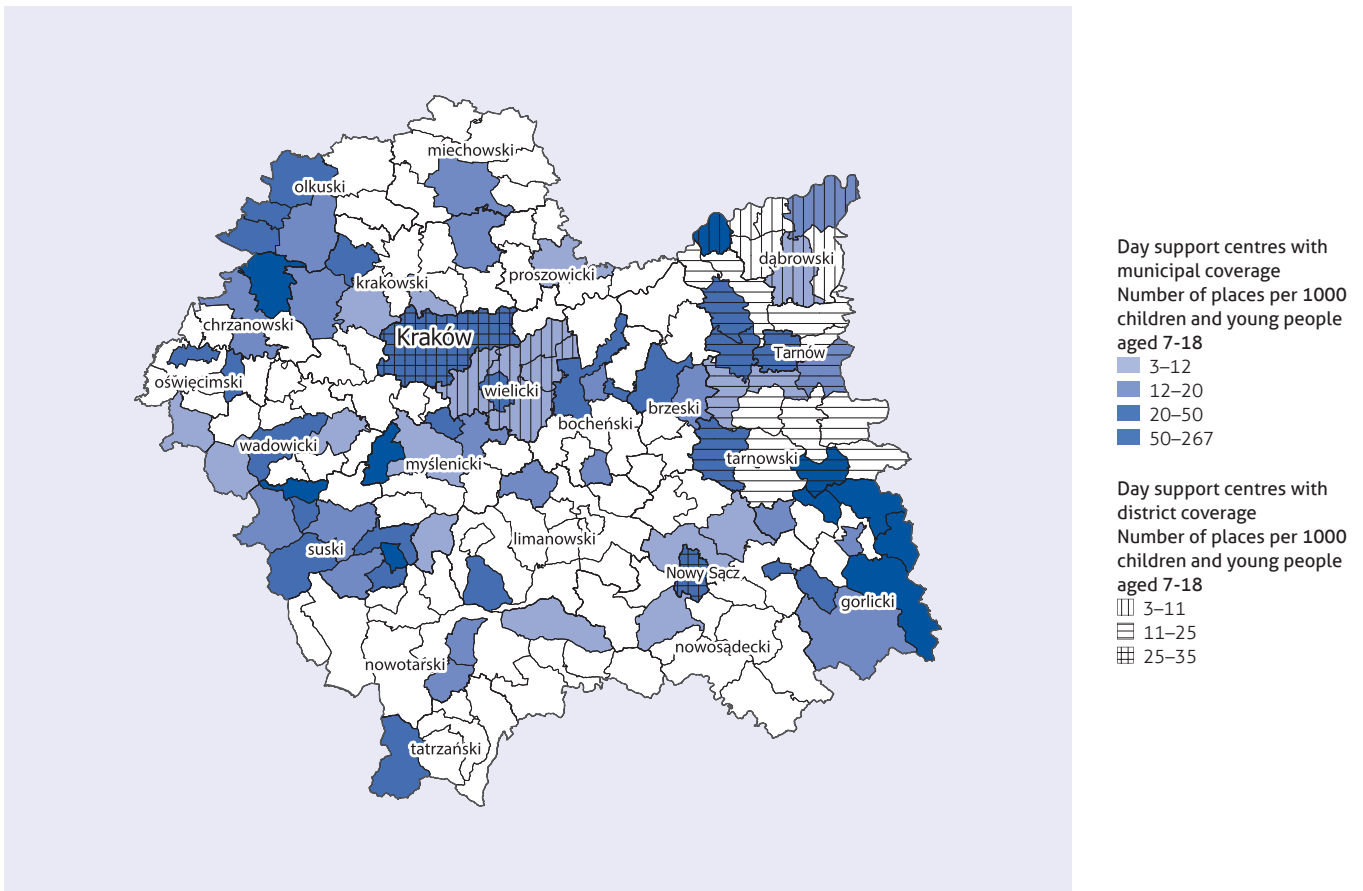
The basic form of assistance to individuals and families in strengthening or regaining the ability to function in society is social work. In 2018 this form of support covered over 153.7 thousand

Map 4: Percentage of children under 3 years of age (excluding 3-year-olds) in nursery care in Małopolska in 2008 and 2018



Source: own elaboration based on CSO data

Map 5. Places in day care centres per 1,000 people aged 7-18 in 2018



Source: own elaboration based on ROPS and CSO data

people in over 66.3 thousand families; in 2019, it covered 139.6 thousand people in almost 61.9 thousand families. The support function for families experiencing difficulties in caring for children is also performed by family assistants. In 2018, 2620 Małopolska families benefitted from this form of assistance; in 2019, this figure rose to 2629 families. For individuals and families in need of support in solving their life problems, access to specialist counselling is also important. Separate specialist counselling units (39 in 2018, 32 in 2019) provided support to more than 12 thousand people in 2018 and nearly 7.9 thousand people in 2019. The services of specialist counselling points functioning in the structures of social welfare centres or district family support centres (44 in 2018 and 46 in 2019) benefitted nearly 10 thousand people in 2018 and nearly 11 thousand people in 2019.

A serious family dysfunction, often associated with the co-occurrence of alcohol problems, is violence. According to data from the Provincial Police Headquarters in Krakow, 5788 people were affected by family violence in Małopolska in 2018 (1655 fewer people than in 2015). Victims of family violence are mainly women - in Małopolska they accounted for 64-66%

of all people experiencing violence in 2015-2017 and 67.5% in 2018. However, most figures indicating the amount of family violence in Małopolska show a decreasing trend, e.g. the number of Blue Cards (initiating the procedure and filed due to further manifestations of violence) has decreased by 13% since 2015 (in 2018, it was 4269), and the rate of minors experiencing violence decreased from about 25% in 2015-2016 to 21.5-19.8% in 2017-2018 (in 2018, 1147 minors experiencing violence were recorded).

An important source of support for people in particularly difficult situations is crisis intervention. In 2018, there were 10 crisis intervention centres in Małopolska; in 2019, there were 11. Almost 9.5 thousand people benefitted from their offer in 2018; in 2019, this figure exceeded 9.8 thousand people. Crisis intervention is also provided by social assistance centres: in 2018, this form of assistance covered 688 families (over 1.9 thousand people); in 2019 it covered 632 families (over 1.8 thousand people).

In cases where it is not possible for biological parents to care for children, support is provided by what is called the foster care system.

At the end of 2018, 2895 children and young people were brought up in family care and 1022 in institutional care, while the respective figures for 2019 were 3033 and 1074. A significant problem is ineffective procedures involved in empowering alumni: in 2017, Małopolska was in last place in the country in this respect. The problem mainly concerns the alumni of institutional care: the percentage of people who, after reaching the age of 18, left foster care institutions and returned to their biological families in 2017, 2018 and 2019 was, according to CSO data, 45%, 61% and 52% respectively.

In 2018, there were a total of 102 protected flats in Małopolska (in 2019 - 105). It is noteworthy that protected flats are used by far fewer people than there are places available (in 2018, there were 429 places for 336 persons,

in 2019, there were 424 places for 344 persons; throughout 2018, there were 32 flats in which not a single person stayed; in 2019, there were 23 such flats).

Owing to the specific nature of working with people in difficult life situations and changes caused by new social issues and problems, the number and competence of staff employed in social assistance and integration are of key importance for the effectiveness of all measures taken. The problem in the region, as in the whole country, is a progressive increase in the average age of current staff and an insufficient inflow of new employees. In 2019, 87 municipalities in Małopolska did not meet the statutory requirement of providing one social worker for no more than 2 thousand inhabitants..

CHALLENGES

- Extending the range of support for families in combining caring and upbringing duties with professional duties, as well as the range of active leisure time dedicated to families.
- Assistance to families at risk of poverty and social exclusion (with difficulties in fulfilling care and upbringing duties already established), focused on increasing parents' suitability for upbringing and equalising educational opportunities for children in order to prevent the issue of inheriting poverty or becoming helpless.
- To create a comprehensive system for early multi-specialist support for child development.
- Making better use of the potential for sheltered housing.
- Improving the effectiveness of the process of making foster care alumni independent.

3. The situation of elderly and disabled people

One of the consequences of the progressive ageing of the population is an increase in the number of elderly residents requiring care or support to function in everyday life. In 2018, the province was inhabited by 784.8 thousand people over 60 years of age; a year later, this figure rose to as many as 801.3 thousand people. The number of people aged over 80 is also increasing. In 2008 there were 101.6 thousand of them, in 2018 this figure rose to 148.9 thousand, with 152 thousand a year later. Between 2008 and 2019, the share of people aged 80 and over in the total population of the region increased from 3.1% to 4.5%, and among people aged 60 and over it increased from 16.9% to 19.0%. In 2019, Tarnów (5.6%) and Krakow (5.3%) as well as Miechowski, Olkusi, Chrzanowski counties (5.2%, 5.0%, 5.0% respectively) showed the highest share of elderly residents in the total population. The counties with the highest share of people

in their late sixties were Tarnów and Dąbrowa Górnicza (20.8 and 20.5% respectively).

The 2019 survey of the condition of families in Małopolska shows that one in three households surveyed has a person aged 65+ living in it. Older people often live alone: they accounted for 56.6% of all single person households. In the case of multi-person households, households with people aged 65 and over accounted for 27.5%.

The quality of life of older people remains unsatisfactory due to the significant burden of chronic diseases, multimorbidity and functional disability. In 2014, more than 70% of 50-year-olds reported health problems, among 60-year-olds the proportion was as much as 85%, and among the oldest of the old, the proportion was more than 90%. Deteriorating health with age results in a higher percentage of people with disabilities among older age groups than among the general population. Every fifth Malopolan aged 50-69 and almost every second person aged 70 and over has a disability.

According to data from the 2011 National Census (the most recent data in this field), there were 394.3 thousand people with disabilities (legally and biologically) living in Małopolska. Counties with the highest percentage of people with disabilities among the total population were: Tarnów (14.8%), Krakow (14.2%) and Olkusz (14.0%). The lowest percentage was recorded in the following counties: Tatra (8.5%) and Nowy Targ (8.6%). Research on the needs of people with disabilities shows that the low quality of life index for these people is most negatively influenced by their low educational and professional activity: only 9% of people with disabilities have university education, and as many as 81% are economically inactive. These people face many barriers on a daily basis, ranging from architectural and spatial, through social (including mental) to economic barriers.

Currently, it is mainly the family that takes care of people requiring support in daily life. As many as every fifth Małopolan (and every third person aged between 45 and 59) takes care of an elderly person. There are still too few care services in relation to the estimated demand. In 2018, municipal care services covered just over 5% of Małopolans aged 80+. Meanwhile, the so-called nursing potential, i.e. the ratio of women aged 45-64 to people aged 80+, is decreasing. In 2018 there were 294 potential family carers per 100 persons in need; in 2019, there were only 289. The figures for 2015, 2016 and 2017 were 319, 308 and 300 respectively, and according to the forecasts of the Central Statistical Office, in 2035 the nursing potential is expected to be only 215 carers.

The family model is also changing: young people increasingly aspire to become independent and set up their own households. As a result, the number of multi-generational families is significantly decreasing, even in areas with long traditions in this respect. At the same time, in connection with demographic changes, there is a growing need for professional activation of women on the labour market, including women who are professionally inactive due to taking care of family members requiring assistance in everyday functioning.

An interesting conclusion in this respect is provided by the 2019 CBOS survey on preferred and implemented models of family life. The comparison of the actual state of affairs with the preferred model of life shows that it is precisely the multigenerational family, with which 22% of respondents lived, while 32% would like to live, that is affected by the greatest discrepancies. 49% of respondents lived in a small family, consisting of parents and children, while 55%, would like to live

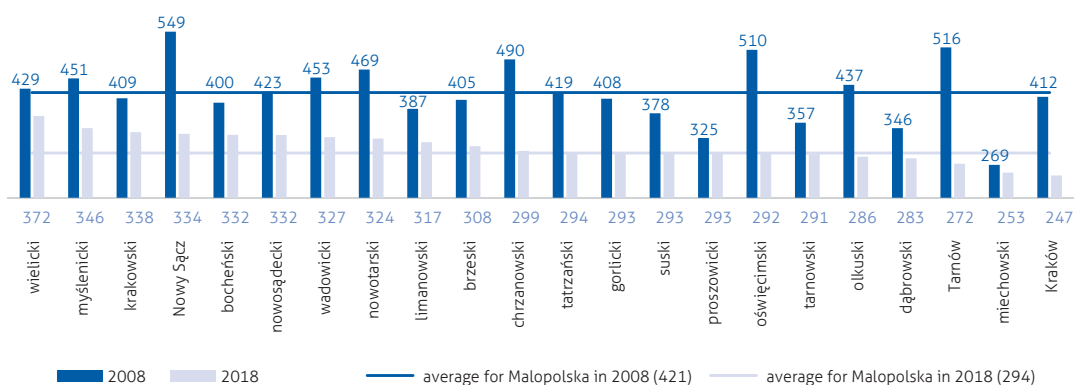
with such a family. Two issues may be behind the multi-generational family being perceived as the optimum solution: the grandparents' help in caring for children and aging parents' support in everyday life, both of which have emerged as the easiest to implement in a multi-generational household.

The problems of combining work with caring for people who need support in their daily life often lead to a deterioration in the financial situation of the carer. The psycho-physical condition of carers also deteriorates with the duration of care. The tensions associated with caring tasks, combined with the feeling of being trapped in the role of carer (and the restriction of other activities) as well as a lack of systemic support, are among the main reasons why carers choose to resort to institutional forms of care for their loved ones.

In Małopolska, as in the whole country, there is a shortage of places in institutions which provide services for persons requiring care due to age, illness or disability. The situation is complicated even further by the division of public institutional care for the elderly and disabled into health and social sectors, with separate access criteria and financing mechanisms. Staff shortages in care institutions are a huge problem. Another issue is the limited supervision of quality standards in the operation of long-term care facilities.

In 2019 (as in the previous year), there were 94 houses of social assistance (DPS) in the region, including 92 local government ones, whose services were used by more than 9,000 people during the year. Although the number of care places is increasing and the number of people waiting for a place in DPSs has decreased from 779 in 2010 to 416 in 2019, the waiting list is still very long. The activities of DPSs are complemented by other institutions providing 24-hour care (operating under various names: boarding house, care, senior, peaceful autumn or old age home, etc). In 2018, there were 48 of them; a year later this figure rose to 52. Support centres for people with mental disorders are community self-help homes (ŚDS), operating in all districts except the Tatra District. In 2018, 78 ŚDSs provided support to 3323 people. In 2019, the number of SDSs increased to 80 and 3347 people benefited from their services. Care and living services for the elderly and people with disabilities organised in the form of family support homes (RDP) are still not widespread. In 2018 and 2019, only 2 such homes were run: in Krakow and in the municipality of Lisia Góra (Tarnów district). Support for the elderly is also offered by day care homes (DDP) - in 2018, 1437 people used the services of 20 such facilities. In 2019, the number

Figure 5. Nursing potential in 2008 and 2018 (number of women aged 45-64 per 100 people aged 80 and over)



Source: own compilation based on CSO data. Ranked according to the position of the county in 2018

of DDPs increased significantly to 38. In addition, the government's Senior + programme is being used to create senior facilities for seniors. By mid-2020, 19 "Senior +" Day Care Centres and 56 "Senior +" Clubs were established in Małopolska.

A completely new scale of calls for the organisation of care services was demonstrated by the COVID-19 epidemic. As part of the Małopolska Crisis Shield social package, designed to provide assistance to Małopolska's 24-hour care facilities, funds were allocated for the purchase of the necessary equipment and furnishings, including personal protective equipment, as well as for the provision of accommodation, isolation or quarantine facilities for residents/guests and employees of 24-hour care facilities.

An important element of measures aimed at counteracting social exclusion of seniors is their activation, aimed at maintaining intellectual and physical fitness and participation in social life. Universities of the Third Age (UTW) offer a wide-ranging educational package, as well as a range of leisure activities enabling physical and social activity. In 2019, 58 UTWs were active in the region (in 2012 there were 30). An interesting initiative is the Local Knowledge and Education Centres (LOWE) project. Launched at schools or educational system institutions, the centres are local centres for educational activation of adults. Three units from Małopolska

(Gmina Wielka Wieś, Gmina Iwanowice, Powiat Gorlicki) participated in the first session (2017-2018), in which 15 pilot LOWEs were established in Poland. An example of good practice in the field of activities for seniors are also Kraków's Senior Activity Centres (CAS), organised with municipal funds by NGOs working for the elderly. Apart from educational and recreational activities, the CAS offer also stimulates the social activity of seniors by engaging them in various social initiatives.

Support for elderly, sick and disabled people, especially those living alone, is also provided by e-services using modern information and communication technologies. An example is the Telecare Centre, which was established as part of the Małopolska Tele-Angel project co-financed by the WM ROP 2014-2020. People equipped with a safety wristband with an SOS button have the possibility of a 24-hour voice call to a paramedic at the Centre and get help. They can also benefit from the support of telecare assistants and psychologists. The strength of the project is to combine e-services with face-to-face support. Those most in need of assistance with daily activities receive additional help in the form of care services or neighbourhood services provided at their place of residence. The project has succeeded in involving neighbours (more than 1,000 people), which has not been used on such a large scale before, thus relieving the burden on the public welfare system and informal carers.

CHALLENGES

- Creating systemic solutions for social and professional activity of the elderly and people with disabilities, designed to make use of their potential and prevent them from withdrawing or “pulling out” of social and professional life.
- Providing access to high quality and affordable assistance and care services for people in need of assistance in independent living and support for their informal carers (taking into account the principle of de-institutionalisation of services).
- Improving access to long-term care facilities as well as the level of service they provide; ensuring adequately qualified staff in the care sector.

HEALTH

4. The health status of residents

The good health of citizens is an important determinant of economic growth, and health-related interventions are the key to reducing the risk of poverty due to health-related inactivity.

Life expectancy at birth is one measure of quality of life. It is affected by access to and the quality of medical care, as well as the state of the environment or type of lifestyle. In 2015, the upward trend in life expectancy that had been constant since 2000 broke down in Poland and Małopolska. Despite this, the average life expectancy for a resident of Małopolska in 2018, i.e. 79.1 years (82.9 years for women, 75.3 years for men) was still significantly higher than in 2008, when it was 76.9 years (80.9 years for women, 72.9 years for men). In 2019, the life expectancy of Małopolska residents decreased to 79 years (82.7 years for women, 75.3 years for men).

In terms of life expectancy, in 2018 Małopolska was ranked second in the country and 226th out of 281 EU regions.

The collapse of the upward trend in life expectancy is associated with the intensity of deaths. Their surge was recorded in 2015 (by 6% per year), and then in 2017 and 2018 (by 4% and 2% respectively). This is partly the result of the accelerated ageing of the population: more and more people born during the post-war baby boom of the 1950s are reaching the age of 65. The increase in the number of deaths is also influenced by deteriorating air quality, especially during winter periods.

Cardiovascular diseases remain the most common cause of death, accounting for 47.2% of deaths in Małopolska in 2018 (40.5% in Poland). Between 2008 and 2018, the number of deaths due to these diseases per 100,000 people increased in the region by 1.6% (compared to a decrease of 3.6% nationally).

A growing social health problem is malignant tumours, which are the second most common cause of death. In Małopolska in 2018, the proportion of deaths due to these diseases was 26.9% compared to 26.4% nationally). The number of deaths due to cancer per 100,000 population has increased by 10.0% since 2008 (compared to an increase of 13.5% nationally).

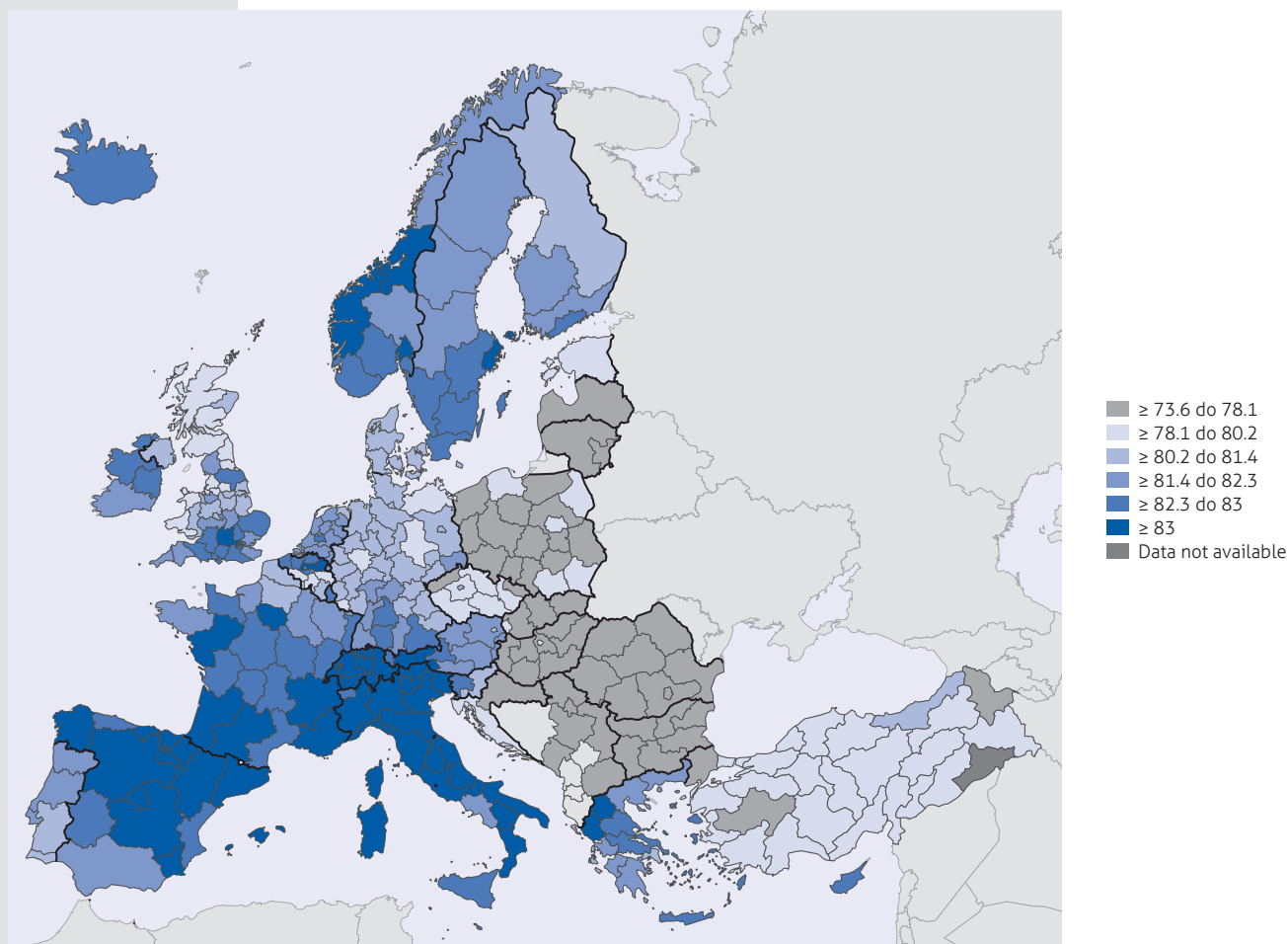
Since 2017, there has been an increase in mortality due to respiratory diseases. Between 2008 and 2016, the percentage of deaths from these diseases in the region ranged from 3.9 to 5.0% (the highest was in 2008, the lowest in 2010). In 2017 it increased to 6.5%, one year later it was 6.4%. Between 2008 and 2018, the percentage of deaths due to respiratory failure increased in 18 counties of Małopolska, most of which occurred in three counties: Proszów, Tatra and Nowy Targ.

Among the main causes of health burden are mental health problems. In 2018, 140,244 Małopolans were treated in counselling centres for people with mental disorders, alcohol and other substance dependencies, 4.3% more than in 2008. During the decade (2008-2018), the number of suicide attempts registered by the Regional Police Headquarters in Krakow increased from 369 to 1033 (1075 in 2019).

The WHO predicts that depression will become the most common health problem in the next 20 years. This is confirmed by an analysis of the issue of sickness absence, indicating the increasing contribution of psychosocial factors to the overall pattern of absence from work. Between 2008 and 2018, the number of sickness absence days due to mental and behavioural disorders increased by 83%. Diseases of the osteoarticular, muscular and connective tissue systems (55%) and cancer (49%) also experienced high growth rates.

Rare diseases are also a complex health problem. Nearly a third of rare disease patients receive three or more incorrect diagnoses, and

Map 6. Life expectancy in 2018 - Małopolska in comparison with the EU



Source: Eurostat

almost half of them must wait for more than a year for a correct diagnosis after the appearance of symptoms, while 20% must wait for more than five years and 12% must wait for up to ten years. Late diagnosis makes it more difficult to treat patients effectively, increases disability and requires the involvement of third parties for care. Rare diseases are included as a priority for EU action to promote health, including the reduction of health inequalities.

The problem is still the low health awareness of the population and the detection of diseases only at advanced stages of development. As much as 36% of the health burden is still attributed to behavioural risk factors, and interest in prevention programmes is still low. Therefore, actions should be aimed not only at increasing access to diagnostic tests, but also at increasing the knowledge of the population regarding a healthy lifestyle, pathogenic risk factors and the importance of regular preventive tests.

Regarding the epidemiological situation of infectious diseases in the region, the steady decrease in the number of rubella cases since

2014 is still continuing. In 2019, 25 cases were reported, i.e. as many as 6 times less than three years earlier (there were 150 cases in 2016). The number of patients with tuberculosis has also decreased over the years (from 490 cases in 2010 to 398 in 2019). What is worrying, however, is the increase in measles cases, both in the region and nationwide, which was particularly sharp in 2019. The incidence rate in the Małopolska region in 2019 was 5.17/100 thousand (compared to 0.30/100 thousand in 2018, and 0.09/100 thousand in 2017) and was higher than the national average (in 2019 3.88/100 thousand), in contrast to previous years when rates in the region were more favourable than the national average (0.93/100 thousand in 2018, 0.16/100 thousand in 2017). Epidemiologists agree that the spread of measles is due to the inadequate vaccination status of the population, a visible manifestation of the increased activity of anti-vaccine movements in various countries. One of the most serious problems observed in recent years is also the spread of highly drug-resistant bacteria, which poses a serious threat to public health.

A completely new scale of challenges to the prevention of infectious diseases has been shown by the COVID-19 epidemic (awareness of the importance of vaccination, forming habits that increase one's own and others' safety, etc.). According to the data of the Małopolska State Provincial Sanitary Inspectorate (as at 20 October 2020), since the beginning of the epidemic, 25696 cases of SARS-CoV-2 infection have been reported in the region, the highest number in Krakow (7310). 14176 people have recovered, while 358 people have died. Through contact in a hospital or outpatient clinic, 1361 cases were reported, with a further 1171 in workplaces, 1155 in DPS and 372 in schools. Special funds were allocated to strengthen the health care system in the Region through the purchase of equipment and supplies necessary to effectively fight the pandemic within the framework of the Małopolska Anti-Crisis Shield medical package.

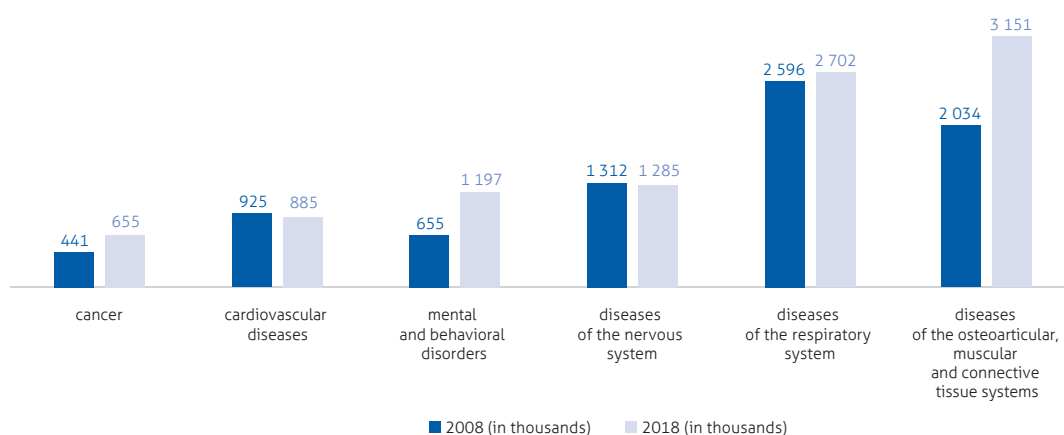
5. Access to health services

An important element of the health care system is outpatient health care (including primary and specialist health care), on which the effectiveness of the patient's treatment process and the efficiency of the entire health care system largely depends. Within outpatient healthcare in Małopolska, at the end of 2018 there were 1976 outpatient clinics and 161 medical and dental practices providing healthcare services from public funds (in 2008 there were 1304 outpatient clinics and 285 practices). In 2019, the number of outpatient clinics and practices decreased compared to the previous year: 1924 outpatient clinics and 141 medical and

dental practices were operating (and this was the worst result among all provinces in terms of the number of practices providing benefits under contracts with the National Health Fund). In 2018, there were an average of 1591 people per 1 ambulatory healthcare provider in the Region, and 1652 a year later. These values are well above the national average (1439 and 1461 people in 2018 and 2019 respectively), putting Małopolska in the group of regions with the highest figures (only 3 regions showed a higher result: Pomorskie, Kujawsko-Pomorskie and Mazowieckie). In 2019, the highest population per outpatient clinic and practice was recorded in the Wadowice district (2667) and the lowest in Nowy Sącz (1061). At the same time, in terms of the number of outpatient healthcare advice given, Małopolska was ranked 3rd in the country both in 2018 (25.4 million) and in 2019 (25.6 million) (after Mazovia and Silesia). The average number of outpatient consultations per capita was 8.5 in 2018 and 8.6 in 2019. Between 2012 and 2019, the number of consultations provided within the framework of primary health care increased in all districts of Małopolska, with the largest increase in Dąbrowa (44%), and the smallest in Gorlice (4%). On the other hand, the number of consultations with outpatient specialist care increased in 15 counties, with the largest increase in Miechów (49%), and decreased in 7 counties, with the largest decrease in Tarnów (16%).

In 2018, general hospitals in Małopolska had 43.68 beds per 10,000 inhabitants (compared to a national ratio of 47.31), and the number of patients treated was 649,625.

Figure 6. The number of days of sickness absence due to illness of persons insured with ZUS (data for Małopolska) according to selected sickness groups (in thousands)



Source: own elaboration based on ZUS data

The number of patients increased more than the number of beds in the following wards: neurological and neurosurgical, psychiatric and addiction therapy and geriatric. Despite the increase in the number of rehabilitation beds, their deficit is still felt, especially in the field of early post-traumatic and postoperative rehabilitation. The low availability of rehabilitation treatment, resulting from the analysis of health needs maps, indicates the need for improvement in this area.

In 2018, Małopolska was a region with one of the lowest figures showing the number of people hospitalised in general hospitals per 10,000 inhabitants (1,820 people). However, the number of avoidable hospital admissions in Poland is still among the highest among EU countries. The inefficiency of the long-term care system may be indicated by hospitalisations for chronic diseases in wards in general hospitals, which would be potentially avoidable or shortened given a more efficient system of health and care services outside hospital. In 2018, long-term care in Małopolska was provided by 59 institutions (43 care and treatment facilities, 3 nursing and care facilities, 8 hospices and 5 palliative care units; a total of 3618 beds). During the year, 9153 people (83.2% of whom were over 65 years) were cared for there.

There were 2 psychiatric hospitals in Małopolska at the end of 2018. In addition, 12 multi-profile hospitals and 3 care and treatment institutions had psychiatric wards. In contrast to the increase in the number of beds and patients

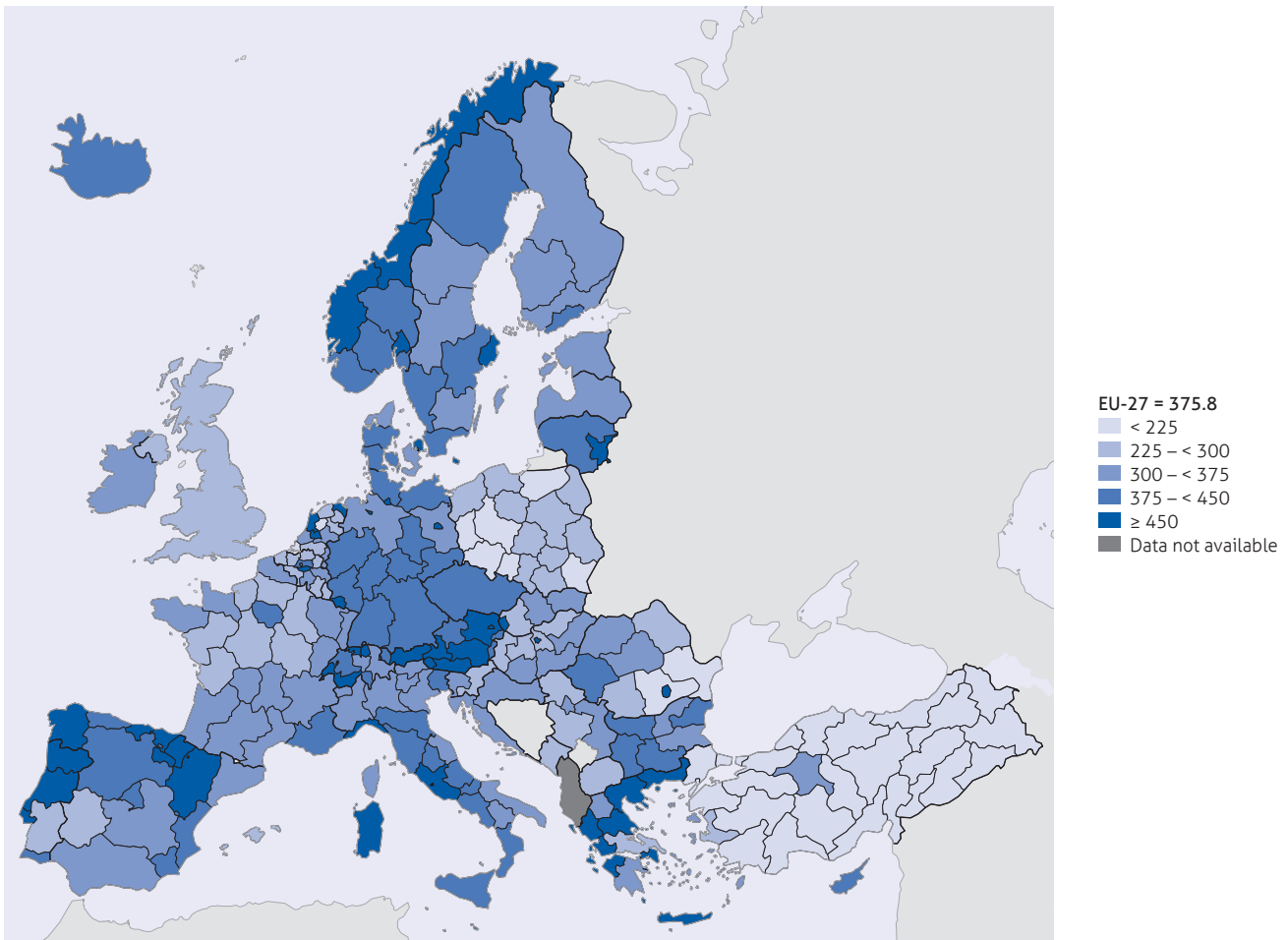
in psychiatric and addiction therapy wards in general hospitals, both the number of beds and the number of people treated in them decreased in psychiatric hospitals between 2010 and 2018 (by 3.6% and 19.8% respectively). The situation is particularly difficult (nationwide) in child and adolescent psychiatric care. There is an increasing number of admissions of patients under 18 years of age whose health and life is directly threatened (the number of suicide attempts among children and adolescents registered by the Regional Police Headquarters in Krakow increased from 20 in 2008 to 98 in 2019). At the same time, in many places in the Region, there is little or no access to various forms of therapy due to the lack of specialist medical staff. According to the WHO standards, there should be 1 psychiatrist per 10 thousand children. In no region of Poland are these standards met (at the end of 2018, the figure was 0.51 nationally and 0.53 in Małopolska, which was only half the figure accepted by WHO standards). According to the data of the Małopolska Regional Office in Krakow, at the end of 2018 there were, by primary employment, 212 doctors working in the Region's as specialists in psychiatry, including only 11 in child and adolescent psychiatry, and 410 nurses taking care of patients requiring psychiatric treatment. It is estimated that about 20% of people who need help receive support. There is a shortage of specialist beds in in-patient psychiatric care for children and adolescents. The number of outpatient care facilities is also too low. There have been some improvements in access to community care. For

Table 1. Number of beds and number of patients in selected wards in general hospitals in the Małopolska region

| Selected wards in general hospitals | Beds | | | Inpatients (including inter-departmental traffic) | | |
|-------------------------------------|-------|-------|-----------|---|--------|-----------|
| | 2010 | 2018 | 2018/2010 | 2010 | 2018 | 2018/2010 |
| cardiology and cardiac surgery | 710 | 925 | 30% | 41 250 | 51 721 | 25% |
| neurological and neurosurgical | 723 | 784 | 8% | 28 508 | 40 219 | 41% |
| oncology | 309 | 384 | 24% | 17 368 | 20 791 | 20% |
| rehabilitation | 1 294 | 1 581 | 22% | 16 751 | 19 174 | 14% |
| psychiatric | 439 | 527 | 20% | 5 035 | 6 396 | 27% |
| addiction therapy | 111 | 136 | 23% | 1 251 | 2 191 | 75% |
| geriatric | 48 | 113 | 135% | 1 403 | 3 435 | 145% |
| infectious diseases | 347 | 311 | -10% | 13 941 | 11 353 | -19% |

Source: own elaboration based on CSO data

Map 7. Number of practising doctors per 100,000 inhabitants in 2017 - Małopolska compared to the EU



Source: Eurostat

instance, the number of Community Treatment Teams rose from seven in 2011 to 37 in 2018. However, this is still not sufficient to satisfy growing the need for better community care.

At the end of 2018, there were: 24 working doctors, 4 dentists and 54 nurses (the national average was: 23, 3, 50 respectively). For comparison, in the EU there are on average 37.6 working doctors per 10 thousand inhabitants.

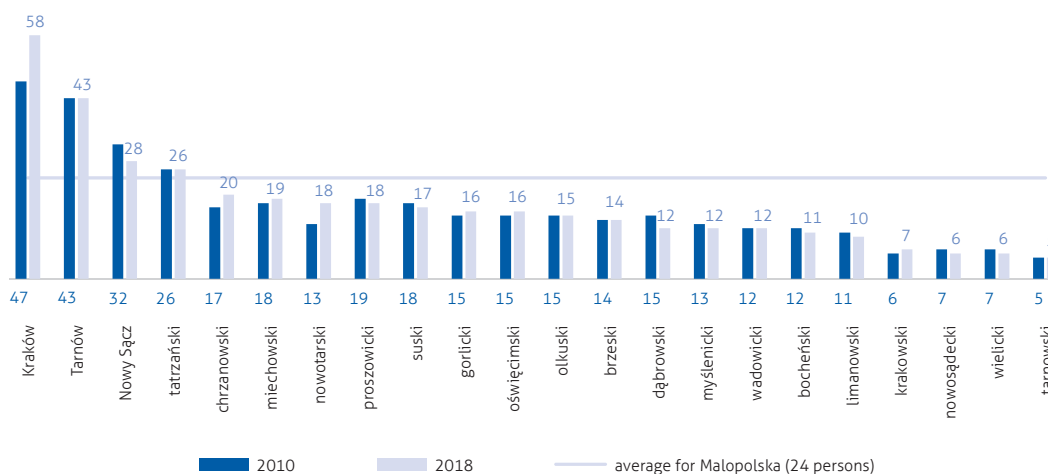
Between 2010 and 2018, the greatest decline in doctors, nurses and midwives was recorded in the Dąbrowa district (20% and 23% respectively). One problem in the Region, as in the whole country, is the progressive ageing of medical and nursing staff currently employed, which has been exacerbated by the emigration of young workers.

Residents of Małopolska participating in the study on the condition of families in Małopolska generally rated access to family

doctors or pediatricians and the level of service in this area highly, even in smaller towns and villages. However, access to specialist services, including consultations with doctors of various specialisations, as well as rehabilitation and dental services, is a problem. The majority of Małopolans declared that they had abandoned the offer of public institutions in this area and regularly used private services, often in larger centres.

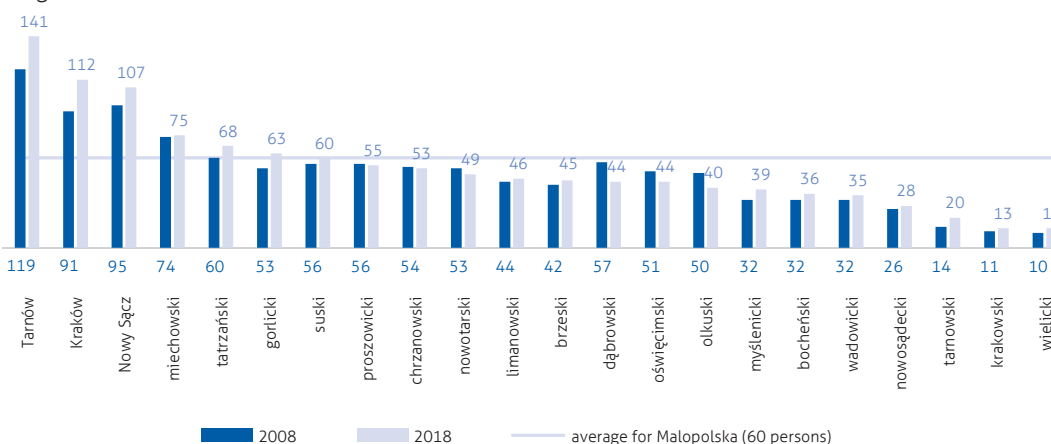
Regarding access to health services, the development of digital services is an opportunity. One example is e-prescriptions. There are also plans to introduce online registration services for specialists, which will eliminate duplicate records of one person in many facilities, with the option of SMS appointment reminders and their confirmation. This should significantly reduce the number of 'empty' consultations, i.e. when the doctor waits for the patient and the patient does not turn up.

Graph 7. Doctors working by primary place of employment per 10,000 population in Małopolska



Source: own compilation based on CSO data. Ranked by district position in 2018

Chart 8. Nurses and midwives working by primary employment per 10,000 population in the Małopolska Region



Source: own compilation based on CSO data. Ranked by district position in 2018

CHALLENGES:

- Prevention and early detection of diseases, in particular by raising public awareness of healthy lifestyles, pathogenic risk factors and the importance of regular diagnostic tests and vaccinations.
- Adapting the institutional base and health services to changing social needs, in particular to the needs of an ageing population.
- Improving the quality, efficiency and resilience of the health care system through: ensuring adequate medical and care staff, developing ambulatory health care, especially specialised health care, as well as research and development investments, implementing innovative solutions in health care, including digitisation of services, and creating systemic mechanisms of cooperation between entities providing health care services.

SECURITY

6. Emergency medical services

In 2019, there were 134 medical emergency teams operating in Małopolska (14 more than 10 years earlier and 3 more compared to 2018). There were 21 hospital emergency departments (EDs) in 2019 (the same number as in 2008). The availability of medical services provided by medical emergency teams is illustrated by the ratio of the number of teams per 100,000 population. In 2019 Małopolska was one of seven regions with figures below the national average (4.1). On the other hand, in terms of the number of persons per ED, Małopolska, with a result of 162,424 persons/SOR, was ranked seventh in the country in 2019. During the previous year, it had ranked eighth with 161,932 persons/SOR).

An important figure showing the possibility of efficient assistance in life and health-threatening situations is the time of an ambulance's journey to the place of incident and the time of arrival at the ED. According to CSO analyses, Małopolska (next to Podkarpackie Region) is the region with the lowest percentage of municipalities with optimal ambulance arrival time, which is below 5 minutes (only 11 municipalities). In 92 municipalities in the region, however, this time does not exceed 10 minutes (the worst result in the region is slightly over 24 minutes). In turn, Małopolska, in turn, next to Śląsk (Silesia), has the densest network of EDs, which translates into the second shortest average time of access to an ED in the region (after the Łódź Region). Very good average accessibility to EDs, below 10 minutes, is observed in 17 municipalities of the Małopolska Region; in 85 municipalities it does not exceed 20 minutes, in 40 it is over 30 minutes (the worst result in the region is nearly 46 minutes).

In Małopolska, 239.4 thousand people received on-the-spot health services in 2019 (1.1% more than in 2018 and 9.7% more than in 2008). More and more visits to elderly people are recorded. In 2019, 111,300 people aged 65 and over were assisted on-the-spot, an increase of 4.3% year-on-year and 47.5% compared to 2008 (nationally, these figures increased by 2.6% and 41.7% respectively). The percentage of people aged 65+ in the total number of people provided with on-site services has increased by 11.9 p.p. since 2008 and stands at 46.5% in 2019.

The increase in the number of on-site services is accompanied by a decrease in the number of persons who received services in the outpatient activity of the hospital emergency department or emergency room. In Małopolska,

this was 414.2 thousand people in 2019 (i.e. 7.8% less than in 2018 and 17.1% less than in 2008; nationally, these figures decreased by 1.5% and 16.7% respectively). These benefits also saw an increase in the proportion of people aged 65 and over, accounting for 21.9% in 2019 (3.0 p.p. more than in 2008).

7. Epidemiological safety

The COVID-19 epidemic has demonstrated a completely new scale of challenges in terms of epidemiological safety. Aspects worth noting in the context of systemic solutions improving sanitary-epidemiological safety in the region include: securing adequate amounts of anti-infective personal protective equipment for medical personnel and for distribution to the public; providing emergency services with adequate equipment; securing an adequate number of beds/equipment in infectious/intensive care units and an adequate number of trained medical personnel; ensuring cooperation of services in the event of an epidemic and educating the public in adopting the appropriate attitudes and habits to increase their own and others' safety.

8. Road safety

In 2018, 3404 road accidents were recorded in the region, with 223 deaths and 4003 injuries. These results are clearly better than in 2008, when 344 people were killed and 5973 injured in 4677 accidents. In 2019 the downward trend continued (3136 accidents, 176 killed, 3716 injured) and Małopolska had the lowest rate of fatalities per 100 accidents in the country – but also one of the highest rates of injuries per 100 accidents (5th place). One positive development is a decrease in the number of intoxicated road users involved in accidents in the Małopolska Region – in 2008 they were involved in 588 accidents, 10 years later there were 304 such accidents and in 2019 there were only 271.

9. Fire protection and fire risks

According to analyses conducted by the CSO, Małopolska is among the four regions with the densest network of fire stations. 82-90% of Małopolska residents live within 4km of a fire station, which is a good result compared to the rest of the country. Calculated for the 182 municipalities in the region, the average distance from the place of residence to the nearest fire station is 2.9 km, and the average journey time is 5 min 26 s (the national average at provincial level is 2.7 km and 5 min 19 s respectively).

In 2018, a total of 40,320 fire and rescue incidents took place in the province, including 9586 fires (23.8%), 26,627 local threats

(66.0%) and 4107 false alarms (10.2%). In 2019, there were 50,293 incidents (9973 more than last year), including 10,849 fires (21.6%), 35,101 local threats (69.8%) and 4343 false alarms (8.6%). Road transport incidents remain the most common local hazards (38.4% and 31.5% of all incidents in 2018 and 2019 respectively). Increasingly, incidents involving high winds (26.8% of all incidents in 2019, 5.2 p.p. more than the year before) and rainfall (7.4% in 2018, 10.1% the year after) require intervention. As part of the rescue and firefighting system, there were 1356 Voluntary Fire Brigades units in the province in 2018, including 397 belonging to the National Rescue and Fire Fighting System. In 2018, they dealt withtook part in 25,346 different types of incidents.

10. Safety in mountain and water areas

Mountain and water rescue is particularly important, due to the high importance of tourism and the development of leisure industries in the region. In 2018, the Mountain Voluntary Rescue Service took part in 2066 expeditions and rescue actions. The Tatra Mountains Volunteer Rescue Service alone carried out 691 actions, including 230 involving a helicopter. In the Tatra Mountains TOPR rescuers intervened 653 times, 209 times using a helicopter; there were 15 fatal accidents, the main cause of which was falls from great heights. Water rescue is also important - in 2018 27 people drowned in Małopolska; in 2019, this figure decreased to 25 people.

11. Crime

In 2018, 74,697 total crimes were recorded in the region, 9.4% less than in 2008. In 2019, the number of crimes increased by 7.1% on an annual basis (the period analysed (2008-2019) has seen cyclical fluctuations in trends - the decline in 2018 was followed by a return to an upward trend sustained since 2016

after a period of significant annual declines between 2012 and 2015). Crime detection rates have increased by 18 p.p. since 2008. (as of 2017, it stands at 79%).

The number of criminal offences has been on a downward trend since 2012. In 2018, 42,014 were recorded, in 2019 - 41,898, with a detection rate of 69% (which means that since 2008 the number of crimes has decreased by 30% and the detection rate has increased by 20 p.p.).

There has also been a significant reduction in the number of road traffic offences - although there was an increase in 2019 for the first time in 7 years (4679 in 2018, 4889 a year later), the number of offences was halved compared to 2008. The detection rate for road traffic offences remained high - both in 2008 and in 2019 it was 99%.

However, the number of economic crimes has increased significantly since 2008. In 2018, 25,724 of them were recorded in Małopolska, a year later 30,711, i.e. three times more than in 2008 (a 38.5% increase at the national level). At the same time, the detection rate for this type of crime decreased - in 2019 it was 89% in the region (82% in the country), i.e. 3 p.p. less than in 2008 (a 12 p.p. decrease in the country).

12. Cooperation between services

In 2019, as the first in the country, an agreement was signed between the Małopolska Region and the Regional Fund for Environmental Protection and Water Management, with the participation of the Małopolska Voivode, and 19 entities acting for safety and environmental protection in Małopolska, defining the principles of cooperation, or greater safety and reduced threats to the environment.

CHALLENGES

- Improving the effectiveness of services responsible for the safety of Małopolska residents.
- Increasing the safety of pedestrians and other road users.
- Improving epidemiological safety in the region.

SPORT AND RECREATION

In the modern world, physical activity is an important element in a healthy lifestyle and prevention of many diseases of civilisation. Health problems related to the lack of physical activity are currently of global nature and

require a comprehensive approach geared towards health protection. Unfortunately, in public statistics, data on the level of participation in sports and recreational activities are published with little frequency and, moreover, there is a lack of such information for individual regions. In this case, the data from national

surveys should be referred to all regions as reflecting trends in society as a whole. Studies on physical activity indicate an unfavourable tendency in this field: physical activity, one of the most important elements in increasing the chance of a healthy lifestyle, is commonly neglected in Poland - not only in children and adolescents, but also in adults.

The research carried out shows that only less than half of the respondents participated in sports or physical recreation, while 56% never exercised or played sport. On the other hand, the standards concerning the level of physical activity in leisure time recommended by the World Health Organisation are met by only less than 16.1% of Poles aged 15-69, or slightly more (21.9%) if we count regular physical activity such as cycling. The percentage of persons complying with the WHO recommendations decreases in individual age groups with increasing age: it amounts to almost 40% of 15-29 year-olds, but only 8% of 60-69 year olds. This proportion is higher among men than among women.

The decrease in the percentage of physically active teenagers is alarming, because in the case of young people, activity plays a particularly important role, shaping their lifestyle and habits, and thus influencing their future health. The results of the HBSC (Health Behavior in School-aged Children) study conducted under the auspices of the WHO, and coordinated at national level by the Institute of Mother and Child, show that young people in Poland aged 11-15 exercise less and less. Comparing data from 2014 and 2018, there is a clear downward trend in the level of recommended physical activity. Differences were found for recommended moderate activity, the percentage of which decreased from 24.2% in 2014 to 17.2% in 2018. Intensive physical activity has also decreased since the previous survey from 40.5% to 33.1%. It is also clear that physical activity decreases with age - the least active of those surveyed were teenagers from secondary schools or technical schools. The decreasing physical activity of youth is undoubtedly connected with a significant frequency of using information and communication technologies, which most often results in spending time in a sitting position. The results of the HBSC study indicate that adolescents spend a significant part of their free time in front of a screen or monitor. On average, they spend 2.5 hours a day watching films or programmes and using computers and mobile devices for other purposes, and over 1.5 hours playing computer games/consoles.

At the moment, however, an upward trend in physical activity is noticeable. The direction of interest varies depending on the age of those taking part in physical culture. Young people are looking for more extreme experiences and a kind of sporting competition. People of productive age place more value on the practical dimension of physical activity, so they are more likely to choose activities such as fitness, running and all other publicly accessible physical activity. Seniors perceive their physical activity primarily from the perspective of health and well-being and as an effort to prevent social exclusion.

In the area of physical culture, activities are carried out to create the best possible conditions for practising sport. The monitoring of the state of sports facilities in the Region, which has been carried out for many years, shows that there is still a lack of appropriate generally available sports infrastructure. This is proved by factors such as the growing interest of local government units in obtaining external funding to support the construction or modernisation of sports facilities. This refers primarily to school facilities and facilities for recreational and amateur sports, including school multifunctional sports fields, recreational equipment, outdoor gyms, skate parks, pumtracks, etc. Thanks to systematic support for the development of sports infrastructure, the number of modern, generally accessible sports facilities has increased. Previous activities in this respect have been carried out on the basis of funding from the Physical Culture Development Fund as part of the Long-term Programme for the Development of the Sports Base of the Małopolska Region. In the years 1999-2016, thanks to the implementation of this Programme, the sports infrastructure of the Region was enriched by 410 newly-built or renovated facilities, including 25 sports complexes, 22 indoor swimming pools, 30 sports halls, 69 small sports halls, 206 gymnasiums and 58 other sports facilities.

In recent years, Małopolska has also implemented investment projects such as the construction of sports complexes known as "Orliki" or the "Małopolskie boiska" (Małopolska sports fields) programme, which co-financed the modernisation of 51 school multifunctional sports fields. In 2019, the project was continued under a new name: "Małopolska Recreational and Sports Infrastructure - MIRS", where its scope was significantly expanded, making it possible to modernise another 65 facilities. In order to encourage residents to lead an active and healthy lifestyle, cycling infrastructure is being developed in Małopolska. The Velo Małopolska project is being implemented,

involving the development of an integrated network of cycling routes connecting the entire region. Ultimately, cyclists will be able to use almost 1,000 kilometres of routes built to the highest standard, safe both for professional and recreational cyclists and for all types of bicycles.

The attractiveness of the region and its developing sports infrastructure mean that Małopolska is hosting more and more international sporting events. Thanks to venues such as the TAURON Arena in Krakow and the ski jumping complex in Zakopane, the region hosts the most important figures in world sport. Sports facilities of an international standard give us the opportunity to apply for the organisation of events of the highest rank. In 2023, Małopolska and the City of Krakow will host the 3rd European Games 2023. The organisation of major sports events contributes to the economic and cultural development of the region, including tourism. Thanks to the organisation of sports events, tourist, sports and transport infrastructure is being developed in localities, new jobs are being created for people living in the region, and there is also an ideal opportunity to promote the country in the international arena.

Małopolska is among the leading regions in terms of registered, actively operat-

ing sports associations. According to 2019 data, a total of 3,3117 sports associations co-create the sport and recreational offer in the region, including: 820 Sports Clubs, 479 People's Sports Clubs, 30 Parish Sports Clubs, 1,097 Pupils' Sports Clubs, 119 Focal Points of the Society for the Promotion of Physical Culture and 572 other associations. The highest number of associations was registered in the City of Krakow (708), Nowy Sącz District (240) and Krakow District (212).

The Małopolska Region is raising and educating the next generation of athletes. Sports competitions for children and young people within the national Youth Sports System are extremely helpful in this matter. They include competitions in four age categories: youngsters (Provincial, Interprovincial and Polish Youth Championships), younger juniors (Polish Youth Championships, National Youth Olympics), juniors (Polish Juniors Championships) and youth (Polish Youth Championships).

In the classification of provinces conducted by the Ministry of Sport, Małopolska maintained its fifth place in the country in 2019. However, in winter sports, Małopolska athletes have been unrivalled for years.

CHALLENGES

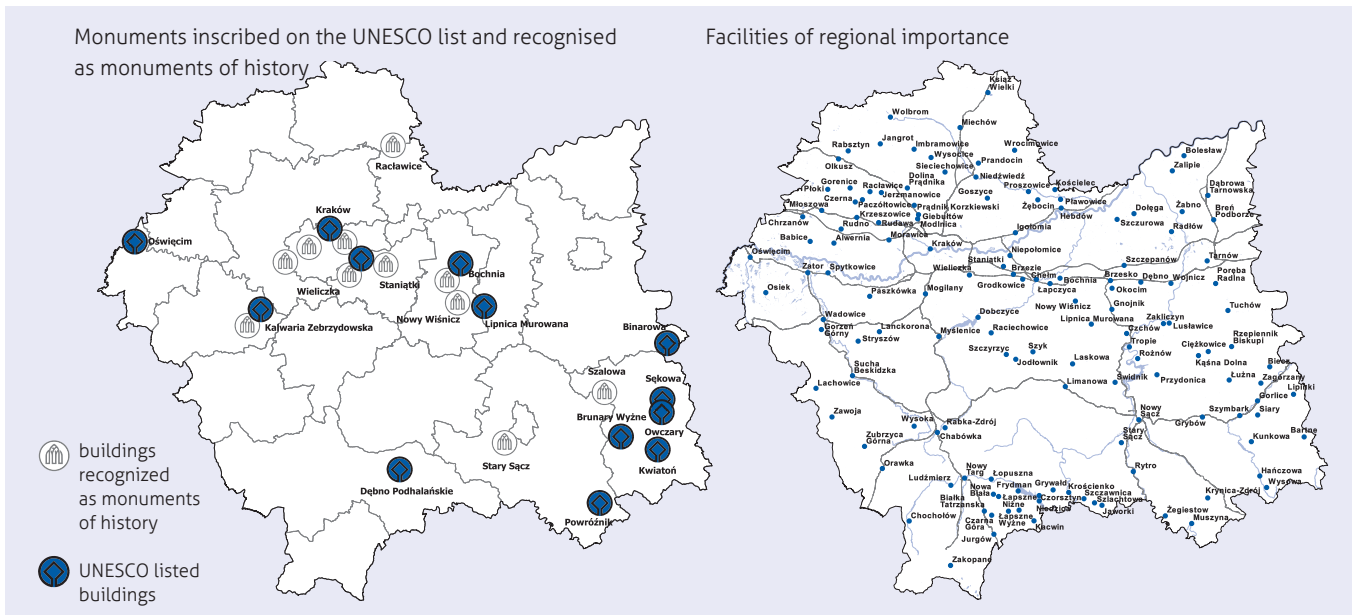
- Ensuring an appropriate range of sports and recreational facilities enabling universal participation in physical activity by the inhabitants of Małopolska and adjusting the offer to the changing possibilities of different age groups.
- Raising awareness of the region's population on the impact of physical activity on health.
- Improving performance in the Youth Sports System.
- Exploiting the potential of sport at a competitive level to promote the region internationally.
- Developing the sporting potential of Małopolska through the construction, expansion and modernisation of sports and leisure infrastructure.

CULTURE AND HERITAGE

The uniqueness of Małopolska is evidenced, among other things, by the number of objects covered by special forms of protection. There are six historical complexes inscribed on the UNESCO World Heritage List, one entry on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity, 11 sites recognised as Monuments of History, six entries on the list of intangible cultural heritage related to Małopolska's traditions, one site honoured with the European

Heritage Label. Moreover, within the borders of the Region there are six national parks protecting not only the natural values, but also the cultural landscape of the area. The provincial register of historical monuments includes about 48 thousand objects, while 5.1 thousand monuments are listed in the provincial register of immovable monuments. The vast majority of them are located in Krakow and its vicinity, as well as in the southern part of Małopolska. Among these immovable monuments there is a group of 174 objects of regional importance.

Map 8. UNESCO monuments, historical monuments and sites of regional importance



Source: UMWM's own study based on the entries of objects on the UNESCO World Heritage List and the list of monuments of history (left map); Provincial programme for the care of monuments in Małopolska for 2018-2021 (right map).

Małopolska stands out as the region with the highest number of buildings entered in the register of monuments of wooden structure (1059 objects - 16.83% of all such properties in the country). The state of preservation of tangible heritage resources is subject to constant changes over time. In the Report on the state of preservation of immovable monuments in Poland, prepared by the National Heritage Institute in 2017. Monuments entered in the Register of Monuments (Register Books A and C), it is estimated that only a third of the objects listed in the provincial register of monuments show no signs of deterioration and do not require renovation works, while the remaining two thirds of the objects do require such works. 378 objects which have not lost their historic value are considered as particularly endangered. These account for 7.79% of all regional stock. The group of objects under the most serious threat is wooden housing.

Cultural parks, which are one of the legal forms of heritage protection, are also of great importance for the heritage resources. In Małopolska, 4 cultural parks have been established: the Kotlina Zakopiańska (Zakopane Basin) Cultural Park, the Krupówki Street Area Cultural Park, the Stare Miasto (Old Town) Cultural Park in Krakow and the Nowa Huta Cultural Park. The current Spatial Development Plan for the Małopolska Region recommends creating an additional 23 cultural parks.

One of the most important elements of the system of historic monument care are museums, which, apart from their protective function, also have an educational function. Małopolska leads the way in terms of the number of museum institutions, the level of their substantive activity and the importance of their collections. The 135 establishments located in the region constitute 14.1% of all museums in Poland (putting it in 2nd place in the country after the Mazowieckie Region). The total number of collections arranged by the museums of Małopolska was 5.3 million musealia in 2019, accounting for as many as 23.5% of national collections. Małopolska's museums are enduringly popular, with 11.1 million visitors in 2019, accounting for 27.7% of the total number of visitors in Poland.

The range of museums is complemented by art galleries and salons, which also present to the public objects of ancient art and artefacts borrowed from museums. In 2019, 61 art galleries and salons organising exhibitions operated in Małopolska (18.7% of all those operating in Poland). These establishments organised a total of 596 exhibitions in the country and abroad during the year. In the Małopolska Region, exhibitions were visited by 1.3 million people, including 862.2 thousand visitors to outdoor exhibitions. One art gallery and salon was visited by an average of 21.4 thousand people.

The intangible heritage of Malopolska is also extremely rich and is still being cultivated. Phenomena associated with intangible heritage are included on the National List of Intangible Cultural Heritage - out of 41 phenomena and manifestations of intangible heritage listed nationally, six originate from Małopolska. The national list includes the following living traditions: Cracovian nativity crib making, the Lajkonik parade, the skill of making an instrument and the practice of playing the goat (Podhale bagpipes), Cracovian lace making, toy-making in Żywiec and Suski, and kumoterki (Podhale sledge races).

The province also stands out from the rest of the country as a thriving centre of stage activity. In 2019, this was performed by 22 institutions with their own artistic teams: 12 drama theatres, 3 puppet theatres, three musical theatres, three orchestras and one philharmonic hall. Theatres and musical institutions staged 6,300 performances and concerts that attracted 1.3 million spectators and listeners.

Małopolska is a region where culture, through the active operation of cultural centres, cultural houses and centres as well as clubs and common rooms, makes a significant contribution to building social capital. The Małopolska Region has been distinguished for years by having the highest number of such institutions in the country, of which 459 were active in 2019, putting the region ahead of the Śląskie (373) and Podkarpackie Regions (366). Most clubhouses (96.4%), community centres (74.3%), cultural centres (72.6%) and cultural centres (52.1%) were located in rural areas, while clubs were mainly based in urban areas (82.5%). In 2019, these institutions organised 30,800 events with 4.2 million participants.

In recent years, libraries have been playing an increasingly important role as social centres, integrating the local community. Their importance is growing, especially in rural areas, where their multifunctional character is more evident as they are designed to meet the needs of a diverse community. In the Małopolska Region, the number of library facilities has been on a downward trend in recent years but nationally, a total of 904 public libraries and library and information facilities in 2019 put the Region as high as third place after the Mazowieckie and Śląskie Regions. Among all establishments, the majority were public libraries (79.0% of the total number), with the largest number active in the Krakow district (65) and the smallest in Nowy Sącz (8). On average, there were 929 readers per one public library including its branches.

Nowadays, it is becoming increasingly important to reach data and resources, and thus cultural audiences, using information and communication technologies. The process of digitisation covers library, archival, audiovisual and museum resources, as well as historical objects, and is extremely important for the protection, promotion and accessibility of cultural heritage. In Małopolska, many digitisation projects have been carried out in recent years in most institutions with cultural heritage collections. However, given the present requirements, coupled with financial constraints and limited availability of technological and human resources means that the majority of objects still have not been digitised. Nationwide data for 2016 indicates that museums, NGOs, churches and universities digitised 25% of their resources, NGOs, libraries around 10% and archives less than 3%. The importance of digitisation was particularly highlighted by the COVID-19 epidemic, which resulted in cultural life going completely online between March and May 2020. At the same time, this experience has shown that this kind of cultural facility is still not widely available, as it excludes people who do not have the right equipment or Internet access, and above all older people or people in a difficult economic situation who do not have the necessary competences to use digital solutions for cultural reception.

Numerous organisations belonging to the non-profit sector are also involved in cultural activities. Krakow, as the capital of the region, is home to the largest number of entities active in the field of culture. In 2016, 1.3 thousand active non-profit organisations, i.e. associations and similar social organisations, foundations and social religious entities, indicated culture and art as the most important field of activity in the Małopolska Region (almost 21% more than in 2014). The largest number of entities (40.9%) carried out activities related to the protection of monuments and places of national memory, as well as the maintenance of national, regional and cultural traditions.

Cultural institutions actively cooperate with entities of the creative industries sector, e.g. the music and film industry, conservation of monuments and works of art, architecture and design, media and advertising, the publishing market, crafts and visual arts. Art institutions, museums, cultural centres and libraries are very active in this field. In 2016, there were more than 28,000 business entities in Małopolska classified as creative industries, which employed 77,642 people and contributed PLN 8,776 million to Małopolska's GDP (about 6% of its total GDP) in 2016.

The highest number of employees was recorded in the following industries: computer games and software (approx. 39.3 thousand people), media and advertising (approx. 14.1 thousand people) and the publishing industry (approx. 8 thousand people).

Cultural education should occupy an important place in the development of civic, social, communication, cultural, creative and media competences. The specifics of cultural education carried out in the Małopolska region, as presented in the report prepared as part of the Synapsy project, show that cultural activities are, to a greater extent, subordinated to promoting the commercial exploitation of heritage, while too little attention is paid to educating and involving residents in building cultural competences. Although

cultural institutions in recent years have significantly expanded the scope of cultural education activities, there is still a visible widening geographical inequality in access to high quality cultural offerings. Cultural education activities are generally addressed primarily to children and young people, while the most disadvantaged groups are still people with disabilities and the elderly. With a view to supporting the presence of people with disabilities in cultural institutions and their use of the cultural offer, a systemic project was initiated in 2016, implemented on a province-wide scale: "Małopolska. Sensitive culture". It focuses on training and educational activities, setting the trend for improving accessibility to the 23 institutions involved in its implementation.

CHALLENGES

- Preserving local heritage for future generations, especially carrying out adaptation and modernisation works of endangered objects (e.g. wooden housing - "in situ" intervention, historic manors, palaces and castles and historic technical objects).
- Living culture - keeping creators and animators active and maintaining the demand for services in the cultural sector.
- Maintaining the image of Małopolska as a culturally strong region that creatively exploits the potential of innovation, shapes its identity and appreciates its roots.
- Creating culture for a new generation, raising people's awareness and sensitivity, improving cultural education by expanding the range of educational courses available, building Małopolska's local and supra-regional identity, raising the level of knowledge about culture, art and artists, educating and developing cultural and creative competences.

EDUCATION

13. Pre-primary education

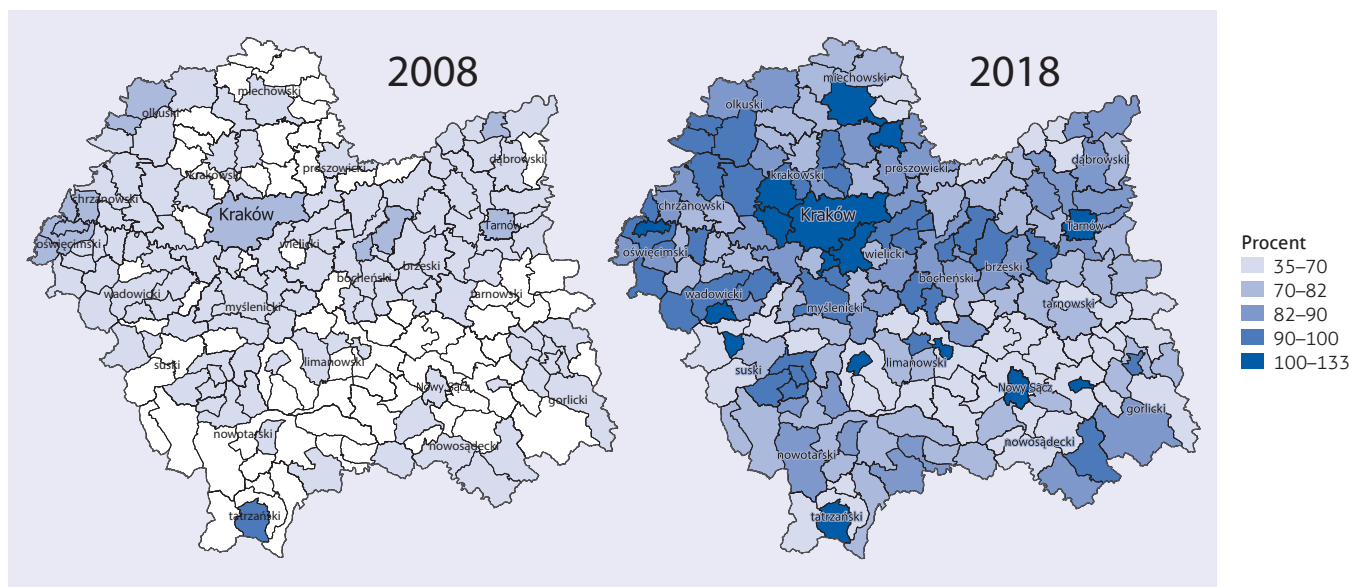
The dissemination of pre-school education is important both for equalising children's educational opportunities and for women's professional activation. Since 2008, access to pre-school education in Małopolska has improved significantly. The proportion of children aged 3-5 covered by pre-school education increased from 51.6% in 2008 to 88.3% in 2018 and is slightly higher than the national average (87.3%). The disproportion between urban and rural areas has also decreased - the percentage of children aged 3-5 covered by pre-school education in 2008 and 2018 was 33.6% and 73.8% respectively in rural areas, and in urban areas it was 74.4% and 105.9% respectively. At the same time, the coefficient for cities above 100% indicates that some families living in the countryside use pre-school care in the city, so the real percentage of children living in the countryside covered by pre-school care is higher than 73.8%.

14. Primary and secondary education

A challenge that Małopolska schools will have to face in the coming years is a decreasing number of children and young people studying, resulting from demographic changes. In the school year 2018/2019, a total of 307,832 pupils attended 1554 primary and lower secondary schools ¹(excluding special schools and schools for adults) in the region. This means that in 10 years the number of primary and lower secondary schools for children and young people (excluding special schools) decreased by 26.7% and the number of students in these schools by

1 In connection with the educational reform, lower secondary schools were abolished as of 1 September 2019, and 8-year primary schools were reinstated in their place. The inclusion of information on lower secondary schools in the diagnosis is due to the fact that it includes data for the school year 2018/2019 and earlier years, i.e. the period when lower secondary schools were still in use functioning under the school system.

Map 9. Percentage of children aged 3-5 covered by pre-school education in Małopolska in 2008 and 2018



Source: own elaboration based on CSO data

7.5%. Among post-secondary schools (excluding special schools and schools for adults) operating in Małopolska in the school year 2018/2019, the largest group were general secondary schools (168), followed by: technical secondary schools (147), industry first-degree schools (118), art schools (70, including 10 providing vocational qualifications) and post-secondary schools (20). A total of 121 446 students attended these institutions. In the period 2008-2018, a decrease in the number of students was recorded in almost all types of schools mentioned above: in basic vocational schools/industrial schools of the first degree by 32.2%, in general secondary schools by 30.8%, in post-secondary schools by 29.7%, in art schools granting professional rights by 13.2%, in technical schools by 5.7%.

Primary school students (until the 2018/2019 school year, also lower secondary school students) from Małopolska have for years achieved better average results in external examinations than the Polish average. Similarly, the results of matriculation examinations in 2008-2019 confirm Małopolska's consistently high position nationwide (the pass rate for compulsory matriculation examinations in May 2019 in Małopolska was 84.1%, compared to a national average of 80.5%). Between 2008 and 2018, however, the number of lower secondary school students who were winners or finalists of "Olympiads" (special high-level school competitions) or other competitions in specific subjects, decreased. In 2008, with 222 winners and finalists of mathematics and natural science

competitions, Małopolska was ranked second in the country; in 2018, it fell to tenth place with only 111 winners and finalists. In humanities-related competitions, it fell from first place in 2008 with 140 winners and finalists and first place among provinces to fifteenth place with only 78 laureates/winners and finalists. Currently, it is difficult to assess how the liquidation of lower secondary schools will affect the level of teaching and educational achievements of Małopolska students.

It is important that the school takes into account the individual needs of pupils. Personalised support is particularly needed for gifted children and young people, as well as for pupils with learning difficulties of various kinds, or whose social position or material situation makes access to good quality educational services difficult. This group includes students with different types of disabilities, as well as dyslexia, hyperactivity, chronic diseases and students coming from marginalised environments and showing adaptation difficulties related to the change of cultural environment. The number of children with special educational needs is increasing. In the school year 2018/2019, there were 7707 of them in Małopolska primary schools (i.e. over 50% more than 10 years earlier), of which 28.1% were studying in special schools (in the school year 2008/2009: 26.8%). There is also an increase in the number of children with diagnosed dyslexia: the percentage of students with developmental dyslexia at the end-of-schools tests in Małopolska increased from 10.3% in 2008 to 19.1% in 2019.

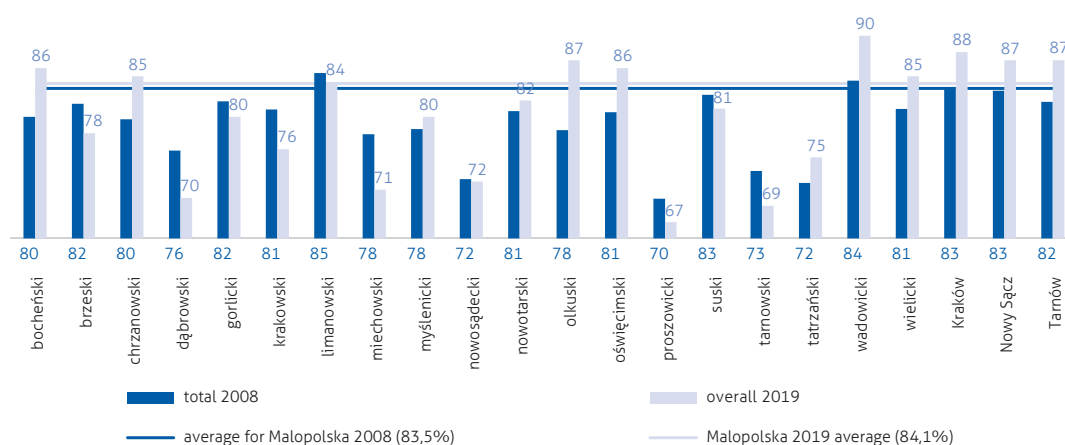
In the context of dynamic development of modern technologies, which influence the changes in the forms of social and professional activity to an extent not seen before. According to experts, we are even dealing with discontinuity of development, referred to in Polish as "dysrupcja". The competences of the future include not only digital competences, but also, equally important, the so-called "soft" skills (personal and social), such as: the ability to adapt to changes and readiness to learn throughout life or the ability to think critically, solve problems, communicate and cooperate effectively, as well as pro-innovative and entrepreneurial competences. Currently, the 10 competences most often indicated in online job advertisements in Poland are: computer skills, adaptation to changing work conditions, ability to work in a group, community of purpose, creativity, use of communication techniques, responsibility, problem solving, knowledge of English and use of MS Office. Possession of competences of the future is mentioned as a desirable feature for employees of Industry 4.0 enterprises, whose development, for 2030, will largely determine the position of Małopolska in the world of global competition. Ensuring effective development of these competences is therefore a key challenge for the education system, starting from kindergarten and primary school, through all stages of education.

The competence deficits of students concern both digital skills related to learning processes and "soft" competences. It is necessary to develop pro-adaptive competences, connected not only with the inevitability of changing one's profession (perhaps many times during one's life), but also with un-

certainty as to how to function in the world of the future. At the same time, research indicates that schools need support in improving their ability to shape universal competences in this way, i.e. competences needed to function efficiently in the society of the digital age, not only in the professional aspect, but also in personal and social life. Competences are knowledge, skills and attitudes. However, schools still focus on imparting knowledge without (or with insufficient reference to) skills and attitudes.

The COVID-19 epidemic has highlighted the already diagnosed weaknesses in the functioning of schools, both in terms of effective formation of universal competences (including learning skills and the ability to adapt to change) and the use of modern technologies in the education process. According to the research on digital exclusion in remote education during the epidemic, technical problems concern both the lack in some areas, especially rural ones, of access to broadband Internet of appropriate capacity, as well as data limits to mobile Internet access and access to a smartphone, tablet or computer (it is estimated that about 1-1.5% of students do not have any computer or tablet at home, and about 25% of students share a computer or tablet with siblings and parents). The problem already diagnosed earlier, which turned out to be particularly acute during the pandemic, when school operations had to be limited, is insufficient competence of teachers and the lack of a didactic, organisational and technological model of school work with the use of the digital environment. It is estimated that lack of competence in teaching online and using digital tools may affect up to 30%

Chart 9. 2008 and 2019 matura exam pass rates in all types of schools in Małopolska (in %)



Source: own study based on data from OKE in Krakow

of teachers, and only 15% of them whom had experience with remote education before the pandemic. Teachers and school leaders highlight the need to provide expert support for their activities in relation to the new challenges. In response to these needs, the Malopolska Pandemic Shield education package allocates special funds to the purchase of computer equipment and software as well as substantial support for teachers in conducting online education. Another issue is the impact of remote education on the mental and physical condition of students, their parents and teachers. Research indicates a reduction in the level of mental and physical well-being of all these groups. It remains to be seen how a situation where learning takes place largely at home will affect the long-term educational achievement of individual students. Students who are already underachieving are more likely to be affected by the lack of full teaching support, including students with special educational needs, who do not have adequate conditions for learning (housing, equipment) or do not receive adequate support at home (e.g. due to insufficient parental skills or lack of time due to work or family responsibilities). The experience of the first months of distance learning during the epidemic has also shown that, in the absence of classes, some children and young people are completely excluded from the school system, which is not only dangerous for their further education, but also for peer relations and mental health.

For the quality of school work, teaching staff is crucial. It is the skills and motivation of teachers that the educational achievements of students largely depend on. In the school year 2018/2019 in Malopolska, primary and lower secondary schools (excluding special schools) the number of teaching posts was 26160 (5% more than in 2011), in upper secondary schools (excluding special schools) - 9639 (decrease by 1.9% in relation to 2011, the largest in general secondary schools - by 525 posts, in basic vocational schools / industry schools of the first degree - by 282 posts, in post-secondary schools - by 165 posts). Studies indicate that the level of teachers' competences is insufficient. Deficits are particularly visible in methodological and digital competences, i.e. competences for conducting classes using interactive methods to motivate students, as well as individual learning using digital tools and educational content. There are several reasons for this. Relatively low requirements for recruitment to teacher training courses as well as a less than attractive financial package for teachers causes the issue of negative selection into the profession, and teacher training often lacks adequate quality.

There are also concerns about the quality of teacher training at tertiary level, where the acquisition of methodological and digital competences and practical preparation do not play a sufficient role. An important element of the education system, whose potential has not yet been fully exploited, is methodological guidance. The methodological advisory system is currently being revamped, and structural and qualitative changes introduced are to increase and balance its accessibility for teachers. There is an urgent need for a review of in-service training programmes for employees of the educational system, and particularly a real assessment of the benefits of participating in training on professional or career development. Therefore, it is crucial to develop an effective mechanism for the development of teachers' methodical and digital competences, so that they can effectively use digital educational resources and tools.

15. Industrial education

Trade education is provided by technical schools, post-secondary schools and industry schools of the first degree (formerly: basic vocational schools). Debunking the myth that any university education guarantees success on the labour market, the observed growing demand for qualified employees, supported by information and promotional activities, gradually translates into a change of young people's educational preferences. Although general secondary school graduates are still in a majority, their percentage is decreasing (45.5% in 2018, i.e. 8.7 p.p. less than in 2008). However, the percentage of graduates of technical schools is increasing (37.3% in 2018, i.e. 8.8 p.p. more than in 2008). The percentage of those graduating from basic vocational schools/industry schools of the first degree in 2018 was comparable to the level of 10 years ago (16.9% and 17.1% respectively). The situation of graduates of vocational schools has improved. Among 2017 graduates, 76% were working or working and studying one year after graduation (61% in 2011).

Despite positive signals concerning the development of vocational education in the region and the situation of graduates (shortening of the average time of job seeking, increase in salaries), insufficient cooperation between schools and employers remains a problem. On the one hand, the number of employers involved in the education process seems significant: as much as 67% of schools in Malopolska cooperate with more than 10 companies, more than 90% of schools arrange apprenticeships in cooperation with employers, 50% of schools arrange traineeships in enterprises, 20% of schools have created patronage classes, and some schools

also declare dual system education. What is more, according to 80% of schools, this cooperation is permanent and systematic. On the other hand, although 62% of employers declare cooperation with trade schools, according to 50% of them it is occasional or periodical. Different assessment of schools and employers as to the nature of cooperation may result from different expectations and objectives of both environments. The barriers that continue to hamper progress are often of systemic nature and concern. They include: lack of qualified teaching staff employed in companies interested in cooperation, technical and organisational deficiencies, as well as communication problems. The majority of employers (75% of companies participating in the survey) still suffer from a lack of basic information on vocational education, including both forms of education and opportunities to engage in the educational process. Małopolska also shows a shortage of trade schools providing education for the so-called professions of the future, primarily Industry 4.0 and the ICT sector.

When it comes to making young people conscious of educational choice, without repeating clichés about the right choice of career path, it should be noted that, in recent years, the situation in the region has improved. This has been partly due to the introduction of compulsory classes in vocational counselling in grades 7-8 of primary school, first degree vocational schools, technical schools and general education schools as well as the establishment of permanent School Information and Career Centres for students of primary schools in 84 municipalities of Małopolska

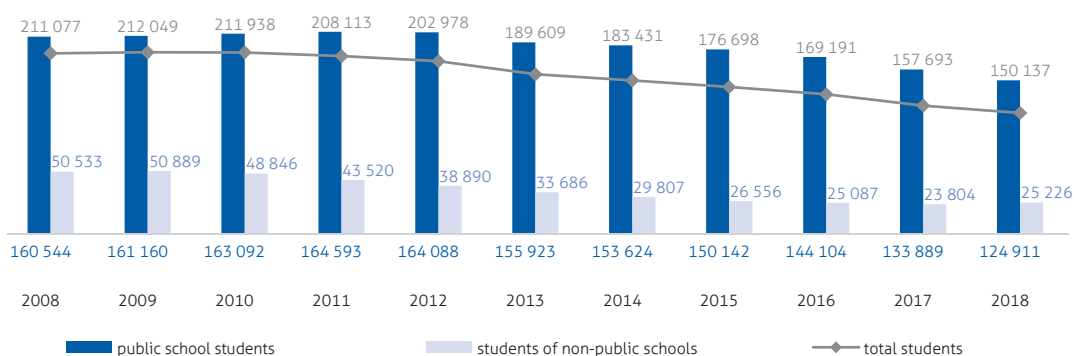
(46% of all municipalities in the region) The number of teachers qualified to occupy the position of vocational counsellors has also increased. Despite this, access to educational and vocational guidance at all levels of education is still insufficient, as is the quality of this guidance.

16. Higher education

Małopolska is the second largest academic centre in the country (after Mazovia). In the 2018/2019 academic year, 150.1 thousand people studied in the region, 83.2% of whom studied at public universities. 135 thousand people studied in Krakow, 5.1 thousand in Tarnów and 4.4 thousand in Nowy Sącz. The number of students in the region has been systematically decreasing since 2010, and this is a nationwide trend, largely due to demographic changes. In 2018 there were 61,912 (i.e. 29.2%) fewer students than in the record-breaking year 2009. However, between 2008 and 2018, the proportion of foreigners studying at Małopolska's universities increased – from 0.9% to 5.7%. In 2018, there were 8,200 foreigners from 117 countries studying in Małopolska, including 63.7% from Ukraine. The number of graduates in technical and natural sciences at Małopolska's universities also increased – from 22.6% in 2008 to 39.4% in 2018. Both in terms of the percentage of total graduates in technical and natural sciences and the percentage of female graduates in these fields, Małopolska has consistently ranked first in the country since 2011.

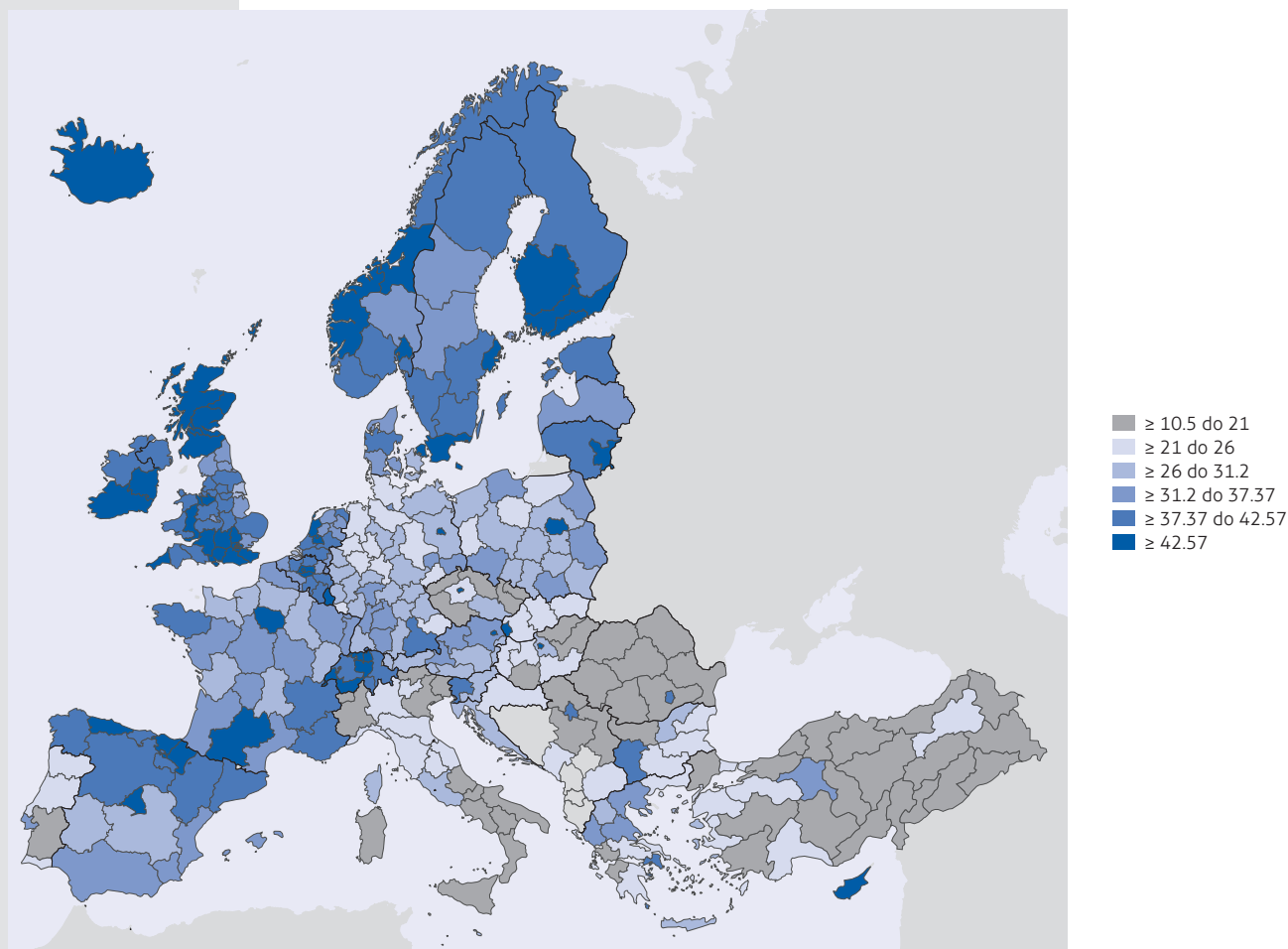
The education of the population, being an important component of the quality of human

Chart 10. Tertiary education students in Małopolska (including foreigners) in the years 2008-2018



Source: own elaboration based on CSO data

Map 10. Percentage of population aged 25-64 with tertiary education in 2019 - Małopolska in comparison with the EU



Source: Eurostat

capital, is an important feature stimulating the economic development of the region. In 2008, 16.9% of Malopolans aged 15-64 had higher education, in 2018 – 29.0%; a year later, this figure rose to 29.7%.

An EU-wide indicator is the percentage of the population aged 25-64 with tertiary education. In Małopolska it was 33.7% in 2019, putting it fourth in the country, but only 119th among the 281 EU regions.

High figures compared to the national average do not necessarily translate into high-quality education. The fact that Polish universities are far behind the world leaders is confirmed by statistics like the so-called Shanghai list. According to the Academic Ranking of World Universities 2019, the best university in Poland - Jagiellonian University - was ranked only four hundredth, and out of all universities in Małopolska, only the AGH University of Science and Technology in Krakow qualified for the reserve list (ranked seventh hundred). Indeed, the ratio of new PhD graduates to the number of people aged

25-34 is one of the lowest in the EU. In 2017, for the first time since 2008, there was a decrease in the annual number of participants in doctoral studies per 10 thousand people aged 25-34. In Małopolska, this figure decreased by 5.0% compared to a national average of only 1.7%. This unfavourable trend continued in 2018 with a further decrease of 2.9% in Małopolska compared to a national average of only 1.6%). The mismatch between the structure of education and the needs of employers is also a problem. The funding system gives preference to courses that are the most popular, rather than those that are most responsive to current and projected demand. This results in unemployment in certain occupational groups and a simultaneous shortage of employees in other branches (the number of occupations facing such deficits is growing). In effect, this creates a significant barrier to growth of social cohesion and competitiveness of the economy: the absence of a sufficiently qualified workforce is one of the main obstacles to the development of enterprises. There is a need for solutions designed to encourage people to take up studies

in specialisations desired by the labour market and give graduates more practical preparation for the needs of the labour market.

Weaknesses in the operations of universities, including university teaching, were highlighted by the COVID-19 epidemic. Although many universities already had experience of distance courses, the mass shift to this form of education took them by surprise almost as much as primary or secondary schools. As in schools, a wide variation between the various forms of distance learning also became apparent. A study conducted at the Cracow University of Economics in April 2020 shows that the biggest problem with remote learning for university staff was the time-consuming development of new materials and lack of experience in this regard. At the same time, students reported being overburdened with both the number of tasks and the excessive load of new, undiscussed materials handed over for self-study.

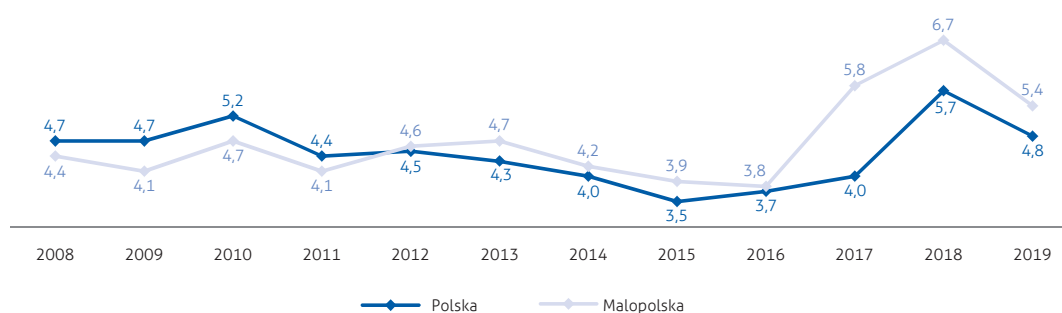
17. Lifelong learning

Lifelong learning (lifelong education) covers various forms of learning aimed at improving competences in personal, civic, social and/or professional contexts. The importance of individual learning is increasing: it can be said that the process of self-education/self-learning (especially with the use of modern technologies) forms the basis for lifelong learning and self-development.

Despite the high number of young people in formal education, both Małopolska and the rest of Poland show a relatively low proportion of people aged 25+ participating in education and training (by acquiring new competences after leaving school or university). At the same time, research indicates a significant percentage of adults with a low level of professional or "universal" skills. The data also indicate the significant scale

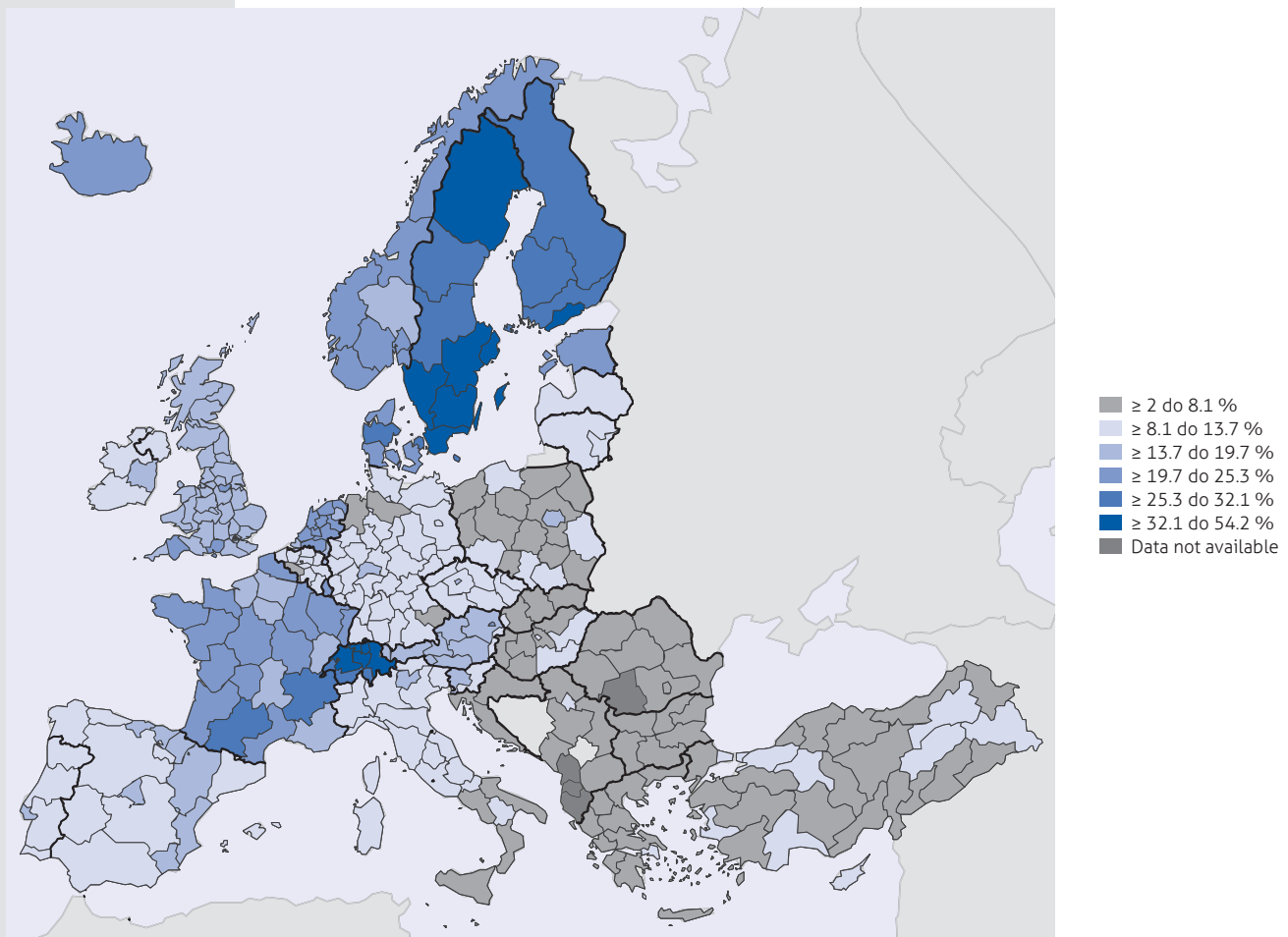
of the problem of digital exclusion of Poles. In 2019, 39% of Poles aged 25-64 had low digital skills – nine p.p. more than the EU average. What's more, this group has grown over recent years. In 2015, the percentage of adult Poles with low digital skills was 31%, six p.p. higher than the EU average. Lack of or low digital competences significantly limits people's ability to function in many areas of life. This may add to the increase in the number of people with poor knowledge of the environment, and it is also a factor inhibiting the modernisation of many areas of life (e.g. administration, health care). At the same time, awareness of the benefits of lifelong learning in society is still low. The majority of small and medium-sized enterprises do not perceive training as an important factor, which has a direct effect on their operations and position on the market. As a result, for many people the educational activity ends at school or university, which means that they do not acquire new skills. In a constantly changing world, this means that their competences become obsolete, making them unable to meet the requirements of the labour market – and this affects both employees and employers. Moreover, in a broader context, it constitutes a significant barrier to economic competitiveness and social cohesion. Worse still, people with a low level of educational attainment participate in further education less frequently than well-educated persons. The European benchmark for assessing the scale of adult learners is people aged 25-64 participating in education and training during the four weeks prior to the survey being carried out. After two years of increasing figures for the region, 2019 brought an end to this trend (as in the whole country). Despite a relatively high figure for Małopolska (5.4%) compared to a national average of 4.8%, it is still significantly lower than the EU average (10.8% in 2019).

Figure 11. Percentage of people aged 25-64 participating in education and training in the total population in the same age group (in the period of 4 weeks before the survey)



Source: own elaboration based on CSO data

Map 11. Percentage of persons aged 25-64 in further education in the total population within the same age group (within 4 weeks before the survey was carried out), 2018 – Małopolska in comparison with the EU



Source: Eurostat

CHALLENGES

- Improving the capacity of the education system to develop universal competences through widespread use in teaching practice of interactive methods to motivate the learner, including individual learning (e.g. flipped classroom, project method, gamification) and an interdisciplinary approach – with the use of digital tools and educational content.
- Transforming schools in the following areas: teacher training, competence, psychological and educational, organisational and infrastructural, aimed at adapting educational processes to the individual needs of students (including those requiring, for various reasons, special organisation of learning) and adapting the educational processes to the possibility of effective (learning) in a hybrid model (blended learning) and remote model.
- Improving the quality of education at all stages of education and better preparation of graduates for the needs of the labour market and changes within it, aiming at Industry 4.0, particularly by developing branch schools providing education for the so-called professions of the future, better cooperation of schools with the environment of employers, strengthening the system of improving teachers' qualifications and development of educational and vocational counselling.
- Moving away from treating education as a closed stage of preparation for life and work, popularising lifelong learning, development of the offer of lifelong learning and increasing the participation of adults in education.

LABOUR MARKET

Over the decade (2008-2018), the situation on the labour market in Małopolska has changed significantly: the demand for workers has increased and market conditions from the point of view of jobseekers and the employed have improved. At the same time, employers have reported increasing difficulties in recruiting employees.

In 2019, 1.445 million Małopolska residents were working, which is seven thousand more than a year earlier and 123 thousand more than in 2008. Those working accounted for 97.2% of all economically active Małopolska residents, which shows that people willing to work mostly found jobs. The number of job vacancies in Małopolska increased between 2008-2019 (data for the end of the fourth quarter) from 5.5 thousand to 13.6 thousand. The number of vacancies increased from 5.5 thousand to 13.6 thousand in 2008-2019 (data for the end of the 4th quarter). The number of occupations facing deficits decreased from 14 in 2011 to five in 2013 and 2014 but then rose to 35 projected for 2020. According to various studies, between 75% and 87% of employers declared problems with finding employees with appropriate qualifications. At the same time, 75.0% of companies in Małopolska forecasted an increase in employment in the coming years, related to the development of their activities, while 31.2% anticipated the need to find new employees to replace qualified personnel retiring.

40.6% of employers that declared difficulties in attracting or retaining employees said that they coped with this problem by offering higher salaries, and this was the most common solution. As a result, the average gross monthly salary in the enterprise sector in Małopolska was PLN 5151 at the end of 2018, which was 9.7% more than a year earlier. At the same time, the gap between the average gross monthly remuneration in the enterprise sector in the region and the rest of the country narrowed. Back in 2018, it was 5%, and in 2019 the figure value for the region was only 0.4% lower than the national average. The increase in wages, in addition to wage pressure and shortage of workers, was also caused by the increase in the minimum wage, in from PLN2100 gross in 2018 to 2250 gross in 2019 and 2600 gross in 2020. The lowest earnings, not exceeding 50% of the average gross salary, were earned by 19.0% of Małopolans in 2018 (nationally, these people accounted for 16.2% of the population).

The improving situation in many industries has led to a gradual change in the expectations of employees. The factor determining the attractiveness of a given offer is no longer solely the salary. According to a survey conducted by the Central Statistical Office (CSO) on the most important factors in professional work, the two most frequently mentioned, apart from adequate remuneration, are: lack of tension and stress and stability of employment. The COVID-19 epidemic seems to have further reinforced these trends. The survey conducted in April 2020 for the report on attitudes and expectations of young employees shows that for 59% of respondents, a balanced approach to the division between work and private life (work-life balance) is more important than high salaries. At work, the following are considered most important: friendly atmosphere (50.0% of indications), opportunity to gain professional experience (49.4%), sense of work (43.2%), high salaries (42.5%), work corresponding to interests (36.4%) and stable and secure employment (35.9%). According to Hays Poland's 2020 survey, the possibility of flexible work was ranked first among employees' non-wage expectations. At the same time, in 2018, only 15% of companies allowed full-time employees to work fewer days, 32% allowed them to set working hours with colleagues, while 39% allowed them to work part-time. Although there is still a lot of catching up to do when it comes to popularising solutions allowing for work-life balance, there are already positive examples of such actions, for example, among the winners of the Małopolska Labour Market Award. The COVID-19 epidemic, during which many companies could test the effectiveness of operating in this mode, may contribute to the popularisation of the use of flexible forms of providing work. In the first months of the pandemic 44% of Małopolska residents took advantage of the possibility to work remotely, of whom 31% had not had such a possibility before. Remote working, which had previously been accepted with reluctance, became the basic form of work, and on balance it turned out to be even 15% more efficient.

In 2019, a record low level of unemployment was recorded in Małopolska. At the end of December, the number of registered unemployed stood at 62,610 and reached the lowest level since 2008. The year 2019 did not bring the expected slowdown in the decline of unemployment. The registered unemployment rate in Małopolska decreased from 7.5% in 2008 and 11.5% in 2013 (in which it reached its highest level during the whole period analysed in this report) to 4.1% in 2019. The districts of Małopolska

strongly differ in their unemployment levels. The highest unemployment was invariably found in Dabrowa district with 10.0% in 2019. In 2019, high unemployment was also recorded in the Tatra (8.0%) and Nowy Sącz (7.8%) districts, while the lowest unemployment was recorded in Krakow (2.0%), Myślenice (2.4%) and Bochnia (2.6%) Nowy Sącz districts (2.7%). As the number of unemployed people decreased, their structure changed. In 2019, 84.2% of people registered unemployed were people in a particular situation on the labour market. The most numerous group of unemployed people in a special situation were the long-term unemployed, who accounted for 48.0% of all registered unemployed as at the end of 2019, with the lowest rate in the Myślenice district (23.7%) and the highest rate in the Tatra district (61.1%). Long-term unemployment, as in previous years, was associated with: age (60% of unemployed people are aged over 50 and 31% of unemployed people under 30 are long-term unemployed), disability (60%), caring for young children (56%) and the use of social assistance benefits (74%).

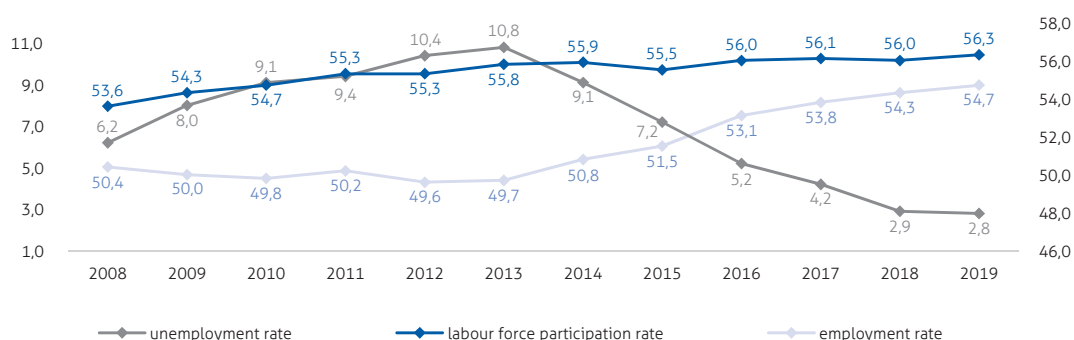
The level of unemployment according to the Labour Force Survey (LFS) was even lower than it appeared from the registers of the district labour offices. In 2019, compared to 2008 (annual average data), the economic activity rate and the employment rate also increased (although it is noteworthy that the employment rate among women aged 30-39 decreased by 2.4 p.p. compared to 0.3 p.p. nationally). Although, in 2019, the decline in the unemployment rate, which has been ongoing since 2014, has continued, its dynamics have clearly weakened. During the year 2019, the unemployment rate decreased by 0.1 p.p., compared to 1.3pp the year before).

Unemployment figures for residents aged 15-64 put Małopolska in 185th place among 281 EU regions.

The COVID-19 pandemic has bucked previous labour market trends. In April 2020, for the first time since 2013, the unemployment rate in both Małopolska and the rest of the country was higher than in the corresponding month of the previous year: the rates were 5.8% (2020) and 4.8% (2019), i.e. 0.2 and 0.3 p.p. higher than in April 2019 and 0.4 and 0.5 p.p. higher than in March 2020. In order to gauge the first reactions of the Małopolska labour market to the situation caused by the pandemic, quarterly LFS data from 2008-2019 and the first half of 2020 were analysed, as well as monthly data on registered unemployment (until July 2020).

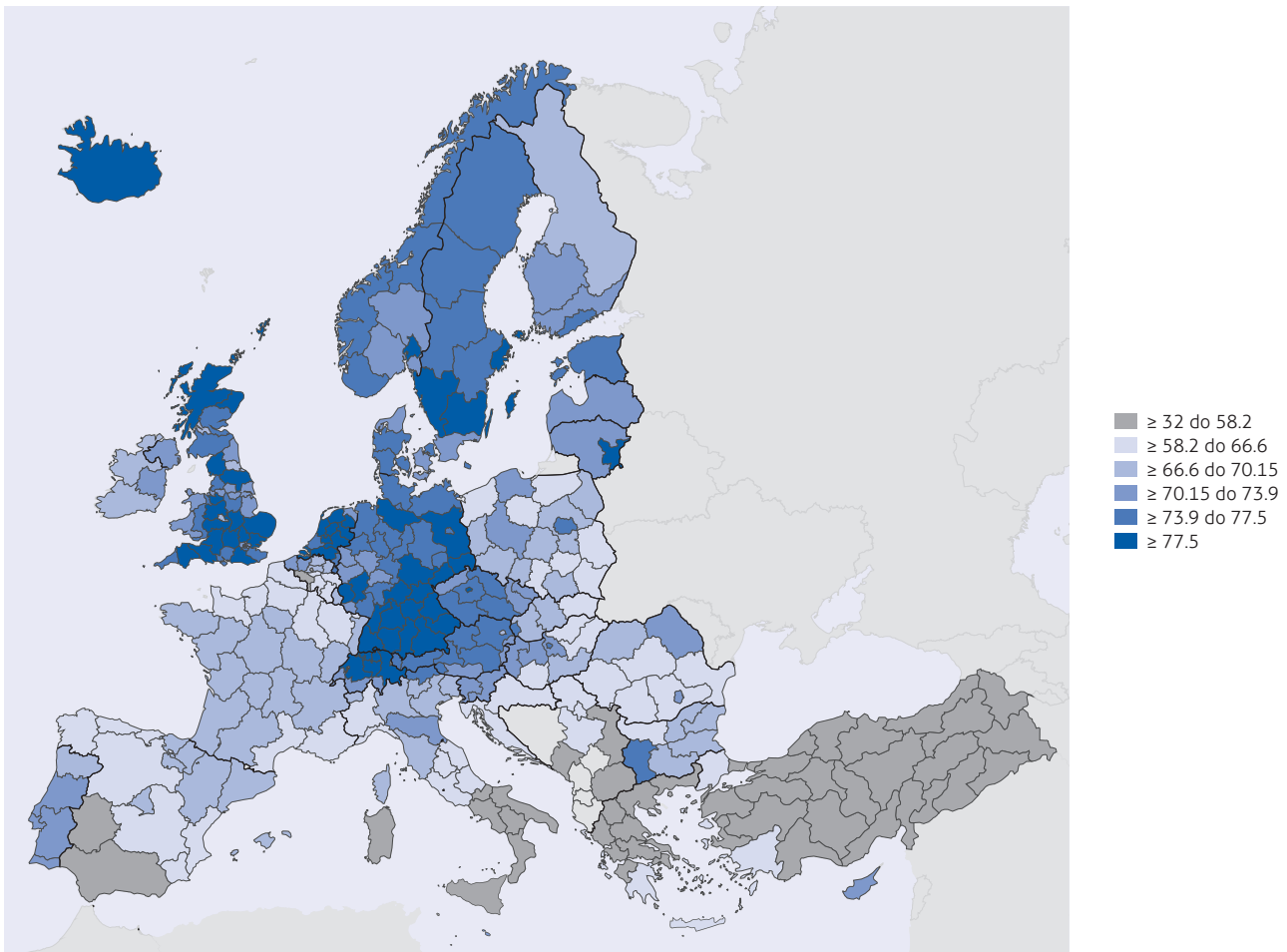
According to the LFS, in Q1 and Q2 2019 the employment rate, for the first time in many years, showed a decline compared with the same period of the previous year (0.8 p.p. (Q1) and 0.9 p.p. (Q2)). In the third quarter, there was a return to the upward trend, although the growth rate slowed down. The upward trend continued in Q4 2019 and, despite the epidemic, in Q1 2020. However, data for Q2 2020 already point to unfavourable developments on the labour market. Although, according to the LFS, there was no increase in the unemployment rate (2.3%, i.e. 0.5 p.p. less than in Q2 2019 and 0.3 p.p. less than in Q1 2020), the number of economically inactive people did increase. In Q2 2020, there were 1.185 million of them and they accounted for 44.7% of Malopolans aged 15 and over, i.e. 1 p.p. more than a year earlier and 0.5 p.p. more than in Q1 2020. The region's employment rate was 54% in Q2, 0.7 p.p. lower than in Q2 2019 and 0.3 p.p. lower than in Q1 2020.

Figure 12: Unemployment rate, labour force participation rate and employment rate according to LFS (in %)



Source: own elaboration based on CSO data

Map 12. Employment rate of residents aged 15-64 in 2019 - Małopolska in comparison with the EU



Source: Eurostat

Data on registered unemployment confirms that there was no increase in the number of unemployed in the first month of the epidemic. On the contrary, 7775 unemployed people were registered in Małopolska labour offices in March, 942 fewer than in February 2020 and 1233 fewer than in March 2019. However, as early as April there was an increase in the number of newly registered unemployed - 20% more than the month before and 12% more than in April 2019. May and June saw further year-on-year increases in the number of newly registered unemployed, up 20% and 26% respectively compared to May and June 2019. However, when comparing month-on-month, the inflow of unemployed people slowed down, with May showing no significant difference in the number of newly registered people compared to April (a difference of 14 people) and June showing a decrease of 352 people (4%) compared to May. In July and August the number of newly registered unemployed was lower, both compared to the level of the month before and the same period last year. The percentage of people made redundant among the total number of people registered unemployed did

not increase significantly: in the period from April to August 2020 it stood at 6 % (in 2019 and from January to March 2020 it did not exceed 5%).

Analysing the data from the start of the epidemic until July 2020, it can be seen that April was the most difficult month during this period. Not only was the largest increase in the number of unemployed recorded then, but also a significant decrease in outflow from unemployment. In previous years, at the end of the first quarter, there was usually an increase in the number of de-registrations related, for example, to the start of seasonal work. In 2020, however, the outflow between March and April fell by as much as 62%, which was largely due to a decrease in the number of job offers: in April there were 35% fewer than in March and as much as 58% fewer than the year before. From May, however, monthly increases in the number of de-registered began, although a year-on-year analysis of the data shows a deterioration in the labour market situation can be seen. In May 2020 the number of de-registered unemployed was

57% lower than in May 2019, in June by 22%, in July and August by 16%.

The above changes have been reflected in the level of unemployment in Małopolska. At the end of August 2020 there were 79,765 registered unemployed people, 19% more than in March this year and 26% more than in August 2019. The registered unemployment rate in the region was 5.2% in August 2020 (compared to a national average of 6.1%), which is 0.9 p.p. higher than in March 2020 and 1.1 p.p. higher than in August 2019 (up 0.7 p.p. and 0.9 p.p. respectively in Poland). In August 2020, compared to August of the previous year, unemployment increased in all districts of Małopolska. The lowest unemployment rate was recorded in Krakow (2.7%), the district of Bochnia (3.9%), as well as Nowy Sącz and the district of Myślenice (3.9% each). At the opposite end of the scale were the districts of Dąbrowa and Nowy Sąd (10.9% and 9.0% respectively).

hours. Further changes on the labour market will largely depend on the epidemic as well as the economic situation in Poland and worldwide.

Regardless of changes to the labour market caused by the COVID-19 pandemic, an analysis of long-term trends indicates that inactivity remains a serious problem. In 2016, there was a record increase in the percentage of people not working and not looking for work in the total population aged 15 and over (the largest annual increase on record, i.e. since 1995). In subsequent years, the situation stabilised and in 2019 there were 1.155 million Małopolans neither working nor looking for work (annual average data). In Q1 2020, there were 1.172 million and in Q2 there were 1.185 million. Activating the economically inactive requires intensive and non-standard measures, as these people are often not interested in taking up a job due to their health condition, lack of current qualifications or received benefits.

The situation caused by the pandemic has so far not significantly changed the percentage of unemployed people in a special situation on the labour market. In August 2020, these people accounted for 80.7% of all registered unemployed in the region. Almost half (42.4%) are long-term unemployed. The percentage of unemployed under 30 years of age was 29.3%, people over 50 years of age accounted for 23.8%, while 18.7% were people with at least one child under 6 years of age in their care, and 5% were disabled.

In conclusion, it seems that social benefits (including care allowance) and programmes launched by the state (including the anti-crisis shield and financial shield), together with seasonal effects, have cushioned the impact of the COVID-19 crisis on the labour market, at least in the first period. Irrespective of central-level solutions to help maintain employment in the region, as part of the Małopolska anti-crisis shield entrepreneurship package funds were secured for non-returnable subsidies for entrepreneurs in the SME sector and the self-employed, as well as for support of labour market instruments. The introduction of solutions protecting jobs has meant that employees covered by them have remained in employment, although a possible rise in unemployment and a stop in salary rises, or even their temporary reduction, with a simultaneous significant rise in inflation, must also be taken into account. Such consequences of the epidemic are already felt by at least one in five Małopolans, having to working reduced

In 2019, the most common reason for inactivity in the region was retirement (53.4%). Other important reasons were: studying and completing qualifications (17.4%), family and household responsibilities (14.8%) and illness or disability (11.3%). In the period 2008-2019, the number of inactive persons due to retirement (by 13.1 p.p.) and family reasons (by 5.3 p.p.) increased, while the number of inactive persons due to health reasons decreased (by 9.4 p.p.) and due to education (by 7.0 p.p.). At the same time, the "Małopolska Guarantees for Socio-Vocational Activity" project shows that the need to provide care for children or persons requiring support in everyday life may be the main reason (other than retirement) for being unemployed (as indicated by 35% of project participants).

The percentage of women among the economically inactive remains high, and virtually nothing has changed in this regard over the decade. At the end of 2019, women ac-

counted for 61% of the total number of people neither employed nor looking for a job in Małopolska, compared to a national average of 62%. During the entire period analysed, i.e. since 2008, both in the region and nationally, this share has fluctuated between 60 and 62%.

The increase in inactivity (as well as the decrease in employment) occurred in only one age group during the entire period analysed: people aged 30-39 (from 11.7% in 2008 to 14.0% in 2019). People over 50, despite a significant decrease in the percentage of inactive people in this age group (by 4.7 pp. in the period 2008-2019), still showed the lowest economic activity level and employment rate among all age groups in 2019: 32.7% and 32.3% respectively. What is positive, however, is a steady decrease, since 2013, in the number of unemployed and underemployed young people. The percentage of NEETs in the total population aged 15-24 decreased in Małopolska from 9.3% in 2010 to 6% in 2019. This is a better result than the national (8.1%) and EU (10.1%) average.

Most inactive people were people aged 55 and over, of whom there were 752 thousand (i.e. 64.1% of the inactive population) in Małopolska at the end of Q4 2019. In comparison to 2008, the number of people in the oldest age group among the economically inactive increased by 9.3 pp. (nationally, there was an increase of 10.4 p.p.), and the largest annual increase was recorded in 2019 (by 3 p.p.). In the same period, the number of inactive people aged 15-54 decreased by 9.5 p.p. On the one hand, this may indicate an improving situation on the labour market and economic activation of a large group of people who still have time left before retirement; on the other hand, it indicates the progressive ageing of society.

One of the most excluded groups on the labour market are people with disabilities, and in this respect the situation in Małopolska has been worse than the national average for years. In 2019, 239,000 disabled residents of Małopolska (87.2% of all people with disabilities aged 16 and over) were economically inactive, and the percentage of employed people in this group (12.4%) was more than 4 times lower than for the entire population. Research indicates that both young people after graduation have problems with entering the labour market, while people who become disabled during their employment have problems with professional re-integration or keeping their jobs.

In view of the decreasing number of people of working age, foreigners constitute an impor-

tant part of the labour resources. At the end of May 2019, current residence permits issued by the Małopolska Voivode were held by 39.8 thousand foreigners (four times more than in 2012). Both in terms of the number of foreigners with current residence permits and the number of positive decisions issued, Małopolska was ranked 2nd in the country, after Mazovia. Between 2011 and 2018, both the number of work permits and declarations of entrustment to work for foreigners increased twelvefold. In 2018, the number of work permits continued to rise, by 35,280. However, following a change to the procedure for issuing statements, this figure decreased by 112,764 compared to 2017. Foreigners most often find simple jobs or are employed as industrial workers and craftsmen or operators and assemblers of machines and equipment. In this way, they partially fill the staff gap, but many of them are over-qualified for this sort of work.

The COVID-19 pandemic and the associated restrictions on things like movement have resulted in a reduction in the number of foreigners on the Małopolska labour market. In April 2020, employers registered 1.8 thousand declarations of intention to employ a foreigner in district labour offices, 68% less than in March this year and as much as 80% less than in April 2019. The number of work permits also declined. In April, 2.6 thousand of them were issued in Małopolska, 31% less than the month before and 8% less than in April 2019. In August 2020, 7.6 thousand statements were registered and 2.9 thousand work permits for foreigners were issued. This was 8.2% less than the total for August 2019.

When it comes to measures designed to activate and integrate people in a difficult social and professional situation, an important role is played by the social economy sector. However, at present, the possibility of benefitting from services in the field of social and professional re-integration is significantly limited by the varying degree of complexity of support, both in terms of entities and space. The high number of occupational therapy workshops (68 in 2019) is not matched by the low number of vocational activity establishments (11), which could naturally provide employment for beneficiaries of occupational therapy workshops. A similar dissonance exists in the case of social integration clubs and centres (32 and 14 respectively in 2019). The number of sheltered workshops is decreasing year by year (from 107 at the beginning of 2013 to 45 at the beginning of 2020). Social cooperatives are still an untapped resource of jobs for people at risk of social exclusion.

CHALLENGES

- Support for people who have lost or will lose their jobs as a result of the COVID-19 pandemic crisis.
- Vocational activation of human capital reserves among the economically inactive and long-term unemployed.
- Supporting working people in labour market transitions.
- Support for employers in formulating, implementing and developing modern forms of employee management (including knowledge management, age management, health prevention and ways of combining professional and private life).
- Tackling in-work poverty to improve social cohesion.
- Realising the potential of immigrants on the labour market.
- Improving solutions to support the labour market in the event of a crisis – both preventive and mitigating mechanisms.

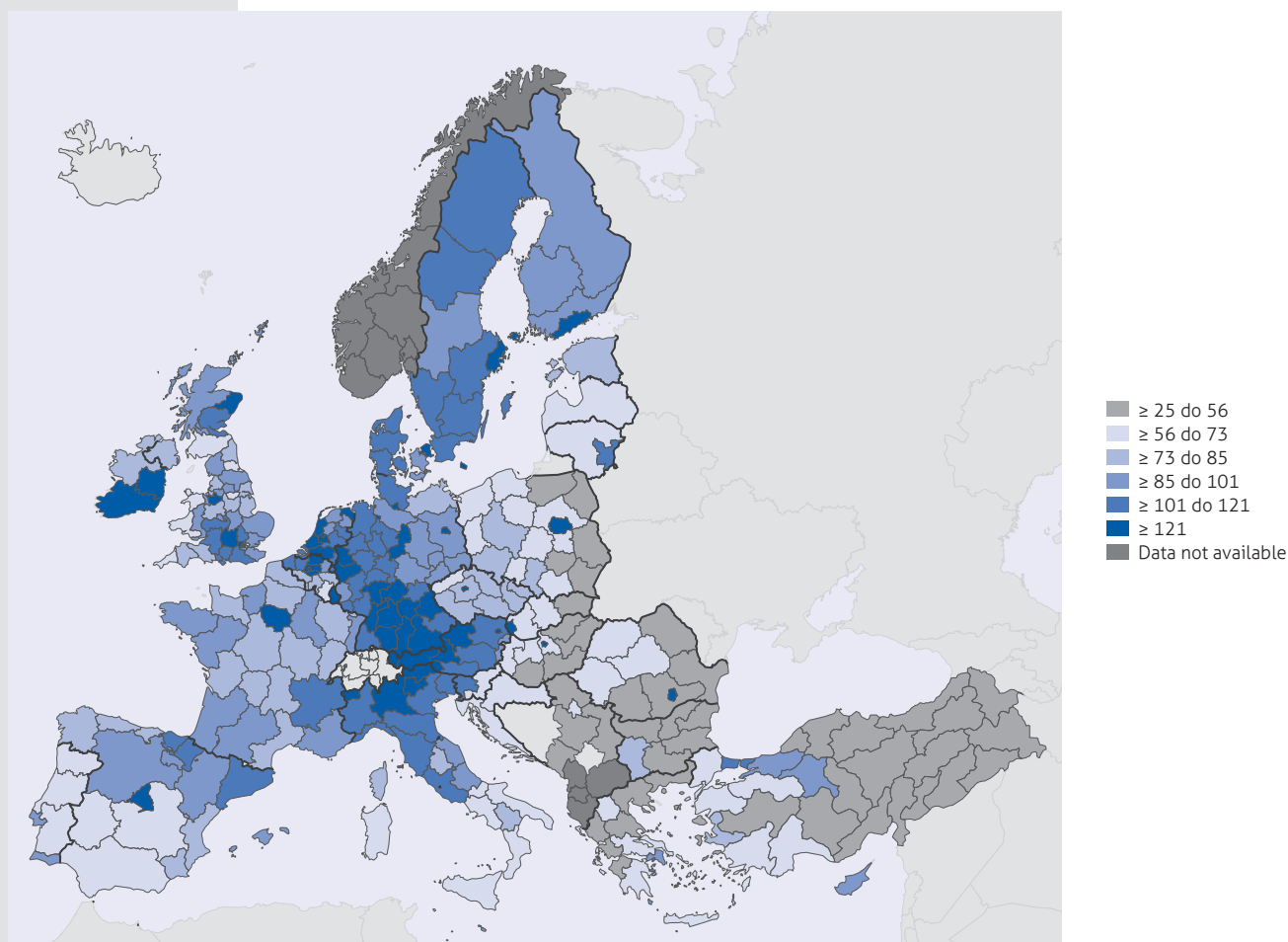
ECONOMY

GROSS DOMESTIC PRODUCT

When assessing the economic potential

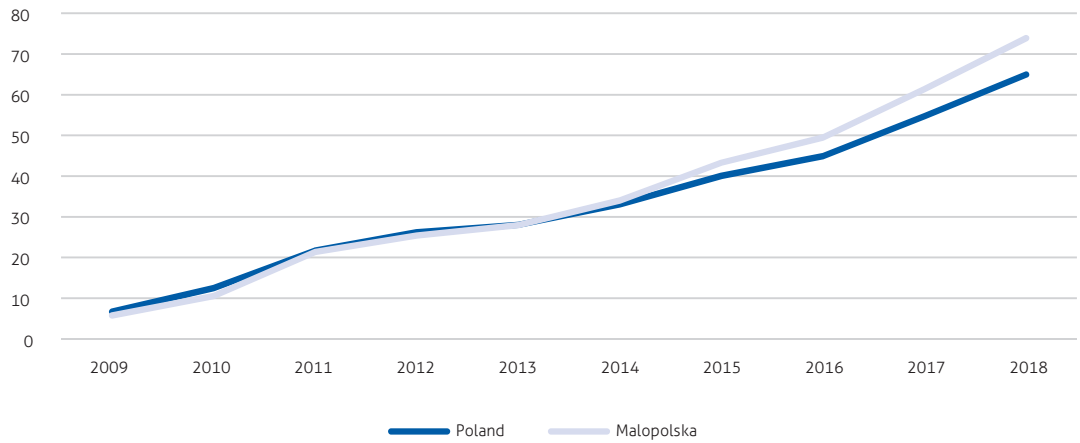
of Małopolska compared to other European countries, one should compare the gross domestic product per capita, expressed in purchasing power standards (pps), to the EU average. In 2018, Małopolska reached 65% of the EU

Map 13. GDP per capita in purchasing power standards (pps) in relation to the EU average



Source: Eurostat

Chart 13. GDP growth rate compared to 2008 (current prices) (%)



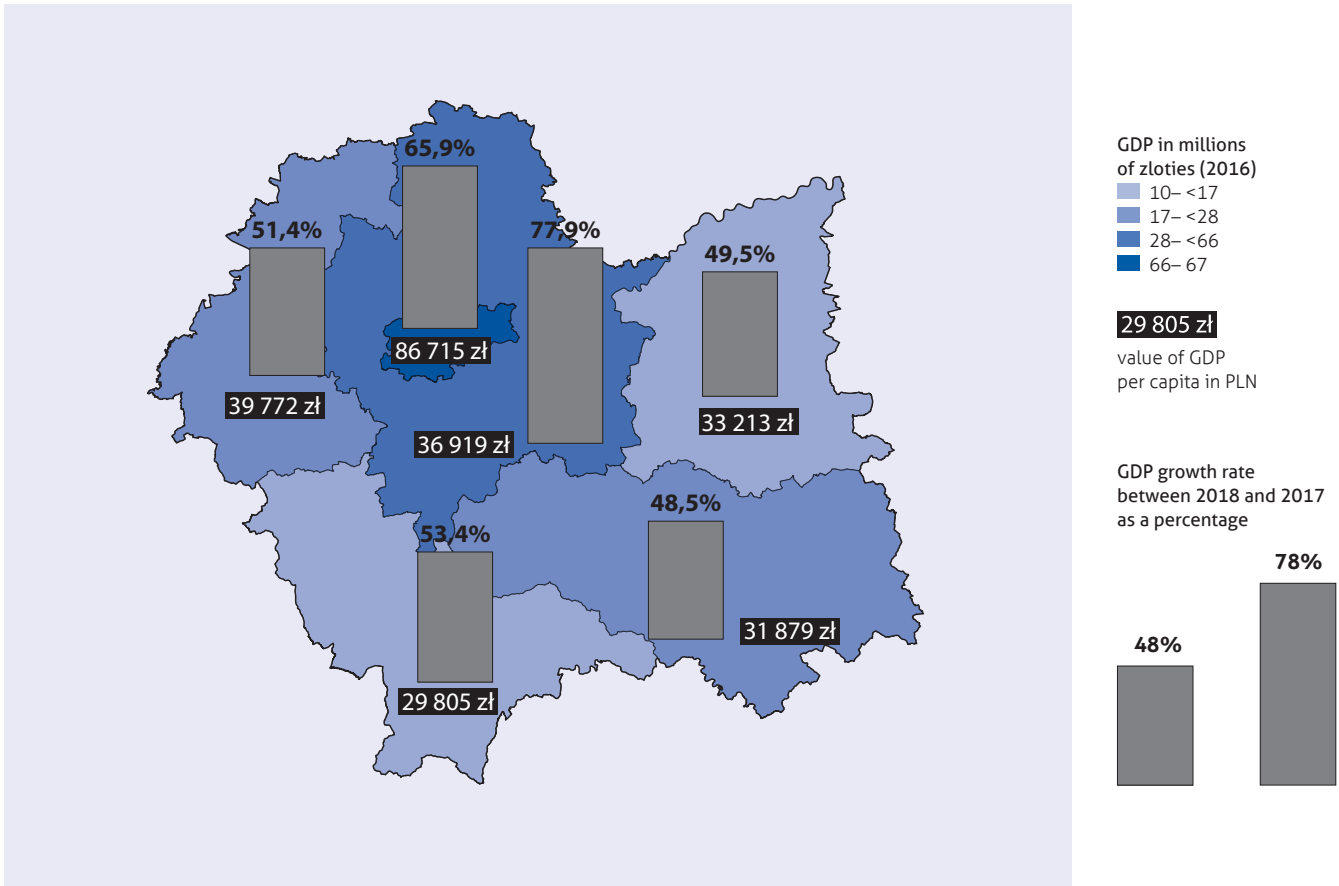
Source: own elaboration based on CSO data

average, putting it in 231st position among all EU regions.

Although the size of Małopolska's GDP per capita is not particularly impressive compared

to other regions, it changed significantly for the better between 2010 and 2018. During this period, the figure for Małopolska increased by 10 percentage points, which is a result classified as 21st in the EU.

Map 14. GDP in PLN billion and growth rate in 2008-2017 by subregion



Source: own elaboration based on CSO data

The economic potential of the Małopolska Region, calculated by the value of its gross domestic product, is one of the highest in the country, ranking fifth. Its value in 2018 reached PLN 172.3 billion in current prices, which is 8.1% of the national value figure. Between 2008 and 2018, the GDP growth rate for Małopolska reached 173.5%, compared to a national average of 164.5%.

The Małopolska Region owes much of its GDP to the City of Krakow, where 41.5% of its GDP is concentrated, while the City of Krakow together with the surrounding Krakow sub-region generates almost 60% of the Region's GDP.

The City of Krakow's strong position is also visible on a national scale – the monetary value of its GDP (PLN 66.5 billion) puts the capital of Małopolska in 2nd place among all sub-regions, quite significantly behind the city

of Warsaw but ahead of Wrocław. The next largest subregion of Małopolska in terms of GDP generated in 2017 is the Krakow sub-region (PLN 28.8 billion), ranking 21st among 73 sub-regions in the country. The Krakow sub-region owes both its high absolute value and, above all, its high GDP growth rate to the potential of the City of Krakow, which has a strong influence over other areas of the Region. With a GDP of 22.0 billion PLN, the Oświęcim subregion is ranked 36th in the country. The sub-region of Nowy Sącz with a GDP of 17.1 billion PLN ranks 44th, while the sub-region of Tarnów (15.4 billion PLN) ranks 51st. At the bottom of the list, in 68th place, is the Nowy Targ sub-region (10.2 billion PLN). In terms of gross domestic product per capita, Małopolska, with a value of PLN 50,735, ranks 7th in the country. In 2018, this was equivalent to 92.1% of the national average, with this percentage rising steadily each year. In 2008, it was 89.7%; in 2017 it reached 91.3%.

Table 2. Structure of gross value added by groups of activity sections in 2017 (in %)

| Sub-region | Agriculture, forestry, hunting and fishing (Section A) | | Industry (Sections B, C, D, E) | | Construction (Section F) | | Trade and services* (Sections G, H, I, J) | | Financial and insurance-related activities; Property market services (Sections K, L) | | Services (Sections M, N, O, P, Q, R, S, T) | |
|----------------------|--|---|--------------------------------|---|--------------------------|---|---|---|--|---|--|---|
| City of Krakow | 0,0 | ↓ | 15,0 | ↓ | 8,2 | ↓ | 32,6 | ↑ | 9,2 | ↓ | 35,0 | ↑ |
| Sub-region Krakow | 2,5 | ↓ | 29,5 | ↓ | 8,2 | ↓ | 32,1 | ↑ | 6,6 | ↑ | 21,1 | ↑ |
| Sub-region Nowy Sącz | 2,6 | ↓ | 20,8 | ↑ | 13,4 | ↑ | 27,4 | ↑ | 7,8 | ↓ | 28,1 | ↑ |
| Sub-region Oświęcim | 1,3 | ↓ | 37,9 | ↑ | 7,4 | ↑ | 24,5 | ↑ | 7,0 | ↓ | 22,0 | ↓ |
| Sub-region Tarnów | 2,9 | ↓ | 25,3 | ↑ | 10,0 | ↑ | 25,9 | ↑ | 7,7 | ↓ | 28,0 | ↑ |
| Sub-region Nowy Targ | 3,1 | ↓ | 18,6 | ↑ | 8,7 | ↑ | 32,8 | ↑ | 8,7 | ↓ | 28,0 | ↑ |
| Małopolska | 1,4 | ↓ | 22,6 | ↓ | 8,8 | ↓ | 30,2 | ↑ | 8,1 | ↓ | 28,8 | ↑ |

↓ decrease in the percentage share in the creation of WDB compared to 2008

↑ increase in the percentage share in the creation of WDB compared to 2008

Source: own work based on GUS data

* repair of motor vehicles; transport and warehouse management; accommodation and gastronomy; information and communication

Among the Małopolska sub-regions, the highest rank – 4th position in terms of the value of GDP per capita in a ranking of 73 sub-regions – is held by the City of Krakow with 86,715 PLN, putting it behind only Warsaw, Poznań and Wrocław. Lower down the list are: the Krakow sub-region (40th position, 39,919 PLN) and the Oświęcim sub-region (42nd position with 39,772 PLN). Similar figures are also found in the case of the Tarnów sub-region (61st position with 33 213 PLN) and the Nowy Sącz sub-region (63rd position with 31 879 PLN), while the Nowy Targ sub-region was ranked 70th (29 805 PLN). Dynamic GDP growth is also visible at European Union level: in comparison to the EU average expressed in purchasing power parity (PPP), the position of the Małopolska Region is gradually improving. In 2008, the average GDP per capita in PPP fluctuated around 49%

of the EU average. 11 years later, in 2018, this figure rose to 65% of the EU average (compared to 71% for Poland), which is a very big change in such a relatively short time. Nevertheless, there is still a very long way to go to fully equalising the socio-economic level.

The structure of gross value added (GVA) by type of activity may turn out to be an important factor forshaping the level of GDP. The city of Krakow, in comparison to other subregions, has a very large share of services generating GVA, with industry and construction playing an ever-decreasing role in the local economy. Similar trends can be observed in the Krakow sub-region. By contrast, in the “weaker” sub-regions, the share of industry and construction is increasing.

CHALLENGES

- Increasing the level of GDP per capita for Małopolska, especially in sub-regions with the lowest index.

INNOVATION

Małopolska belongs to the group of moderate innovators in the EU: it takes 155th place (out of 238 regions) in the Regional Innovation Scoreboard 2019 (having risen from 178th place in RIS 2017), putting it not too far behind the Warsaw Capital Region, which took 138th place. It performs much better in comparison with other Polish regions. In relation to the national average, it leads in terms of two indicators that form part of the index: the average number of applications to the European Patent Office and the average number of joint international publications. On the other hand, Małopolska fares worst in three categories: “Scientific publications among the 10% most cited”, “SMEs introducing marketing or organisational innovations as a percentage of SMEs” and “Sales of innovative products in SMEs as a percentage of total turnover”. It can be seen that, despite its high position among Polish regions and consecutive rises in the international arena, there are still areas where we can do a lot to increase the level of innovativeness. It should also be remembered that Poland itself is one of the weakest countries among the 28 EU countries in terms of innovativeness: in the European Innovation Ranking 2019 it was ranked fourth last.

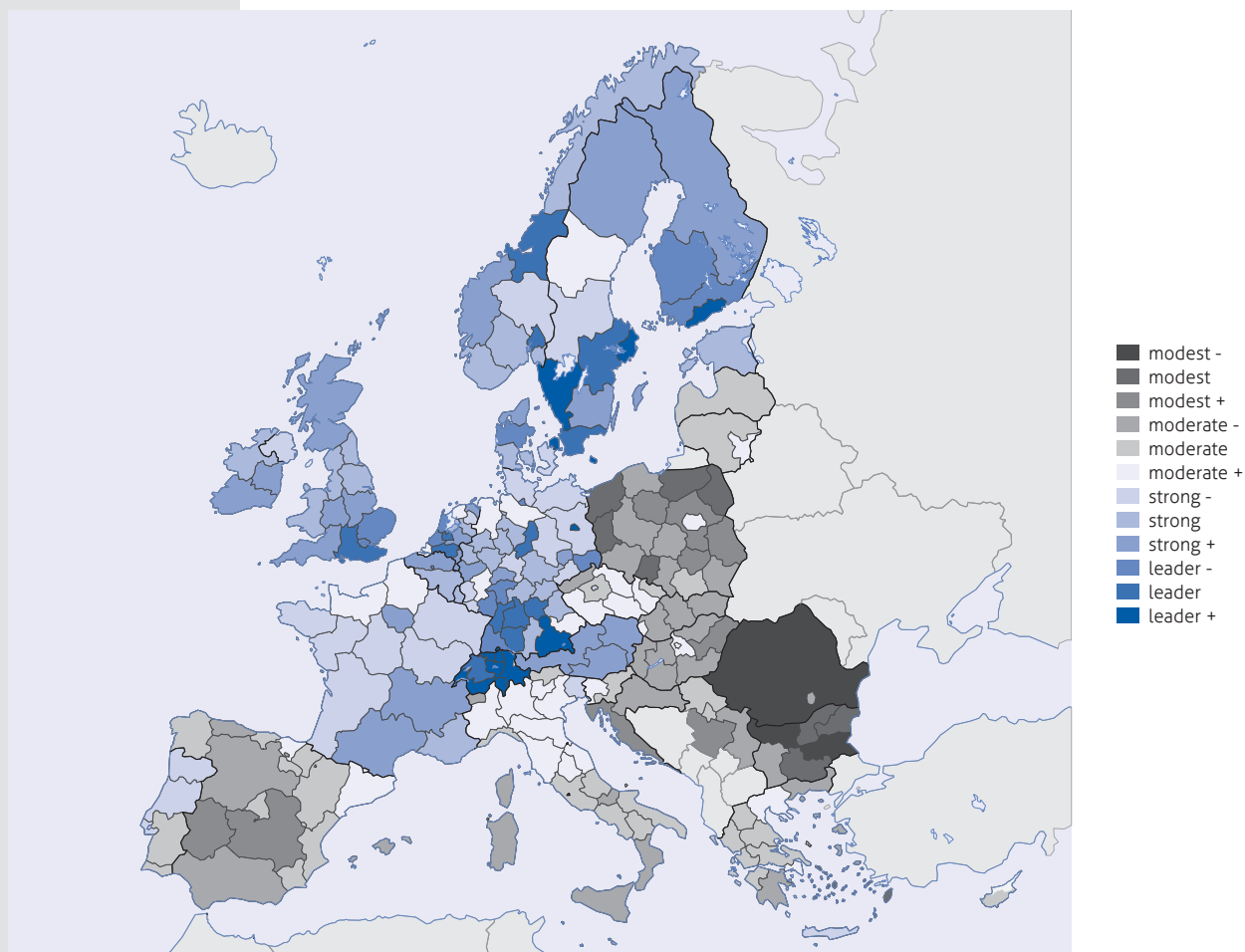
Małopolska, compared to other Polish regions, shows a very high GERD indicator (internal expenditures on R&D in relation to GDP), which

in 2017 amounted to 1.85% (over PLN 1087 per capita in 2018, putting the region well above the national average (PLN 667.7)).

This demonstrates the importance of research and development in the region’s economy, as R&D work is one of the main drivers of economic growth. For several years, Małopolska has maintained a growing trend in this respect. Małopolska also ranks high in terms of the dynamics of employment in the R&D sector (3rd place in 2015 [according to the latest available data from GUS] with an index of 107.8, a rise from 10th place in 2008, when it reached an index of 97.9. Employment in the R&D sector is changing rapidly and depends to a large extent on support provided by EU funds, currently targeted at increasing innovation. The level of employment in R&D is derived from the number of entities operating in this area: Małopolska has 10% of Polish companies conducting R&D (578 companies out of 5779 in the country).

In 2018, in terms of expenditures on innovative activities, Małopolska was in 4th place (PLN 3.73 billion), increasing them 2.5 times compared to 2008 (8th position). In recent years a change in the structure of expenditures on innovative activities has been visible. The share of expenditures on fixed assets in total expenditures on innovative activity of industrial enterprises has decreased (from 79% to 68%) and is shifting towards research and development activity (31%).

Map 15. 2019 regional innovation scoreboard



Source: Regional Innovation Scoreboard 2019,
<https://ec.europa.eu/growth/sites/growth/files/ris2019.pdf>

In terms of the percentage of industrial enterprises that have implemented some kind of innovation in the past year, Małopolska has ranked high since 2015, also surpassing the national average. In 2018 every fourth industrial enterprise in the region should be considered innovative. Only slightly weaker in this respect are service enterprises: 19.4% of these companies implemented some kind of innovation in 2018, though this was a huge jump from 9.36% in 2017, putting the region in fifth place in the country. However, there was no clear increase in the level of innovation of industrial companies in the last decade (fluctuating between 15.5 and 24.9%), and in the case of service companies it increased significantly in 2018 (from 9.36% in 2017 to 19.4%), which was a true reflection of the national trend.

The level of innovation in companies depends on their size - the least innovative companies are among micro and small enterprises. In 2018, only 17% of micro and small companies invested in product innovations, putting Małopolska in 12th place in the country. In 2010, 34% of its

micro and small companies invested in product innovations, putting it 1st place among regions). Only 9% of Małopolska's micro and small companies decided to invest in process innovations, compared to a national average with an average for Poland of 13%, putting it in 13th place among regions. In 2010, 25% of its micro and small companies invested in process innovations, again putting it in first place among all regions).

In 2018, 7.6% of innovatively active industrial enterprises in Małopolska co-operated in various types of initiatives. Due to a decrease in the level of cooperation among entrepreneurs (less than in 2008, when the figure stood at 9.4%), the region was only in 4th place among all regions, after Podkarpackie, Mazowieckie and Śląskie. It should be noted that networks (including clusters), organised by enterprises, favour the acquisition of knowledge and information and, above all, the implementation of innovations, which increases the effectiveness of operations and the potential for company development.

One of the most important figures showing the innovativeness of the economy in the region is the number of patents and patent applications. According to data from the Patent Office of the Republic of Poland, Małopolska is ranked 3rd in the country according to the number of inventions filed (443 applications in 2018). The figure for patents granted by the UPRP per 100,000 inhabitants in 2018 was 10.2, putting Małopolska first among provinces, overtaking Mazovia for the first time. This data testifies to high patent activity among inventors from the region. Over 10 years, Małopolska has almost doubled the number of patent applications and patents.

Without the support of business environment institutions, both the development of innovativeness and entrepreneurship is very difficult. On the list of innovation centres accredited by the Ministry of Development there are currently 8 institutions from Małopolska (out of 52 in Poland), whose task is to promote and incubate innovative entrepreneurship, technology transfer and provision of pro-innovative services, as well as activation of academic entrepreneurship and co-operation with business. A very important role in supporting the development of entrepreneurship and innovation is also played by companies with the participation of the Małopolska Region, such as Małopolska Regional Development Agency SA, Krakow Technological Park sp. z o.o. or Małopolski Fundusz Rozwoju sp. z o.o.

An important element, crucial in the case of the regional innovation system, is institutions connected with conducting scientific work. Małopolska has 29 public and non-public higher education institutions, 11 institutes of the Polish Academy of Sciences and 5 research institutes. The potential of research institutions can be expressed in the effectiveness of obtaining grants for basic research, e.g. from the National Science Centre. In 2017, almost PLN 140 million (20% of the amount allocated) was obtained for 240 projects (out of 1200 total projects). Only scientific units in the Mazovian Region can boast better achievements.

Since 1 April 2019, the Łukasiewicz Research Network, which is the third largest research network in Europe, has been operating in Małopolska. It operates under the "Science is Business" formula, offering solutions that help improve business and create modern technologies. The network operates within four Research Groups dealing with specific areas: Health, Smart Mobility, Sustainable Economy and Energy and Digital Transformation. On 1 April 2020, the Łukasiewicz Institute of Technology was established in Krakow as a result of merger of two institutes in the city

belonging to the Łukasiewicz Research Network: the Institute of Foundry Engineering and the Institute of Advanced Manufacturing Technologies. By merging, the two research units have created a strong institution capable of taking on new challenges in key development areas: Health, Smart Mobility, Sustainable Economy and Energy and Digital Transformation.

An important role in the regional system of knowledge commercialisation from university to industry is played by entities established for this purpose: technology transfer centres (CTT), knowledge transfer centres (KTC) and special purpose vehicles of universities. There are seven CTTs in Małopolska, including three not associated with universities. There are also seven knowledge transfer centres, operating within the seven smart specialisations of the region.

A key factor for creating innovative solutions is modern research infrastructure. In this respect, Małopolska is ranked 4th among regions, with 103 laboratories. However, infrastructure is not everything: academics have a significant impact on pro-innovative attitudes. Małopolska employs nearly 13,000 of them, more than twice the national average. In connection with the drop in the number of students, which is mainly due to a demographic decline, and the continuous increase in the number of academic teachers, the potential of universities for conducting R&D activities is growing.

The social group with the greatest creative potential are students and graduates, but it is the human resources for science and technology (the total of persons currently engaged in or potentially available for work related to the creation, development, dissemination and application of scientific and technical knowledge) that is one of the main measures of the development of a knowledge-based economy. In contrast to the number of students, the percentage of human resources for science and technology (in the economically active population) in the period 2009-2017 in Małopolska substantially increased, from 38.3% of the economically active population in 2009 to 54.9% in 2017. It exceeded the national average in 2012 and has seen large increases with each passing year.

An important issue for the development of innovation in the region is the selection of strategic regional smart specialisations (IS WM). In the process of entrepreneurial discovery, in the course of extensive consultation and research work, seven areas were selected to determine the strategic areas for the region's development. These are: life science (including health and quality of life, bioeconomy), sustainable energy, information and communication technolo-

gies (including multimedia), chemistry, electrical engineering and machine industry, production of metals, metal products and non-metallic mineral products, as well as creative and leisure industries. Companies from industries covered by the WM IS have the largest share in creating GDP in the region and provide the most jobs. Regional smart specialisations allow companies to access additional sources of funding. It should be noted, however, that Małopolska's specialisations are quite numerous and broadly defined, so constant monitoring and the resulting updates are necessary. According to experts from Krakow Technology Park, the current development of the life science sector in the region does not exploit Małopolska's full potential. With a high level of human capital, existing technical infrastructure and an advanced level of cooperation between individual actors in the industry, the life science sector is set to become one of the leading high technology sectors in the region. Particularly interesting are the possible synergies between the fast-growing IT sector and life science sector, which is waiting to reach "critical mass".

When analysing the issue of innovation in Małopolska, one cannot overlook the issue of networking and implementation of supra-regional projects, which accelerate the transfer of knowledge from leading units in the world and increase the interdisciplinary nature of research conducted in Małopolska. The European Commission's flagship initiative to support innovative activities is Knowledge and Innovation Communities (KIC) coordinated by the European Institute of Innovation and Technology. The AGH University of Science and Technology, as a for-

mal partner of the programme, has participated in the initiative since 2010, engaging in 23 projects. Małopolska is also home to two centres belonging to the world's largest Enterprise Europe Network (EEN), which supports SMEs in the internationalisation of innovative ideas at the Krakow University of Technology's Technology Transfer Centre and the Krakow Chamber of Commerce and Industry. The Region has recently embarked on a number of project initiatives to enrich the scope for implementing innovation policy. Such initiatives translate either into direct recommendations for implementation in strategic regional documents (Interreg projects), or benefits arising from presence in networks opening up access to new sources of funding projects, such as the Vanguard Initiative, Bio-Based Industries Joint Undertaking. Additionally, Krakow Technology Park has been recognised as one of the five outstanding national Digital Innovation Hubs. The management of KTP has decided that, as from the end of 2019, one of Poland's five Digital Innovation Hubs - DIH (Digital Innovation Centres) will be established around the park, dedicated to automation and digitalisation of production in line with Industry 4.0. At the same time, KTP is implementing network projects with similar European institutions. In 2015, the Krakow Living Lab, as a joint venture of the Krakow Technology Park and the City of Krakow, was accredited by ENOLL (European Network of Living Labs, an international organisation of companies and institutions applying the living lab methodology to the processes of creating and testing products and services in the field of technological innovation), becoming one of two certified living lab centres in Poland.

CHALLENGES

- To increase the level of innovativeness of enterprises in Małopolska, especially in SMEs, including increased access to development financing and instruments supporting innovativeness or internationalisation.
- Stimulating demand for R&D-based innovation, mainly in the micro, small and medium-sized enterprise sector, by co-operating with large enterprises etc.
- Providing effective support for economic processes in areas of regional specialisation.
- Promoting co-operation between science and business through e.g. cluster initiatives, events, CTT and CTW activities, business networking etc.

ECONOMIC ATTRACTIVENESS

18. Competitiveness

The EU Regional Competitiveness Index (RCI) synthetically shows the potential of each EU region from the perspective of both residents and business. In 2019, Małopolska was ranked 174th among EU regions (268) and third in Poland

after the Warsaw Capital Region and the Silesian Region.

One of the most important factors for economic development is the level of exports and imports in the region. In 2018, the value of exports from Małopolska was EUR 10.11 billion, while the value of imports was EUR 10.82 billion). After a decline in 2008 due to the global cri-

sis, the value of exports in Małopolska has been increasing year on year. However, in 2018, the growth rate for both exports and imports to and from the region was slightly lower than the national average.

The region has more than 3.8 thousand companies engaged in export activities. In 2018, Małopolska maintained its 6th position in the country in terms of export and import volumes. Foreign exchange took place primarily with European countries. Exports to countries of the Old Continent accounted for 90.7% of exports from the region in 2018, while imports from European countries accounted for 84% of imports to Małopolska. Among Małopolska's most important trade partners, Germany leads the way, both in terms of exports and imports. Małopolska's most important export products come from the following sectors: electrical machinery, automotive and chemicals, while imports are mostly machinery and equipment, electrical and electrotechnical equipment and base metals and transport equipment.

According to the Bank Pekao report "Report on the situation of small and medium-sized companies in 2018", reviewed for the ninth time in 2018, after reaching its peak in 2016, the percentage of exporting companies is currently

For several years, the business services sector in Małopolska (business process outsourcing (BPO) centres, shared services centres (SSC), IT centres and R&D centres) has been experiencing tremendous growth. This trend is clear from both the number of newly created entities and their employment. Krakow remains the clear leader in terms of employment in the business services sector among Polish cities. About 80,000 out of almost 240,000 people working in the enterprise sector work here in service centres, which translates into 23% of the city's share of this employment sector in the country. Forecasts by the Aspire Association, which deals with the analysis of this market sector, indicate an increase in the number of people working in service centres to 100 thousand by 2021. Any further development of this sector will undoubtedly be affected by the COVID-19 epidemic. Companies in the modern services sector serve business units scattered all over the world. Accordingly, during the developing epidemic they have used their technology, know-how and ICT infrastructure to quickly switch employees to work from home. As a result, over the next few years, the office space market for companies in the business services sector may find itself with an excess of vacant space, as the majority of employees carry out their duties from home.

There were 336 business service centres in Krakow at the beginning of 2019. It was identified as one of the two centres (next to Wrocław) where the service sector is a local specialisation, i.e. where a significant overrepresentation of employment in the business services sector is visible.

decreasing. Only in the service sector was there a slight increase, putting Małopolska in 4th place in the country, on a par with Mazovia.

In the Tholons Services Globalization CITY INDEX 2019 ranking, Krakow has been included in the Top 100 Super Cities, ranking 11th. The regional capital was recognised for the availability of good professionals, attractive business conditions, cost efficiency and high quality of life. In the ranking of the fastest developing cities in the European Union "CEE Investment Report 2019: Thriving Metropolitan Cities", Krakow was ranked 8th in Europe and 2nd in Poland. The only Polish city ahead of us in the general classification was Wrocław. Krakow also came third in the "Percentage of population with higher education" ranking, second only to London and Warsaw.

Business services should therefore be considered as one of Krakow's specialist areas, while at the same time bearing in mind that its type of "R&D", which generates the highest added value and attracts highly qualified employees, has the second largest share in the sector in the country (after Wrocław).

Foreign direct investment in the region between 1989 and 2017 exceeded USD 23.2 billion, and in 2017 alone it reached a value of just under USD 1.4 billion. Małopolska was ranked sixth in terms of FDI attraction strategy in the FDI Intelligence report "European Cities and Regions of the Future 2018/2019". There was almost USD 6841 in cumulative foreign investment value per capita in the Region. Over 91% of investment outlays incurred by investors with foreign capital in the Region between 1989 and 2017 are concentrated in 8

districts (City of Krakow, the Krakow suburban area, Tarnów, Wieliczka, Brzesko, Chrzanów, Oświęcim, Nowy Sącz). Of these, the largest funds went to the City of Krakow, which concentrates almost 62% of the cumulative volume of outlays. The country with the largest investments in Małopolska since 1989 is the United States: their value is over USD 5.8 billion, which accounts for 25% of all direct foreign investment in the region.

Since 2008, the number of companies with foreign capital in Małopolska has been growing steadily. In 2018, there was a decisive increase compared to 2017 (from 1813 to 2247), and in the perspective of recent years, the number of entities with foreign capital per 10 thousand inhabitants has increased one and a half times.

The Business in Małopolska Centre, which has the largest database of investment areas in the region, plays an important role in supporting foreign and domestic investors interested in locating and operating in Małopolska. The Centre actively supports entrepreneurs in foreign expansion and builds a positive image of Polish companies abroad. An important place on the map of Małopolska is the Expo Krakow Centre, a trade fair and congress facility. Its 14,000 m² of exhibition and conference space can accommodate trade fairs, congresses, conferences, entertainment and sports events.

An important element in building the economic potential of the region is the creation of spaces suitable for the location of businesses by entrepreneurs. Local authorities are actively trying to attract investors by creating economic activity zones. In Małopolska there are 54 economic activity zones (EAZs) located in 42 municipalities, and there are plans to create another 40 or so EAZs. However, the lack of large investment areas (over three hectares) that could be sold quickly to investors remains a problem. This is due to the high fragmentation of real estate and unregulated legal status. An additional problem is the fact that territorial self-government units and other institutions of public character own a small number of real properties which can be considered a potential resource of investment sites. In addition to infrastructure, soft factors are also important, sometimes having a decisive influence on the investor's decision to locate a business in a given place. There are often problems during the preparation and management of the zone, resulting from lack of market knowledge, but also from the per-

ception of standard solutions, as the creation of a SEZ alone will not ensure economic growth in municipalities.

Supporting companies under the Polish Investment Zone (PSI) instrument has become an important element in increasing the region's level of competitiveness, thanks to which companies can obtain tax relief for carrying out a new investment. In 2019, Krakow Technology Park (KTP), which manages PSI in Małopolska and the district of Jędrzejów, issued 50 decisions on support and announced expenditures of PLN 2.3 billion. KTP took second place in terms of new jobs being announced among companies managing the zones as well as the number of support decisions issued.

The topic of the "industrial revolution", i.e. the growing importance of Industry 4.0, is an important thread in the issue of innovation and competitiveness of Małopolska's economy. The scale of challenges and transformations that companies are experiencing now and will continue to experience in the coming years is enormous. The spread of big data and analytics, augmented reality, the use of 3D printers or cloud technology, issues of cyber security and software integration, and the increasingly widespread use of autonomous robots and process simulation are just some of the elements forming part of the wide-ranging transformations awaiting Małopolska's companies. One of the elements demonstrating the level of implementation of an economy based on Industry 4.0 in Małopolska's companies is the use of industrial robots designed to increase the precision, speed and efficiency of a company's production and services. In 2019, 7.5% of enterprises in Poland used robots in their operations (1.2 p.p. more than in 2018). In Małopolska, the use of robots is low (6.6% of companies), so there is still a lot to do in this regard.

The Covid-19 pandemic has demonstrated new challenges in maintaining the financial liquidity of Małopolska's businesses. Irrespective of support provided at the central level, the Region's local government, as part of the financial liquidity package of the Małopolska Anti-Crisis Shield, has earmarked special funds from EU funds to help Małopolska's entrepreneurs who have found themselves in a difficult situation or are threatened by the pandemic. Under this mechanism they can apply for EU loans on attractive conditions.

the number of entities entered in the REGON register per 1000 inhabitants amounted to 120 (6th place in the country, and compared to 10th place in 2008 with 92 entities). The level of entrepreneurship varied considerably from one area to another. The highest numbers between 2008 and 2019 were invariably seen in the Krakow (189 in 2019) and Tatra counties (165 in 2019), while the lowest was in Dąbrowa county (64). Looking at the growth rate for the number of entities, a clear increase is visible in the eastern and southern parts of the region.

Analysing the structure of the size of companies, it should be noted that there is an in-

crease in "micro" companies, employing 0 to 9 people. On the other hand, there is a decrease in the other size classes of companies, while the number of large companies, employing more than 1000 people, has remained unchanged since 2017 (53). In terms of economic competitiveness, medium-sized and large companies play the most important role, but their number has been decreasing over the last few years. The number of companies employing between 10 and 49 people has decreased from 14,390 in 2010 to 12,177 in 2019. Companies with an 50-249 employees have also dwindled, from 2417 in 2010 to 2241 in 2019, while the number of companies employing between 250 and 999 people has fallen from 315 to 285 companies. The decrease in the number of entities with more than 9 employees is partly due to mergers, moving to other locations (some of which are outside Poland), splitting into smaller entities (e.g. for tax purposes), as well as liquidation or bankruptcy.

So-called fast-growing enterprises, i.e. those employing 10 or more people and significantly increasing employment, are important for the future of the regional economy. It is believed that they create the potential for rapid change in the structure and level of economic development of the region, and at the same time have particularly high needs in terms of fi-

financial capital and employee qualifications. In Małopolska these enterprises constitute over 11% of the entire population of enterprises, which is one of the highest figures in the EU.

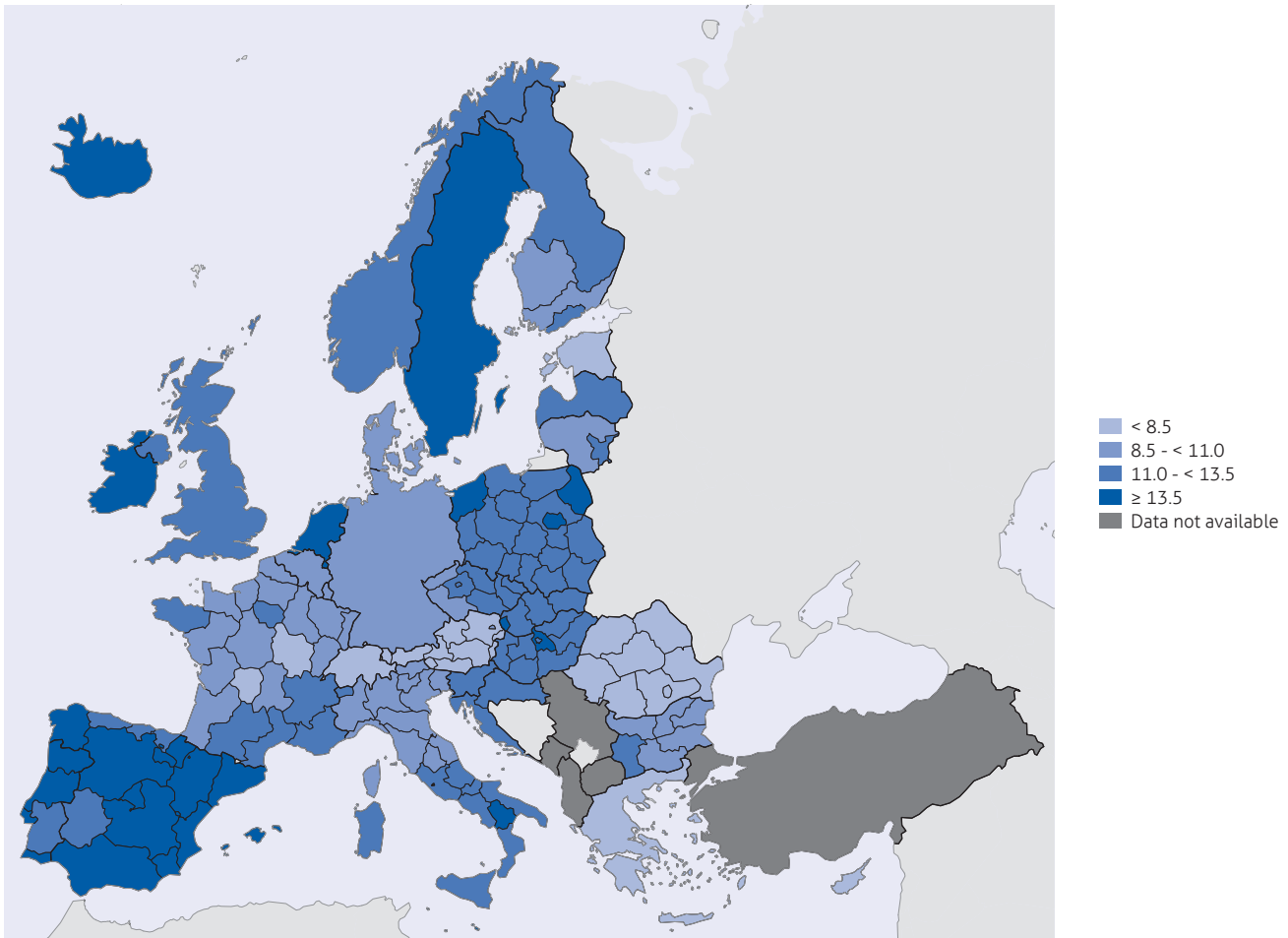
The largest number of entities in Małopolska is engaged in the trade sector (section G according to PKD classification). In 2019, 86,500 of them were recorded, i.e. 0.7% more than in 2018. However, it should be noted that the share of trade in the regional economy is gradually decreasing. While in 2010 entities from section G accounted for 27.2% of all entities registered in Małopolska, as early as 2015 their share decreased to 24.5%, and in 2019 it was only 21.1%.

Considering the fact that Małopolska is among the leading regions in terms of the number of family businesses (10% of such enterprises are located here), this challenge will be particularly important for our region. The survey conducted in a project entitled "STOB regions (Succession and Transfer of Companies in the regions)" shows that 58% of companies surveyed were planning to carry out a succession, while nearly 45% of them would like to transfer the company within the next decade. However, only 32% indicated that some steps had been taken in this direction, which shows that awareness of the complexity and time-consuming nature of the business transfer process remains low.

In Małopolska, mainly in Krakow, there is a strong start-up community. According to research carried out every year by the Startup Poland Foundation, about 10% of Polish startups surveyed come from Krakow. The report also shows that 3 cities – Warsaw, Wrocław and Krakow – are home to the highest numbers of startups in the country. The startup community in Małopolska is very active. According to crossweb.pl, in 2018 alone there were over 800 events organised by and addressed to startup communities in Krakow, and networking meetings and industry events are the best source for them to gain knowledge and establish

According to the 2016 PARP Report, a significant part of SME companies, including family businesses, is in the hands of the first generation of founders, who started their business in the early 1990s and will soon reach retirement age. Therefore, an important challenge for the coming years is to support the process of company handover, i.e. the so-called succession or business transfer. It is estimated that in the years to come, the number of Polish family enterprises handed over to their successors will even amount to as approx. 100 thousand annually.

Map 17. Percentage of so-called fast-growing enterprises, where employment between 2014 and 2017 grew at a rate of at least 10% per annum - Małopolska in comparison with the EU



Source: Eurostat

business contacts. Małopolska's startups specialise mainly in the areas of big data, analytics and the Internet of Things, followed by fintech (financial technologies), marketing technologies as well as productivity and management. Information and communication technologies, which are one of the seven smart specialisations of Małopolska, are therefore very dominate.

Based on the 2015 inventory, 134 clusters were identified across Poland, including 10 in Małopolska. Additionally, six cluster initiatives out of 106 identified in Poland were found to be active in the region. The activity of clusters in Poland encounters many barriers, which hinders their functioning and development. The most important among them are mental barriers (lack of cooperation culture, lack of public trust in the public sphere), organisational barriers (the shape of the Polish economy, including in particular the R&D sector and the system of financing cluster initiatives), institutional barriers (e.g. relations between active and potential members of a cluster initiative and local government, government administration or business

environment institutions) and market barriers (trends in the global economy, increased competition etc.). Other barriers are a lack of any clear, well-established definition of a cluster or cluster initiative, with a resulting breakdown in communication between academia on one side and administration on the other. Furthermore, yet another barrier to supporting clusters and initiatives with public funds is the fact that their legal personality is not rooted in law.

The COVID-19 epidemic has left its mark on the development of entrepreneurship in Małopolska. In June 2020, 48.1% more entities were removed from the REGON register than a month earlier. Entities with suspended economic activity at the end of June 2020 accounted for 10.5% of all companies registered in Małopolska. The situation is slowly stabilising, with the number of businesses with suspended operations falling compared to May 2020, particularly in the accommodation and catering sectors. At the moment, it is difficult to assess the far-reaching effects of the epidemiological situation on the development of entrepreneur-

ship in the region. The mood of entrepreneurs is changing from month to month, and after the deepest downturn in the period from March to May 2020 and the injection of support under

the Anti-Crisis Shield, the situation of entrepreneurs in various sectors is gradually returning to normal.

CHALLENGES

- Developing tools to support entrepreneurship and promotion of entrepreneurial attitudes in Małopolska, including support for start-ups.
- Providing support for the creation and development of business cooperation initiatives, including clusters.
- Increasing awareness among entrepreneurs regarding succession.
- Facilitating access to advanced business services.
- Reducing the disproportion in the number of economic entities between the eastern and western parts of the Region.

20. Agriculture

In 2019, in the Małopolska Region there were more than 140 thousand farms with a total area of almost 570.9 thousand ha, which constitutes approx. 4% of the agricultural land on farms in Poland. The average area of agricultural land in individual farms is 4.1 ha, compared to a national average of average 10.5 ha. In comparison with other regions this is the lowest figure, which emphasises the fragmentation of farms in the Region. A fragmented agrarian structure, significant level of afforestation, low level of urbanization and access to public services, together with low profitability of agriculture are conditions which make Małopolska Region a mountainous region with difficult conditions for farming.

In 2018, the gross value added in Małopolska in Section (by GDP) for agriculture, including fishing, hunting and forestry, amounted to PLN 1.7 billion, putting Małopolska in only 11th position nationally. The percentage of Małopolska's agriculture in national crop production is small and decreasing from year to year. Only products associated with the Region's "specialistation centres", i.e. vegetable and fruit production, which have been known for years, stand out in this case. However, a relatively new, currently developing and well-appreciated branch of Małopolska agriculture is viticulture and wine production. Out of all provinces, the region has the highest number of operating vineyards (64), followed by the Lubuskie and Dolnośląskie regions with 37 wineries each. Based on the dynamic growth of the industry, a thematic tour of the region's cultural heritage has been created: the Małopolska Wine Trail.

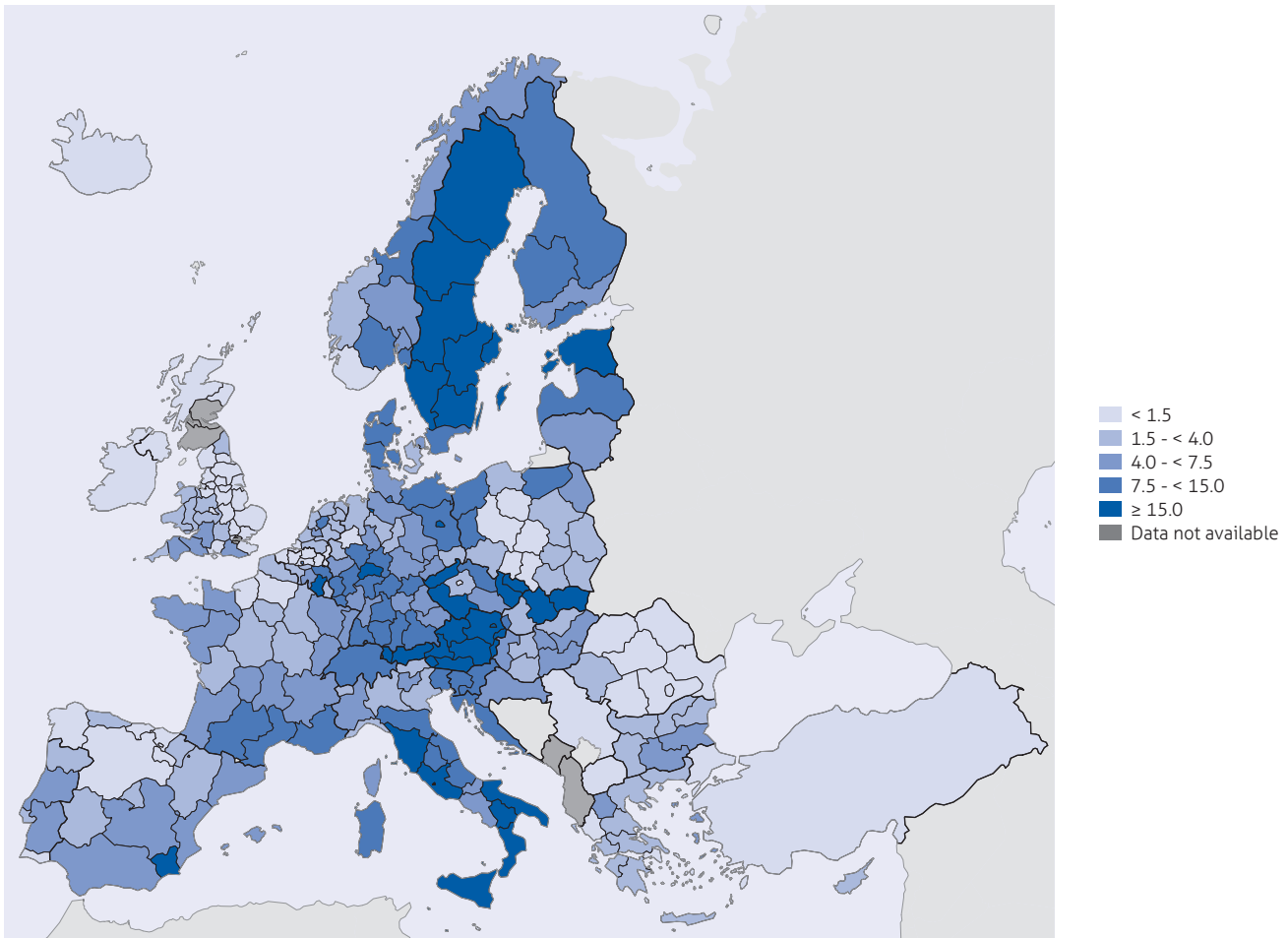
The share of organic produce in Małopolska's total agricultural crops is much lower than the EU average, which is 7.1% (the highest

share is that of the Salzburg region of Austria: over 50%).

In terms of the number of organic farms, the Małopolska Region was in first place in Poland in 2009 (2197 farms). Since 2009 there has been a decline in the number of agricultural producers: in 2019, there were only 721 organic farms in Małopolska, putting it in only 9th place nationally; in 2017 there were 934, but in 2018 there were 770). However, the average size of an organic farm increased from 7.5 ha in 2009 to 13.52 ha in 2019. The reasons for the decrease in the number of organic farms are the demanding formal requirements for organic farmers and the small financial benefits received in the form of subsidies by smallholders. Despite the increasing demand for natural food, there are fewer and fewer organic farms. This is due to factors such as the insufficiently developed distribution of organic food and the requirements for selling products from organic farms.

Nonetheless, agri-food processing based on small, local, often family-run establishments, implemented as marginal, local and limited activity (MLO), is developing in the Małopolska Region. In order to develop processing and thus the natural food market, as well as to increase the culinary attractiveness of the region and strengthen its identity, the Culinary Heritage Network Małopolska was established in 2014 as part of the European Regional Culinary Heritage Network. The regional network has 43 members (as of 15.10.2020), and the production and distribution of traditional and regional products is developing effectively. By the end of July 2020, 224 specialties from the Małopolska region were listed in the List of Traditional Products. In turn, the number of Małopolska regional products entered into the EU Register of Protected Designations of Origin

Map 18. Share of organic produce in total crops in 2016 (%) - Małopolska in comparison with the EU



Source: Eurostat

and Protected Geographical Indications and Traditional Specialities Guaranteed is currently 15.

Organic and traditional food cannot be produced without traditional plant varieties, so attention should be paid to maintaining the region's endogenous resources in this respect. To this end, the Małopolska Crops Gene Bank (MBGRU) was established, whose collection currently includes 55 objects, plants which represent the historical heritage of the region's agricultural culture. Taking into account the exceptional cultural value of indigenous varieties of horticultural plants collected in the Małopolska region, including approx. 300 varieties of vegetables, 200 varieties of fruit, 200 ornamental plants, and 150 or so spices and medicinal plants, as well as the rich agricultural cultural heritage of the region, it is necessary to develop a gene pool in Małopolska. Testing the utility value of local forms of plant cultivation, which is one of the tasks of the MBGRU, is a form of providing support for organic farms

promoting regional agrarian heritage and also a way to diversify traditional products. The restoration and popularisation of the cultivation of regional varieties on traditional and organic farms in the Małopolska region, combined with elements of nature and landscape conservation, is the basis for sustainable rural development and helps to solve the social and economic problems of rural inhabitants.

The economic activity of the inhabitants of rural areas in the Małopolska Region is above the national average, but is highly diversified locally. The highest level of entrepreneurship is found in the Krakow and Tatra counties, while the lowest is seen in the Tarnów and Dąbrowa counties. A specific feature of rural areas in Małopolska is a very well-developed craft and folk handicraft sector, while one of the most important forms of diversification of the rural population's income is agritourism services. This is because the region has very favourable conditions for the development of tourism and agritourism.

CHALLENGES:

- Increasing the competitiveness and innovation of agriculture in Małopolska.
- Developing agri-food processing based on small local plants, producing high quality food, including organic and functional food; promoting short distribution channels.
- Diversifying rural residents' income and increasing their economic activity.
- Sustaining the productive functions of smallholder farmers.
- Preserving the food security of Małopolska and the safety of food produced in the region.
- Providing support for organic farms and traditional food production; preserving of traditional endogenous plant varieties.

TOURISM

Małopolska is a region with exceptional cultural resources, on both a national and European scale. With this unique potential, the region has an attractive range of cultural activities to offer. These play a substantial role in the development of tourism and the leisure industry and, in turn, contribute to the economic development of the Region, which determines the competitiveness of the region. Other unquestionable assets of Małopolska, which help tourism to develop, are its unique geographical location, diverse landscape and attractive natural and landscape values.

In the Analysis of Tourist Values of Counties and Their Direct Surroundings presented by the CSO in 2017, the Małopolska Region was considered the most attractive province in the country for tourism, and as many as six TSUs from Małopolska were ranked among the top 15 most attractive counties in Poland.

Based on its unique cultural and natural assets, Małopolska is developing a number of thematic routes, presenting and promoting various aspects of the region's cultural and natural heritage, diversified thematically and with varying degrees of development and animation, including: six international trails, seven supra-regional trails, over 30 regional trails, nearly 100 urban tourist routes and nearly 10 thousand km of designated tourist routes.

The most important thematic routes and trails related to monuments as well as cultural heritage, including the intangible heritage, include the Wooden Architecture Route, one of the most recognised heritage routes in Poland with over 1.5 thousand kilometres of marked routes and 253 objects, the Eagles' Nests Route, the Wieliczka and Bochnia Salt Mines or the Małopolska UNESCO Route.

The Małopolska Region is also a region with a great wealth of religious places. There are many sanctuaries here, which attract pilgrims from all over the world. In recent years, religious tourism has been developing around such places as: the centre of worship of the Divine Mercy at Łagiewniki in Krakow, Wadowice – the birthplace of Karol Wojtyła, Pope John Paul II – as well as places of Marian worship, with the largest of which are found at: Kalwaria Zebrzydowska, Czerna, Tarnów, Tuchów, Ludźmierz, Krzeptówki, the Cistercian Abbey in Szczyrzyc and at Mogiła in Krakow, the Sanctuary of the Holy Sepulchre in Miechów, as well as numerous papal routes connected with places to stay and pilgrimages of the Polish Pope to Poland and Małopolska. Krakow and Małopolska were also the site of World Youth Day in 2016, attended by 3 million people.

The Małopolska Region is distinguished from other regions in Poland by having the longest network of delineated tourist trails. Due to a well-developed tourist base, attractive mountains, as well as numerous national and landscape parks and national heritage sites, there are as many as 9.4 thousand km of tourist trails within the Region, including as many as 3.4 thousand km of mountain hiking trails, 2.5 thousand km of horse riding trails and 1.8 thousand km of cycling trails. At national level, there are known to be trails with a total length of 78.1 thousand km. Therefore, Małopolska's tourist trails account for almost 12% of the national total.

Thanks to the diversity of its terrain, Małopolska has exceptionally favourable conditions for the development of active and recreational tourism. This is why the Region is implementing a project to build a network of regional bicycle routes called VeloMałopolska, which will connect the most interesting tourist and natural sites in the region and facilitate safe access to bicycle routes. Ultimately, cyclists will be able to use almost 1,000 km of eight

well-marked routes of European standard. By the end of 2019, 438 km of routes planned were put into service. The VeloMalopolska network, implemented by individual municipalities and counties, is a backbone enabling further paths to be added. The south of the region, including the Tatra, Beskid and Pieniny mountain ranges, are popular areas for mountain hiking and winter sports, and thanks to its upland and mountainous terrain, Małopolska has good conditions for the development of all forms of qualified tourism and extreme sports.

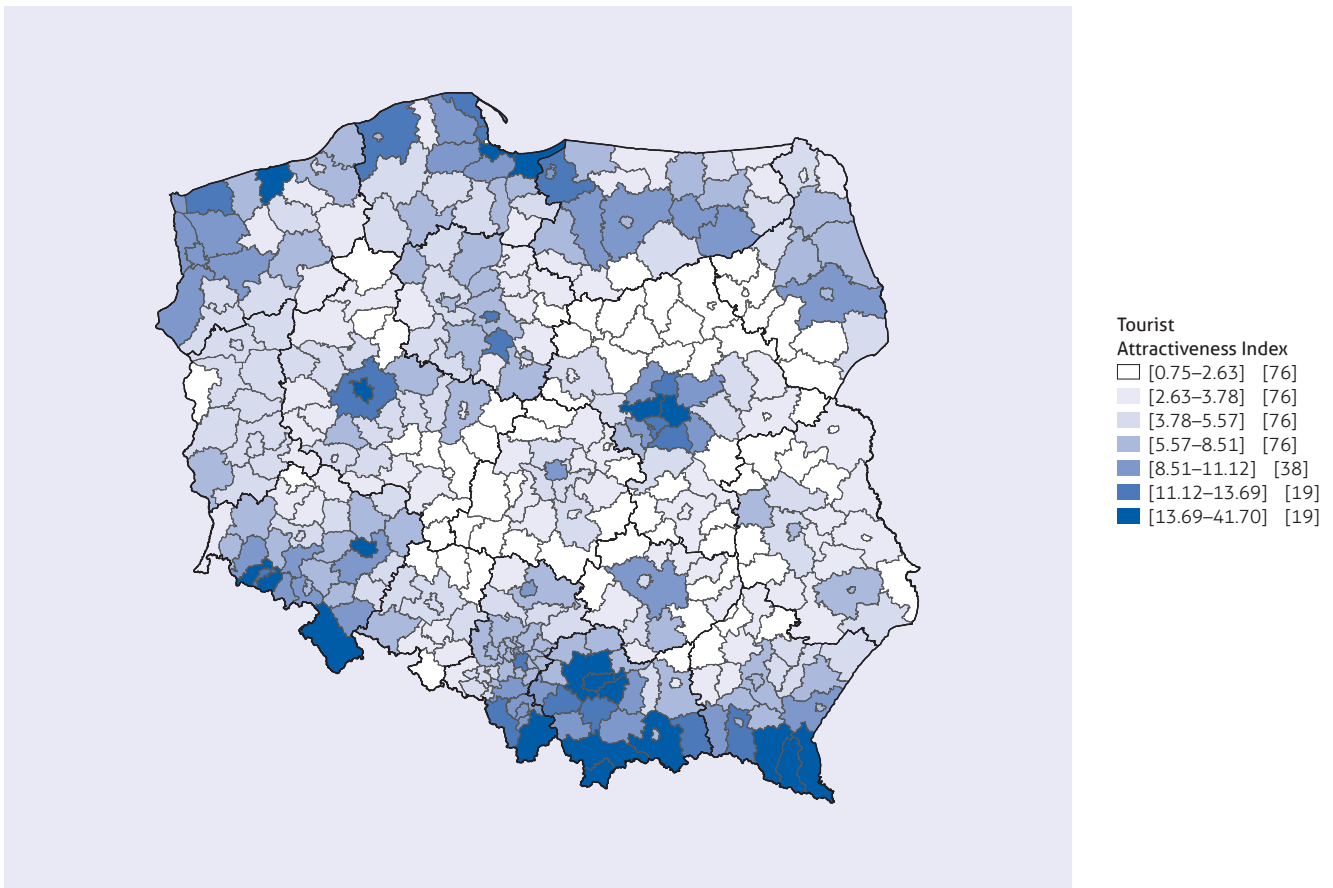
Due to its special climate and its natural and landscape values, as well as an abundance of natural healing resources, Małopolska is the second leading spa region in Poland after Lower Silesia. In the Region, there are 11 areas that meet requirements specified in the Act on Health Resort Treatment. Health resort treatment is carried out in 47 health resorts, which account for 17.7% of the country's health resort facilities.

An important aspect of travel to the Region is business tourism. Krakow, as a well-known academic centre where scientific and out-

sourcing centres are concentrated, is a very attractive place to organise international conferences, meetings, congresses, fairs and exhibitions. The capital of the region offers a well-developed congress and conference base and accommodation, as well as good access to public transport, which help the meetings industry develop successfully in the city. This base also complements and improves the quality of tourism in the region, and stimulates the development of other places in Małopolska in this area.

The cultural, landscape and natural wealth that distinguishes the Małopolska Region makes it one of the most popular tourist regions in Poland. For many years, the number of people choosing destinations in Małopolska has been growing steadily. According to estimates, the volume of tourist traffic in Małopolska in 2019 reached another record high of 17.9 million people and was 6.4% higher than the previous year. Both the number of visitors from Poland and from abroad increased to 14.1 million and 3.8 million people respectively. Almost 78% of all visitors to Małopolska in 2019 were tourists (13.86 million people), i.e. overnight visitors to the region. In 2019,

Map 19. Tourist attractiveness of counties in 2016



Source: Analysis of tourism values of counties and their immediate surroundings, CSO, Warsaw 2017

the second main group of visitors also grew: day visitors; there were four million of them, accounting for more than 22% of total inbound tourist traffic. There was also an increase in the number of one-day visitors from both Poland and abroad.

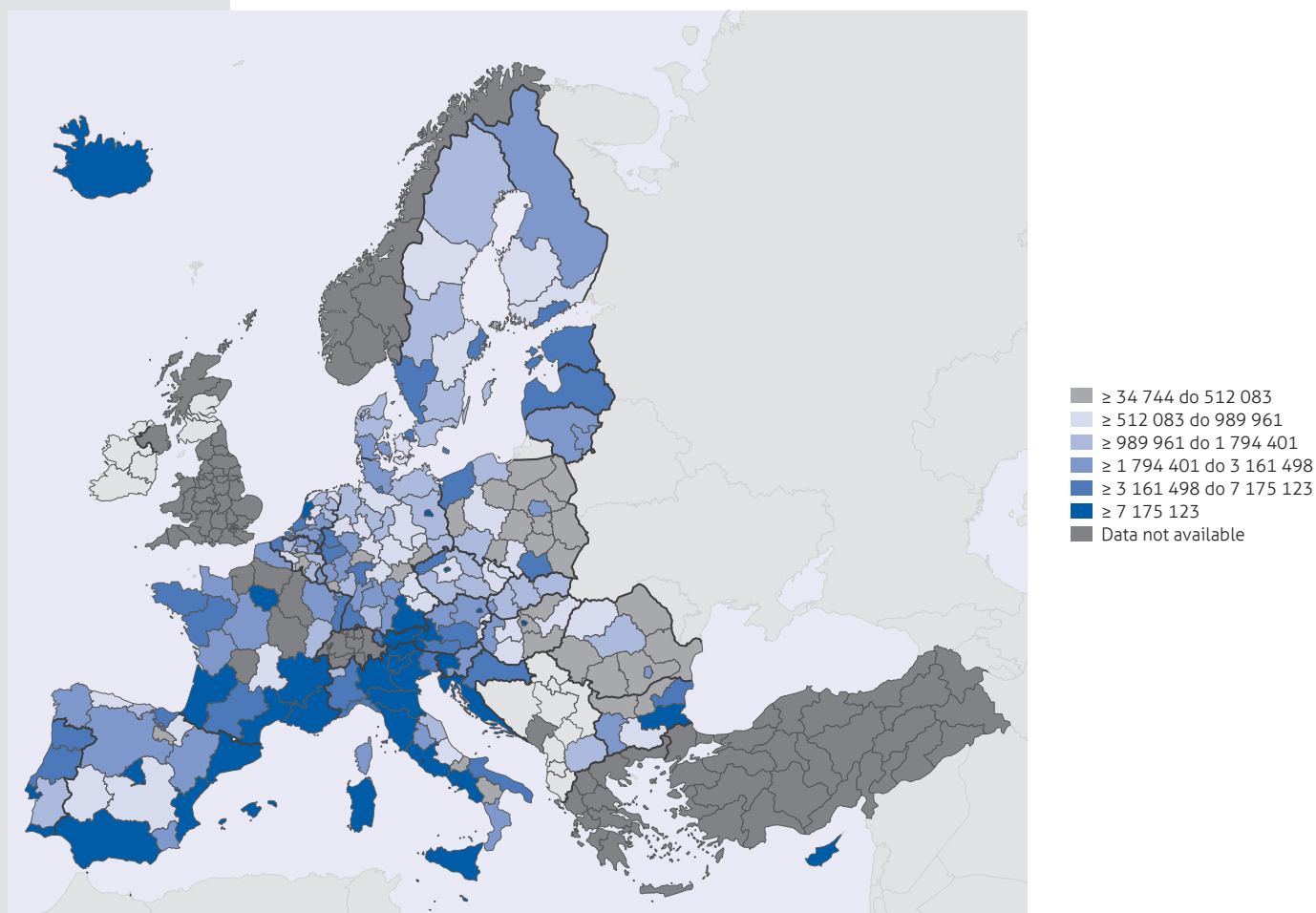
Małopolskas' estimated revenue from any kind of tourist-led entities operating in the region amounted to PLN 15.2 billion in 2019 and was 6 % higher than in the previous year.

With the development of tourism, the region's accommodation facilities are also increasing. Tourists had 1546 tourist accommodation establishments with 104.9 thousand beds at their disposal in 2019. Hotel facilities accounted for 36.7% of the Region's accommodation and offered 52.7% of beds, with hotels and guesthouses accounting for the largest share. All hotels in the Region have a total of 45.5 thousand beds. Apart from hotel facilities, the largest number of beds is offered by guest rooms/private accommodation (14.0 thousand). The largest number of accommodation establishments is located in Krakow

and the Tatra district, the places which enjoy the greatest popularity among tourists.

Tourist accommodation establishments in the region provided 14.6 million overnight stays in 2019, of which 4.1 million were provided for foreign tourists. These figures are among the highest in the country and can only be compared with those achieved by the Zachodniopomorskie Region, where the number of total overnight stays was slightly higher than in Małopolska. As regards accommodation for foreign visitors, Małopolska achieved the highest figure in the country, ranking ahead of West Pomerania. Compared to European Union regions, the number of overnight stays for foreign tourists in Małopolska during 2019 put it in 85th place. Compared to the leaders, i.e. the Canary Islands with almost 84 million overnight stays for foreign tourists or the Jadranska Hrvatska region of Croatia with 80.5 million overnight stays, figures for the Małopolska Region may appear quite modest. Nevertheless, its considerable potential is visible.

Map 20. Number of overnight stays for foreign tourists in 2019



Source: Eurostat

However, the steady upward trend in tourist traffic in Małopolska, which has been visible for years, was abruptly halted as a result of the COVID-19 epidemic. Between March and May 2020, tourism in the region completely disappeared, both in domestic and foreign tourism. Since June 2020, we have seen a very slow return of visitors to the region, but even in the optimistic scenario of events outlined in the a study conducted by the Małopolska Tourist Organisation, the loss for Małopolska in 2020 compared to 2019 due to COVID-19 will be PLN 8.9 billion. Conservative estimates anticipate assume a resumption of for-

eign tourist traffic in Małopolska resuming in from August 2020 at a level of around 20% and its maintenance continuing with monthly increases jumps of 10% until December 2020. Domestic tourist traffic, on the other hand, should recover at a level of 50% from May 2020 and be maintained continue with monthly increments of 10% until December 2020. Unfortunately, the second wave of the epidemic, which has become a fact reality, may cause maintenance of rather negative scenarios to continue and deepen further aggravate financial losses for the tourist economy in Małopolska.

CHALLENGES:

- Rebuilding the flow of tourist traffic in Małopolska at 2019 levels.
- Increasing the length of tourists' stays in the region and directing their interest to new areas.
- Developingment of competitive regional brand tourism products with simultaneous development of as well as local brands based on the cultural and natural assets of Małopolska.
- Developingment of a sustainable, environmentally-friendly and resource-saving tourism offer.
- Creating on of an effective, integrated, effective system of co-ordinating for coordination of tourism promotion and management.
- Increasing tourist satisfaction using through the use of modern technology and by improving access to tourist information.

TRANSPORT

Communication infrastructure is a key factor in the region's development and contributes to reducing intra-regional disparities. It requires constant expansion and adjustment to changing needs and challenges.

In the period 2008-2018, the length of public roads with hard surfaces in Małopolska increased by 14.6% (1.8 p. p. below the national average) from 22,561 km in 2008 to 25,845 km in 2018, most of which the most were communal roads (by 22.77%), followed by: national roads (7.24%), county roads (1.44%) and regional roads (0.04%).

The A4 motorway runs through Małopolska, providing good east-west connectivity. The length of motorways roads increased from 43.96 km in 2010 to 101.76 km in 2019. However, the Region is not well connected by expressways on the north-south axis (the length of expressways was only 31 km in 2019), and only 9.2 km of expressways were built in Małopolska between 2010 and 2019. In addition, due to the very heavy traffic on the Brzesko - Nowy Sącz - state border route, an expressway needs to be built here - on this section. The construction of the road

on the route from Krakow to the border of with the Świętokrzyskie Region, as well as and on the Brzesko - Nowy Sącz - state border section, was included in the Programme for the Construction of National Roads 2014-2023 (with an outlook to 2025). The construction of the Tarnów - Kielce and Krakow - Bielsko-Biała expressways is also needed to improve the road system.

In terms of the density of hard-surfaced roads (170.2 km per 100 km² in 2018), Małopolska has been ranked second 2nd in the country since 2008, behind the Silesian Region. This is mainly due to the mountainous nature of one third 1/3 of the region's area and the difficult accessibility of the area.

Infrastructure equipment and its technical condition are key factors influencing transport development. It is worth noting that, in Małopolska, the percentage of national roads in good condition decreased between 2011 and 2018 (from 58.1% to 44.1%), while the percentage of regional roads in good condition increased between 2010 and 2017 (from 51% to 55%). Nevertheless, only slightly more than half of national and provincial roads are in good condition, which is related to the very high traffic volume on

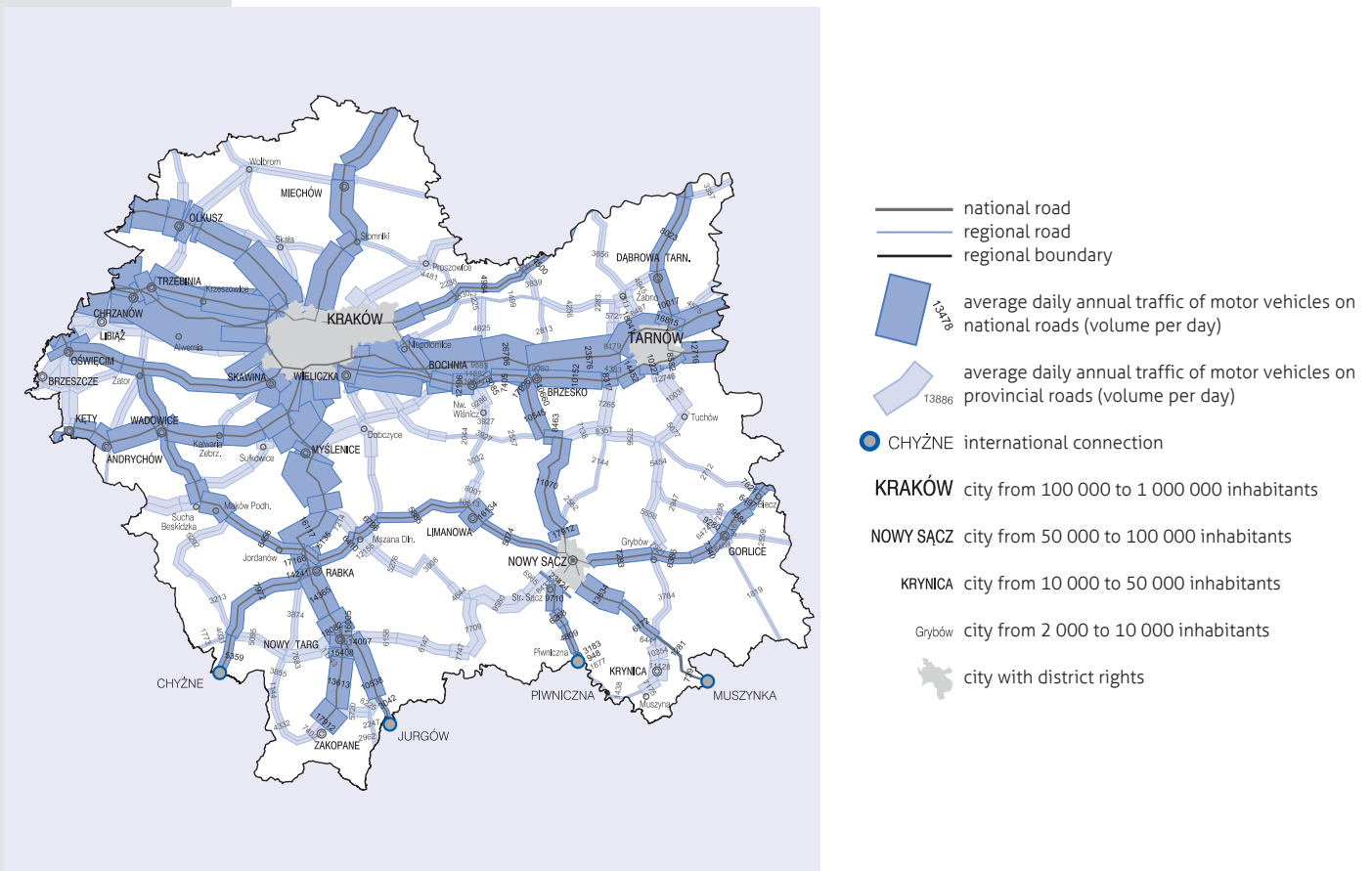
national (2nd in the country) and provincial (1st) roads - as shown by the General Traffic Measurement, both in 2010 and 2015. This causes affects the need to repair road infrastructure. In Małopolska, at the end of 2018, the index of total repairs required needs on national roads in the province (the length of roads the network in poor and unsatisfactory condition in relation to the total length of all roads the network managed in the province) was 0.56, compared to a national average of 0.39), putting and placed the province in 6th position nationally.

In Małopolska, thanks to the considerable saturation of carriers and a relatively dense network of transport lines, road transport (buses and vans) constitutes an important segment of the passenger transport market. However, there are still areas with limited transport accessibility, especially in the north of the Region and in border areas. Another problem is the outdated rolling stock, not adapted to serve people with disabilities. The competitive advantage of this mode of transport is determined by the travel

time offered, high schedule flexibility and the level of prices charged. However, there are no integrated tickets, and nor is or tickets entitling any passenger entitled to use one ticket with several carriers. Another important aspect affecting the attractiveness of services the offer is also the subsidies received by carriers from the state budget for reduced tickets.

One of the key elements of public transport development is the development of rail transport. Between 2008 and 2018, the length of railway lines in use in Małopolska decreased by 2% from 1108 km to 1086 km. In terms of rail line length, Małopolska's position improved in 2018 compared to 2008 with an increase from 10th to 8th position, which shows a worsening despite a downward trend at the national level. The most important investments on railway lines running through Małopolska are included in the National Railway Programme until for 2023. The large infrastructure investments currently underway will improve transport accessibility and increase the frequency

Map 21. Average daily annual traffic of motor vehicles on the national and provincial road network in 2015 in the Matpolska Region (slice)



Source: compiled on the basis of: General Traffic Measurement on national and provincial roads in 2015, General Directorate for National Roads and Motorways, Warsaw 2016

Table 3: Summary of the number of passengers carried on SKA lines (in millions)

| Trasa | | Route, number of passengers carried (mln) | | | | |
|-------|--|---|------|------|------|------|
| | | 2015 | 2016 | 2017 | 2018 | 2019 |
| SKA1 | Wieliczka Rynek Kopalnia – Kraków Lotnisko | 1.62 | 3.4 | 3.64 | 2.51 | 2.58 |
| SKA2 | Kraków Główny – Miechów – Sędziszów | 0.89 | 1.33 | 1.7 | 2.31 | 2.18 |
| SKA3 | Kraków – Tarnów | — | — | 3.21 | 3.32 | 3.29 |

Source: compiled on the basis of data from the Department of Road Infrastructure and Transport of the UMWM

of choosing this means of transport for daily journeys in and around Małopolska. Most of the railway lines in the region have been covered by construction works to varying extents, from in-depth modernisation to renovation work. The indicator percentage of railway use in passenger transport (calculated on the basis of the number of railway passengers in 2019 and compared to the number of inhabitants in the Region) was 4.7% (4 p.p. below the average for Poland), putting and placed Małopolska only in only 9th position in the country. For comparison, between 2014 and 2018, the number of passengers transported by rail more than doubled in Małopolska. In 2014, the Region Self-government established the Koleje Małopolskie (Małopolska Railways) company, which this carrier operates most trains on the lines of the Rapid Agglomeration Railway. In 2015-2019, the number of passengers carried by Koleje Małopolskie increased from 1.8 million to 6.5 million, which demonstrates the great potential for the development of passenger rail transport in the region. Indeed, this such a large increase in the number of passengers in this period makes places the company the national leader in the lead in the country). The Fast Agglomeration Railway operates three routes: SKA1 Wieliczka Rynek Kopalnia - Krakow Lotnisko, SKA2 Krakow - Miechów - Sędziszów, SKA3 Krakow - Tarnów. The least frequented routes include lines with only two runs on Fridays and Sundays, when there are the most passengers. Such lines include: Krakow - Jasto (14,000 travellers in 2019), Rzeszów - Gorlice (3,000 travellers), Sucha Beskidzka - Żywiec (8,000 travellers) and the cross-border line Muszyna - Poprad - Tatry, on which trains, used by more than

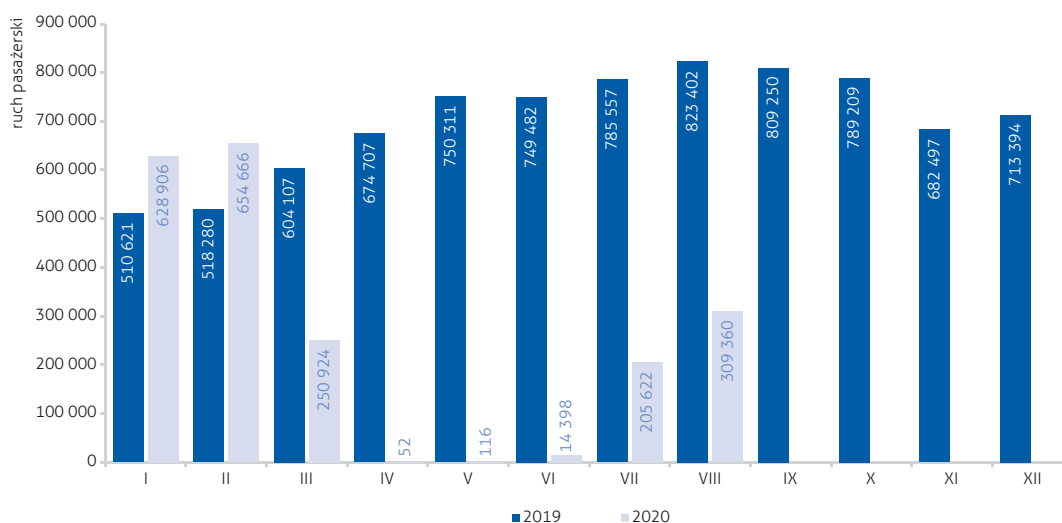
3,000 travellers, were launched in 2019 but only on holiday weekends.

Transport services operated by the Małopolska Region served 11.95 million passengers in 2019, of which 5.19 million were carried by POLREGIO, 6.53 million by Koleje Małopolskie and 230 thousand by Koleje Śląskie. Although the overall number of passengers carried in Małopolska decreased, Koleje Małopolskie recorded an increase of 100 thousand, compared to 2018. The overall decrease was caused by the accumulation of repairs on railway lines, including the implementation of engineering works on the E30 railway line, on the Krakow Główny Towarowy - Rudzice section, together with additional of tracks on the agglomeration line.

The Podhale Regional Railway is an initiative created in cooperation between POLREGIO, the Marshal's Office of the Małopolska Region and local authorities. During the day, it offers 16 connections towards Zakopane and the same number in the opposite direction, with an average running cycle of one hour. In 2019, trains running on the Podhalańska Regional Railway carried 392 thousand travellers. In 2018 it was 265 thousand passengers (these are data for the period 27.04-31.12, as the railway was launched on 27.04.2018). One solution designed to encourage more frequent use of the Rapid Agglomeration Railway is the development of the Małopolska Agglomeration Card system, integrating transport services and enabling tariff integration and optimisation for multimodal transport.

The development of electromobility in Poland faces barriers. The first electric passenger cars were registered in 2011, and according

Figure 14 Passenger traffic at MPL Kraków-Balice. Monthly statistics in 2019 and 2020



Source: www.krakowairport.pl

to the Polish Alternative Fuels Association, 11 132 electric cars will be registered in Poland in 2020 (as at 30.04). According to the report Analysis of the state of development and current development trends in the field of electromobility in Poland, the main barrier to the development of electromobility is insufficient charging infrastructure for electric vehicles, which makes the electric car essentially a city car. In Poland there are approx. a thousand chargers, of which Krakow has about 50 stations and therefore has the fourth largest number of charging stations after Warsaw, Katowice and Gdańsk. Potential buyers are discouraged by the higher costs of purchasing an electric vehicle compared to a combustion engine vehicle, concerns about possible costs and locations for servicing the vehicles, as well as future costs of battery replacement. There is also a lack of education and promotional activities to make people aware of the benefits of using electric vehicles and installing charging infrastructure for such vehicles. Local government may contribute to electromobility development by showing great interest in introducing zero-emission vehicles in public transport. In the first quarter of 2020, there were 237 fully electric buses in Poland. In Kraków, electric buses have been in operation since 2014. In the first quarter of 2020, MPK Krakow had 27 electric buses. The plan is to purchase a further 50 vehicles for Krakow and two buses for Miechów. The development of this sector will certainly require the introduction of a range of widely available sources of funding sup-

port for investment in modern vehicle fleets and the charging infrastructure supporting them.

Cross-border traffic between the Małopolska Region and the Slovak Republic does not show a high level of intensity, mainly due to poor quality of infrastructure (lack of road connections with accelerated traffic parameters). The busiest locations are the border crossing on national road DK No. 7 in Chyzne and the rail crossing at Leluchów on line No. 96 between Muszyna and Plavec. An important limitation in cross-border traffic is the fact that the border crossing at Chyzne is the only place where there are no tonnage restrictions. At the remaining border crossings (Winiarczykówka - Bobrov, Chochotów - Sucha Hora, Łysa Polana - Tatranska Javorina, Jurgów - Podspady, Leluchów - Circ, Muszynka - Kurov, Konieczna - Becherov), there is a limit of 7.5 tons. The Małopolska Region, in cooperation with local government and relevant administrative units located on the territory of the Slovak Republic, has taken steps to launch passenger bus services of public interest in the cross-border zone. The aim of the Government of the Region is to create a coherent network of connections, enabling efficient movement in this area.

Passenger traffic at MPL Kraków-Balice is growing fast. In 2008, 2.9 million passengers were checked in there; in 2018 this figure more than doubled, rising to 6.8 million. In 2019, the number of passengers rose to 8.4 million, an increase of 24% compared

to 2018). Krakow Airport handles the second largest number of passengers in the country after Warsaw Chopin Airport, and the share of Krakow sub-airport in total passenger air traffic increased from 14% in 2008 to 14.7% in 2018. Krakow Airport's area of direct influence covers about 7.9 million inhabitants within a radius of 100 km from Krakow, which corresponds to a commuting time of about 90 minutes to the airport. For further development of the airport, it is necessary to improve its road access, including modernisation of the road junction (including the motorway, regional road and entrances to the airport).

In January and February 2020, the number of passengers was much higher than in the corresponding period of 2019. This all changed after the COVID-19 outbreak, with passenger numbers already 41.5% lower in March 2020 than in March 2019. In April-August 2020, 529,548 passengers were carried, compared to 3,783,459 passengers in the corresponding period of 2019 a decrease of 86.0%

In 2018, road transport accounted for the largest share of freight transport (85.5%), while

rail transport accounted for only 11.4%. Compared to 2017, this was an increase of 4.2% and 7.2% respectively. Intermodal transport, combining two or more modes of transport into one system, is underdeveloped in Małopolska. There were 35 active terminals in Poland in 2018, i.e. 5 more than in 2017. In Małopolska, there were only 2 terminals in 2018: in Włosienica in the municipality of Oświęcim and in Brzesko, so the Region's share in container freight was small. In the intermodal transport sector, which is the most sensitive to global changes, due to the COVID-19 outbreak there was a decrease of almost 6% in 2020 compared to the first quarter of 2019. By contrast, in 2019 there was a double-digit increase compared to 2018.

New developments in transport include carsharing, which is the sharing of passenger cars. Cars are made available to users against payment by vehicle fleet operators (various companies, public agencies, cooperatives, associations, groups of individuals). In the Małopolska region the service is available in Kraków, Nowy Sącz, Skawina, Tarnów, Wieliczka and Zakopane.

CHALLENGES

- Completion of the national road network, especially north-south express roads, as well as express roads from Brzesko through Nowy Sącz to the state border, from Tarnów to Kielce and from Krakow to Bielsko-Biała.
- Striving to ensure the sustainable use of existing rail lines for intra- and inter-regional traffic, and improve rail infrastructure to increase speeds on key routes, ensuring high travel comfort.
- Creating new and reorganising existing regional and local bus services, including those integrated with rail links, through timetable linking and the development of integrated fare and ticket offers.
- Improving cross-border road and rail connections between Małopolska and Slovakia, especially with regard to the transport of vehicles over 12 t GVW.
- Strengthening the impact of MPL Kraków-Balice airport by improving accessibility.
- Integration of different modes of transport.
- Creating conditions conducive to the development of electromobility in the region.

DIGITALISATION

Digitalization is one of the most important factors of social and economic changes. Economic development is increasingly influenced by ICT infrastructure and access to fast data transmission, the possibility to obtain and use ever larger portions of data, the opening of resources of public institutions and the digitisation of services. Digitalization is the basis of Industry 4.0, which integrates people and digitally controlled machines with the Internet and

information technologies. It is estimated that the data economy (collection, transmission, analysis, storage and use of data) is important for 40% of the total productivity of the Polish economy.

One of the key elements in socio-economic development is access to high-speed Internet. In Małopolska in 2018, 83.9% of households (the sixth highest figure in Poland) and 95.5% of businesses (the eighth highest figure in Poland) had access to the Internet. The percentage of Małopolska residents us-

ing the Internet was 80.5% in 2018. This was only the fourteenth highest in Poland, as in 2019, where this percentage increased to 82.7%). In 2018, 78.5% of households in Małopolska had access to broadband Internet (the sixth highest figure in Poland); in 2019 it was 80.9%, but Małopolska still dropped to eleventh position in the country. In 2018, 95% of enterprises in Poland used a fixed broadband connection (96.3% in 2019), while in Małopolska it was 95.2% (96.6% in 2019).

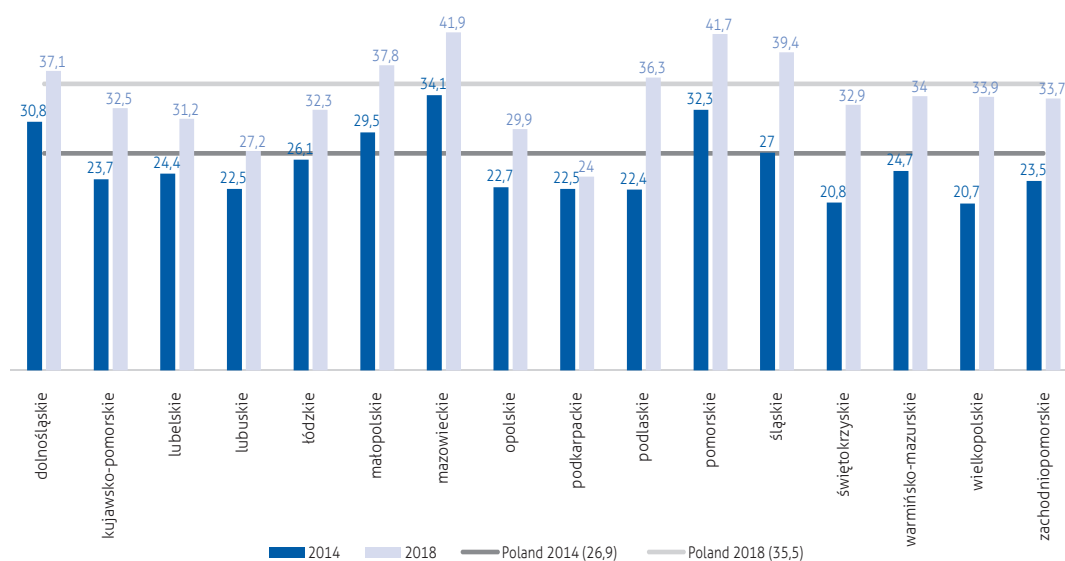
The low use of the Internet by enterprises in Małopolska is noteworthy, both for buying goods and services (35.1% in 2017 - 1.5 p. p. above the national average) and selling them (16.2% in 2018 - 0.5 p. p. above the national average). This problem does not only concern enterprises from Małopolska, as very low figures are registered in all provinces. A survey conducted in 2017 by Bank Pekao S.A. among entrepreneurs shows that micro and small companies in Małopolska use ICT primarily in digital systems (40%), followed by: using digital technologies in cooperation with contractors (25%), using the cloud in business (22%), collecting information about customers (18%), and producing digital products/services (7%). By sub-region, it can be seen that, in Małopolska, micro and small companies in Krakow use digital technologies to the greatest extent. The COVID-19 pandemic has contributed to a dynamic increase in the use of the Internet for selling

goods and services, and this sector will continue to grow.

Companies that set new standards of efficiency and innovation largely base their business model on data collection, processing and analysis, even if this area is not their core business. In this context, one of the important factors for the development of enterprises is the conduct of big data analysis (the use of techniques, technologies and software to analyse large volumes of data, obtained from their own enterprise or from other sources). In 2017, only 8.4% of entrepreneurs in Małopolska conducted big data analysis (0.5% p. p. above the national average). Between 2015 and 2017, the percentage of companies using big data sets in Małopolska increased by 2.4 p. p. and the region moved up from sixth to fifth position. The use of cloud computing services by companies is slowly increasing. Cloud computing refers to the use of scalable ICT services via the Internet. Services may include access to software, the use of specific computing power and data storage. They are delivered using the service provider's servers. In 2019, paid cloud computing services were used on average by 17.5% of enterprises in Poland; in Małopolska it was as much as 19.1%.

Digitalisation in public administration is also progressing. In Małopolska, between 2014 and 2018, the percentage of offices with

Figure 15: People who have used public administration services via the Internet in the last 12 months (%)



Source: Own study based on reports: Information Society in Poland. Statistical survey results from the years: 2014-2018, Information Society in Poland. Results of statistical research from the years 2010-2014, Central Statistical Office

a website compliant with the WCAG 2.0 standard (universally accessible to users, regardless of their disability, age, hardware and software) increased from 39.2% (2.2 p.p. below the Polish average) to 67.8% (7.3 p.p. below the national average), while 20.8% of offices in 2018 in Małopolska had a policy or strategy for making open public data available (5.2 p.p. above the national average). This area should be developed in order to build the competitive advantage of the region, as open data, open software, open knowledge and science influence the development of innovation. In 2018, the percentage of public administration units providing downloadable applications for mobile devices offering e-services increased year-on-year by 8.5 p.p., reaching 19.8%. Małopolska was in the middle of the list. The highest share of public administration entities offering e-services in 2018 were engaged in civic affairs (30.9%), while the lowest share were engaged in the areas of tourism (5.9%) and employment (5.6%). Despite the increasingly widespread possibility to handle matters via the Internet, individuals use the Internet much less frequently in contacts with pub-

lic administration than with entrepreneurs. In Małopolska, in 2014 it was used by as many as 90.3% of entrepreneurs and only 29.5% of residents; in 2018, it was used by 95.7% of entrepreneurs and 37.8% of residents. In 2019, the latter decreased by 2.9 p.p. to 34.9% of the population.

According to entrepreneurs, limited access to qualified specialists is a serious problem. The growing demand for IT specialists is affecting the development of national technology start-ups and international centres responsible for IT systems security. In Poland, the deficit of specialists in the IT sector is estimated at 50 thousand people. According to the Occupations Barometer 2020 prepared by Kraków's Region Labour Office, in 11 districts of Małopolska there is a shortage of designers and database administrators and programmers, while there is more of a balance in the following sectors: website administrators, ICT system testers and operators, computer graphic designers and internet sales staff. The high demand for the IT professions occurs mainly in large urban centres.

CHALLENGES

- Providing ICT infrastructure and high-speed data transmission, including the transition to the Industry 4.0 model, as a condition for socio-economic development.
- Implementing of IT solutions, including data processing and analysis, which are a prerequisite for ensuring the competitiveness of enterprises, including SMEs.
- Modernising and accelerating e-government development including e-health, wider availability of open public data and increased common use of public administration services by the inhabitants of Małopolska.
- Ensuring an adequate number of professionals due to the growing demand for IT services in the economy.

CLOSED LOOP ECONOMY

A closed-loop economy (LCA) implies an economic model based on the efficient use of resources, materials and products and on minimising the amount of waste generated through prevention and, where waste is generated, preparing for re-use, recycling, other recovery and disposal. The transition towards "GOZ" (a closed loop economy) involves taking action at all stages of a product's life cycle, from raw material acquisition, through design, production, consumption, product repair and remanufacture, waste collection, to waste management.

For effective implementation of GOZ principles, it is necessary to undertake extensive educational activities, as both entrepreneurs

at each stage of production and the residents of Małopolska themselves, through their behaviour and consumption patterns, can contribute to the implementation of a closed-circuit economy. The survey conducted in 2017 in Małopolska showed that the GOZ concept is understood by a relatively smaller part of the population surveyed (43% of residents of large cities and 38% of other Małopolska residents). According to 78.6% of respondents, the closed-loop economy can be implemented throughout the economy (both by businesses and by individuals). Respondents recognise and appreciate the activities undertaken to develop the LFMD, but believe that much more could be done in this area. They clearly see the need for educational activities. To a much lesser extent, they perceive the citizens' responsibility in the im-

plementation of the GOZ, which - according to the authors of the survey - seems to be a significant barrier, which can only be overcome by developing various forms of participation and partnership.

All products have an impact on the environment, from the use of raw materials, manufacturing, packaging, transport, use, recycling and final disposal. More than 80% of the environmental impact comes from decisions made at the product design stage.

and 2018 amounted to more than PLN 244 million, putting the province in 3rd position after Mazovia and Silesia.

The reuse of industrial water in Małopolska is declining, while the reuse of industrial wastewater remains at a similar level. The use of sewage sludge in Małopolska is marginal.

Between 2008 and 2018, industrial water consumption in Małopolska remained

Ecodesign is about identifying the environmental aspects associated with a product and integrating them into the design at an early stage of product development.

Products should be designed to be recyclable or reusable, which makes waste management easier and less costly. Research and development departments and the design and construction offices of companies have a special place in GOZ. There is a growing demand for designers and constructors who, when selecting materials, not only decide on the ergonomic and quality-related features of a product, taking into account feasibility, profitability and safety criteria, but also pay attention to environmental criteria. Małopolska has great potential to exploit in this area due to the highest percentage of university graduates in technical and natural sciences in Poland: 39.4% in 2018 (10.4 p.p. above average). The region has continuously been ranked first in this category since 2011.

One of the most important elements of GOZ is extending the life of a product (e.g. by repairing it, using it for other purposes or replacing it or its parts with substitutes) so that products are not treated as waste. In 2018, Małopolska ranked first in terms of waste recovery (excluding municipal waste) compared to the amount of waste generated per year: 55.5% (35.1 p.p. above the national average), although this figure dropped by 1 p.p. compared to 2014, which indicates the need for educational activities. In 2018, outlay on waste recycling and utilisation in Małopolska amounted to only PLN 57 thousand, while the total outlay in this field between 2008

at a similar level, approx. 300 hm³, while the percentage of water reused (or sold) in industry, coming from dewatering of mining plants and construction facilities between 2008 and 2018, remained at 7-11% (between 2011 and 2017 it dropped to 4-5%). During this period, Małopolska was ranked second in Poland in terms of industrial water reuse (after the Śląskie (Silesian) Region). In 2019, 12 163 dam³ of this water was used.

Between 2008 and 2018, Małopolska was the leading province in terms of industrial wastewater reuse. In 2018, it was 49,301 dam³, or 52% of all industrial wastewater reused in Poland.

The use of sludge from industrial wastewater treatment plants generated during the year for agriculture and soil reclamation is marginal in Małopolska. In 2017, as much as 66.9% of the sludge was landfilled (compared to a national average of 19.2%), while it is worth noting that only in 3 provinces – Lower Silesia (91.0%), Małopolska (66.9%) and Lublin (17.5%) – did this percentage exceed 10% in 2017. In the other provinces, it ranged from 6.7% to 0.1%, and in the West Pomeranian Province it was below a per mille. In 2019, only 0.42% (147 t) of the total sludge produced (34,349 t) was used in land reclamation, including land for agricultural purposes. This was 0.55 p.p below the national average (1.97% - 9352 t).

CHALLENGES

- Increasing awareness among both entrepreneurs and residents of Małopolska of the benefits of the maximum use of GOZ.
- Providing staff for GOZ implementation, ideally as early as the design (eco-design), one of the key steps towards a circular economy.
- Taking action to use products, raw materials and waste more efficiently.
- Increasing the reuse of water from industrial plants and industrial waste water in the economy, in view of the fact that Poland is a country with small water resources.

CLIMATE AND ENVIRONMENT

The quality of the natural environment is one of the fundamental issues affecting the quality of life of inhabitants. It consists of a number of environmental components, such as air, water, soil and vegetation, up to the synthesising role of landscape. Modern changes taking place in the natural environment and in human activity make it necessary to emphasise such issues as: air quality, the condition and management of waters, waste management, renewable energy, mineral raw materials, noise pollution, natural and landscape values, ecological education and finally the phenomenon of climate changes which influences a number of natural elements and processes as well as human activity and quality of life.

CLIMATE CHANGE

Climate change is the result of both natural processes and human activity, which contributes to changes in atmospheric phenomena and geodynamic processes. One of the elements influencing climate change is the production of so-called greenhouse gases, of which the largest supplier is the fossil fuel-based energy industry. Pollutants emitted by energy, transport, economy, agriculture, mining, industry, etc. contribute to irreversible changes to the environment. In 2018, the emission of greenhouse gases in the Małopolska province was 24.5 Mt eq. CO₂. The main sources of greenhouse gas emissions in Małopolska are (as of 2018): combustion of fossil fuels (coal, oil and gas) for electricity and heat generation and cooling, transport, industry and households (88.21%), agriculture and land use (7.60%) and landfills (4.19%).

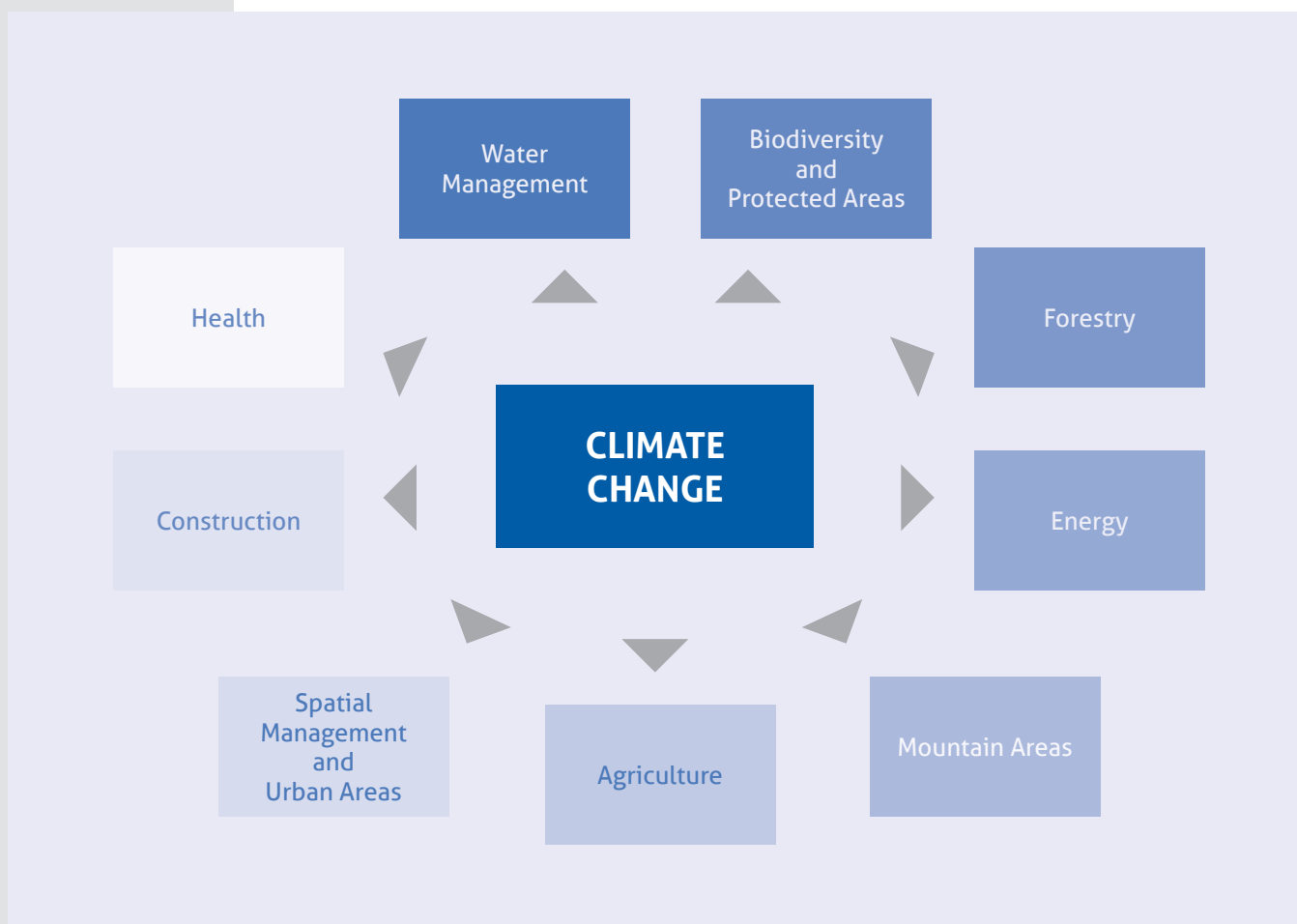
Progressive climate change and its associated effects are also being felt in the Małopolska region. In the years 2000-2010, several heat waves were observed in Małopolska. The longest lasted over 10 days. There is an

increase in the frequency of so-called heat waves as well as days with moderately warm weather in winter. At the same time, the frequency and violence of extreme weather phenomena such as floods, droughts and torrential downpours – indicating an intensification of climate change – is also increasing.

The geological structure of the Carpathian Flysch, development of the major part of it, as well as intense weather conditions, such as heavy and prolonged precipitation, are conducive to morphogenetic processes, especially landslides and collapsing cliffs. The formations of the so-called Carpathian flysch (alternating layers of less resistant shale and more resistant sandstone) are very susceptible to landslide and caving processes, especially in the case of prolonged precipitation. Additionally, the danger of landslides is a result of superimposed anthropogenic factors, including the intensification of construction works scattered around the foothills and the development of the road network. Since 2006, a number of landslides and areas with potential hazard of mass movements have been registered and documented in the Małopolska Landslide Protection System (SOPO). The system identifies types of landslides and provides guidance for development of these areas, including: active landslides, where development is prohibited, periodically active landslides posing a potential hazard, inactive landslide requiring building restrictions, as well as areas prone to landslides, where development requires studies and recommendations.

In the Region, there are also problems with drought, although in comparison to other regions of Poland, such as Wielkopolska, Mazowieckie or Łódzkie, the problem in Małopolska is on a smaller scale. Drought problems are observed not only in the agricultural north-eastern part of the province but also in mountainous areas. It is caused by high irregularity of water flows and uneven surface water supply with groundwater, espe-

Figure 1: Sectors vulnerable to climate change



Source: Own elaboration based on the study: Strategic adaptation plan for sectors and areas vulnerable to climate change until 2020, Ministry of the Environment, 2013

cially in autumn and winter. The greatest risk of groundwater deficits is seen in the northern part of the Region, in upland areas: the Olkusz Uplands, the Miechów Uplands and the Proszowice Plateau. Significant deficits are also found in the Myślenice, Tarnów, Gorlice and Nowy Sącz counties, and also in Nowy Targ. The above processes affect a number of economic sectors.

High water retention is one of the elements mitigating the negative effects of climate change and adapting to it. The highest retention rate is found in forested areas with the best preserved natural vegetation. In the Małopolska region these are: Beskid

Sądecki, Beskid Mały, Beskid Niski and the Tatra Mountains. The lowest retention capacity is found in the uplands – typically agricultural in character and largely devoid of any natural vegetation – the valley of the Upper Vistula River and the lower parts of its tributaries, as well as the Krakow region. In order to maintain and increase the retention capacity of the catchment area, it is necessary to preserve natural wetlands. The most valuable in this respect are the high peat bogs in the Orawsko-Nowotarska Valley (the largest in the Carpathians and unique to Europe) and the numerous, albeit small, peat bogs in the Tatra Mountains and the Low Beskids.

CHALLENGES

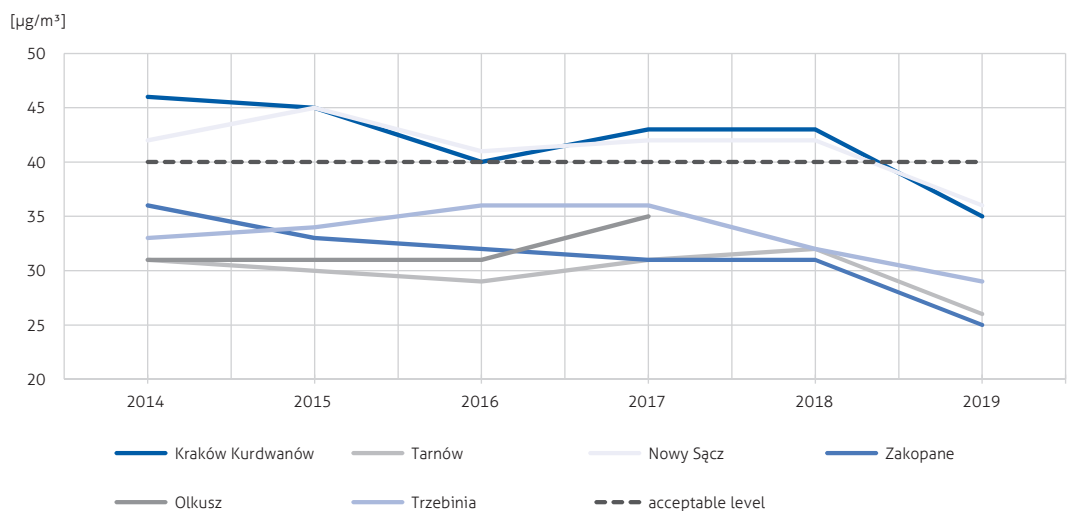
- Water efficiency.
- Technological transformation in agriculture (sustainable agricultural production and adaptation to climate change).
- Taking measures to mitigate and increase resilience to climate change, taking into account the specifics of larger urban complexes and areas of intensive agricultural use.
- Investment in and action for green and blue infrastructure (especially: micro and small retention, basins, ditches, wetlands), which also have the natural, aerosanitary effect of mitigating climate change, while at the same time bringing social, recreational and economic benefits (including new jobs related to maintenance and activities in green areas, an increase in property values near attractive park areas, etc.) and also improving the view in the region.
- Creation of a coherent system of green areas in urban functional areas, linked to the natural system of the surrounding area.
- Developing techniques to increase catchment retention.

AIR

Air quality is one of the key issues determining the quality of the environment, and thus the quality of life in the living space. The unsatisfactory quality of air is connected mainly to processes of energetic combustion of fuels, including technological processes carried out in industrial plants, transport, and, above all, emissions originating from combustion processes taking place in household furnaces, collection and utilisation of sewage and waste, mining heaps and agriculture. One of the most significant threats to the health and life of the population is particulate air pollution. Between 2011 and 2018, a slight decrease in the mag-

nitude of concentrations of PM 10 and PM 2.5 particulate pollutants and benzo-a-pyrene was observed, with the concentration of the latter remaining well above the accepted standard. Between 2014 and 2018, the average annual concentration of PM 10 particulate matter remained at a similar level, exceeding accepted standards in Krakow and Nowy Sącz. However, in 2019 the value fell below the permissible level in Krakow and Nowy Sącz. Excessive concentrations of dust occur in principle in most built-up areas, with the greatest problem in large urban centres and in smaller mountain towns, located due to topographical conditions in valleys and basins, where ventilation is inherently impeded.

Graph 16: Average annual concentration of particulate matter PM 10



Source: UMWM own study based on WIOŚ Krakow data

As a result of the tasks carried out by the City of Krakow, the level of the average annual concentration of PM 10 in Krakow decreased from a level of 64 $\mu\text{g}/\text{m}^3$ in 2006 (measurement point: Bujaka Street) to a level of 35 $\mu\text{g}/\text{m}^3$, i.e. below the accepted level in 2019. The permissible level was already reached in 2016, and in 2017 and 2018 it slightly exceeded the permissible level. The decrease in the concentration of particulate matter PM 10 was mainly influenced by legislative measures taken by the Provincial Government and the Municipality of Krakow, where a ban on solid fuels (coal, wood and other biomass) was introduced from September 2019.

Air pollution by nitrogen oxides is connected with road traffic. The highest mean annual concentration of nitrogen oxides has been maintained for many years in Krakow at the measurement point on Bulwarowa Street and amounts to 57-60 $\mu\text{g}/\text{m}^3$ on average. In the remaining measurement locations – Nowy Sącz, Tarnów, Skawina, Trzebinia and Szymbark – these levels are much lower,

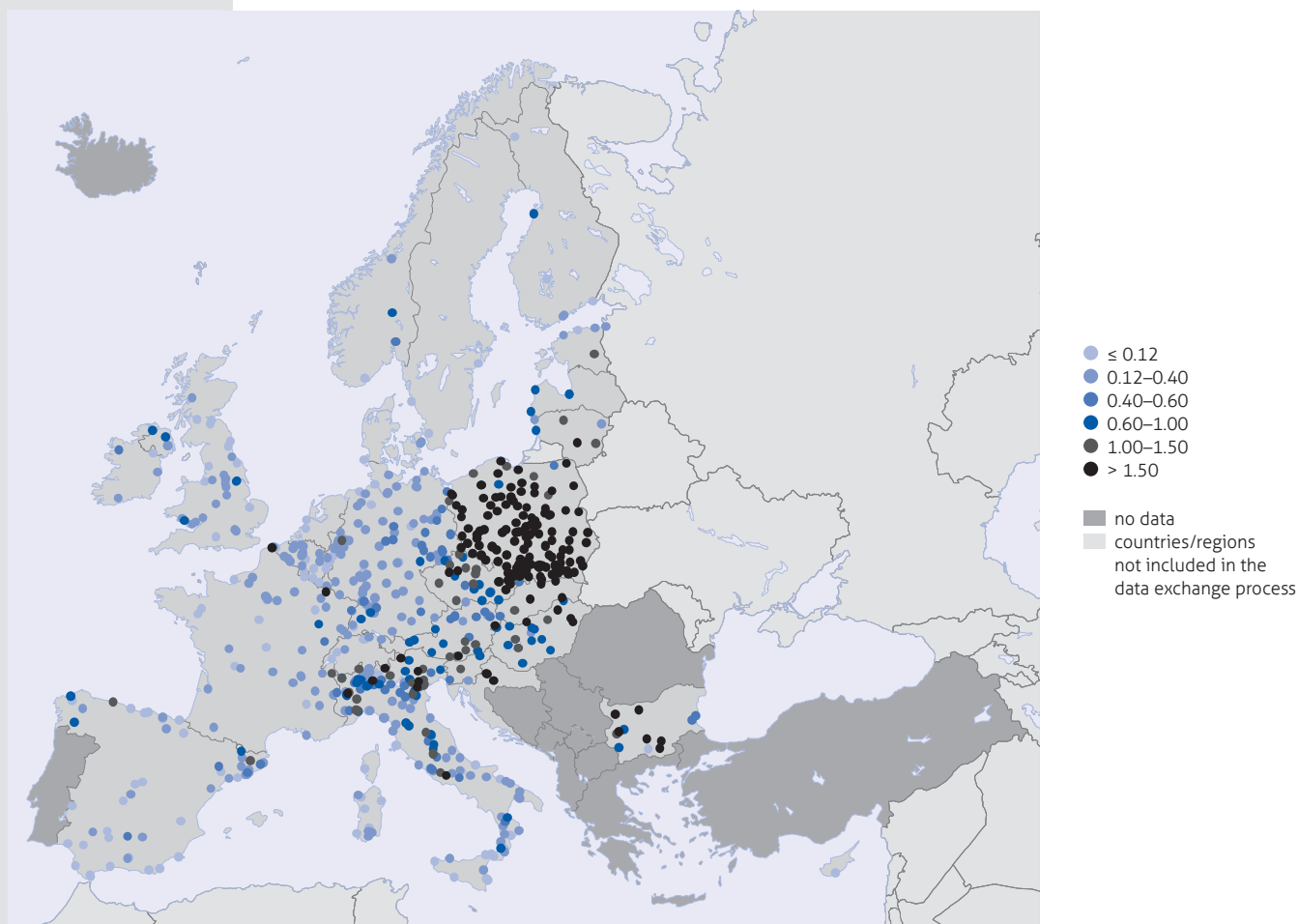
and in Szymbark and Trzebinia they do not exceed the permissible level.

The areas of the Region with the highest risk without poor air quality for the population are primarily the largest urban areas, but also areas of rural development, especially in the mountains, where buildings are located in valleys and mid-mountain basins. There is also a moderate level of risk in the foothills, where there is scattered development.

Significant problems associated with low emissions include low awareness among residents of the negative impact of pollutants on health, resulting from the use of poor quality fuel in outdated boilers and the burning of plastic waste. Another factor adversely affecting air quality is the lack of access in many areas to heating networks and gas networks in rural areas.

In 2018, greenhouse gas emissions amounted to 24.5 Mt eq. CO₂. The main sources of greenhouse gas emissions in Małopolska are (as of 2018): combustion of fossil fuels

Map 22. Annual average concentration of benzo-a-pyrene in 2017.



Source: Air quality in Europe – 2019 report EEA Map.6.1. Concentration of BaP, 2019, p. 43

(coal, oil and gas) for electricity and heat generation and cooling, transport, industry and households (88.21%), agriculture and land use (7.60%) and landfills (4.19%).

Małopolska is the leading region in implementing anti-smog policy, as evidenced indirectly by reduced figures for certain concentrations of harmful dust. For the improvement of air quality between 2013 and 2019, over 58.5 thousand solid fuel furnaces were eliminated. These heating devices were mainly replaced by gas boilers, but also connection to the district heating network, low-emission solid fuel boilers and electric heating. Thermomodernisation was carried out in over 5,000 buildings, and renewable energy installations were installed in 12,900 facilities. The most frequently chosen alternative sources were solar collectors and photovoltaic panels.

Reducing carbon dioxide emissions is one of the problems that the Region will have to face in the coming years. A number of actions connected with improving the state of the environment, including air quality, have been taken as part of the LIFE integrated project entitled "Implementation of the Air Protection Programme for the Małopolska

Region - Małopolska in a healthy atmosphere", co-financed from the LIFE programme of the European Union. The improvement of air quality in Krakow and Małopolska is particularly visible during the heating period from October to March. The average concentration of PM10 dust between the 2014-2015 winter season and the 2019-2020 season decreased in Małopolska by 30%, while in Krakow it fell by as much as 45%.

In recent years, public transport has been modernised, especially in Krakow, where in addition to the development of the transport network, the fleet is being replaced by cleaner, less polluting hybrid and electric buses and a new tram fleet. The agglomeration railway system and a system of car parks at railway stations are being developed as part of a comprehensive approach to reducing private vehicle traffic.

Compared to the rest of the European Union, Małopolska does not come out favourably in terms of air pollution. In terms of benzo-a-pyrene concentration, Małopolska, like the rest of Poland and much of central Europe and northern Italy, shows a significant excess of average annual concentrations above $1\mu\text{g}/\text{m}^3$.

CHALLENGES

- Achieving acceptable levels of pollutants in the air.
- Reducing greenhouse gas emissions by increasing the use of local renewable energy potential and reducing energy consumption.
- The utilities sector playing an exemplary role in climate action (for climate neutrality of public buildings).
- Continuing to reduce pollutant emissions associated with so-called low emissions (by replacing low-efficiency boilers with solid fuels, thermo-modernisation of buildings, installation of RES), transport emissions (development of public transport, especially in urban areas and suburban zones) and emissions resulting from economic activity.
- Expansion of the district heating network to connect existing and new facilities to the central heat source. Development of low-emission and energy-efficient transport, including the development and expansion of the rail transport system using the existing railway network in the cities, as well as the creation of various incentives for municipalities to develop a comprehensive system of bicycle paths as an alternative to short distance travel, as well as other ecological transport solutions (electric scooters, electromobility, etc.).
- Identification and preservation of urban ventilation corridors.

WATERS

Małopolska lies mostly within the Vistula River Basin – the Upper West Vistula Water Region – while a small part of it lies in the basin of the Black Orava river in the Danube basin, a tributary of the Black Sea.

The Region's surface water resources satisfy both municipal and industrial needs. The most important basins for drinking water supply are: Raba (Dobczyce reservoir), Dunajec, Rudawa, Dłubnia and Skawa. The Vistula is the main source of water supply for industry and manufacturing. However, the Małopolska

Region shows low groundwater resources compared to the national average. The exploitable resources of ordinary groundwater are 648 million m³. In the Małopolska region there are a total of 23 documented Major Groundwater Reservoirs and six Local Groundwater Reservoirs. The largest disposable resources are found in the north-western part of the Region, while resources in the submountain river valleys and the Carpathian flysch layers are relatively small. Unfavourable infiltration and retention conditions in the catchment area make the level of resource renewability relatively low, and uneven distribution of groundwater reservoirs causes deficits in the eastern and north-eastern parts of the region. In contrast to these relatively poor groundwater resources, mineral water resources with curative properties account for one third of the country's deposits, so they are a significant asset on a national scale. In the Małopolska region, there are 44 deposits of healing waters, brine and thermal waters with total disposable resources of about 1 279 m³/h, and exploitable resources of about 1 923 m³/h. Exploitation of therapeutic water intakes is the basis for the development of health resorts, and most of these are concentrated in the south of the region, mainly in the Sudeccyzna region.

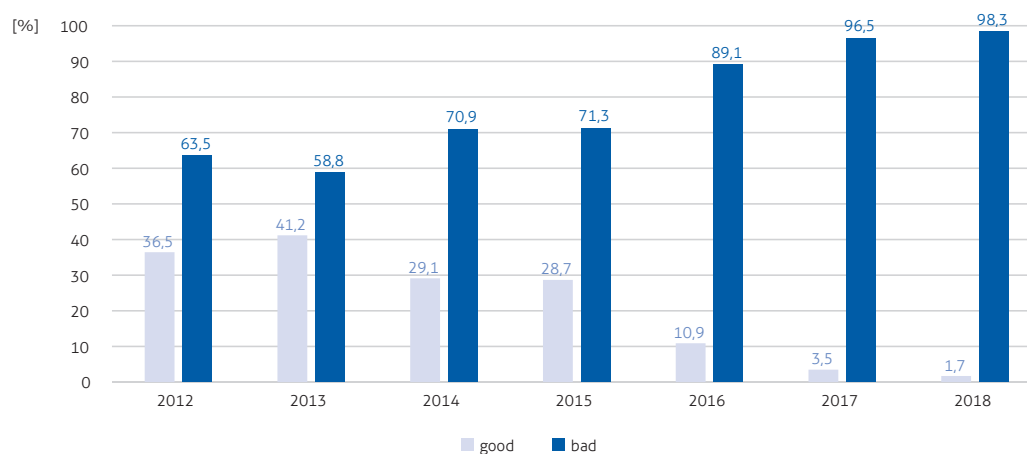
Another key issue is the problem of the status and quality of surface and groundwater as well as water management. In 2017, almost 96% of surface water bodies were of poor status, mainly as a result of the po-

tential environmental and chemical status of the waters. One worrying development is a decrease in the number of surface waters of good quality, observed since 2013. In 2013, 41.2% of waters were of good quality; in 2017 this figure fell to 3.5% and in 2018 it stood at only 1.7%. The significant decrease in water quality in 2017 resulted from a change in the procedure for classifying physico-chemical indicators in 2016. Because of this change, only parts of the Dunajec and Ropa catchments were shown have good water status. In the remaining areas of the Region analysed by the report, the condition of surface waters was described as poor.

The deterioration of surface water quality may result frombe influenced by a generally lower quantity of water, associated with increasingly frequent shortages and droughts, which hinders the water purification process. The poor quality of water is also connected with a significant amount of sewage discharged from industry into the surface river network, leading to smaller quantities of available water. This applies, to a large extent, to the river basins in the western part of Małopolska. Over 66% of the municipal economy of Małopolska is based on surface water resources, so it is very important to keep the quality of the waters of its catchment areas above the level of drinking water intake.

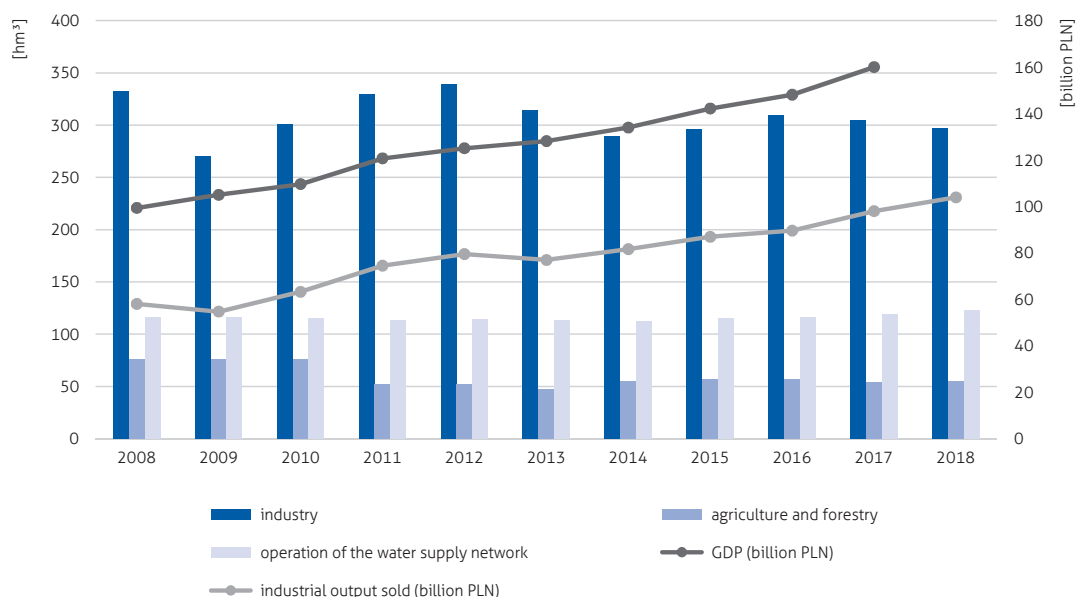
The sealing of catchment areas caused by urbanisation disrupts the natural water cycle, accelerates rainwater run-off and reduces

Figure 17: Status of surface water bodies in the Małopolska region



Source: Own study based on Report on the state of the environment in the Małopolskie Region 2017 and Classification of ecological status and ecological potential, chemical status and assessment of the status of uniform bodies of surface water in the Małopolskie Region in the years 2011–2017, WIOŚ Krakow, State of the environment in the Małopolskie Voivodship. Report 2020, GIOŚ

Diagram 18. Water abstraction for the needs of the national economy and population in Małopolska in comparison with GDP and sold production of industry



Source: own work on the basis of the data of GUS BDL

the recharge of groundwater resources. A low level of forestation cover in the northern areas of Małopolska, and also a lack of extensive water retention activities, causes drought and limited water supply for those residents who are not connected to the water supply system. Another serious problem is a shortage of water supply and sewerage systems, especially in areas with dispersed development, in areas with varied relief. This results in the discharge of a significant amount of untreated municipal and industrial wastewater. The problem is aggravated by area pollution from agriculture due to the increased use of fertilisers, especially mineral ones.

For the surface water bodies (SCCWP) and groundwater bodies (groundwater bodies) of the Malopolska region, environmental objectives have been identified. This information is contained in two documents: one for the area located within the Vistula river basin – in the Vistula river basin management plan² – and the other for the Czarna Orawa water region located within the Danube river basin – in the Danube river basin management plan³.

2 Regulation of the Council of Ministers of 18 October 2016 on the Vistula River Basin Management Plan; Journal of Laws of 28.11.2016, item 1911

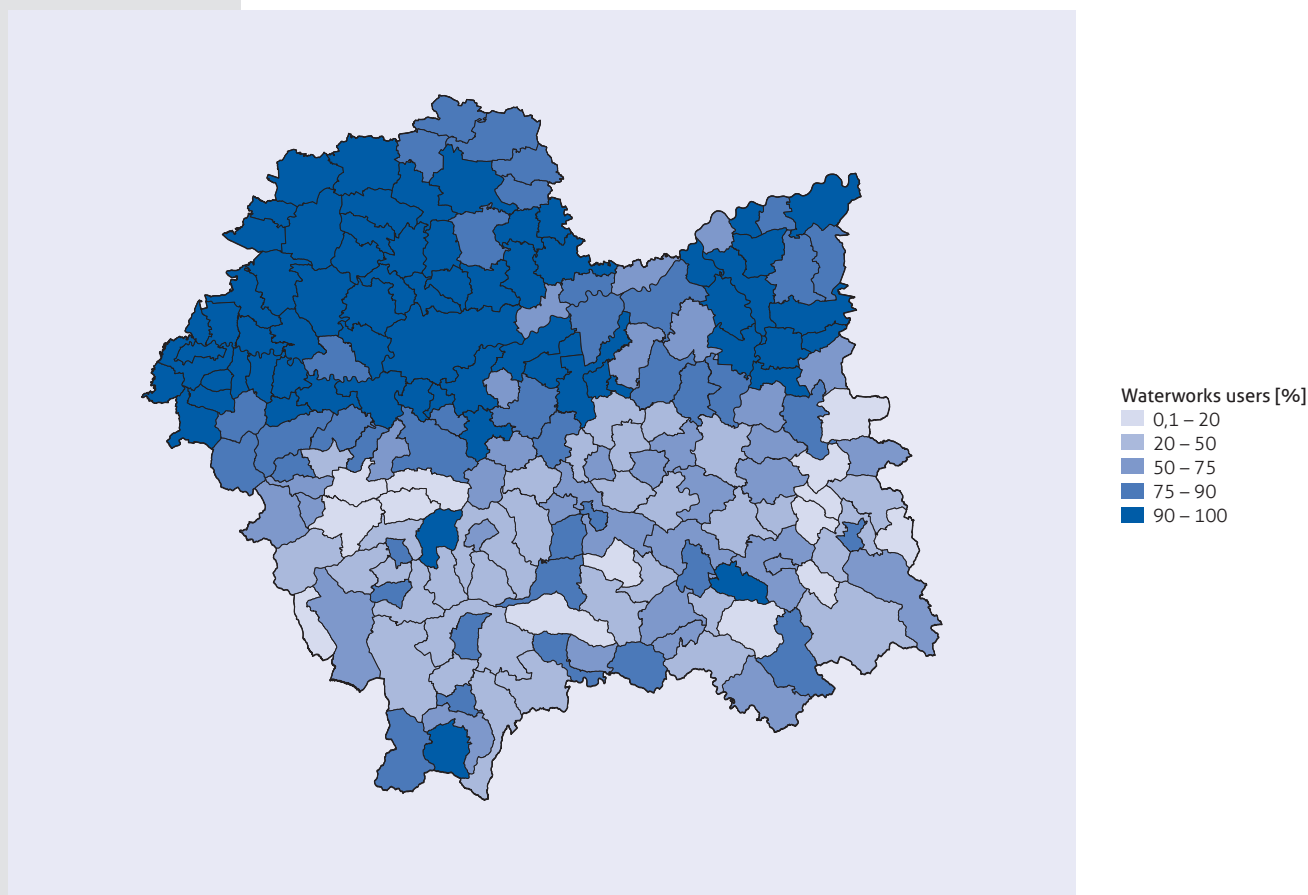
3 Regulation of the Council of Ministers of 18 October 2016 on the Danube River Basin Management Plan, Journal of Laws 2016, item 1918

The structure of water abstraction in Małopolska is dominated by the manufacturing sector - 297 hm³ (63%), followed by municipal economy - 122 hm³ (26%), while agriculture, farming and forestry consumes 54 hm³ (11%). Between 2010 and 2018 in Małopolska, water abstraction for production and agriculture decreased slightly, while abstraction for municipal purposes remained stable. It is worth noting that at the same time GDP and sold production in industry increased.

The length of the water supply and sewerage system is increasing, which translates into an increase in the number of residents using the sewerage system (from 51% in 2008 to 63% in 2018). However, Małopolska still ranks only 14th in the country in terms of the percentage of residents covered by the sewerage system. Less than 40% of residents in rural areas are connected, although there has been a significant increase in these areas from 19.3% in 2008 (11th place in the country) to 39.8% in 2018 (10th place in the country).

In 2018, 71.1% of buildings were connected to the water supply network, putting Małopolska in last place in the country, with more than 80% of buildings in 13 other provinces being connected to the network. Nevertheless, in terms of accessibility

Map 23. Share of water supply users in 2018



Source: own work on the basis of CSO LDB

of residents to the water supply network, Małopolska shows considerable diversity.

In Małopolska, 66.6% of the population was connected to a sewage treatment plant in 2018, with less than 40.9% of the population in rural areas connected. Most people connected to wastewater treatment plants are found in the cities with county rights, i.e. Tarnów (97.6%), Krakow (97.3%), Nowy Sącz (94.1%), and in the Tatra and Chrzanów counties (77.6% and 72.4% respectively). With the exception of the largest cities, the further east of the Region, the lower the level of connection to sewage treatment plants. In terms of wastewater treatment plant users, Małopolska ranks fourteenth in the country (66.6%), dropping one place in comparison to 2008 (54.4%). This is despite an increase in the total population served.

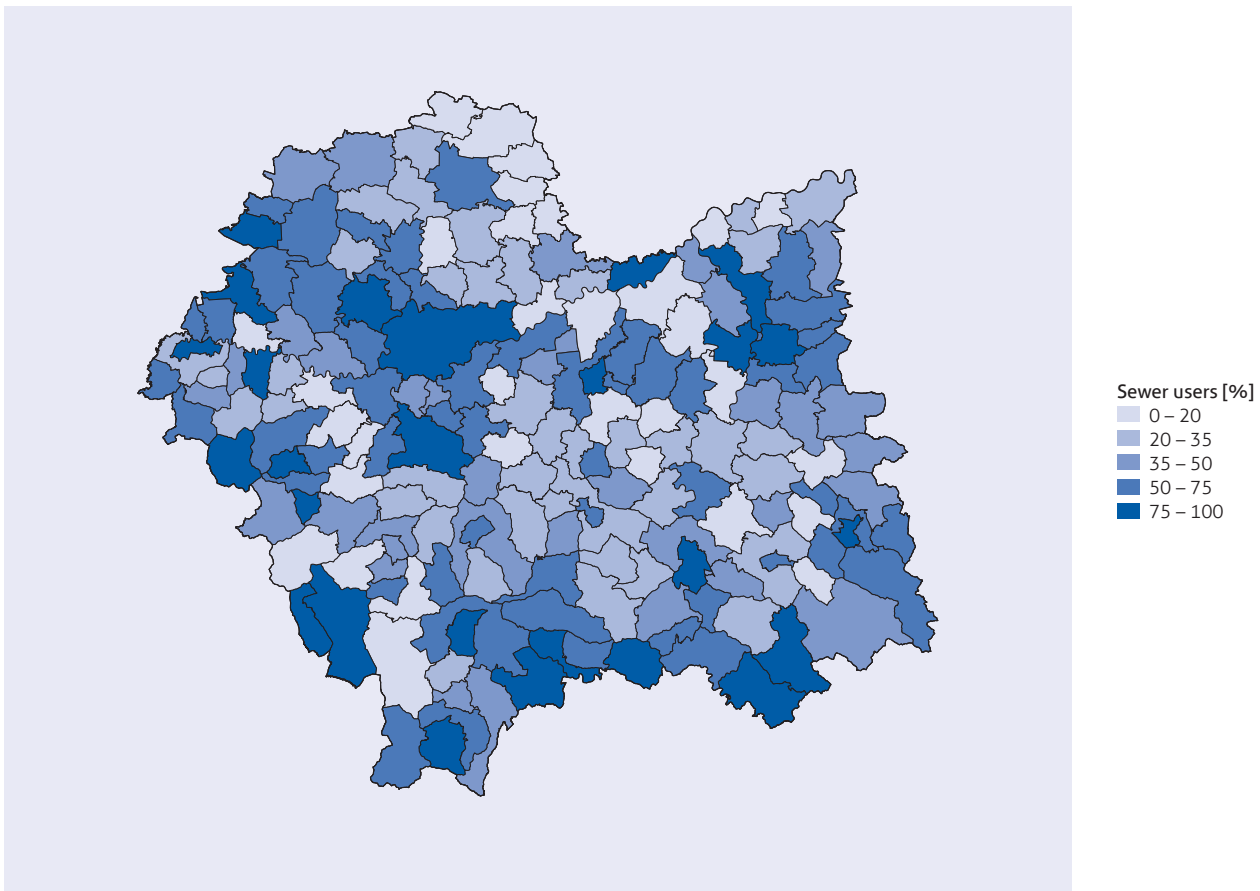
21. Flood risk in the Małopolska region

Małopolska is a region with a high degree of flood risk, which results mainly from natural conditions, including low surface retention and rapid water run-off, the effect of large slopes characteristic of the varied relief of the Carpathians. The Upper Vistula

River area shows significant flow variability and a highly variable degree of flood hazard. Due to its exposure, some of the highest amounts of precipitation occur here, with the maximum amounts visible in the Tatra Mountains. In the summer season, local torrential rainfall is frequent, resulting in local flash floods. Extreme precipitation, at its most unpredictable, is found in the Carpathians. Both significant amounts of precipitation during periods of the year when it is not expected and long periods without precipitation are common.

The current flood protection infrastructure consists of storage reservoirs and floodbanks. In addition, regulatory structures protecting banks and riverbeds ensure the stability of riverbeds during floods. Functioning retention reservoirs in the Małopolska Region include: Świnna Poręba (on the Skawa), Dobczyce (on the Raba), Czorsztyn (on the Dunajec), Rożnów (on the Dunajec), Klimkówka (on the Ropa) and smaller reservoirs: Zesławice, Skrzyszów and the dry Biezanów reservoir. The flood hazard in the Małopolska region is also limited by retention reservoirs locat-

Map 24: Share of sewerage users in 2018



Source: own work on the basis of CSO LDB

ed in the Silesian Region: the Goczałkowice Reservoir and the Soła Cascade Reservoir.

The strategic document for flood risk management is the Flood Risk Management Plan (FMP)⁴, which lists the technical and non-technical measures to be implemented under the plan adopted. A special role in regional and local spatial development policies is played by documents that serve as a basis for identification of boundaries of areas of particular flood hazard in which restrictions stemming from separate flood protection regulations apply. For the Małopolska Region, these areas were identified as follows:

The Flood Hazard Maps (FMPs)⁵, which identify the boundaries of flood risk areas, also

- 4 Ordinance of the Council of Ministers of 18 October 2016 on the adoption of the Flood Risk Management Plan for the Vistula River Basin Area (Dz. U. of 2016, item 1841); The contents of the plan and the full list of measures, including investments related to flood protection, are available on the website of the Government Legislation Centre: <http://www.dziennikustaw.gov.pl/du/2016/1841>.
- 5 Made available on the ISOK website: <http://mapy.isok.gov.pl/imap/>. The full scope

provide information on depths, velocities and directions of water flow that determine the level of risk to people and the way water can affect buildings. The Flood Hazard Maps are supplemented by Flood Risk Maps (MRPs)⁶. These identify potential flood losses and provide an estimate of the number of inhabitants and facilities that could be flooded if floods of a certain probability occur, as well as facilities that could be a potential source of danger to the environment and human health.

For rivers and river sections for which flood hazard maps have not yet been drawn up, flood protection studies shall be the formal basis for the delimitation of areas at particular risk of flooding until such maps have been drawn up⁷.

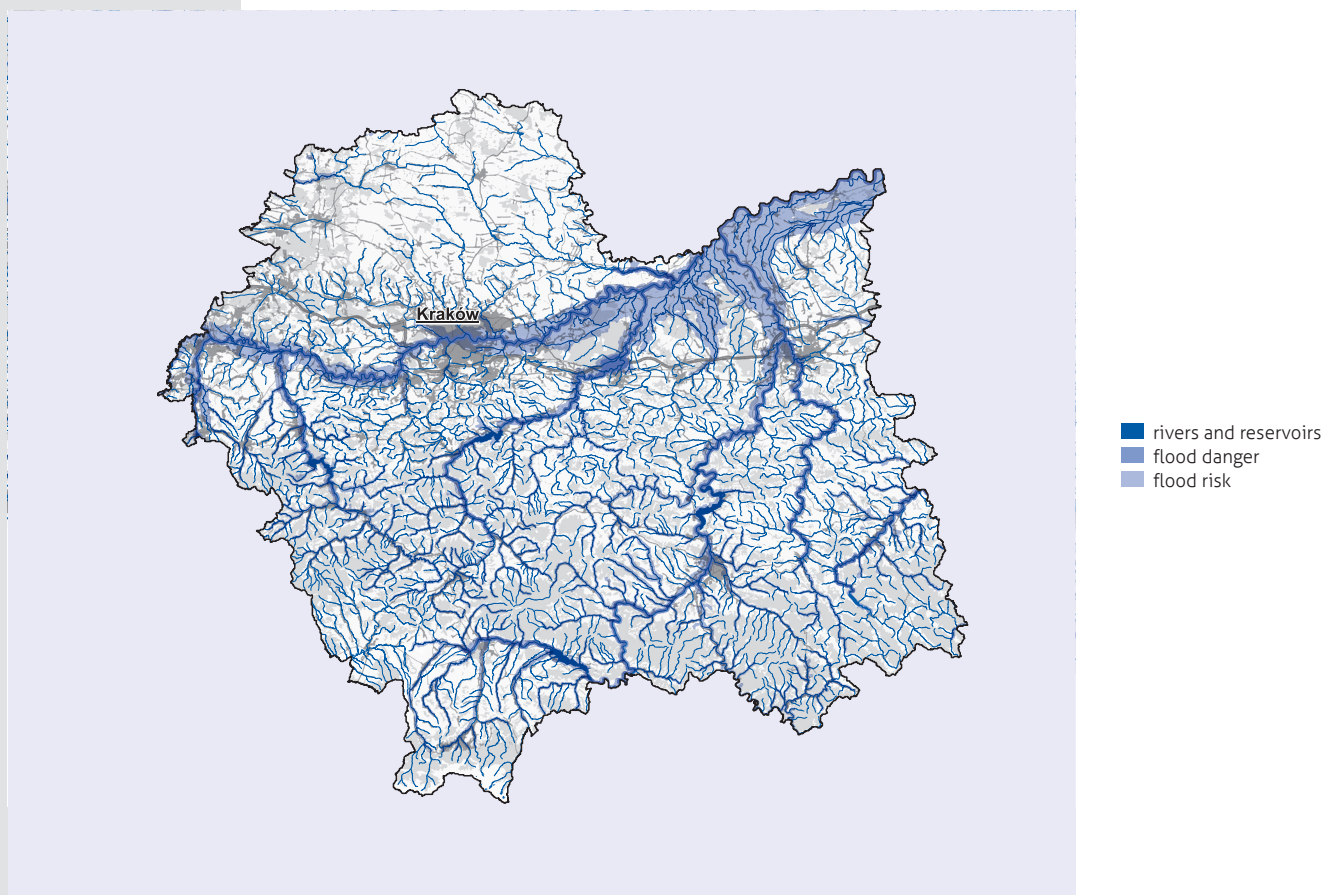
of these is governed by Article 169(2) of the Water Law.

6 <http://mapy.isok.gov.pl/imap/>.

7 Flood protection studies:

– Study defining the boundaries of the areas of direct flood hazard for the unembanked areas in the Soła catchment area, constituting the 1st stage of the flood protection study;

Map 25 . Fragment of the flood hazard map in the Małopolska region



Source: Prognoza oddziaływania na środowisko do Strategii Rozwoju Województwa - Małopolska 2030 na podstawie: Informatyczny System Osłony Kraju przed nadzwyczajnymi zagrożeniami ISOK: <http://mapy.isok.gov.pl>

In the Małopolska Region the areas most exposed to the danger of flooding are along the Vistula River and in the basins of its tributaries, i.e. the Soła, Skawa, Raba, Uszwica, Dunajec, including the Biata and the Biata and Czarna Dunajec in Podhale, as well as the Ropa basin, a tributary of the Vistula River. Other significant threats exist in the Sandomierz Basin along the section from Cracow through the Vistula riverine communities to Szczucin, Dąbrowa

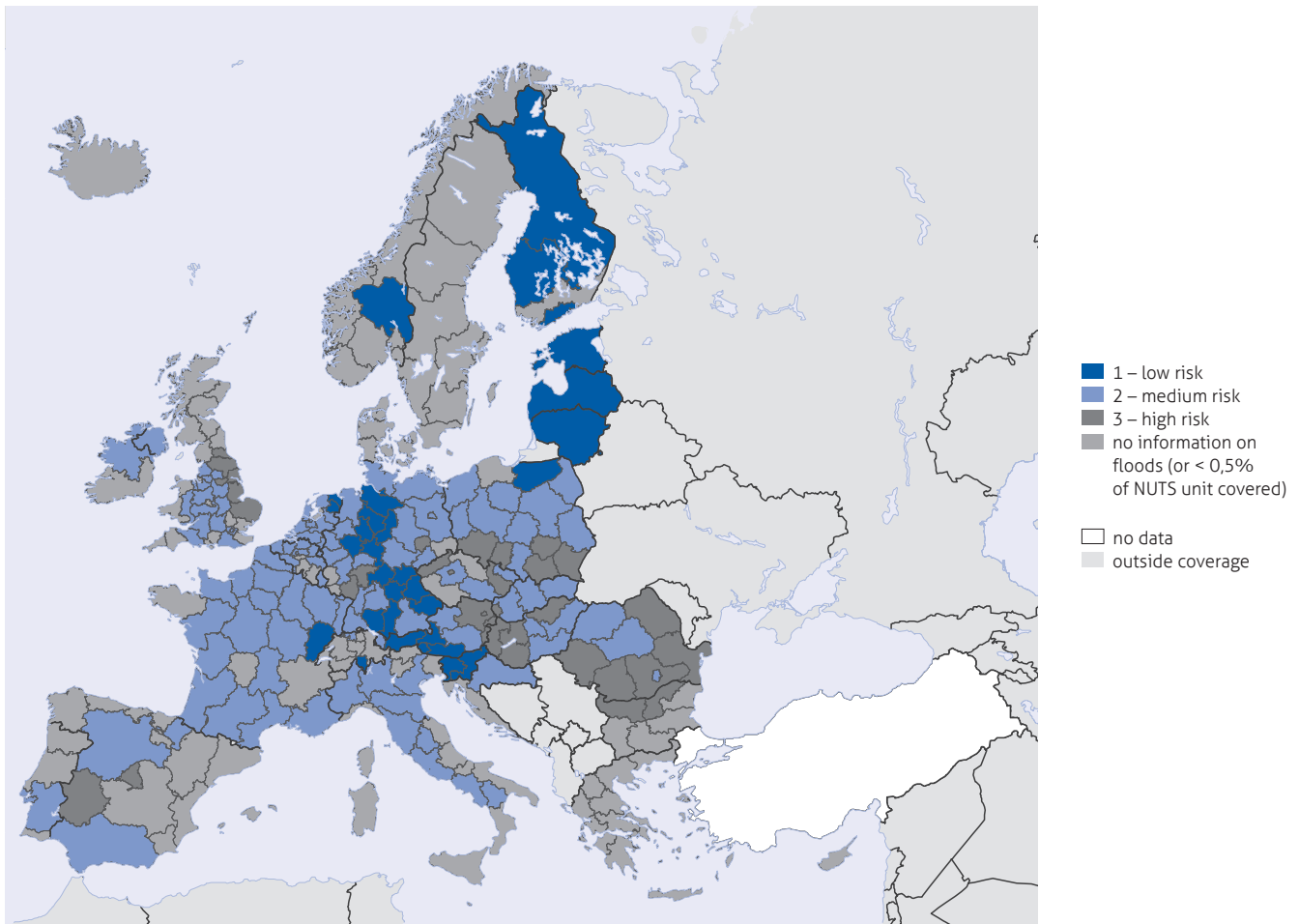
Tarnowska and further towards the border with the Podkarpackie Region.

In areas at particular risk of flooding, it is prohibited to carry out works and activities that would hinder flood protection or increase flood hazard. Land use in areas at particular risk of flooding should take into account the directions necessary to reduce flood risks and the rules laid down in the Water Law Act.

- Study defining the boundaries of areas of direct flood risk for unembanked areas in the Skawa basin;
- A study defining the boundaries of direct flood hazard areas for unbanked areas in the upper Dunajec catchment area to the Poprad estuary;
- A study defining the boundaries of direct flood hazard areas for unbanked areas in the Lower Dunajec catchment area from the Poprad estuary;
- Study defining the boundaries of the direct flood hazard areas for the unembanked areas in the Raba sub-basin as an integral part of the flood protection study;
- Study defining the boundaries of areas of direct flood hazard for unembanked areas in the Wistoka basin.

According to the provisions of the Water Law of 20 July 2017, every 6 years a review of the Flood Hazard Maps and Flood Risk Maps (Article 171 of the Water Law) and the Flood Risk Management Plans (Article 173 of the Water Law) is foreseen, updating them if necessary. Currently (in 2020), in the area of the Vistula river basin, the update of the aforementioned flood hazard and flood risk maps has been completed and at the same time work on the update of the Flood Risk Management Plan has started.

Map 26. Flood risk by NUTS-2 units



Source: Exploring nature-based solutions. The role of green infrastructure in mitigating the impacts of weather and climate change-related natural hazards, EEA Technical report No 12/2015, Map 4.22 Flood risk map aggregated to administrative regions (NUTS level 2) p. 39

The overall objective of flood risk management is to reduce the potential adverse consequences of floods to human life and health, the environment, cultural heritage and economic activity. Three fundamental objectives of flood risk management were identified - (1) to prevent the increase of flood risk, (2) to reduce the existing flood risk, (3) to improve the flood risk management system - under which specific objectives were set out comprising groups of actions with different priorities. The scope of the above measures is detailed in the Flood Risk Management Plan. In Małopolska, these are high, medium and low priority actions.

At European Union level, on the basis of analyses prepared by the European Environment Agency, the Małopolska Region is in the category of regions with the highest risk to the environment and people caused by flood risk. Other Polish regions in the high-risk group, apart from Małopolska, include Podkarpackie, Świętokrzyskie, Opolskie and Dolny Śląsk (Lower Silesia), as well as most regions of Romania, some areas of Austria, Hungary and northeastern England.

CHALLENGES

- Reducing pollution of surface water, groundwater and soils.
- Protection and enhancement of natural retention and restoration of natural water flow conditions.
- Expansion of the water supply and sewerage system, especially in areas covered by forms of nature conservation.
- Appropriate management of areas at risk of flooding (especially in areas at particular risk of flooding), hydrological drought and mass movements, e.g. by limiting development in floodplains and on landslides, introducing small retention and mid-field afforestation and shrubbery improving the climate and hydrological conditions.

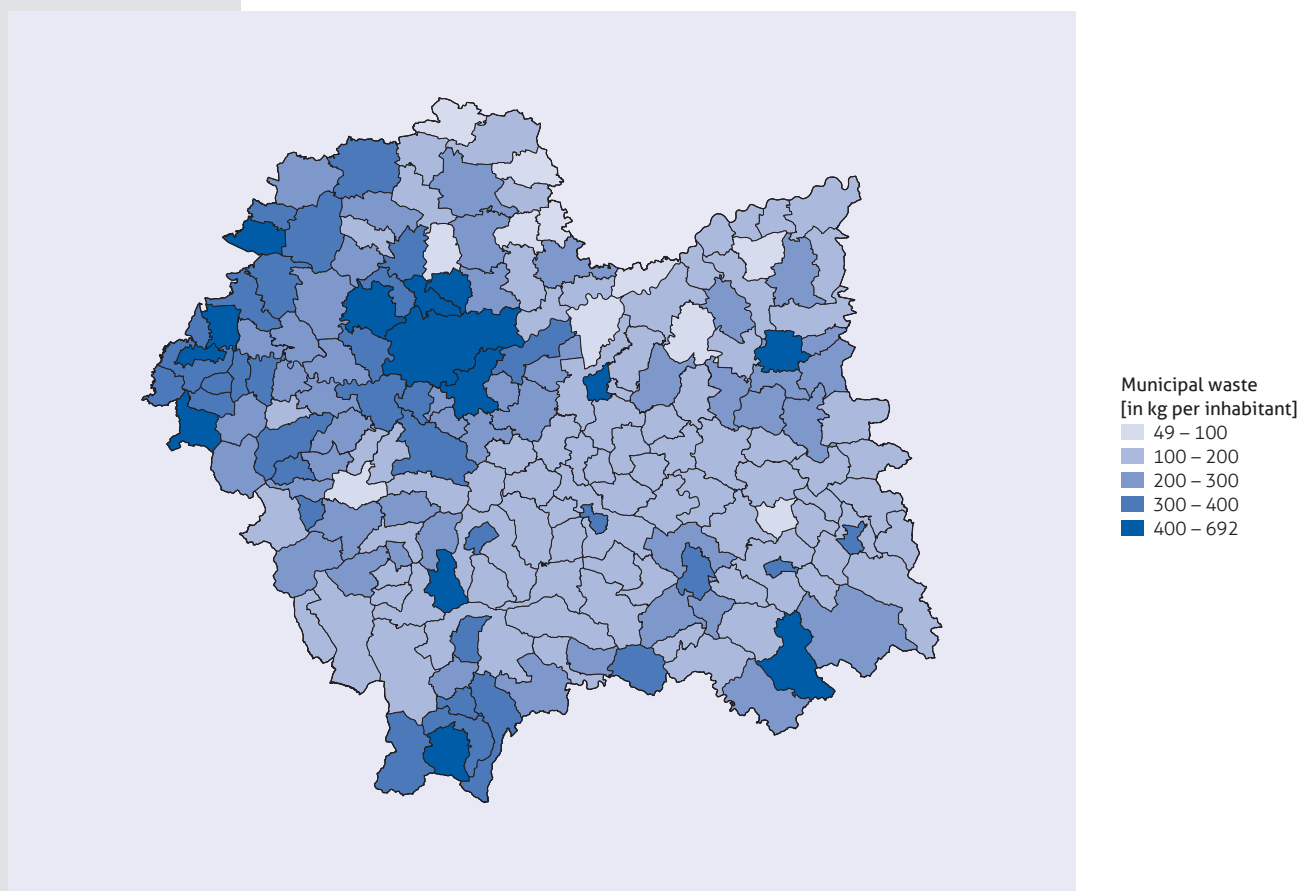
WASTE

Another important issue is the waste management system. In terms of the amount of municipal waste generated per capita, Małopolska ranked 11th in the country in 2018 (317 kg), while in 2015 it was 13th (236 kg). Figures for the amount of collected municipal waste vary from place to place,

with the highest figures shown in the most urbanised areas.

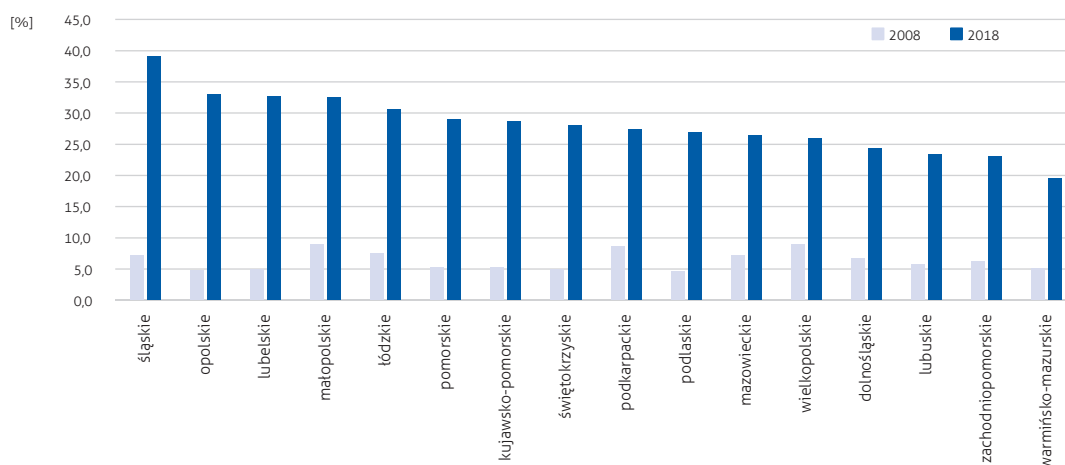
The share of selectively collected municipal waste in relation to the total generated waste is growing, from 8.9% in 2008 to 32.5% in 2018, which is the result of the adoption of relevant legal regulations and their enforcement. In terms of the share of selective municipal waste collection in the total gener-

Map 27. Amount of municipal waste collected during 2018 per capita (kg)



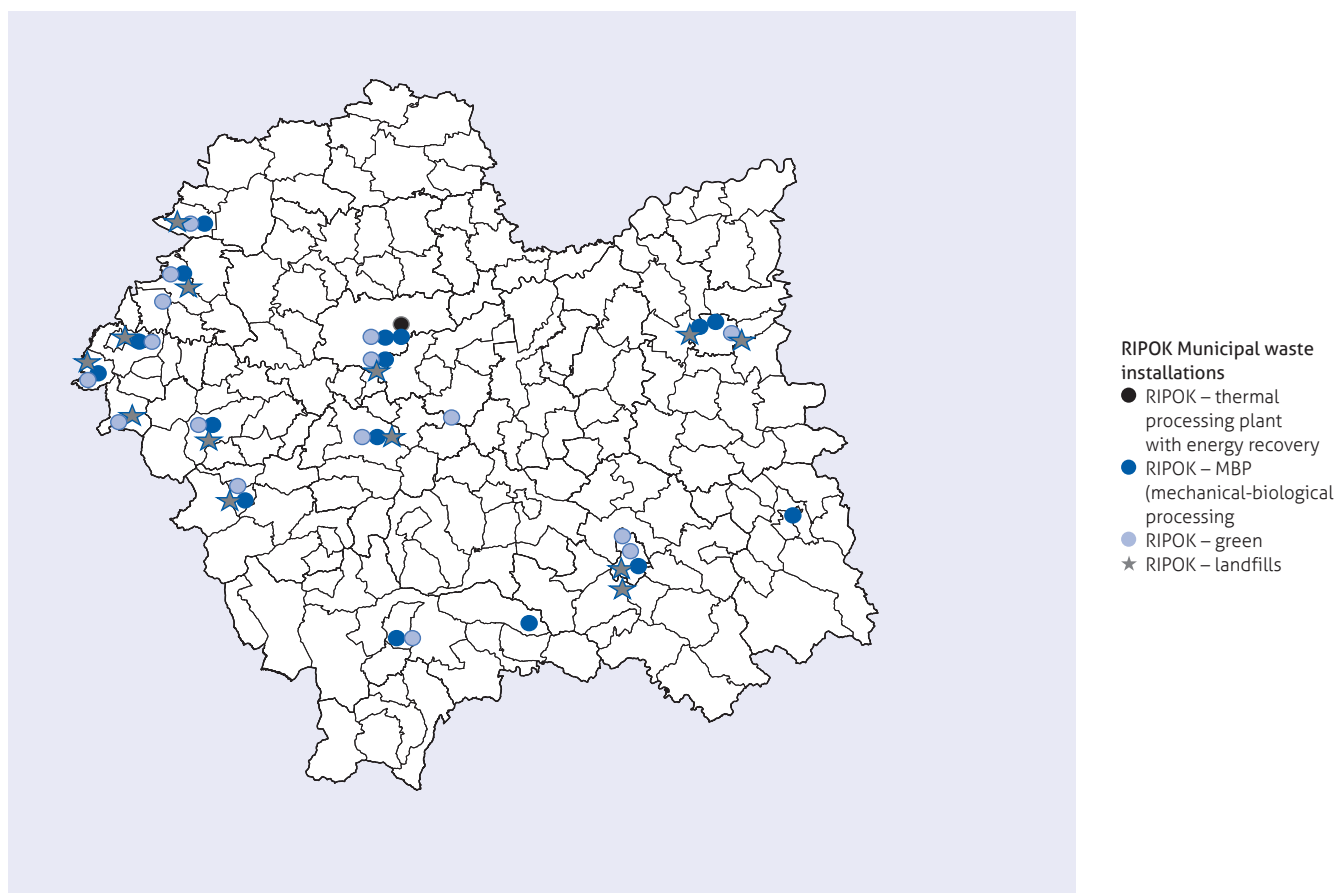
Source: own work on the basis of CSO LDB

Figure 19: Share of selectively collected municipal waste in total waste



Source: own work on the basis of CSO LDB

Map 28. Location of regional municipal waste management installations – RIPOK in Małopolska in 2017



Source: own elaboration based on the Waste Management Plan of the Małopolska Region and the Report on the implementation of the provincial environmental protection programme for 2016-2017 - i.e. Strategic Programme Environmental Protection

ated waste, Małopolska is ranked fourth with 32.5%, after the Śląskie (39.1%), Opolskie (32.9%) and Lubelskie (32.6%) Regions, although in 2008 it was in first place. Furthermore, in terms of waste management, there has been an increase in the number of selective municipal waste collection points from 15 in 2012 to 143 in 2018.

The counties with the highest share of selective waste collection are Miechowski and Myślenicki. There has also been an increase in the area of reclaimed landfills. In 2012 there was no reclaimed area at all, but in 2018 it was already 23.8 ha, which, with a projected target of 33 ha in 2020, was more than 70% of the intended target.

Within the system of regional municipal waste management installations (RIPOK), in 2018 there were 16 installations for mechanical-biological processing of waste, 16 installations for processing selectively collected green waste and other bio-waste and 13 landfills for non-hazardous and inert waste, as well as one installation for thermal processing with energy recovery in Kraków.

In Małopolska, the number of wild dumps decreased between 2008 and 2017 from 353 in 2008 to 258 in 2017, with intra-regional variation. The districts of Kraków, Wadowice and Wieliczka saw an increase in the number of wild dumps over the period, while the rest of the region saw a decrease.

CHALLENGES

- Developing technologies and measures to prevent and reduce waste generation and storage.
- Developing a recycling system (emphasis should be placed on the life cycle of products which will: save resources, prevent waste and close the waste cycle).
- Promotion and education to foster a "recycling society", and for producers, appropriate economic incentives to minimise waste generation and use it as a resource.

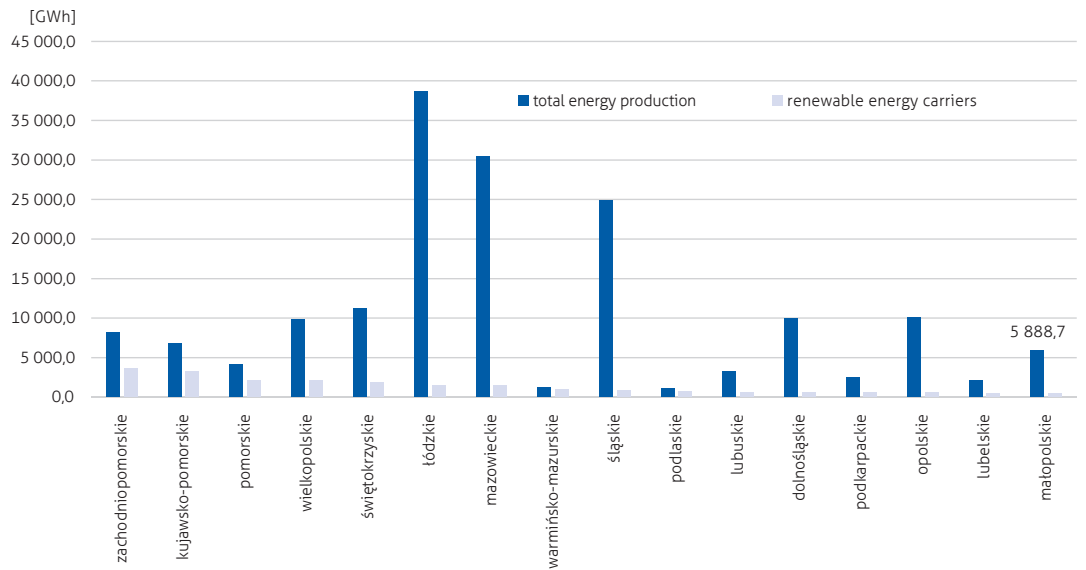
ENERGETICS

Małopolska is not among the most significant energy producers in Poland. In 2018, nearly 5.9 thousand GWh of energy were produced, while the largest producers are the Łódzkie (38 thousand GWh), Mazowieckie (30 thousand GWh), Śląskie (24 thousand GWh) and Świętokrzyskie (11 thousand GWh) provinces. Both in total production and in production from renewable sources, electricity production in Małopolska is decreasing. The main sources of energy in Małopolska are 3 coal-fired power plants: CEZ Skawina SA, Siersza Power Plant in Trzebinia and PGE Kraków. These power plants, apart from solid fuels, also use biomass. We do not occupy a high position in the production of energy from renewable sources either (523 GWh). Małopolska in the share of renewable energy in total energy production was only ranked eleventh (7.0%) in the country in 2018, having dropped from seventh place in 2008 (7.8%). The share of renewable energy in total electricity production in Małopolska increased from 7.8% in 2008 to 13.9% in 2012, before falling sharply to 7.0% in 2018. The total share of renewable energy in gross final energy consumption in Małopolska is 12.6% (electricity and heat

combined) and 5.5% in transport. It is estimated that in the Małopolska Region there are more than 35 thousand installations using renewable energy sources with a total installed capacity of 546 MW. The most common types of RES-powered electricity generators in Małopolska are solar collectors (61%), photovoltaic panels (33%) and heat pumps (nearly 5%). In the Małopolska region, there are over 32,000 installations producing energy from solar radiation (including 11,400 photovoltaic installations and 21,300 solar collectors), 1,600 heat pump installations, 655 biomass installations, 46 water power plants, 11 wind power plants, 7 geothermal installations and 91 biogas plants (including 2 agricultural biogas plants).

The largest share in the structure of RES use by type of technology is held by solar collectors (189.7 MW), hydroelectric power plants (176.68 MW) and photovoltaics (70.23 MW). This is followed by geothermal installations (46.93 MW) and energy production from waste (46 MW). In terms of total energy produced, hydropower dominates with 1900 TJ/year. In 2nd place are solar collectors with 574 TJ/year, followed by geothermal installations with 512 TJ/year, photovoltaics with 251 TJ/year and heat pumps with 246 TJ/year.

Figure 20: Renewable energy generation compared to total electricity generation in 2018



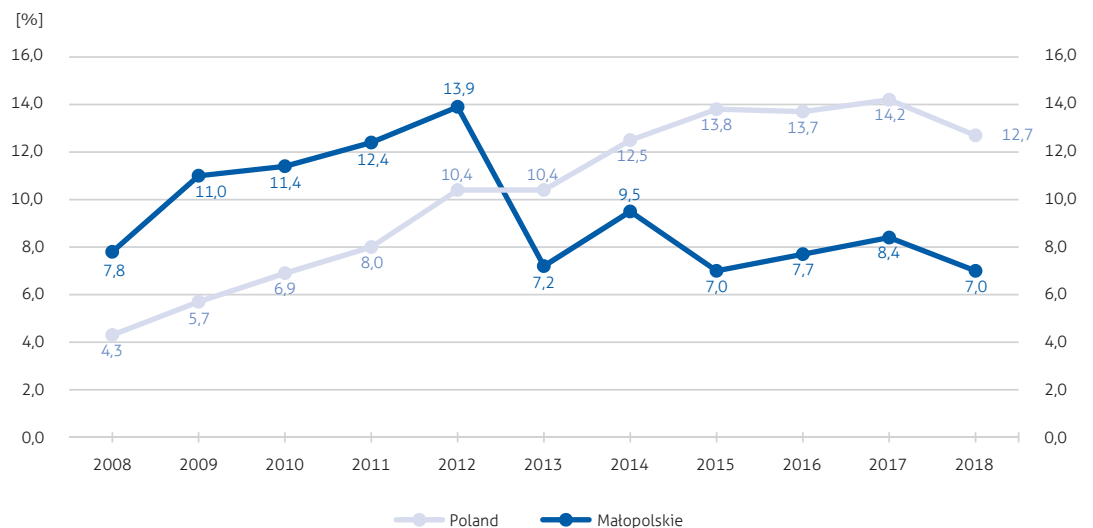
Source: own work on the basis of the data of GUS BDL

The greatest use of renewable energy installations is in the following counties: Nowy Targ (139 600 kW), Nowy Sąd (94 310 kW), Tatra (52 349 kW), Limanowa (33 454 kW), the Municipality of Krakow (32 908 kW) and the City of Krakow (29 377 kW).

Every year there is an increase in the use of solar energy potential in Małopolska. The highest figures for photovoltaic capacity can be seen in the following coun-

ties: Krakow (12.2%), Nowy Targ (10.8%) and Nowy Sąd (9.5%), while the highest number of solar collectors is found in the counties of Limanowa (15.0%), Nowy Sąd (14.1%) and Nowy Targ (12.0%). The highest use of photovoltaic installations was recorded in the following counties: the Municipality of Krakow, Ochotnica Dolna, Wieliczka, Skawina, Nowy Sącz, Wadowice, Tarnów and Myślenice, while the highest use of solar collectors was recorded in Szczawnica, Mszana Dolna (an

Figure 21: Share of renewable energy in total electricity generation



Source: own work on the basis of the data of GUS BDL

urban county), Mszana Dolna (a rural county), Wieliczka, Szerzyny, Miechów, Raba Wyżna, Grybów and Krzeszowice.

The largest hydroelectric power plants in the region are: Niedzica, Sromowce Wyżne, Łączany and Smolnice, which are part of the Niedzica SA Water Power Plant Complex with a total capacity of 98.5 MW, and the Rożnów, Czchów, Dąbie, Przewóz, Olcza and Kuźnica power plants, which are part of the Krakow Water Power Plant Complex with a total capacity of 71.5 MW. The Świnna Poręba dam reservoir was commissioned in July 2017, and the proposed power plant will have a capacity of 4 MW.

In the southern part of the Małopolska Region, within the Inner Carpathians in the Podhale Basin and in the Gorce Mountains in Rabka-Zdrój and Poreba Wielka, there are thermal water resources used for heating and recreation. The largest intake of thermal waters is from the Podhale I deposit (4,802,103 m³/year), and this represents ap-

proximately 76% of the total intake of these waters in the Małopolska region, calculated at 6,314 501 m³/year. Estimated power from geothermal installations in the Małopolska province is 46 930 kW. The highest geothermal energy production in the Region is in the Tatra (99,7%) and Nowy Targ (0,3%) counties. The highest degree of geothermal use is in the municipalities of: Biały Dunajec, Bukowina Tatrzańska, Poronin, Zakopane, Kościelisko, Szaflary.

In 2016 and 2017, many municipalities joined the creation of so-called Energy Clusters. As part of the Territorial Contract for the Małopolska Region, an undertaking entitled "Development of Energy Clusters in the Małopolska Region through the implementation of projects serving the development of energy at the local level" was introduced. In Małopolska 63 projects submitted for implementation within all clusters were identified. The vast majority of projects concern the construction of photovoltaic installations.

CHALLENGES

- Increasing the share of renewable energy, based mainly on flowing water energy, thermal water, solar energy and biomass, and intensifying measures to improve energy efficiency through the development of energy-efficient buildings, energy-efficient appliances, low-carbon transport and co-generation (simultaneous generation of energy and heat).
- Accelerating the development of photovoltaic installations and heat pumps - in the context of measures to improve air quality.
- Rational use of thermal water resources (making it possible to build geothermal installations and connect to the geothermal network).
- In view of the nature of the landscape and water in Małopolska (especially in mountainous areas), initiating a broader programme for the development of "mini-hydro-power".
- Use of waste, waste water and sewage sludge as well as waste biomass (agricultural, agri-food and urban greenery) for energy-generating purposes.

RAW MATERIAL RESOURCES

The varied geological structure of the Małopolska Region produces a wide variety of mineral resources, although their resources are not very rich in comparison with other regions of the country. Mineral resources include deposits of the country's strategic resources: (1) energy resources: stone coal, crude oil and natural gas, (2) chemical resources: rock salt and iodine-bromine brines, (3) non-ferrous metal ores, zinc and lead ores, (4) healing, mineral and thermal waters, (5) rock resources: road and building stones, sandstones, limestone and marls for the lime industry, dolomites, porphyry, melaphyrs, tuffs, natural aggregates, clay raw

materials for building ceramics, backfill sands, moulding sands, limestone for the lime industry, feldspar raw materials and raw materials for engineering works, (6) peats.

Exploitation of raw material deposits strongly influences the natural environment in many aspects, such as: water relations, relief or landscape. In the coming years, one challenge for the region will be the need for recultivation works after zinc and lead ore mining in the Olkusz region is terminated. Another problem is mining raw material deposits in areas of valuable nature and landscape, the best example of which is the Krakow-Częstochowa Upland. In the future, when current quarries

or mines will be closed down, especially in the case of raw materials from rocks, they

should be subject to comprehensive reclamation for the benefit of tourism and recreation.

CHALLENGES

- Rational use of thermal water resources.
- Revitalisation of former post-industrial areas, including post-mining pits for recreational and economic purposes, possibly as potential areas for development for RES installations;
- Commencement of recultivation activities and appropriate management of the area in the Olkusz region after zinc and lead ore mining is terminated.

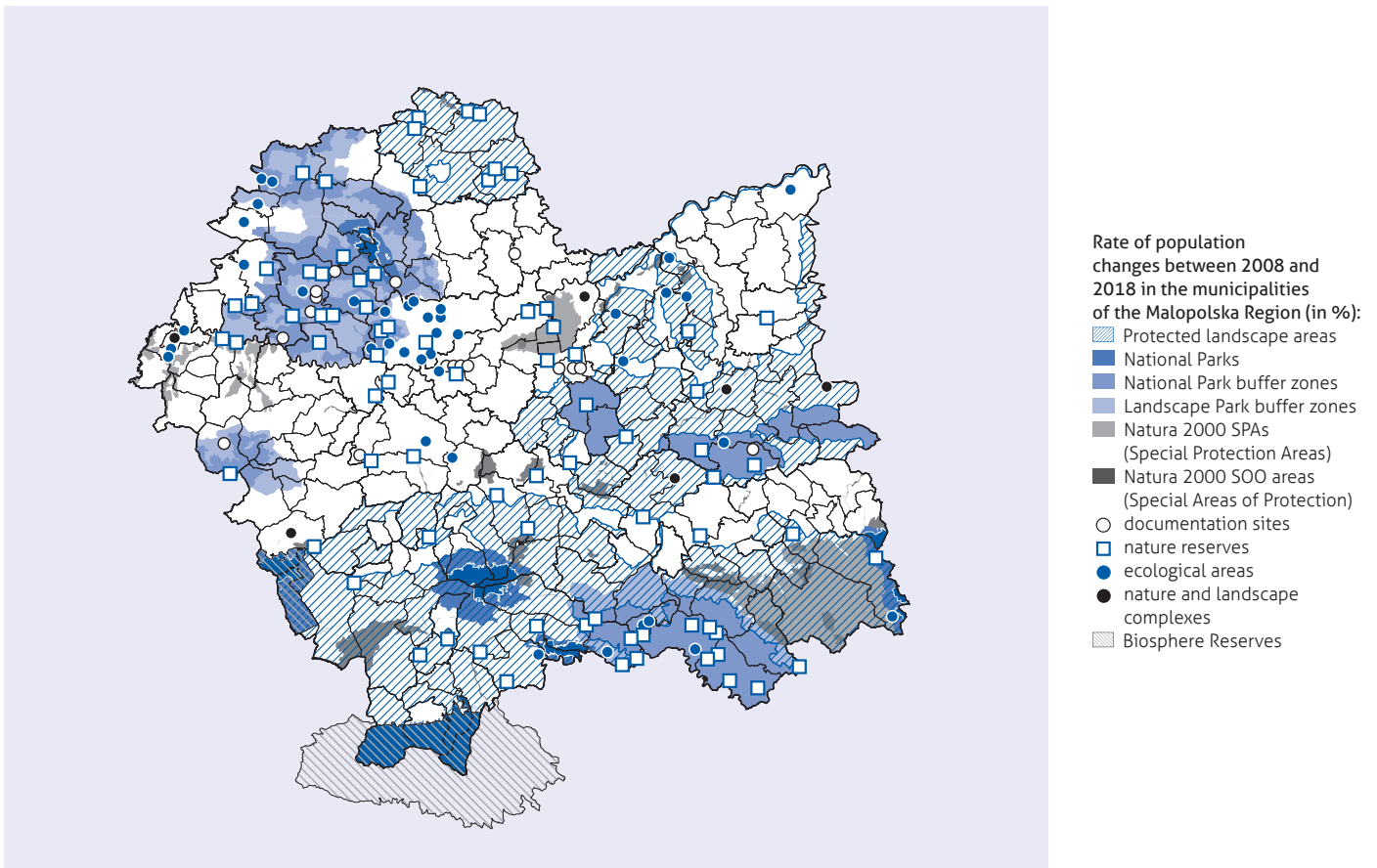
BIODIVERSITY AND LANDSCAPE

Małopolska, due to its diverse natural and cultural environment, shows very high landscape values and high biodiversity. The great diversity of the geological structure and relief of Małopolska has an impact on the richness of its flora and fauna.

Małopolska is located in three geobotanic sections (Western Carpathian, Southern Poland Uplands and Eastern Carpathian), which is

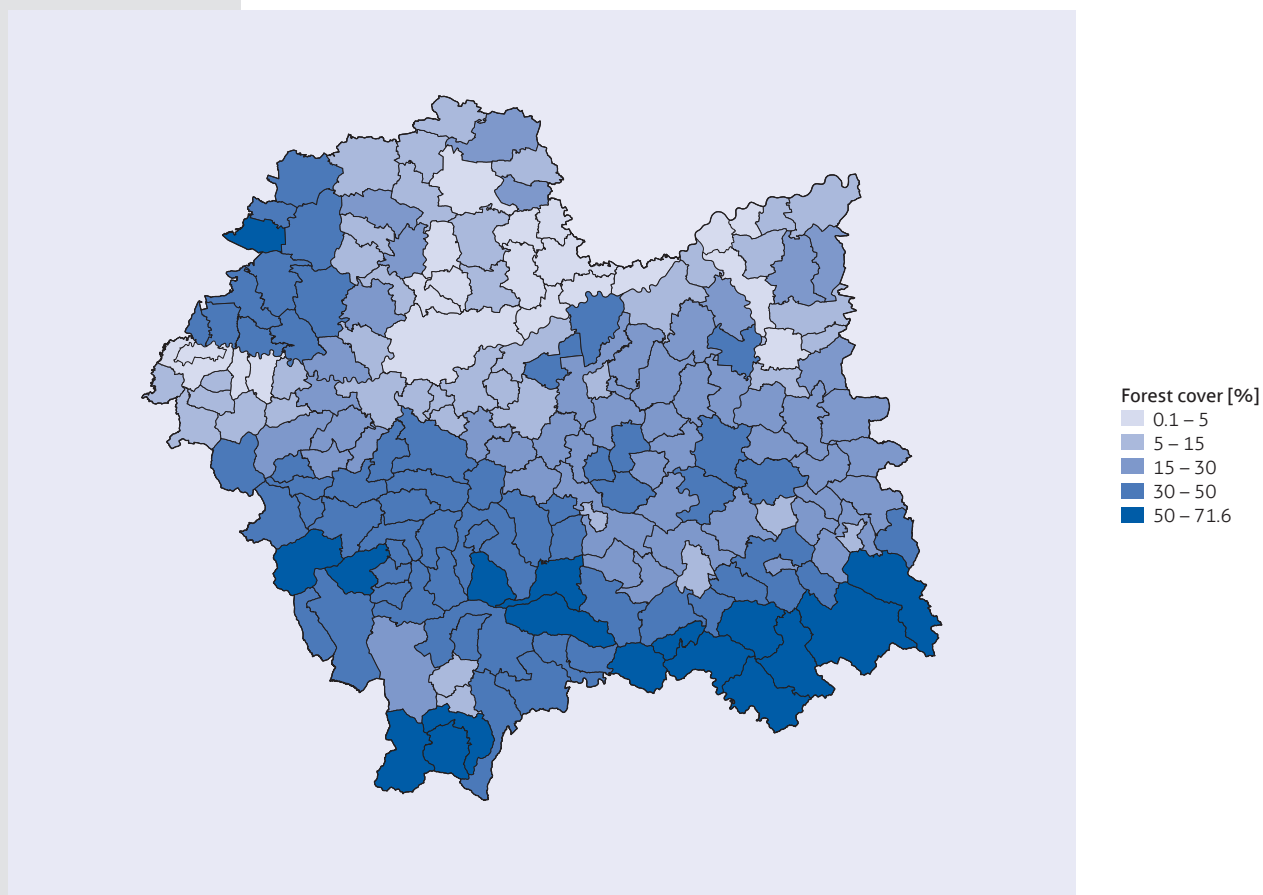
conductive to high biodiversity. Typical of the Carpathian part are forests and woods of lower and upper regla (spruce-fir forests, beech forests), with bentgrass meadows on mountain pastures, alpine vegetation in the highest reaches of the mountains, while in the Orava-Novotarska Basin there are swamp forests and high peat bogs. The Carpathians are the habitat area of numerous protected and rare species. In the Kraków-Częstochowa Upland and, to a lesser extent, in the Miechów Upland and the Proszowice Plateau, the most valuable

Map 29. Location of natural protected areas in the Małopolska region



Source: UMWM own study

Map 30. Forest cover in municipalities in 2018 (in %)



Source: own work on the basis of the data of GUS BDL

forests are oak forests, oak-hornbeam forests and beech forests. There are also numerous xerothermic grassland communities, mainly associated with limestone monadnocks and rock outcrops of the Kraków-Częstochowa Upland and rock formations of the Pieniny Mountains. One indication of biodiversity and the degree of naturalness of forest ecosystems is believed to be the presence of large predators and "indicator" species, which are used to delineate ecological corridors. In the Małopolska region, such species include bears, wolves and lynxes, and in the Tatra Mountains there are chamois and marmots. There are also numerous birds of prey such as the golden eagle, eagle owl, lesser spotted eagle, capercaillie and black grouse.

According to the EU Biodiversity Strategy of 3 June 2011, priority for protection is to ensure connectivity between natural habitats by implementing measures including a network of ecological corridors and the development of green infrastructure and ecosystem services. Ecological corridors of European importance run through Małopolska: the Vistula and Dunajec Valley Corridor and the Carpathian Corridor, con-

necting the Tatra Mountains, Pieniny, Spisz and Beskid Żywiecki (PZPWM 2018).

As part of State Environmental Monitoring, 23 natural habitats were monitored in the Małopolska region between 2017 and 2018. It was carried out in two biogeographical regions – Alpine (including the Carpathians) and Continental – and involved monitoring 38 habitats. The habitats were assessed in 3 classes: proper condition, unsatisfactory condition and poor condition, as well as unknown condition.

Five habitat types were considered to be in favourable condition, whereas eight were assessed as being in poor condition. The remaining habitat types were assessed as unsatisfactory. The communities in unsatisfactory condition included, among others, a significant part of forest communities such as beech forests. On the other hand, the mountain sycamores occurring on Babia Góra showed good conservation status. The poor condition of most of the peatbog and spring habitats monitored is alarming. Therefore there is an urgent need to intensify activities aimed at preservation and

protection of the most valuable habitats in the Małopolska region.

According to the results of the above monitoring, the greatest threats to natural habitats are the succession and evolution of plant communities, spread of alien invasive species and native invasive species in habitats, cessation of use and grazing of meadows, removal of dead and dying trees in forests, drainage of wetlands and a climate change-related decrease in precipitation and more frequent droughts. Various forms of human economic activity and different types of leisure and recreation, as well as the associated development of roads of different classes, are also important. The main threats to peat habitats are lowering of groundwater levels, the most serious danger to forest habitats is the removal of dead wood, while rock grassland habitats are mostly endangered by the succession of shrubs and trees. The best preserved habitats are those of scree and mountain sycamore, which is mainly due to their location high in the mountains and low anthropopressure, as well as the presence of these habitats in protected areas of national parks and reserves. It is worth noting that the maintenance of natural habitats in good condition is, to a large extent, due to active protection, by leaving dead and old trees and thus preventing the succession of grassland and meadow communities and extensive forest management.

Due to such a great diversity of nature and landscape, over 53% of Małopolska's area is covered by natural forms of protection, ranking second after the Świętokrzyskie Region, and this has been the case for many years. In the Małopolska Region, there are six national parks, 11 landscape parks, 10 areas of protected landscape and 85 nature reserves, 2,214 nature monuments, 80 documentation sites, 45 ecological sites and six nature and landscape complexes. There are also 2 biosphere reserves, forming two national parks: Babiogórski and Tatrzański. Within two categories of Natura 2000 areas, there are 11 special bird protection areas and 88 special habitat protection areas. Currently, five landscape parks have protection plans (Wiśnicko-Lipnicki, Dłubniański, Tenczyński, Ciężkowicko-Rożnowski and Rudniański), and further protection plans are also being prepared for another four (Beskid Małego, Orlich Gniazd, Bielańsko-Tyniecki and Dolinek Krakowskich).

Between 2008 and 2017, less than one% of the Region's area under protection increased, thus fitting into the nationwide trend of stagnation in efforts to include new areas under protection. However, there was an increase in reserve protection and protection in the form of documentary sites, which means an increase in the importance of relict protection of natural

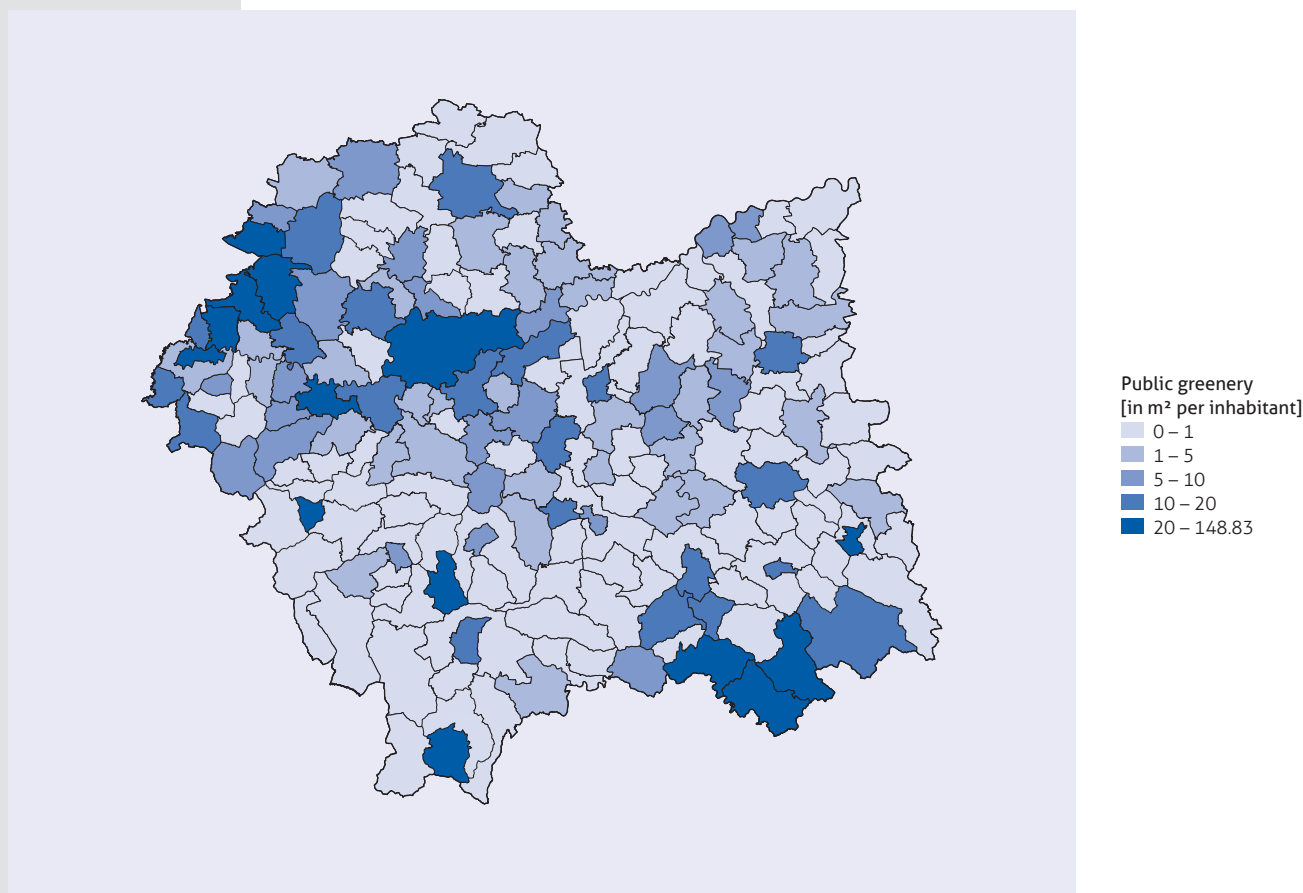
resources over spatial protection of natural and landscape resources. The implementation of five protection plans for landscape parks and formulation of another four plans of this kind will increase the level of protection in these areas. In turn, the improvement of landscape values may be affected by the provisions of the Act on Strengthening Certain Tools of Landscape Protection, one of its essential elements being the development of a landscape audit. Currently, there is one protection plan for a national park in Małopolska, the Pienińskie National Park, approved on 30 July 2014. For the remaining national parks, work on developing protection plans is ongoing.

Forests help to increase climate stabilisation both locally and globally. They retain a significant amount of rainwater, increasing natural retention in the catchment area. In 2018, the forest area in Małopolska amounted to 440.4 thousand ha (28.7% of the Region's area), an increase of approx. 2.9 thousand ha compared to 2008. There was a particularly significant increase in the area covered by private forests, to approx. 2.2 thousand ha, while the area covered by public forests increased by about 700 ha. Despite its mountainous environment, the percentage of the Region covered by forest, at 28.7%, is still lower than the national average (29.6%). In the ownership structure, public forests account for 57% and private forests for 43% of the total forest area (compared to a national average for private forests of 22%). The species structure of forests is dominated by coniferous stands (63.4% of forest area), most of which are fir stands (27.3%). In deciduous forests (36.6%), the dominant species is beech, whose share is 17.4%. In the age structure, the percentage of age classes 81 years and older is 22.2%. In 2008, 893 thousand m³ of coarse wood was harvested, while in 2017, this figure rose to 1.096 million m³. The level of forest cover varies considerably from place to place.

One of the most important environmental issues concerning the quality of human life is the existence of public green areas, which play not only a natural, but also recreational, social and aesthetic role. Urban municipalities, especially Krakow, and those located westwards towards the border with the Silesian Region, as well as spa municipalities, have the best access to public green areas. In these municipalities, there is also the largest amount of landscaped greenery, with a large area of this category in the municipalities located in the Beskid Mountains, and these are mainly spa municipalities, where "spa parks" are located.

Local communities are becoming increasingly aware of the need for more landscape protec-

Map 31. Public greenery index - parks, greens, estate greenery, street greenery in 2018
(in m²/inhabitant)



Source: own work on the basis of the data of GUS BDL

tion thanks to initiatives taken by municipalities to solve the issue of advertisements next to roads or activities related to the reduction of low emissions. As part of the protection and shaping of the landscape of Małopolska, work

has been undertaken to develop a landscape audit that will comprehensively solve problems related to issues including progressive development in areas of valuable nature and landscape.

CHALLENGES

- Protecting biodiversity and shaping the system of protected areas as features that increase the resilience of the natural environment to climate change.
- Maintaining and improving the attractiveness of the Małopolska landscape as a factor for economic development.
- Providing architectural and urban planning regulations for the most important landscape values of the region within the framework of priority landscapes determined in the landscape audit.

PRO-ENVIRONMENTAL EDUCATION

Environmental awareness is growing among the residents of Małopolska. In surveys of residents' opinions, three basic behaviours were observed in Małopolska in terms of implementing ecological attitudes: waste segregation,

prudent shopping and limiting water consumption. The use of public transport or cycling was declared less frequently. Inhabitants of Krakow were most likely to use this type of transport, while inhabitants of the Krakow sub-region, i.e. largely the suburban zone of Krakow, were least likely to do so. Residents' awareness of air

pollution is also increasing: more than a third of the region's inhabitants check the state of air quality every day. Various social and urban movements and initiatives of a pro-ecological nature are developing, drawing attention to the problems of environmental protection, nature, water management and climate change.

In recent years, the local government of Małopolska has been making a number of public education campaigns, such as cleaning up campaigns, shaping and promoting pro-environmental attitudes by arranging environmental competitions, educational and informational meetings in kindergartens and schools, as well as environmental workshops. Moreover, the Małopolska Region is actively making society aware of the problem of air pollution with substances harmful to health. One of the most recent activities is the "EcoMałopolska" programme, in which four fundamental areas in the field of environmental protection and shaping are to be integrated: air, waste, nature and landscape, and climate. Within the framework of this programme, the Region is carrying out educational activities on the need for replacing low-efficiency heating systems and air protection, emphasising it as a key el-

ement in improving the quality of life. Within the framework of "EcoMałopolska", a system of incentives is being developed for the municipalities of the Region introducing pro-environmental solutions on their territory, in addition to activities to improve air quality, by developing and establishing new public green areas, or covering municipalities with various forms of nature protection. Currently, residents of 62 municipalities in Małopolska can count on professional support from 67 Eco-counsellors employed as part of the LIFE-IP MALOPOLSKA project. Moreover, this number is to be increased by all of the Małopolska's municipalities. There will also be a network of Eco-consultants in 182 municipalities, who will reliably inform inhabitants about subsidy programmes available, provide counselling for selecting the appropriate heating devices and knowledge about modern technologies available on the market (especially in the field of RES). The availability of qualified specialists in each municipality is intended to accelerate the implementation of the Air Protection Programme for the Małopolska Region and boost investment programmes for municipalities in the field of energy efficiency, renewable energy sources and reduction of CO₂ emissions.

CHALLENGES

- Environmental education in the field of air and water pollution reduction, climate change mitigation, waste reduction and natural and landscape values.
- Creating a system of incentives for local government (especially in urban areas), as well as for other stakeholders, to develop a system of green and blue infrastructure and a spatial management approach to "ecosystem serviced es".
- Promotion of issues concerning sustainable (durable) development as the key policy of the Region for protecting and shaping the environment and improving the quality of life for its inhabitants.
- Developing a network of eco-advisors throughout Małopolska.

STRATEGIC REGIONAL MANAGEMENT

STRATEGIC MANAGEMENT OF REGIONAL DEVELOPMENT

In international comparisons of the quality of local government, Małopolska comes out on average, which is shown by figures like the EQI Index (European Quality of Government Index), which is the result of surveys of residents from 2010, 2013 and 2017 on governance at the regional level in the EU and shows how it is changing in different countries and regions. This index is based on the assumption that the quality of governance, i.e. the ability to implement policies

in an impartial (neutral), non-corrupt and effective manner, is one of the decisive factors in socio-economic development. In this comparison, Małopolska is ranked 141st among more than 200 regions, nevertheless above the average score for Poland (150) and in the group of 20 regions where the greatest positive changes took place between 2010 and 2017.

What is important for the quality and efficiency of management is the system of strategic management for regional development, including how complete, fair and even, appropriate, open to learning initiatives, effective, capable of generating new ideas and solutions and cooperative it is. This system comprises, in principle, three subsystems: strategic

programming, institutional and implementation. In Małopolska, their structure has been developed successively since the Regions' local government came into operation and currently includes:

- A in the strategic programming subsystem:
 - › a set of documents shaping the Region's development policy, which include: Małopolska Regional Development Strategy, 9 sectoral Strategic Programmes, 1 Subregional Development Programme for 2020 (territorial), WM Spatial Development Plan, WM Development Strategy Management Plan, Southern Poland Development Strategy for 2020, branch strategies and programmes;
 - › a set of documents summarising the implementation of the programme directions adopted: Report on the State of Małopolska Region (annually), Report on the implementation of the SRWM and strategic programmes (every 3 years), Mid-term study on the effectiveness of the implementation of the objectives of the SRWM 2011-2020 (2017);
- B in the institutional subsystem:
 - › Małopolska Regional Assembly – as a decision-maker for WM development policy at the strategic level;
 - › The Board of the Małopolska Region – as a decision-maker for WM development policy on the strategic and operational level;
 - › Departments of the Marshal's Office of the Region as well as ROPS, WUP, ZDW, MZPK - as units co-shaping proposals on the method of implementing the development policy directions established for the Region;
- C in the implementation subsystem:
 - › entities participating in implementation: Departments and Offices of UMWM, organisational units of the Małopolska Region, capital companies (in which the Małopolska Region is a shareholder), partners in programmes and projects of the Region, beneficiaries of programmes of the Region, customers of public services provided by the Region, suppliers and contractors of public procurement;

- › tools implementing the Region's development policy: WM budget, Regional Operational Programme, Territorial Contract, instrument of Integrated Territorial Investments, WM Spatial Development Plan, sectoral programmes and plans, strategies and plans of organisational units and companies, financial instruments, own and partner projects;
- › tools for coordinating the Region's development policy at the implementation stage: WM Multiannual Financial Forecast, Małopolska Investment Plan.

An important programme context for the strategic management of the Region's development is also created by external documents, shaping the legal framework and development policy:

- › At national level: Strategy for Responsible Development for 2020 (with an Outlook towards 2030), National Regional Development Strategy 2030, Act on Provincial Self-Government, Act on Principles of Development Policy, numerous sectoral laws;
- › at European level: a system of documents formulating development policy at EU level (regulations, guidelines);
- › at international level: The 2030 Agenda for Sustainable Development (UN);
- › documents formulating the strategies of the main stakeholders in development policy for the region, including the Development Strategy for Krakow 2030 and strategies of other TSUs;
- › strategies of governmental and central units operating in the region, such as PKP, KPT, PGW Wody Polskie, State Forests, universities;
- › economic strategies of major companies, investors, private universities and clusters;
- › documents formulating development policies in neighbouring regions: Podkarpackie, Śląskie, Świętokrzyskie;
- › documents formulating development policies for potentially competitive regions, e.g. the South Moravia Region/Brno, the Lower Silesia Region/Wrocław.

An indirect indication of the quality of regional governance is the opinion of residents. In an opinion poll for residents of Małopolska in 2018, about 43% of respondents rated the impact of the Regional Government's actions on the quality of life of residents positively or rather positively, against only 12.5% of negative assessments. The remaining responses consisted of neutral opinions (37.1%) and a surprisingly large number of responses from those who could not identify the actions of the Self-Government of the Region (17.5%). It is worth noting that opinion has been improving over the years: in 2013 there were fewer good and very good ratings (41.7%), while there were significantly more negative ratings (19.4%).

Compared to other regions in the country, there are large discrepancies between different parts of Małopolska in terms of social capital and competencies needed to implement complex projects. This also applies to decision-makers in development. Although, on average, less than 45% of municipal and district councillors across the Region have a university degree (2018), the level varies from 23-27% in the Proszowice and Dąbrowa districts to 86-87-91% in the cities of Krakow, Tarnów, and Nowy Sącz. On the other hand, 87% of Małopolska mayors and mayors have a university degree (159 out of 182).

In nationwide surveys of municipalities with up to 50,000 inhabitants (2013-2015), inter-municipal cooperation was identified as one of the important success factors in local development, but Małopolska's municipalities shared this belief the least frequently in the country. Most forms of such cooperation in Małopolska Region concerned water and sewage management (cooperation at least partly enforced by formal requirements), as well as promotion and tourism. The effects of co-operation were rated as being average: a lack of financial resources was indicated as the reason for not undertaking inter-municipality cooperation. International cooperation was more popular: in Małopolska, it was undertaken by more than 70% of municipalities surveyed – slightly more than a half the national average – with two basic forms of cooperation, i.e. twinned cities/municipalities and individual agreements, being almost equally popular. The effects of this co-operation were also assessed as being average.

The Self-Government of the Małopolska Regional has a potential for trust, which should be the basis for developing partnership cooperation in the field of development policy. It is worth recalling the results of research carried out in 2015, in which, when asked about the dominant rationale behind decisions made by regional authorities (including Małopolska) on the allocation of funds to districts (2015), the greatest number of responses indicated "the needs of the Region" (about 65%) and "the needs of the municipality" (55%). One can therefore speak of mutual trust, which is a sine qua non condition for good cooperation.

The potential pool of co-operation partners for development projects in the province is currently wide and varied, including primarily:

A LOCAL GOVERNMENT: 182 municipalities and 22 districts or counties, including the metropolitan district of Krakow. In this group, potential partners include not only clerical staff, but also councillors active in the public affairs of municipalities (2945), districts (451) and towns with district rights (90), as well

as 1908 village leaders. These groups are a valuable source of potential local leaders of network development undertakings.

- B MUNICIPAL ASSOCIATIONS: The list of local government associations with the participation of Małopolska's municipalities entered in a register kept by the Ministry of Internal Affairs and Administration includes 36 entities, of which 31 are based in Małopolska, three are based in the Świętokrzyskie Region, one in the Śląskie Region and one in the Podkarpackie Region. All of them are registered for an indefinite period of time, mainly for the benefit of water and sewerage management, waste management, public transport, energy, as well as tourism, recreation and agricultural market (6). In practice, only some of them are active.
- C Supra-local local government coalitions, including: the Association of Health Resort Municipalities of the Republic of Poland, Association of Babia Góra Municipalities, Forum of Municipalities of the Beskid Wyspowy, Forum of Western Małopolska, Association of Krakow Metropolis, Association of Municipalities and Districts of Małopolska, Forum of Commune Heads, Mayors and Presidents of Małopolska (non-formalised).
- D ENTERPRISES and ECONOMIC CHAMBERS: 20 entities bringing together all types of businesses, mainly area businesses.
- E LOCAL TOURIST ORGANISATIONS: 13, of which only some are active in practice (e.g. Tarnowska, Krynicka, Gorczańska, Chochołowski, Made in Zakopane).
- F LOCAL ACTION GROUPS: 34, including two operating on the border with the Świętokrzyskie and Podkarpackie Regions. LAGs are a form of institutional, organisationally separated and relatively stable tri-sector partnership, created in order to pursue local development policy with co-financing from EU programmes. It has legal personality. The statutory objective of establishing the LAG is to develop and implement the Local Development Strategy (LSR). Through the LAG, specific undertakings resulting from the LSR are implemented, and calls for proposals are organised to finance local projects. Initially, the co-operation formula under discussion was dedicated only to partnerships set up in rural areas; at present, Local Action Groups may also be established in smaller towns. The share of Małopolska municipalities in LAG associations is highly diversified – from two to nine member municipalities. LAGs from Małopolska are associated with two organisations: the Małopolska LAG Network and Federation of Małopolska LAGs.
- G NGOs: in Małopolska there are approx. 12.7 thousand non-governmental organisations

(in the broad sense, i.e. including about 4 thousand sports associations and TSOs). These include about 700 organisations with the status of public benefit. Małopolska's non-governmental organisations have around 500,000 members. They generate average annual revenues (median) of PLN 26,000. The most numerous organisations operating in the region are the Podhale Highlanders' Association and the Polish Tourist Country-Lovers' Society.

Interregional co-operation is an important tool supporting development policy. The Małopolska Region has created a formal framework for co-operation with 18 regions. These are:

- › on the basis of direct co-operation agreements: Prešov Self-Governing Region and Žilina Self-Governing Region (Slovakia), Thuringia Land (Germany), Uppsala Province (Sweden), Auvergne-Rhône-Alpes Region and Centre-Val de Loire Region (France), Latgale (Latvia), Cluj Province (Romania), Lviv Region (Ukraine), Istria (Croatia), Sverdlovsk Region (Russia), Jiangsu Province (China), Andhra Pradesh

State (India), Kurdistan Region of Iraq, Autonomous Republic of Adjara (Georgia);
› under intergovernmental agreements: Flanders and Wallonia (Belgium), Bavaria (Germany).

In addition, Małopolska cooperates in other ways with the provinces of Tyrol, Lower Austria and Upper Austria (Austria) and the Ivano-Frankivsk Oblast (Ukraine).

One important aspect of interregional cooperation is specific joint ventures implemented with regions from other countries, including supporting membership in the Euroregion Tatry and partnership projects implemented as part of the Interreg programme and interregional cooperation networks. Małopolska belongs to four such networks: CORAL – the Community of Regions for the Promotion of Independent Living of the Elderly, the Avant-garde Initiative, ERRIN – the European Network for Regional Cooperation in Research and Innovation, and the European Network of Regional Culinary Heritage.

CHALLENGES

- Preparing the Government of the Region for a gradual change in its role and mode of operating – from that of a dispenser of development funds to that of an initiator, creator, moderator, mentor and author of development projects, actively acquiring external funds (not only from those allocated to the regional level), as well as a real partner in multi-level development projects for the entire Region and its selected areas.
- Wider involvement in development projects of partners from non-public sectors as a source of competence and creative resources, new knowledge and technologies, new ideas and solutions.
- Increasing the use of EU and foreign tools and programmes supporting development activities in the region.
- Greater consistency in implementing the findings of the Regional Development Strategy.

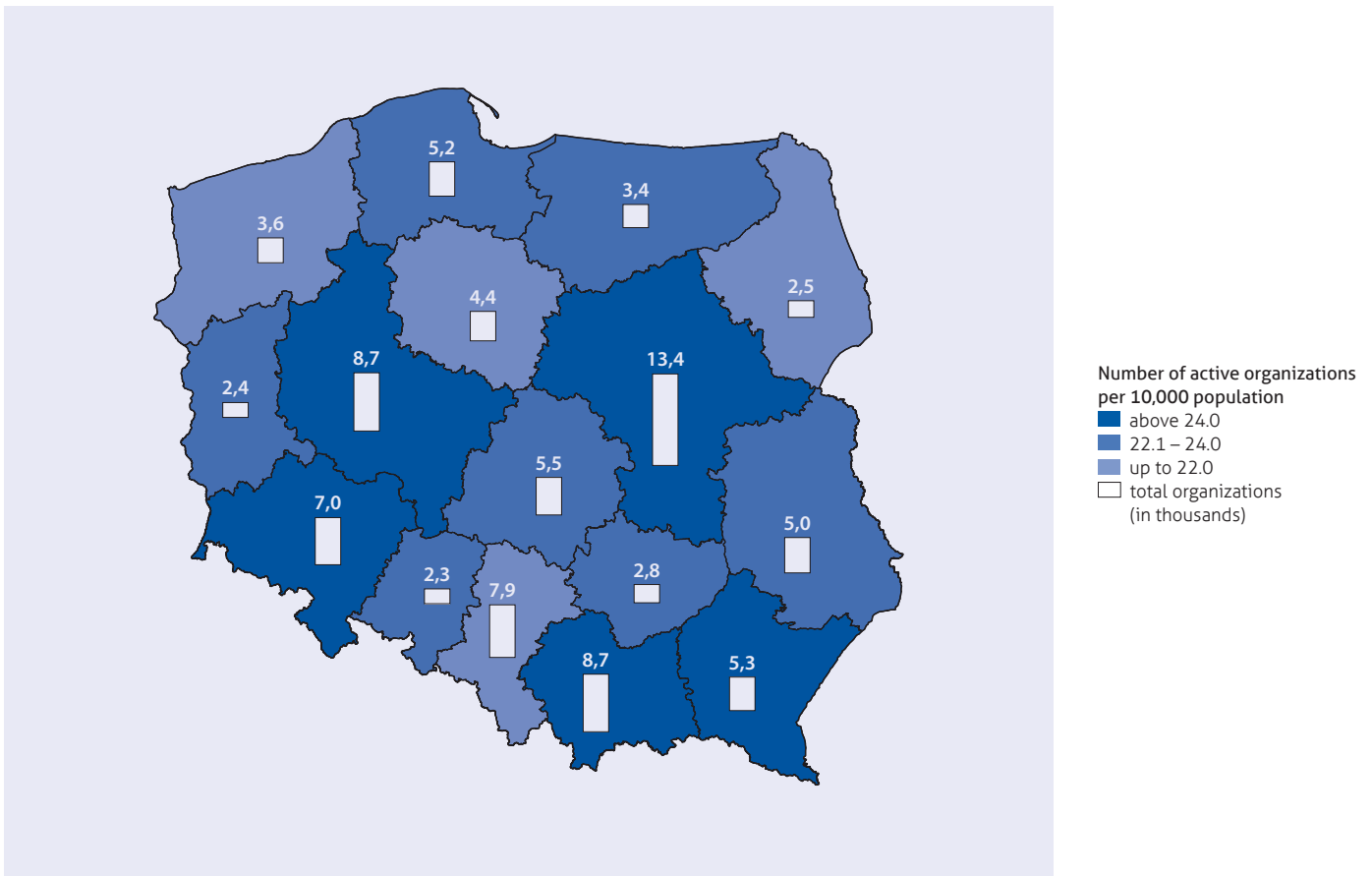
SOCIAL CAPITAL

In a survey conducted among Malopolans in 2019, around 25% of respondents declared that they had taken action for the benefit of the local community "at least once" in the past year, 23.5% "several times", while only 6.4% said they had "constantly (regularly)" taken such action. The same survey also shows that the level of involvement in local community issues decreases slightly as the level of education increases, the level of constant involvement increases significantly as the average monthly net income per person in the household increases, and that there are no significant differences when it comes

to regular involvement in local issues between residents of urban and rural areas. Despite this, the biggest challenge for organisations is ensuring leadership succession. This affects about 70-80% of organisations, while 68% of organisations are affected by the lack of people willing to do selfless community work. Apart from the amount of personal activity declared, the accepted measure of social capital is the strength of the non-governmental sector as well as the election turnout.

In this respect, Małopolska fares relatively well in comparison to the rest of Poland. It has the third largest number of registered organisations with legal personality in the country,

Map 32. Number of active NGOs per 10,000 population in 2018



Source: Activities of associations and similar social organisations, foundations, social religious entities and economic and professional local government in 2018. - Preliminary results, CSO, 2019.

after Mazovia and Greater Poland. The figure per 10,000 inhabitant is even better: there are 25.5 non-governmental entities per 10,000 inhabitants on average, putting the region in first place in the country.

Intra-regional variations in the number of non-governmental organisations depending on the place of registration is not high: more than a third, i.e. 35.8% are based in one of the big cities, Krakow, Tarnów or Nowy Sącz, approx. 19% in other cities and urban-rural municipalities and approx. 44% in municipalities.

The range of activities of organisations in Malopolska is broader than in other regions of Poland. More often than in the rest of the country, they operate nationwide (43%) or internationally (38%). 37% of the region's organisations are only active locally (in the nearest neighbourhood, municipality or district), and 21% do not go beyond the borders of the Region.

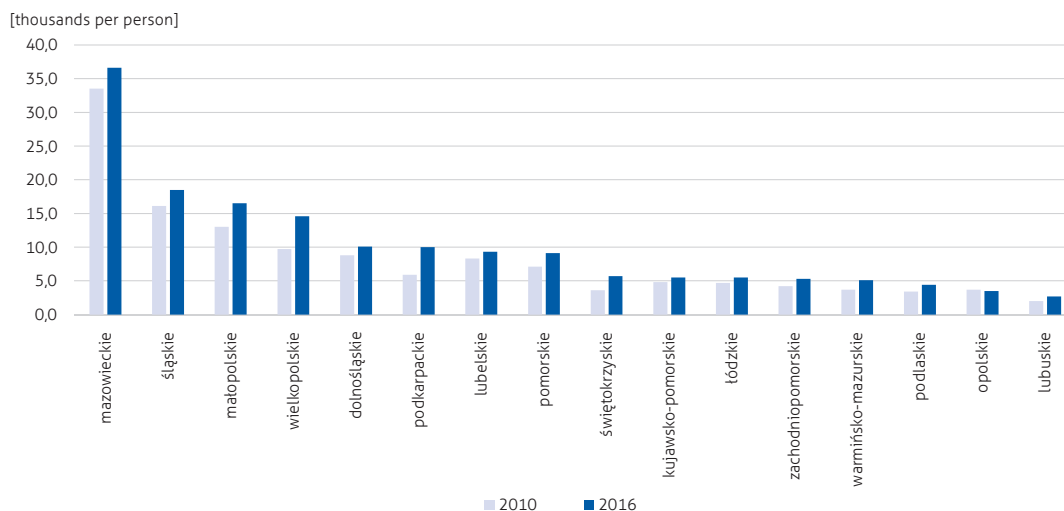
In Malopolska, as well as the rest of the country, social work of members of organisations' boards is typical. 84% of persons sitting on

the boards of Malopolska organisations are not employed in any way within the organisation, and thus do not receive remuneration for their work (compared to a national average of 77%). This clearly limits the possibilities for action.

The employment structure among organisations in Malopolska is similar to the one used in the rest of the country. Every fifth organisation employs employees on a contract of employment (19% in Malopolska compared to a national average of 20%). Other forms of regular employment apart from employment contracts are used slightly more often by organisations in the Malopolska region than in the entire country (17% in Malopolska compared to a national average of 15%).

In 2014, the average annual income of Malopolska organisations was lower than the national figure: it amounted to PLN 26 thousand (on average), while the national figure was PLN 27 thousand. The income structure of Malopolska organisations does not change significantly. Between 2010 and 2016, the only noticeable change in this regard was an increase in the percentage of the poorest

Figure 22. People employed in non-profit organisations under a contract of employment in 2010 and 2016



Source: own work on the basis of CSO/BDL

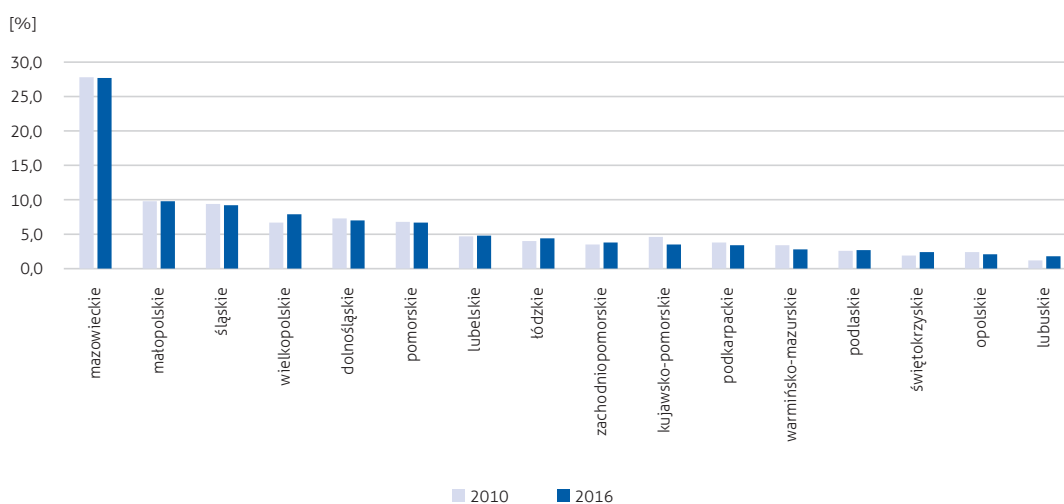
organisations, with income up to PLN 1,000. In 2016, organisations with medium income (ranging from 100 thousand PLN to one million PLN) and organisations with high income (range above one million PLN) accounted for approx. 10% each.

As in the rest of the country, the unpredictability of income is also a problem for organisations in Małopolska. More than half of Małopolska organisations (51%) had less than half of their budget secured for the next 10 months at the beginning of March 2015.

Indeed, the level of predictability of revenues was the same in the rest of the country too. Half of Małopolskas' organisations declare that they do not have any assets. This is slightly more than the national average. In the Małopolska Region, 3% of organisations are equipped with cars and means of transport (compared to 7% nationwide) or possess assets in the form of premises, houses and real estate (compared to 8% nationwide).

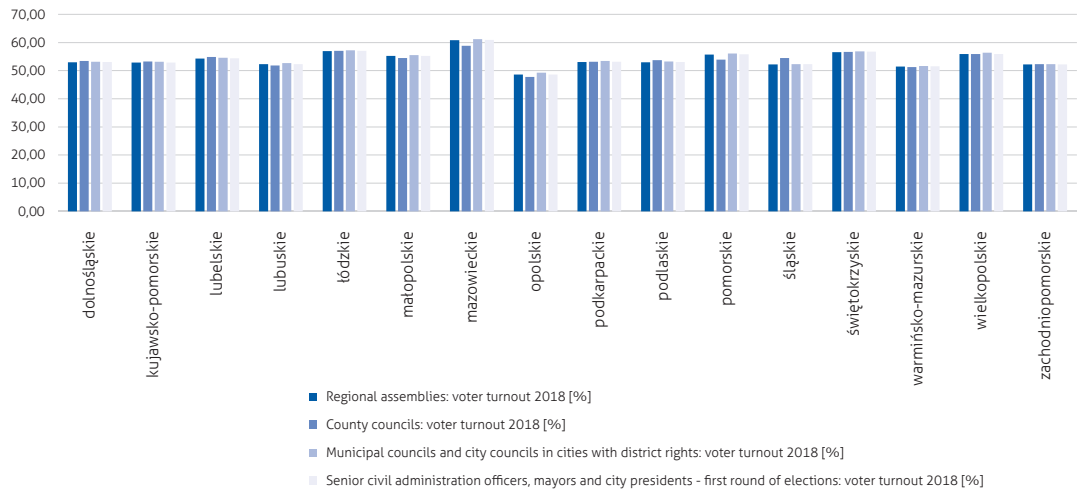
Sources of funding for Małopolska NGOs are similar in kind to those in the rest of the coun-

Figure 23: Percentage of NPOs with revenues above PLN 1 million in total NPOs in 2010 and 2016 (in %)



Source: own work on the basis of CSO/BDL

Figure 24: Voter turnout in the 2018 local elections



Source: own work on the basis of CSO-BDL

try, but there are clear differences in the share of individual sources:

- › The share of revenues from public foreign funds is less than half the national average (11% vs. 24%);

- › The share of funds from donations is almost half the national average (7% vs. 13%);
- › The share of funds from paid activities and economic activities is significantly higher than the national average.

Chart 23. Voter turnout in local elections in Małopolska in 2014 and 2018



Source: own work on the basis of CSO-BDL

What organisations need most urgently is funds for making their own contribution to projects. According to the findings of the survey, this is how additional money would be used by 39% of organisations.

The relatively high civic activity of Małopolska's residents compared to the rest of the country is also confirmed by data on voter turnout, in addition to activity in non-governmental organisations. In Małopolska, it is among the highest in the country, after the Pomorskie, Mazowieckie, Świętokrzyskie and Lubelskie Regions (2018), although the differences between the regions are small.

Voter turnout in local government elections in Małopolska, calculated for the entire Region, has fluctuated between 48 and 55% in recent years (with one exception: the second round of elections for mayors in 2014). In 2018, the turnout was significantly higher than in 2014.

The intra-regional variation in voter turnout in the last local government elections (2018) was significant, ranging from 43.6 and 44.6% in the Sucha Beskidzka and Oswiecim counties respectively to 57.3 and 55.7% in the Krakow and Nowy Sacz counties respectively.

CHALLENGES

- Strengthening the involvement of local and regional leaders in common matters, as potential partners of local governments in development policy. This requires both actions strengthening the willingness to get involved (Małopolska's identity, identifying with the region) and building real opportunities for greater involvement (competences, organisational and financial strengthening of non-governmental organisations).

TERRITORIALLY BALANCED DEVELOPMENT

SPATIAL ASPECTS OF REGIONAL DEVELOPMENT

The area of Małopolska is 15.2 thousand km², making the region the twelfth largest in the country. The share of built-up and urbanised land in the total area is gradually increasing. In 2003, this figure was 4.9%, while in 2018 it was as high as 6.5%, putting Małopolska in third place in the country. On the other hand, the urbanisation co-efficient (the percentage of the population living in towns and cities) showed the opposite tendency and has been decreasing for many years (from 50.8% in 1995 to 48.2% in 2018 and 2019). In 2018, higher co-efficients than the provincial average were recorded in three districts: Chrzanów (61.61%), Oświęcim (52.71%) and Olkusz (48.56%), while the least urbanised, both in 2008 and in 2018, was the district of Tarnów (11.89%). The same relationship was also present in 2019. The concept of urbanised areas is also related to the spatial density of population. The highest population density is shown by cities and municipalities located in the immediate vicinity of larger cities, such as Krakow, Tarnów and Nowy Sacz, and areas located in the western part of the Region.

The region is distinguished by a polycentric and evenly distributed settlement network,

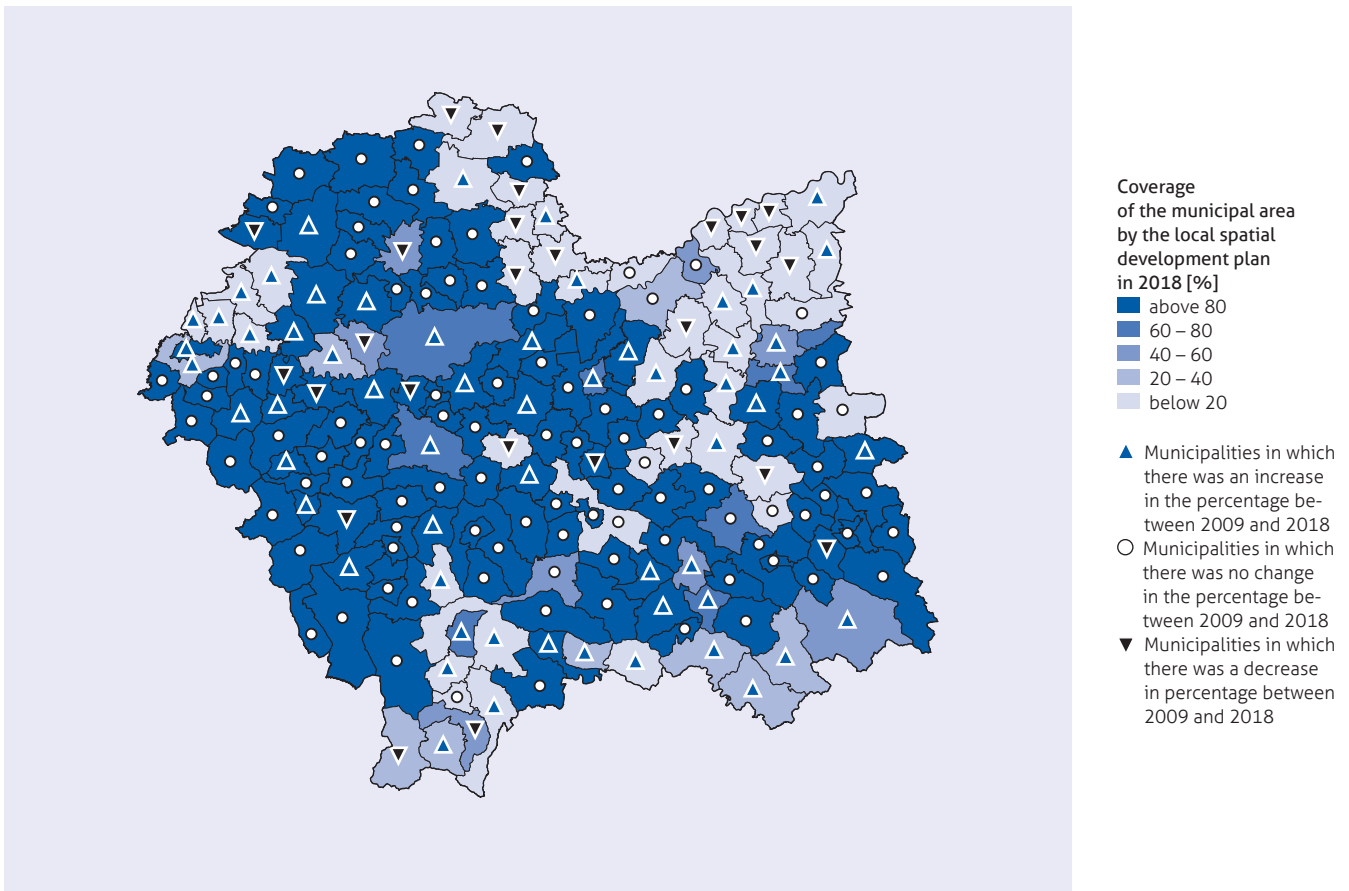
and the settlement structure of Małopolska is made up of:

- › a metropolitan centre: Kraków;
- › regional (sub-regional) urban centres: Tarnów, Nowy Sacz;
- › powiat urban centres aspiring to become subregional cities (supra-local of the first order): Oświęcim - Chrzanów, Nowy Targ - Zakopane;
- › county urban centres (supra-local II level): the remaining 12 county towns;
- › municipal (local) urban centres: the remaining 43 towns;
- › rural areas (168, including 120 rural municipalities alone).

The Małopolska Region is one of the regions which stand out for their high percentage of coverage by local spatial development plans (LSDPs). In 2018, as much as 67.7% of the region's area was covered by LSDP. This gave Małopolska second place in the country, just behind the Śląskie Region (70.8%). A spatial analysis indicated that 63% of all municipalities were in the group of municipalities above 80% of whose area was covered by LSDP. In relation to 2009, it should be noted that in most municipalities were on 53%, so there was no change in the figure.

Despite the high percentage and gradual increase in the area of the Region covered by binding LSDPs, the effects of disorderly "sprawling development" are visible in Małopolska. This may lead to the conclusion that LSDPs, and

Map 33. Coverage of local development plans in 2018



Source: Own elaboration based on data from the Central Statistical Office

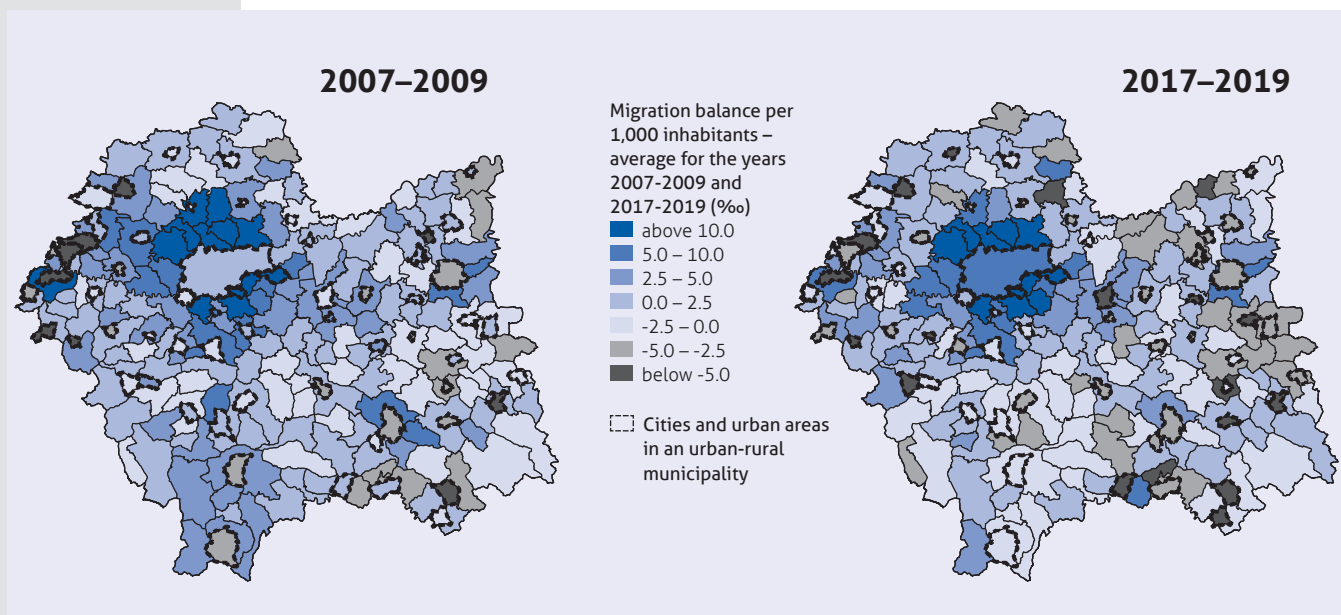
especially the study of spatial development conditions and directions, which is not an act of local law, do not fulfil their role as a means of managing orderly and sustainable development of local areas. Often, the lack of a proper spatial policy by borough authorities leads to a situation where plans do not determine the appropriate territorial development path, but are only adjusted to current investment needs.

One of the reasons for the low effectiveness of spatial policy pursued in municipalities may be the reservation of too many areas for residential development, regardless of "demographic absorption" in the MPZP or the study. This leads to a significant overestimation of investment needs. According to the Analysis of the status and conditions of planning works in municipalities in 2017, in 1642 municipal studies in Poland, areas exclusively earmarked for single-family housing occupied a total of 1.9 million hectares, which means that if demographic absorption is assumed at the level of 40 people/ha, in simplified terms, this provides settlement areas for 76.0 million people

The process of suburbanisation has been taking place since the turn of the 20th and 21st century, so it is not only the current planning situation that has an impact. Suburbanisation is a multidimensional issue. Apart from demographic processes, suburbanisation is also determined by economic, functional or infrastructural processes (improvement of accessibility and quality of life outside the urban area). On one hand, the increase in the number of inhabitants of suburban municipalities results from the attractiveness of large agglomerations as labour markets; on the other hand, it is also a result of an increasing number of people seeking to escape from the urban bustle.

The progress of suburbanisation can be expressed by the migration balance per 1,000 inhabitants and its changes. Between 2017 and 2019, the highest average figure was seen in municipalities located in the Krakow area, around which advanced suburbanisation has been visible for many years. The process of urbanisation, to a lesser extent, is also visible around Tarnów, Nowy Sącz, Bochnia and the cities of Western Małopolska. In relation to the years 2007-2009, it should be noted

Map 34 Migration balance per 1,000 inhabitants in 2007-2009 and 2017-2019 in the Matpolska Region



Source: own elaboration based on data from the Central Statistical Office

that the range of the high migration balance index has slightly decreased.

Uncontrolled suburbanisation may result in spatial chaos, increased investment costs and growing barriers tofor new undertakings, and above all it may lead to growing social problems. On the one hand, the relocation of city dwellers – often more affluent and educated than the inhabitants of suburban areas – to rural areas may result in the deterioration of social cohesion because of increased inequality and economic disproportion as well as a decline in the integration of inhabitants. On the other hand, it may also result in a complete change in the functions of these areas, which become a bedroom community for the nearby city. Moreover, uncontrolled suburbanisation generates additional costs for local govern-

ments of suburban municipalities, e.g. those related to the necessity of building extensive infrastructural networks, organisation of transport of inhabitants to schools, health centres and workplaces, and additionally it becomes a source of air and noise pollution.

Fast-growing suburbanisation poses a threat to the spatial order, especially through the expansion of dispersed development in rural areas. Rural architectural patterns so characteristic of our region, which have lasted for centuries, are now being destroyed. This development is particularly alarming in areas with exceptional natural and landscape values. Uncontrolled and chaotic suburbanisation and dispersed development is a serious threat not only to the environment, but also to agriculture.

CHALLENGES

- Strengthening spatial planning processes in municipalities and informing people about the negative effects of inappropriate spatial policy being adopted by municipal leaders.
- Striving to develop local spatial development plans that take into account current demographic trends and forecasts as well as elements of climate change mitigation and adaptation.
- Limiting uncontrolled urbanisation of areas attractive for nature and tourism in order to preserve their spatial, architectural, cultural and landscape values.

MAŁOPOLSKA'S CITIES

In the Małopolska Region, there are 62 towns and cities, including three with districtpoviat rights. The largest urban centre is Krakow, which, as the capital of the region, is distinguished by its extremely rich business, service and cultural facilities. Other important centres are the former regional capital cities of Tarnów and Nowy Sącz, which have well-developed regional facilities provided by regional hospitals, higher vocational schools and private colleges, regional cultural institutions (including regional museums) and delegations of the Voivodeship and Marshal's Office. The remaining urban centres in the Region (district towns) are of supra-local nature, despite the presence of institutions such as the above higher vocational schools or delegations of regional level offices in some of them. However, even the combined potential of Nowy Targ and Zakopane or Oświęcim and Chrzanów is inferior to the potential of the old regional centres. There is a great amount of diversity among district centres: apart from the above 40,000 inhabitant cities with a rich array of services, there are also small towns, such as Dąbrowa Tarnowska, Proszynów, Proszowice, Miechów and, to a lesser extent, Sucha Beskidzka and Limanowa.

The diversity of Małopolska's cities makes it difficult to indicate barriers and opportunities for development common to all centres. Their situation depends on factors like population, internal potential, geographical location, functions performed, as well as development trends or transport accessibility.

An attempt to classify urban centres in Małopolska was made in a report entitled *Cities of Małopolska Region - Changes, Challenges and Prospects for Development*, in which a ranking of the cities of Małopolska was created on the basis of a synthetic indicator of the cities' potential. The authors of the study used 10 partial indices referring to demographic processes occurring in the region (population change, migration balance), the quality of human and social capital, the size of the labour market, as well as the level of economic development, transport accessibility and availability of services.

The highest figures in the development potential index (above 1.0) were observed in 10 cities of Małopolska. The most developed city in the region is unquestionably Kraków, where the figure was 13.75, compared to an average of 0.36 for all cities. It should also be emphasised that this figure was four times higher than that of the city which took sec-

ond place in the ranking (Wieliczka: 3.33). Cities such as Niepołomice (3.31), Nowy Sącz (2.88), Myślenice (2.13) or Sucha Beskidzka (1.66) also performed very well. Tarnów, due to relatively low figures, took only seventh position with 1.42.

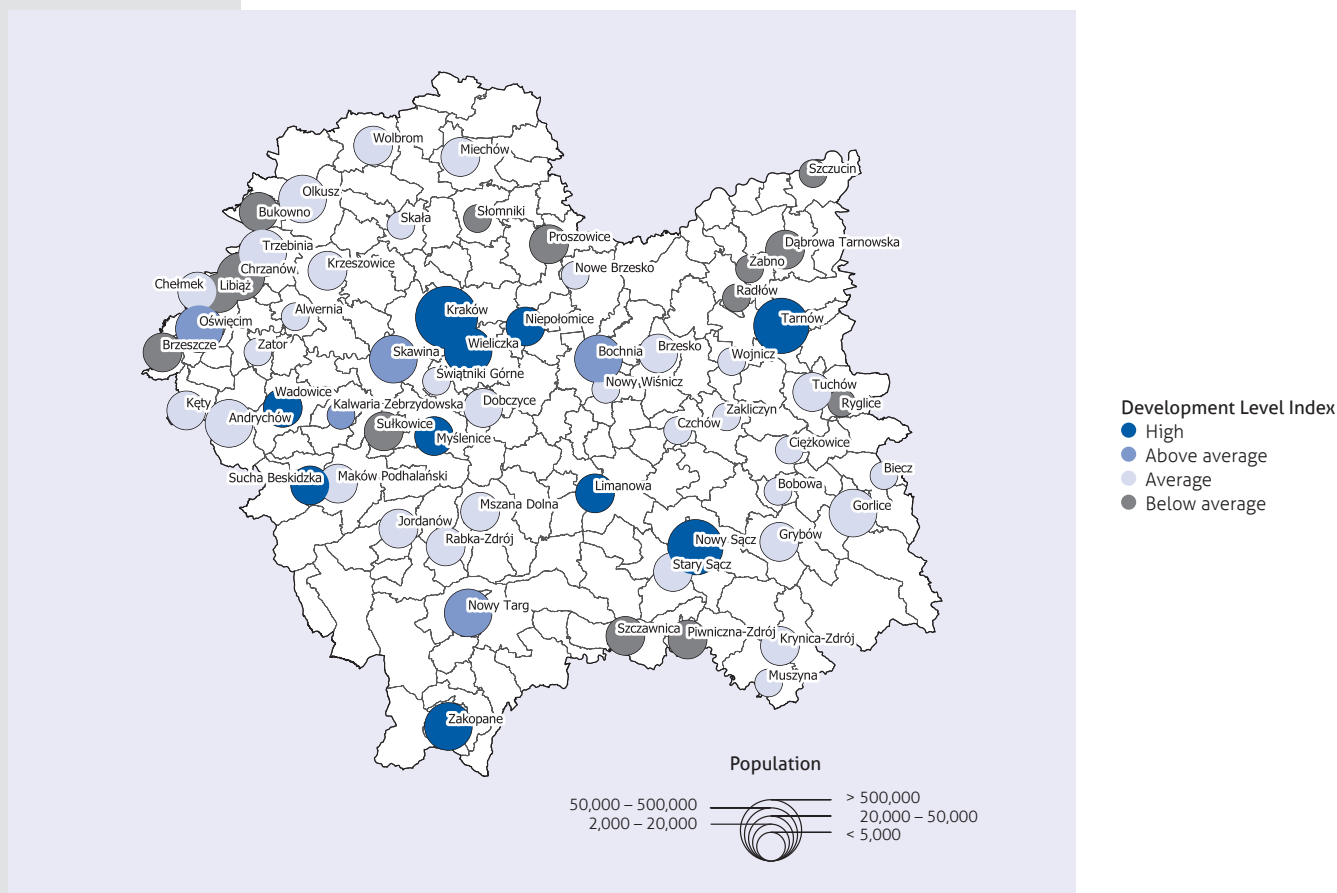
Despite showing low values in some sub-indices, in the end no Małopolska city was placed in the group of low development level (with a synthetic indicator below -1.0). The lowest values of the synthetic indicator (the "below average development" group) were shown by medium and small towns, e.g. Proszowice (-0.82), Piwniczna-Zdrój (-0.77), Brzeszcze (-0.76), Żabno (-0.73) or Ryglice (-0.72). This situation was caused mainly by low figures in partial indices for human capital, economic index or transport accessibility etc.

In Małopolska, Krakow is referred to as a metropolis, the city where the highest human capital is concentrated and where the highest technical and technological progress is observed. In comparison with the rest of the country, Krakow stands out due to its better network of air connections, high ranking position of universities, rich array of cultural activities (with the highest expenditure on culture after the capital), attractive tourist facilities, high level of expenditure on R&D, brand recognition, extensive conference facilities and the size of the agglomeration. Cooperation between Krakow and its neighbouring municipalities is formalised. The Krakow Metropolis creates a platform of cooperation for the 15 municipalities associated with it – the City of Krakow and the surrounding 14 municipalities – which jointly implement Integrated Territorial Investments (ZIT) for: promoting entrepreneurship, developing road infrastructure and supporting balanced multimodal urban mobility, activities for improving air quality and modernising energy supply to buildings, or investing in water, sewerage and waste management as well as the development of social infrastructure.

On the other hand, apart from the huge importance of fast growing metropolisation, it should be stressed that the development of regions is also affected by medium-sized urban centres. Quality of life and accessibility to public services are recognised as key factors generating development potential for medium cities. The greatest difficulty in shaping their development is maintaining the balance between global challenges and local traditions.

One approach to studying the development of cities, enabling direct and appropriate action for solving their problems, is to per-

Map 35. Types of cities according to their location in the functional and spatial structure of the Region and the level of development of population centres



Source: Cities of Małopolska Region - changes, challenges and prospects for development, Małopolska Regional Development Observatory, Marshal's Office of Małopolska Region, Krakow 2018

ceive their development considering not only development factors and internal potential, but also problems preventing full implementation of selected development trends in a given population centre. Among the most important problems observed in Małopolska's cities the following are: Urban sprawl into rural areas: one feature of contemporary urbanisation, typical of both big and smaller cities, is the process of suburban development and expansion of residential and service buildings into non-urban areas. The main result of this development is an increase in the number of inhabitants in areas directly adjacent to the Region's metropolis, i.e. the city of Krakow, and other large urban centres such as Tarnów and Nowy Sącz.

1. Depopulation, outflow of inhabitants from city centres and urban shrinkage ("depopulation" of cities): the traditional approach to "urban shrinkage" defines this process as rapid depopulation, most often accompanied by economic decline. A multidimensional approach to this problem assumes that urban shrinkage is connected with social, spatial and economic restructuring of urban

centres, with a simultaneous steady decline in the number of inhabitants, often caused by a lack of space and services targeted at residents and gentrification. Currently, in Małopolska, the issue of urban depopulation is persistent, with an increase in the population of suburban zones of cities. Between 2008 and 2018, 18 cities in the Region lost more than 2% of their population, and these were mainly medium-sized cities (Chrzanów, Oświęcim, Sucha Beskidzka, Olkusz, Gorlice, Wadowice, Proszowice), but also Tarnów and smaller local centres such as Szczawnica, Andrychów, Wojnicz, Wolbrom, Muszyna, Krynica-Zdrój, Bukowno, Brzeszcze, Rabka-Zdrój and Kęty.

2. Ageing of the urban population: an increasingly visible and progressive challenge is the increase in the number of inhabitants of post-working age. The greatest influence on the level and dynamics of the ageing process is exerted by low birth rates, migration (outflow) of young people, changing family models and changes in health and life expectancy. In 2018, the fastest ageing cities, in which the share of population

in the post-working age increased with respect to 2008 (2008=100%) were: Olkusz (177.1%), Libiąż (158.1%), Brzesko (155.9%), Kęty (153.7%), Bochnia (153.2%), Alwernia (153.1%), Żabno (152.1%), Wadowice (151.2%), Proszowice (151.0%) and Gorlice (150.0%).

3. Urban pollution: mainly related to air quality. In view of the development of Małopolska's cities, it should be pointed out that the worst air quality, in terms of PM 10 particulate matter concentration, in 2015 was not only shown by the largest cities in the Małopolska Region (Krakow and Nowy Sącz), Nowy Targ, the cities of western Małopolska (Bukowno, Chrzanów, Kęty and Trzebinia) and medium-sized cities (Andrychów, Bochnia, Oświęcim and Skawina), but also some small and even very small cities: Miechów, Proszowice, Słomniki, Sucha Beskidzka and Tuchów.

One answer to the abovementioned problems may be the implementation of appropriate concepts of city development, adjusted to the specificity needs of individual centres, as well as the implementation of complex integrated revitalisation projects. Rejuvenation measures cover a specific area of the city designated as being in need of revitalisation. Therefore, they are not meant for the entire city).

The importance of revitalisation as an instrument of local policy has clearly increased in recent years, especially due to the introduction of the Revitalisation Act in 2015. At the same time, in the EU financial perspective for the years 2014-2020, revitalisation was a significant territorial instrument in regional operational programmes. One necessary con-

dition for applying for funds from the ROP WM 2014-2020 was the adoption of a revitalisation programme by the municipal council, which was then subject to substantive verification according to the criteria for entry into the List of revitalisation programmes of municipalities in the Małopolska Region, kept by the Board of the Małopolska Region. As of 30 September 2020, as many as 142 of Małopolska's municipalities (78% of all municipalities in the region) had revitalisation programmes entered in the List. The vast majority of them (138) are communal revitalisation programs (GRP), adopted in accordance with the requirements of the Revitalisation Act concerning extensive participation of the local community in their preparation and implementation etc. This gives Małopolska the highest number of both GRPs and regional revitalisation programmes.

One development that has been growing in recent years, often appearing as an effect of revitalisation, is gentrification, i.e. a sudden change in the character of a given part of the city, which manifests itself in the improvement of the condition of housing, an increase in property prices in a given area and a sudden influx of people with a relatively high material status into the district. Apart from the positive aspects of gentrification, such as giving neglected neighbourhoods a new function and character, increasing the aesthetics of particular parts of cities, economic development and the creation of new jobs, new investments, improving the safety of residents, one cannot ignore social problems resulting from this development, such as growing social and economic disparities between residents and the displacement of people from their previous place of residence.

CHALLENGES

- Striving to reduce regional disparities between the development of individual urban centres, in particularly by strengthening the position of small and medium-sized cities.
- Strengthening the development of urban areas and surrounding urbanised areas in view of ongoing civilisational and global changes.
- Addressing urban problems such as sprawl, shrinkage, ageing and environmental problems.
- Strengthening the role of revitalisation as a complementary and multidimensional process of leading cities out of crisis through holistic actions conducted in a well-planned and integrated manner, particularly those directed at addressing social issues.

RURAL AREAS

More than half of the residents of Małopolska live in rural areas (1.75 million inhabitants), which is 51.7% of the total population. The Małopolska Region is distinguished by a favourable trend of moderate, but constant, population growth, especially in rural areas. However, significant local differences can be observed. While in the southern and eastern parts of the Region, "demographic youth" prevails, i.e. a larger share of the population of pre-productive age in relation to other parts of the region, which testifies to the high population potential of these areas, in municipalities in the northern and western parts of the Region, there is a clear downward trend, reflected by negative natural growth and population decline. These unfavourable demographic developments are particularly prevalent rural municipalities in the following districts: Miechów, Proszowice, Olkusz, Dąbrowa, Brzesko as well as the eastern part of the Gorlice district.

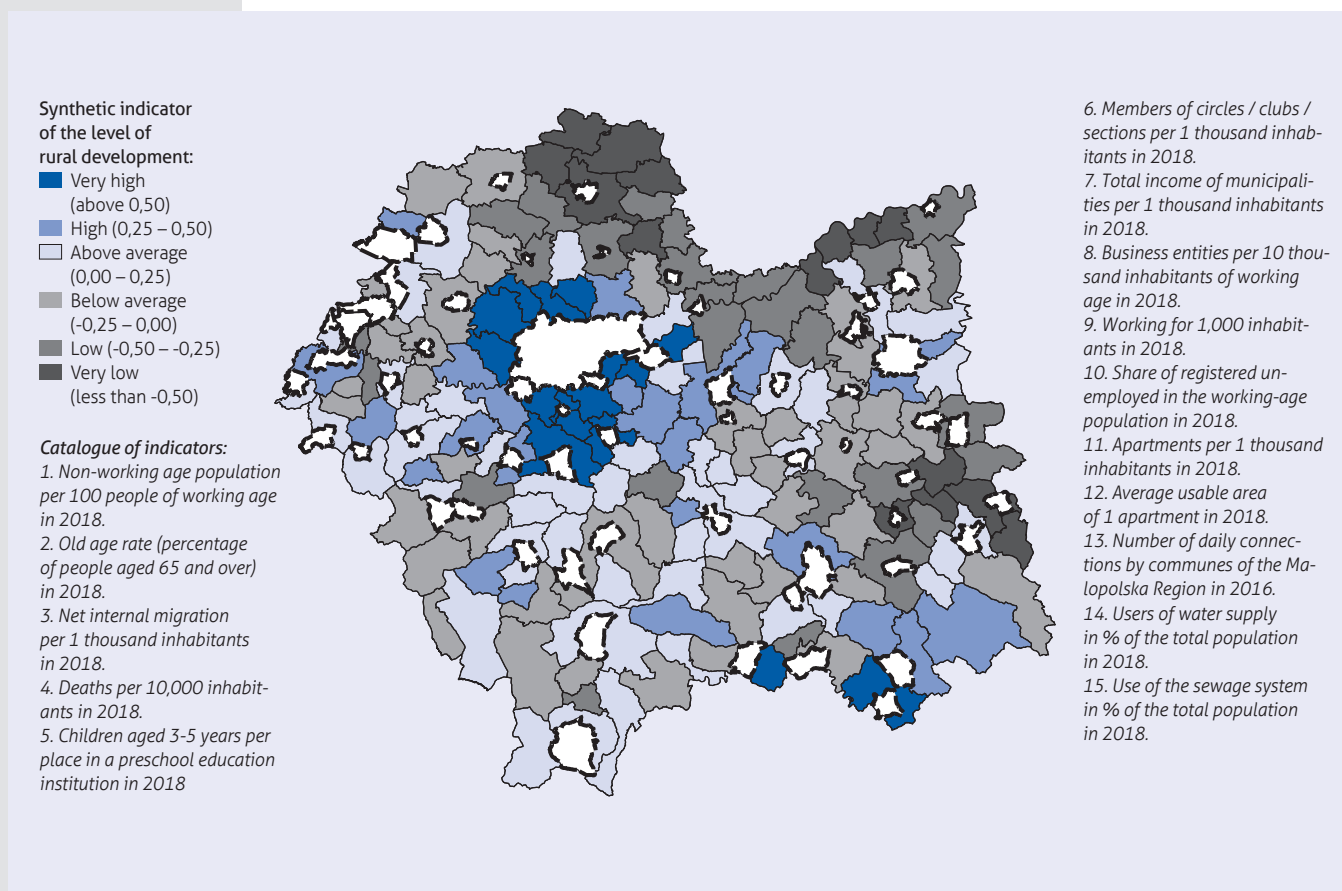
The main objective of managing the development of rural areas in the Region should be improving the quality of life of rural

residents and improving access to services, including higher-level services. However, the statistical data obtained show that rural areas of Małopolska still have limited access even to basic technical infrastructure.

The overall level of development of rural areas was determined by a synthetic indicator, whose component indices are shown on the map below. The highest values were achieved by districts located in the immediate vicinity of Krakow, which take advantage of the opportunities provided by their close proximity to the agglomeration, such as Wielka Wieś (1.57), Zabierzów (1.12), Zielonki (1.09) and Mogilany (1.01). The least favourable situation was observed in the northern and eastern parts of the Region, in the municipalities of: Słaboszów (-1.24), Książ Wielki (-0.83), Bolesław (-0.81), Mędrzechów (-0.81) and rural areas of Miechów (-0.70).

An inseparable subject related to sustainable development of rural areas is agriculture, which has already been mentioned in detail in the field Economy. A characteristic feature of agriculture in the Małopolska Region is the high fragmentation of farms, which

Map 36. Synthetic indicator of rural development level in Małopolska in 2018



Source: own elaboration based on data from CSO BDL

is the result of historical conditions. This situation may be changed by amalgamation and replacement works which arrange agricultural space and improve the area structure of farms. Extensive and traditional production methods dominating in small area farms, offering high quality products, may be a source of competitive advantage, giving good prospects for the production of certified products: traditional, regional and organic.

As regards the development of the non-agricultural sector in rural areas, it should be noted that districts showing a high level of non-agricultural economic development are mostly located in the vicinity of Krakow and the western part of Małopolska. The percentage of non-agricultural business entities in the total number of business entities is at its highest in the western part of the Region, in the Olkusz, Chrzanów, Oświęcim and Wadowice districts, and in mountainous tourist municipalities in the south of the region, e.g. Krynica-Zdrój, Muszyna, Szczawnica and Kościelisko. This is also where the highest level of entrepreneurship is observed. However, the provincial leader in entrepreneurship is still the Tatra district, where private manufacturing and service activities develop on the basis of the unique natural and cultural values of the region: hotel, catering and small trade related to tourism.

Rural areas shows high civic and social activity, due to the creation of various types of partnerships. One example of cooperation between rural municipalities is Local Action Groups (LAGs).

The socio-economic development structures of rural areas are mainly affected by the advantages of being close to cities. The territorial profile of rural areas in Małopolska is as follows:

- › Northern zone: low population density, low urbanisation rate, low natural growth, poor access to public services, low economic activity of inhabitants, favourable conditions for agricultural production, relatively favourable structure of farms;
- › Central zone: high population density, well-developed technical infrastructure, low unemployment rate, widespread fragmentation of farms, high activity of inhabitants in obtaining additional sources of income;
- › Southern zone: high natural growth, high unemployment rate, poorly developed technical infrastructure, high natural and landscape values, widespread agrarian fragmentation and difficult conditions of agricultural production.

Rural mountain areas, which are found in the south of the Małopolska region, deserve special attention. The difficult geological, geomorphological, climatic and soil conditions in mountain areas in Małopolska mean that they are classified as "problem areas" for agriculture. On the other hand, mountain areas are distinguished by high potential, mainly because of biodiversity and unique landscape values, which gives the possibility for the development of these areas, mainly in tourism, trade and services. One undeniable advantage of these areas is a generally clean environment, unique natural and cultural values (original pastoral culture) and living traditions and folklore (including culinary heritage). This is why Małopolska's rich culinary heritage has boosted development in the region's mountainous areas. This is reflected in particular by numerous traditional and regional products made from local raw materials.

CHALLENGES

- Ensuring attractive living conditions for residents and access to services, especially in peripheral areas.
- Diversifying rural residents' income and increasing their economic activity.
- Supporting the establishment of inter-municipal cooperation to implement joint and complementary projects.
- Improving the area structure of farms by creating opportunities for agricultural and forestry land consolidation.
- Providing multidimensional support for the development of mountain areas by taking measures to exploit their endogenous potential to build the competitive advantage of the entire region.

INTRA-REGIONAL COHESION AND ACCESSIBILITY

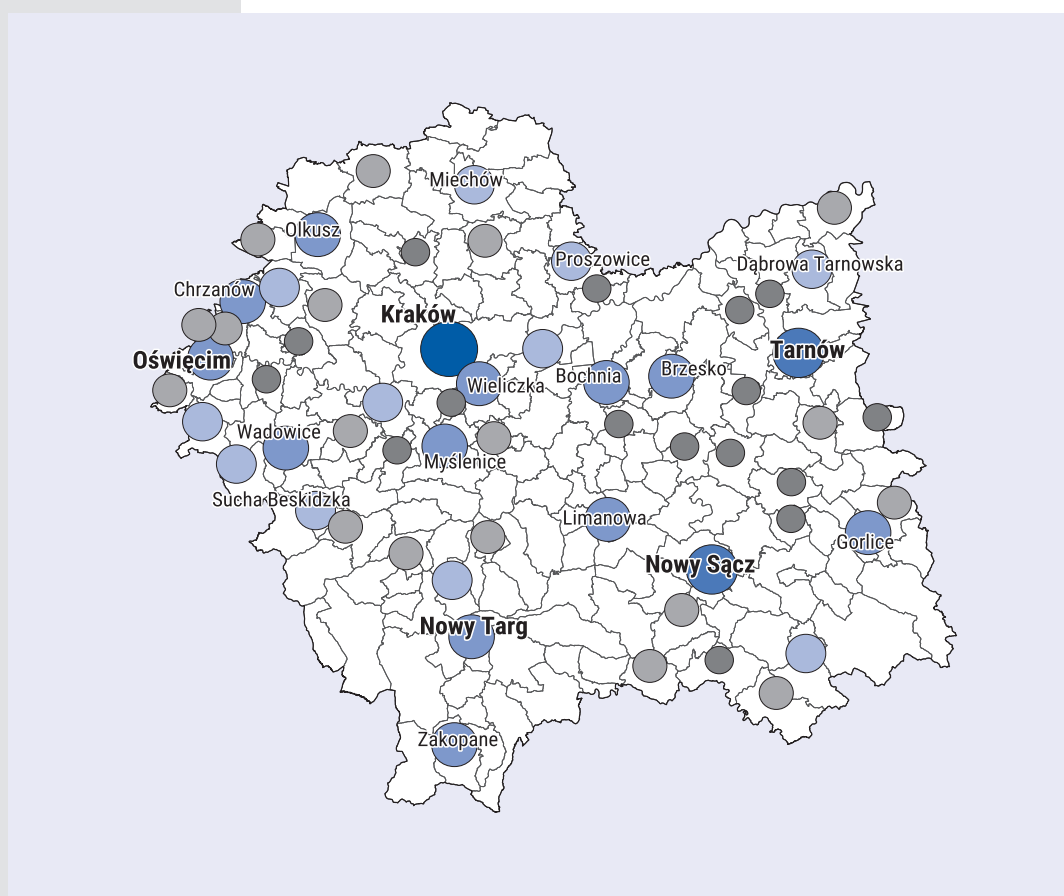
The even development of the whole region is a priority task for the Region's authorities because of the necessity to ensure comparable living conditions for all inhabitants. Therefore, intra-regional cohesion is reflected by in good access to communications and availability of services.

Accessibility to public institutions and services reflects the quality of life of the inhabitants. Equipment used by public institutions, at district, municipality and local centre level, is very diverse, and it is difficult to speak of a common minimum standard of public services. As regards the provision of institutions and services for the population and companies in the cities of Małopolska (see: "Cities of Małopolska Region - changes, challenges and development prospects"), 64 market and non-market services were analysed in a given city. On this basis, an index of goods and services placement was created, and for interpretation purposes, each city was classified into a relevant rank (rank 1 determines the highest

level of accessibility to goods and services, while rank 6 shows the lowest).

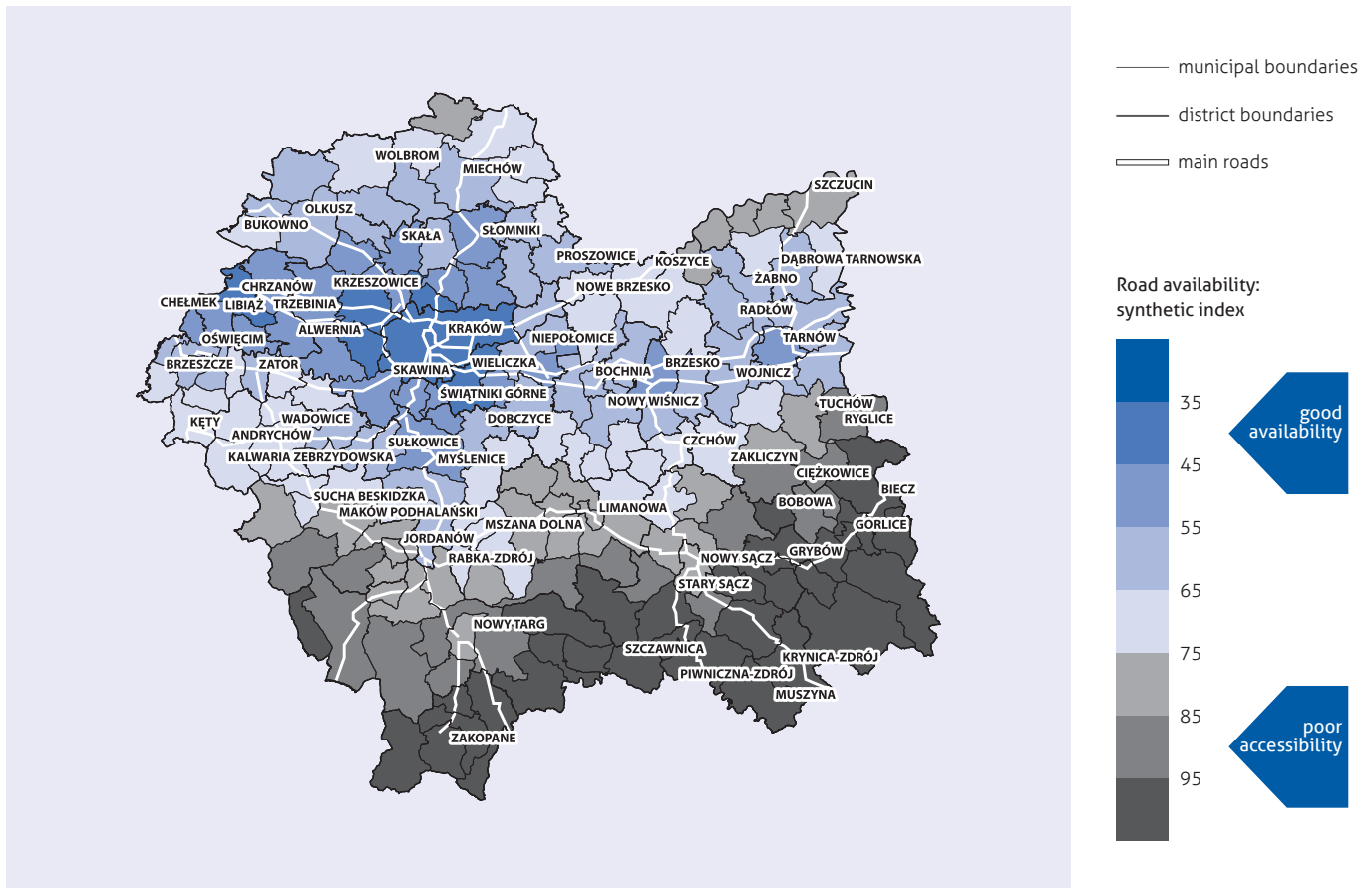
Over the last 7 years, access to services has been gradually improving in all cities of Małopolska. The weakest access to public services is observed in the eastern part of the Region, in small towns in the Tarnów and Brzesko districts. It should also be emphasised that, in comparison to the national average, the accessibility of services in Małopolska is satisfactory. On the other hand, a study entitled "Indicators of territorial accessibility of the inhabitants of Poland to selected public utility objects" shows that only three municipalities in the Małopolska region were among 10% of municipalities in the country, which demonstrated the lowest temporal and spatial accessibility to services: Piwniczna-Zdrój, Muszyna and Uście Gorlickie. The 10% of municipalities with the best accessibility included: Krakow, Tarnów, Bochnia, Limanowa, Sucha Beskidzka, Oświęcim, Libiąż, Chrzanów, Brzeszcze, Zakopane, Nowy Targ, Wieliczka, Brzesko, Myślenice, Zielonki, Babice, Trzebinia, Bolesław, Olkusz and Miechów.

Map 37. Cities in Małopolska by rank of provision of institutions and services in 2017



Source: Cities of Małopolska Region - changes, challenges and prospects for development, Małopolska Regional Development Observatory, Marshal's Office of Małopolska Region, Krakow 2018

Map 38. Synthetic index of transport accessibility - road



Source: R. Guzik, A. Koloś, Ł. Fiederń, A. Kocaj, K. Wiedermann, The spatial and functional analysis of inter-city and urban-hinterland. Component 3 Spatial relations and transport accessibility. Małopolska Region, IGiPZ PAN, Institute of Geography and Spatial Management Jagiellonian University, Krakow 2019

Spatial accessibility is most often assessed by transport accessibility. As road transport is the dominant mode, it depends not only on the location of a given point, but also the class and quality of the road network.

Transport accessibility in regional terms defines the time it takes to reach the most important points and transport corridors, such as airports, motorway junctions, metropolitan cities, county towns, nearest towns, border crossings or capital cities. Not only is it relevant to individual car journeys, but also for other types of passenger and freight transport as well as different reasons for travelling, e.g. commuting to work, commuting to school, impact on tourism development.

When analysing intra-regional road accessibility, it should be noted that the best accessibility is found in Krakow and neighbouring municipalities, as well as areas located along the A4 motorway traffic route. On the other hand, areas with the weakest accessibility are located in the south-eastern part

of the Region: the Uście Gorlickie, Muszyna and Piwniczna-Zdrój municipalities. This is caused by their location off the main roads as well as their peripheral location in relation to densely populated areas.

On the other hand, it should be emphasised that a key role in passenger transport should also be played by rail, which has high development potential. A thorough diagnosis of the state of multimodal accessibility by public transport of municipalities in Poland was carried out within the framework of the study "Multimodal accessibility by public transport of municipalities in Poland". First of all, a network of long-distance connections (lines longer than 100 km with intra- and interregional status) was analysed. In this case, in addition to Warsaw's connections with other areas of the country, connections between southern Poland's major cities (Rzeszów - Krakow - Katowice - Opole - Wrocław) should be prioritised for development to make these cities competitive with Warsaw. The dominance of regional capital cities and links between them and sub-regional cities

is also evident. The main finding of the study is the negative correlation of the network of bus connections with the accessibility of rail transport.

According to the results presented in a report entitled Analysis of functional-spatial relationships between urban centres and their surroundings. Component 3: Spatial re-

lations and transport accessibility, Małopolska Region, the range of inter-city connections in public transport in Małopolska is quite wide and frequent. Gaps in the transport network can be observed in Powiśle Dąbrowski and in the foothills and mountains. The reasons for this state of affairs may be natural factors: firstly, the barrier of the Vistula; secondly, the lay of the land.

CHALLENGES:

- Giving Małopolska residents access to high-quality public services.
- Improving the spatial integration of the region and increasing accessibility to outlying areas.

FORECAST OF DEVELOPMENT TRENDS

The strategy is a conscious choice of future actions that the Government of the Region will implement on its own, or by creating conditions for other entities to take action. Therefore, the effectiveness of public policies depends not only on an accurate diagnosis defining the starting point for the planned actions, but is also dependent on the effective identification of development trends that will set the scene for their implementation. The Government of the Region should therefore be seen as an entity identifying and moderating present and future social, economic and environmental processes occurring in the region and in its environment.

Based on a diagnosis of the economic and social situation of Małopolska, it was possible to identify key processes whose projected course will determine the content and intensity of actions undertaken for sustainable development of the region for 2030.

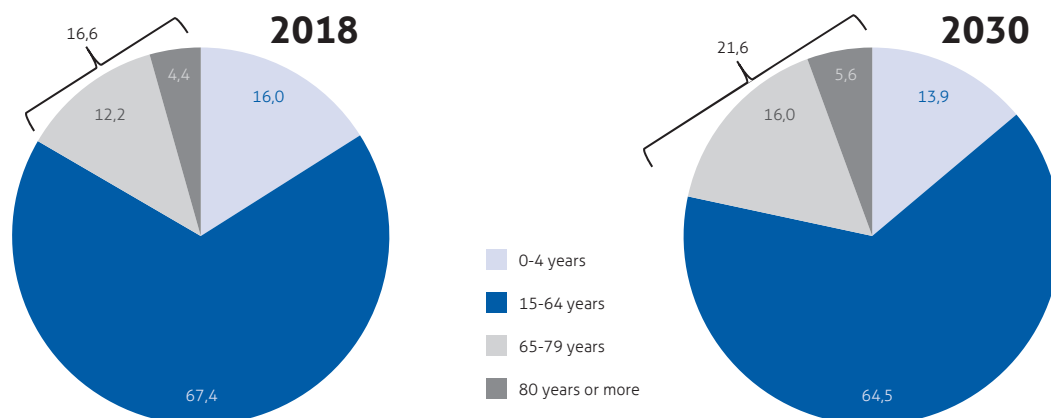
While planning the objectives and measures for in the perspective of 2030, it is essential impossible not to refer to the demographic forecasts. The importance of the demographic trends for the proposed planned public policies results from the fact that they affect almost all spheres of the economic and social life. They influence the structure of the economy, bring about significant force transformations on the labour market and change the profile of public services.

GUS forecasts indicate that in 2030, Małopolska will be in a relatively favourable situation compared to the rest of the country, although demographic problems will increasingly affect our

region in the coming years. Population growth in Małopolska is only forecast until 2026; and in the following years, it is expected to drop year by year. The population of Małopolska is estimated to reach at 3,403,103 people persons in 2030. This is 2,500 more than in 2018 (3,400,577 people), but 7,800 fewer than in 2019 (3,410,901 people).

The already apparent observed increase in the number and share percentage of people aged 70-80 in the total population will intensify. This is because successive baby boomers of the 1950s will be entering this age group. For the same reason, starting from 2030, a dynamic increase in the number of people over 80 will begin. At the same time, the forecasts of the Central Statistical Office predict an increase in the average life expectancy. It is assumed that, in 2035, the average life expectancy for women will be 85.4 years (compared to 82.9 years in 2018), while in the case of men this

Chart 26. Population structure in Małopolska by biological age groups in 2018 and forecast for 2030 (in %)



Source: own elaboration based on CSO data

indicator will reach 79.5 years (compared to 75.3 years in 2018). As a result, there will be more and more unfavourable changes to the population structure will deepen, and the frequency phenomenon of double ageing, the share of the population aged 80 and over in the population aged 65 and over, will increase.

The decrease in the share of people aged 0-14 projected for 2030 (compared to 2018) applies to all of Małopolska's counties. The average decrease for the region is projected at 13.4%. An increase in the percentages share of the population aged 65+, including 80+, is also projected for all counties. On the other hand, for Małopolska these figures indicators will increase on average by 31.4% and 27.6% respectively. An increase in the population aged 15-64 is forecast only for four counties (Wielicki, Krakow and, to a lesser extent, Myślenice and Nowy Sąd). Particularly unfavourable changes to the population structure are expected in the Tarnów, Nowy Sącz and Olkusz counties. By contrast, the following counties/poviats are in a relatively favourable situation: Wieliczka, Krakow, Myślenice and Nowy Sąd, in which both the total population and the population aged 15-64 are projected to grow, although in the Myślenice, Nowy Sąd and Wieliczka counties, a high increase in the share percentage of the population aged 65+ is also expected.

Adapting the range of services to the needs of an ageing population and ensuring their accessibility will be a key challenge for the healthcare system. Improving the health of the population to remain fit and socially and professionally active for longer will require new care models and technologies enabling that enable early diagnosis, effective treatment and rehabilitation.

Moreover, civilisation diseases and the increasing number of patients with chronic diseases, including geriatric patients, will be a growing problem. Estimating the impact of demographic changes on the costs of financing health care is difficult. According to the 2015 forecast/projections of the National Health Fund, just to meet the needs resulting from the change in the age structure of the population, an annual increase in funding of about PLN 500 million nationwide is necessary to maintain the level of accessibility to services. In view of this context, there is very likely to be growing pressure to improve the efficiency of the healthcare system by reducing costs while providing increasingly informed patients with quality services. can be assumed with high probability. Modern technologies can help ensure the quality of medical services and improve the efficiency of the system. However, they require both (on the part of the system) significant financial outlay on research, purchase and maintenance of infrastructure as well as staff training and readiness, on the part of patients, to use the new model of services. This depends, to a large extent, on the level of digital skills. However, even the most advanced technologies will not solve the problem of staff shortages. The growing gap in supply and demand for doctors, nurses and other medical staff is one of the biggest challenges facing the healthcare system. The COVID-19 pandemic may further exacerbate this problem: a. The study conducted by the Cracow University of Economics shows that 15% of doctors and 10% of nurses participating in the study intend to leave the labour market, either by emigrating or leaving the profession. At the same time, it is forecasted that cooperation between public, non-profit and commercial organisations will play an increasingly important role in healthcare management.

It is currently difficult to estimate the long-term public health impact of the SARS-CoV-2 epidemic. For example, it has been reported that the virus attacks not only the lungs, but also permanently damages myocardial cells, which in the case of a large number of acute cases may translate into a significant increase in the number of people suffering from cardiovascular diseases. In view of the context of the challenge to reduce the negative impact of chronic diseases and prevent premature deaths, as well as (also in view of the need to maintain a long working life of the working population in the face of an ageing population, this may be an important new circumstance.

One thing seems certain: the COVID-19 pandemic has challenged any optimism about the threat of infectious diseases. It occurred at a time when it seemed that knowledge, new technologies and health awareness would provide an effective safeguard against epidemics. The focus was therefore on prevention of non-communicable chronic diseases. The pandemic made it clear that hygiene and prevention of communicable diseases, as well as health promotion aimed at extending healthy life expectancy, are both important for public health. It seems that this will be a permanent paradigm shift in public health.

It should also be borne in mind that the consequences of the COVID-19 epidemic for public health are not only direct infections. Although it is currently difficult to make a clear diagnosis of the impact of the outbreak on households and individual security, it is inevitable that the financial stability of some people will be affected. Persons with a weaker mental condition, having lower adaptation abilities, may pay for the loss of work with mental health problems. Nearly 10% of Malopolans participating in an opinion poll conducted in the summer of 2020 confirmed that the situation related to the pandemic had caused someone they lived with to start using unhealthy stimulants to a greater extent. The consequence could be an increase in the number of families with various types of dysfunction, including those with caring and child-rearing duties. In the event of long-term, serious economic consequences, one should also expect there to be an increase in the number of people requiring support under the social assistance system.

Research on adaptation to new conditions during the pandemic also shows that these experiences should be the basis for changes in the way schools and universities are organised and in the way teaching is carried out. The suspension of activities, and the closure of practically all schools and universities, required immediate action, different from standard educational practice. In the situation forced by the epidemic,

it became necessary to open schools and universities to the possibilities created by modern technologies, a demand that had been raised for years. It seems that online education (using ICT) should be a permanent element supplementing, but not replacing, stationary education, both at schools and universities. At the same time, care should be taken of students in the most difficult situations: having learning difficulties, coming from the poorest families, without access (or with limited access) to modern technologies. It is also necessary to create effective social networks for the exchange of information and experience, and also for integration and mutual support.

The pandemic also led to a re-evaluation of education priorities and revealed the strengths and weaknesses of the system. The changes it caused, not only in education, clearly demonstrated that a thorough review of the role of education is urgently needed. In fact, we cannot predict what challenges young people will have to face in the future. We should therefore equip them with the competences that will allow them to perform in a world we do not yet know, and in the face of changes we cannot not only foresee, or even imagine. The White Paper on the Future of Europe predicts that the majority of pupils currently entering primary school will probably work in jobs that do not yet exist. In this context, pro-innovativeness and pro-adaptiveness become essential qualities important for graduates of different levels of education. However, these skills and attitudes cannot be developed by talking about them in lectures. Hence this creates the need to change the model of education, at all levels of education, to learning through experience, posing questions, searching for solutions and explaining reasons for them. For the education system to bring the intended results, it must respond more flexibly to the requirements of the environment, take into account new trends and adapt them to educational practice.

In view of the expected consequences of the epidemic, which are difficult to estimate at this stage, there is also the question of how it will affect social attitudes. On the one hand, this difficult situation represents an opportunity to strengthen interpersonal relations (unity in the face of danger); on the other hand, it runs the risk of self-centredness and a weakening of sensitivity and social cohesion. Regardless of the epidemic, a challenge to social cohesion will be the effects of demographic change. The increase in the number and proportion of people reaching the upper limit of working life poses a serious threat to the sustainability of social protection systems. The fact that more public resources will have to be used to meet the needs of the pension and health care systems, including the costs of medical services and

reimbursement of medicines, while, at the same time, the ratio of working to non-working people deteriorates, may create pressure to increase the financial burden on working people, with the risk of growing social discontent.

printing, which will entail a drop in demand for assemblers and service technicians. These will be replaced by far fewer operators of robotised production lines and stations, diagnostics and logistics/distribution. Małopolska, with its large

Unfavourable demographic trends (especially negative population growth, a decrease in the percentage of economically active persons and a rapid increase in the percentage of older persons in the population), together with the technological progress, will also be key factors determining the shape of the labour market.

With the development of Industry 4.0, some professions will disappear, and new ones will appear in their place. This trend, at present still quite weak, will become more and more significant in the coming years, which is also connected with previously unknown threats to social cohesion, resulting from different levels of adaptability to ongoing changes in particular individuals and social groups. The accelerating technological progress, generating changes in demand for employees with specific qualifications, will further increase the importance of universal competences and lifelong learning. Mobility, i.e. the ability of "agile" movement on the labour market, or the ability to adapt to new situations and fast learning, will also be important. People with so-called "soft" skills, combined with experienceorientation in the digital world and knowledge of new technologies, will be the most desirable employees. At the same time, there will be an increasing demand for highly specialised competences in natural sciences, technology, engineering and mathematics, as well as information and communication technologies.

Globalisation in manufacturing and services may have a negative impact on the labour market in Małopolska. By 2030, it was forecast that the world's production centres would shift to the Middle and Far East, Africa and Latin America. Now, according to some forecasts, the COVID-19 pandemic could cause a partial retreat from globalisation. However, if the globalisation trend continues, it will mean changes to the labour market resulting from the withdrawal from the country or region, or a reduction in activity of companies from the white goods industry, BPO and even the automotive and aviation industries. This could have a significant impact on the developed business services sector, which in Krakow alone employs about 80,000 people. The labour market will be greatly influenced by the change in the way production is carried out, particularly increasing automation and the more widespread use of 3D

pool of educated employees, should nevertheless be well prepared for the industrial revolution caused by rapid technological change.

According to the estimates of the Ministry of the Interior and Administration, in 2030 there will be a shortage of four million employees in Poland, and considering the size of the labour market, it can be assumed that Małopolska will have a shortage of approx. 340 thousand employees. In view of the decreasing number of people of working age, the professional activation of human capital reserves from groups particularly threatened with unemployment and deactivation – women, people with disabilities, people aged 50+, the unemployed under 30, and the long-term unemployed – will play a key role in supplementing labour resources. It is also a challenge to skilfully manage the resources provided by foreign nationals on the labour market, especially those who have the skills and experience necessary to perform professions which are scarce on the Małopolska labour market.

At present, it is not yet possible to estimate the impact of the COVID-19 epidemic on the economic situation and the labour market. This is a non-standard situation, and it is difficult to predict both the scale of the problems and the time when these consequences will be felt. It is also difficult to assess the scale of the impact of the epidemic on the inflow and outflow of potential employees from the Małopolska labour market. However, despite all this uncertainty, negative economic effects are inevitable, and the question seems to be only whether this will be a temporary reaction and the market will recover relatively quickly, or whether it will be the beginning of a larger, long-term crisis. In the event of a rebound in economic activity in the second half of 2020, albeit smaller than the slump in the second quarter, it is estimated that the unemployment rate in Poland in 2020 will rise to 8% (from 3.3% in 2019), while in the years 2021-2023 it will settle at 5% (2021)

and 4,5% (2022 and 2023). On the other should, should it be necessary to restore some restrictions that will hinder the economic rebound in H2 2020, the Polish economy will shrink by 7% in 2020, and the unemployment rate may even rise to 15%, after which it should decrease in the following years to 11% in 2021 and 8% in 2022. Occupational groups particularly at risk of losing their jobs seem to be, broadly speaking, meeting and leisure industries: tourism, catering, passenger transport, organisation of meetings, fairs, entertainment events, etc. In those industries that have the greatest difficulty in recovering from the crisis as a result of a long-term decline in demand for their services, due, for example, to the impoverishment of society or a shift in the profile of services from traditional to digital, the challenge is to effectively help their employees reorganise themselves so as to reduce the number of unemployed.

In turn, people employed in mining and related industries are exposed to possible changes to the labour market due to the European Union's climate policy. In 2019, nearly 4,000 residents of Małopolska were employed in two mines in the region, and nearly 8,500 commuted to mines in Silesia, while another 1,300 people were employed in Silesian companies with service or production activities related to mining.

A consequence of the COVID-19 epidemic may also be a change in the preferred forms of employment. A survey conducted in April 2020 for a report on attitudes and expectations of young employees shows that young people's approach to employment has changed. Given the choice between stable employment in a company or self-employment, as many as 81.5% of respondents chose the first solution.

The ageing of the population is also a huge challenge for the economy. The unfavourable demographic situation will inevitably slow down the region's economic development in the coming years.

Despite the perceived threats to economic growth and public finances associated with demographic change, it is also important to treat this process as an opportunity for development. This approach stems from the belief that ageing societies create new opportunities for economic development by creating demand for new products and services or their adapting them to the needs of the elderly. The main areas of interest of the silver economy can be: age-sensitive consumer products, including new technologies, goods and services in the leisure and entertainment sector, education of older people, services related to the health and care sector, age-appropriate financial products and services etc. The silver economy is not only

about creating innovative products (goods and services) dedicated to older people. It is also a system for managing ageing labour resources, ensuring the intergenerational diffusion of knowledge and experience, and promoting productive ageing.

Assuming that long-term trends in the regional development of the country continue, no significant changes in the economic growth rate of Małopolska in relation to the national average and no change in the position of Małopolska Region among the fastest developing Polish regions should be expected in the coming decade. No significant changes in the scale of industrial production should be expected in the coming years either. However, changes to the industrial map of Małopolska are possible, as the labour supply and ongoing construction of the S7 expressway should open the northern part of the Region, primarily the Miechów district, to industry.

In the coming years, the digital transformation of industrial enterprises is expected to accelerate, in the direction described as Industry 4.0. Digitalisation of manufacturing processes covering the entire value chain, from planning, through production and controlling, to sales and services, will probably take place in many enterprises in the region. Not only will it affect large companies, but also small and medium-sized manufacturing firms, for which the introduction of automation and robotisation will be "the be all and end all" in the competitive global market. One of the most important tasks ensuring the implementation of Industry 4.0 and the development of the information society in the coming decade will be to ensure adequate data transfer rates for the needs of businesses and consumers. Data and its processing are both factors that initiate the development of new business models, and will support processes carried out under traditional models. According to IBM's 2017 analysis, 90% of the world's stored data was created in the last few years, which means that nine times more data was collected during this period than earlier in the history of mankind, and this trend will accelerate. Analyses indicate that there will be an increasing demand for qualified IT specialists, due to the increasing amount of commonly available data, digitisation and automation of industry and services (e.g. e-commerce, medical services, finance and banking). According to forecasts, big data management and the creation of business algorithms will become the environment for industrial development and improved quality of life, while cloud computing will revolutionise the provision of digital services and change the business models of these services. Following the robotisation and automation of production, the robotisation of services (robonomics) will develop more rap-

idly. The role of drones will increase in the transportation of goods. Therefore, it is important to develop 5G networks, which will affect not only the improvement of data transmission but, more importantly, will bring measurable benefits in terms of security (faster and more efficient communication between services), health (more efficient operation of e-health services, better access to services for the patient) and other areas of social activity (Internet access available from a mobile device in any place, without having to plug in a network cable).

on locally developed technological solutions. In view of demographic forecasts for Krakow, it is unlikely that the current growth rate of the service sector – over 10% annually – will be continued in the coming years without detriment to the local labour market.

The results of research conducted for the Ministry of Investment and Development indicate that some medium-sized cities in Poland may become alternative locations for business services. In the case of Malopolska, two cities are

Public administration will also have to face the challenges of technological progress, which are inextricably linked to the digitisation of social and economic life.

A study entitled E-government in the eyes of Internet users, commissioned by the Ministry of Digitisation, shows that 71% of respondents will definitely or probably use the services of a public office or institution via the Internet in the future. The highest percentage of those willing to use e-government was registered among residents of the Malopolska and Lubelskie Regions (76% each). In the future, Internet users would like to be able to deal with issues related to the issue or exchange of documents (61%), health (53%), vehicle registration (45%), local taxes (33%), participation in elections and social consultations (26%).

According to the forecasts of KTP, a further gradual increase in the importance of the service sector in Malopolska should be expected, both in terms of employment and share in GDP creation. In particular, this will concern: management services (including service centres), professional services: in science, technology, support of administration, services related to the development of the so-called silver economy, services related to information and communication technologies (ICT), leisure time industries and qualified tourism (medical, sport, event and business tourism, etc.). The scale of the dependence of Krakow's labour market on the BPO (Business Process Outsourcing) and SSC (Shared Services Centres) sectors is alarming. In Krakow, the share of people employed in this sector in relation to all people of working age is 2.6 times higher than in Warsaw, for example. Such development of centres currently operating in Krakow would be the most beneficial for the future development of the region, enabling them to increase the added value for their customers, e.g. by intensifying more specialised services based

mentioned: Tarnów and Nowy Sącz. According to the authors of the report, the IT sector may have a chance of overcoming the current belief that such service centres can only be located in metropolitan areas. Due to its specific nature, it will be easier to establish small local branches. Another group of companies establishing branches in non-metropolitan cities may be large SSC/BPOs willing to transfer some of their less demanding processes to their satellite branches.

The development of business services in medium-sized cities will create a chance to buck the current unfavourable development trends in these centres. The first companies representing the modern business services sector already operate in Tarnów (IT: Comarch, R&D: Azoty). According to KTP experts, reaching the critical mass, i.e. the moment when business itself will seek locations in smaller centres, will require long-term action by local government, universities, developers and local development agencies.

According to some forecasts, the pandemic will cause a partial shift away from globalisation. There will be greater geographical diversification of plant investment as concentrating production in China has proved risky, so production will move closer to markets and companies will return to stockpiling parts to be able to continue production despite supply chain disruptions.

Transit times and spatial accessibility to the urban centres of the Malopolska Region are expected to improve. The final shape of the transport system in Malopolska will depend on actions taken at various levels of administration. Undoubtedly, the increase in transport acces-

sibility of the region will be largely due to large investments implemented at the national level, which will contribute to an improvement in driving comfort, removal of traffic from city centres, and creation of new connections in response to transport needs. Transport trends –not only in the region, but also in the whole country – are unpredictable, which makes them difficult to determine on the basis of past trends and future determinants. Even so, towards 2030, road accessibility to all towns and cities will improve, particularly the most remote ones. The greatest change in accessibility will result from the construction of an expressway to Nowy Sącz and the Beskid Integration Road. As far as rail accessibility is concerned, the greatest importance will be attached to the construction of the Podtęże - Piekietko connection and the subsequent modernisation of the Chabówka - Nowy Sącz line.

At this point, it is also necessary to point out the great importance of the government project for the construction of the "Solidarity" Central Communication Port (CPK), which is to be an intermodal transport hub with integrated air and rail hubs. Following its construction, Krakow-Balice John Paul II International Airport will serve mainly European connections. The project to build the CPK foresees that its capacity will be around 45 million passengers by 2035, while the Krakow Airport Master Plan for 2036 foresees a capacity of 12 million passengers per year. Over the next 20 years, Krakow Airport plans to invest about one billion zloties in the development of its infrastructure. The key undertakings will be the construction of a new runway, the expansion of the passenger terminal and the airport's apron, as well as the relocation of the cargo terminal.

The desired effect of the project is to provide a rail link between the CPK and each of Poland's major agglomerations, with the exception of Szczecin, initially within 2.5 hours, and ultimately up to 2 hours, with a maximum speed of no less than 140 km/h. Undoubtedly, individual investments within the framework of the CPK project will influence the timetable of the railway network in Małopolska and the increase the external accessibility of the region.

Electromobility, shared transport, as well as personal transport devices (especially electric ones) will grow in importance, particularly in cities. The Industrial Motor Institute estimates that electric vehicles will account for around 50% of the global automotive market in 2030. City governments will increasingly switch their fleets to electric vehicles. A significant change in transport will also be brought about by the use of autonomous vehicles in public transport, freight transport and also in private transport. Such

vehicles, according to the forecasts of the EU institutions, will enter the market between 2020 and 2030, and fully automated vehicles should appear from 2030 onwards.

The importance of a circular economy (CFC) will grow due to the depletion of primary raw materials (especially rare forms of earth) and their rising prices and increasing dependence on third country suppliers, as well as environmental challenges. In the case of raw material resources, the pace of their exploitation will be of great importance. It depends on consumption patterns and economic growth rates as well as the results of scientific research and the pace of technological progress in new production processes or the search for substitutes for hitherto non-renewable resources. There will therefore be an increasing emphasis on product durability, reparability and re-usability or recyclability, which is already at the design stage (eco-design). Consequently, there will be an increasing demand for designers and constructors who, when selecting a material, will decide on the ergonomic and quality-related features of the product, not only according to criteria such as feasibility, cost-effectiveness and safety, but also environmental impact.

One important reason for regional government development policy is projected climate change. According to the forecast of climate conditions from now until 2100, compiled by the Polish Academy of Sciences, the predictions of the average annual air temperature indicate that it will increase steadily over the next few decades of this century. This trend can be observed in all three greenhouse gas emission scenarios presented in the forecast: at the beginning of the third decade (2021-2030), the average annual air temperature will be between 8.0 and 9.2°C

These changes will be accompanied by more frequent and more violent and unpredictable weather conditions. According to climate change forecasts for the Vistula River Basin, in the mountainous and upland areas of the upper part of the Basin, an increase in average air temperature is projected, including a significant increase in the average temperature of the cold period for water resources and an increase in the number of days with temperatures above 25°C. The forecast also foresees a significant decrease in the number of extremely cold days with temperatures below -10°C. However, the length of the growing season is not expected to change significantly.

On the basis of research within the ENSEMBLES project (the 6th EU Framework Programme), it has been concluded that droughts currently described as "droughts of the century" will re-

cur more frequently than every 10 years, and this applies to the Vistula river catchment area in Poland. Floods described as 'floods of the century' will also occur every few years in Poland, in the catchment areas of the Carpathian rivers. The threat of flooding is linked not only to climate change but also to anthropogenic factors, including inappropriate spatial management. Another important element forecast for the first half of the 21st century is the reduction of snow cover in Poland by about 28 days, which will result, on the one hand, in a lower probability of snowmelt floods and, on the other hand, in the deterioration in the structure and functioning of ecosystems, including soils. Minimising and counteracting the negative effects of these issues should be treated as an important part of public policy.

As far as the Carpathian Mountains and uplands are concerned, the most important tendencies in this part of the Vistula Basin area are: a significant increase in the frequency and number of torrential precipitations, the threat of flash floods, a shortened period of snow cover, longer-lasting soil and hydrological droughts as well as a progressive deficit of good quality surface and underground water resources. There are also areas of particular flood hazard in the Małopolska Region. The areas most exposed to the risk of flooding are the Vistula River Valley and the basins of the Soła, Skawa, Raba, Uszwica, Dunajec and Biała rivers, as well as the Biały and czarny Dunajec rivers in Podhale and the Ropa valley - a tributary of the Wisłok river. Another large danger area is the Sandomierz Basin from Krakow through the Vistula river municipalities to Szczucin, Dąbrowa Tarnowska and beyond, towards the border with the Podkarpackie Region.

A forecast for air quality in Małopolska based on the CALPUFF model, which involved predicting the rate of heat source exchange as well as the status and pace of implementation

of corrective measures between 2013 and 2015) showed that measures taken to improve air quality for 2023, but only in some areas where there is excessive pollution, may prove insufficient. This will be due to too low a level of emission reduction in relation to the number of emissions produced by new sources of pollution. The results indicate in which areas this problem will be particularly significant in 2023. For two parameters, particulate matter PM 2.5 and benzo-a-pyrene, there will still be sub-normal concentrations of these substances in most of Małopolska. Only in the case of concentrations of PM 10 will there be an improvement; excessive levels should occur only in the cities of western Małopolska and in the basins of Nowy Sącz and Nowy Targ. The anticipated improvement in this aspect of air quality in Krakow and its suburban zone is noteworthy.

Measures related to the fight for clean air will be supported by the growing importance of renewable energy sources. European Union policy in the field of energy is aimed at increasing the share of RES in total energy production. It is currently predicted that energy from renewable sources will account for 32% of total energy production in the EU by 2030. Therefore, in Małopolska, there is expected to be a considerable amount of investment in areas of energy which can be developed in the region using its own resources: geothermal energy, hydropower, and also biomass combustion and photovoltaics.

Based on CSO data, preliminary estimates of the volume of the amount of municipal waste collected lead to the conclusion that the growth of municipal waste generation is slowing down, slowly but surely. The estimated quantity is about 1.3 million tonnes (in 2022-2027) and, due to the changes introduced in waste management, it is difficult to indicate unequivocally what the differences will be over the coming years.

SWOT ANALYSIS

The summary of the social, economic, environmental and territorial diagnosis and development forecast for the Region is the SWOT analysis, which was prepared using the traditional system. The main elements of the analysis are a set of features of the region and external conditions which will play the most important role in the sustainable development of Małopolska for 2030. Strengths and weaknesses refer to entities and issue inside the Region, while opportunities and threats are external factors influencing the Region. The main features and issues were ranked in such a way as to reflect the layout of the chapter Diagnosis and analysis of development trends; they are not listed in order of importance.

The analysis was based on the conducted diagnosis and forecasts, which in large part refer to the effects and future challenges to be faced after the COVID-19 pandemic. It should be noted, however, that verification of some of them will be possible only in the long term. The pandemic has changed some trends and

given rise to some new issues, which is particularly evident in the sectors that have become most vulnerable to its effects (e.g. health care, education, culture, tourism, labour market, entrepreneurship, transport, digitalisation, environment).



Strengths

S

Favourable demographic situation of Małopolska in comparison to the rest of the country - annual positive birth rate and positive migration balance.

Low unemployment.

An important academic centre, with available research infrastructure and a large number of researchers.

High results in primary school leaving examinations and matriculation examinations.

Rich cultural and historical resources, including tangible and intangible heritage of European significance.

High investment attractiveness of the region.

High level of entrepreneurship among Małopolsans.

Well developed business services sector.

Well developed tourism sector and related industries.

A wide range of traditional and regional products.

Great potential for public transport due to the development of the Rapid Agglomeration Railway.

Numerous spa towns and rich resources of mineral waters, recognised as curative.

Rich natural resources and unique landscape values.

Implementation of an anti-smog policy in the region through liquidation of solid fuel furnaces, thermo-modernisation, increased use of renewable energy installations, successive modernisation of public transport in cities and development of railway connections etc.

Increase in the amount of separately collected municipal waste.

High social and civic activity of Małopolska residents.

The Małopolska people's attachment to tradition.

A balanced settlement network, including an even distribution of medium-sized towns performing the functions of supra-local growth centres.

Weaknesses

W

An ageing population and a declining proportion of people of working age.

Insufficient availability and quality of social and family support services.

Shortage of medical staff.

The inadequacy of education to meet the contemporary and future challenges of civilisation.

A significant number of economically inactive people, including people with disabilities.

Lack of large, prepared investment areas.

Insufficient cooperation, both between and within different environments (business, administration, science, NGO sector).

Lack of north-south expressway connections,

Low road parameters in the Polish-Slovak border area, preventing truck traffic.

Underdeveloped intermodal transport.

Poor air quality mainly due to low emissions.

Poor surface and groundwater quality and insufficient water retention.

Deficiencies in basic water supply and sewerage infrastructure, especially in rural areas.

Economically and institutionally weak non-governmental sector.

Progressive suburbanisation and dispersal of development.

High fragmentation of farms.

Unsatisfactory quality of life and accessibility to services in rural areas.

Large internal differentiation of the level of socio-economic development of the Region.

Opportunities

O

Moving to an Industry 4.0 model.

Development of e-services.

Changing the model of education at all stages of education (moving from knowledge education to competence education) and dissemination of lifelong learning.

Socio-professional integration of immigrants and effective use of the capital they bring.

Development of social economy entities in the provision of social services.

Development and implementation of innovative solutions for care and health services.

Increase public awareness of health-seeking behaviour and effectiveness of prevention, early diagnosis and rehabilitation.

Development of active leisure needs.

Building a network of national roads, especially north-south expressways.

Increased use of public and alternative transport.

Create conditions conducive to the development of low and zero-emission transport.

Increasing awareness of both businesses and residents of Małopolska in terms of the benefits of widespread use of GOZ.

The growing importance of renewable energy sources.

Growing environmental awareness.

Development of cooperation within urban functional areas.

Improving the spatial integration of the region and increasing accessibility to outlying areas.

Threats

T

The impact of the COVID-19 pandemic on the socio-economic development of the region in the coming years.

Risk to the sustainability of public finances, social security systems and social cohesion due to a progressive increase in the number of people of working age.

Lack of systemic transformation of education aimed at adapting educational processes to the individual needs of students, effective development of the so-called competences of the future and better preparation of graduates to the needs of the labour market.

Failure to adapt the profile of public services, labour market solutions and the structure of the economy to changing social needs.

Worsening problems in the health care system, especially in terms of shortages of doctors and nurses.

The growing problem of lifestyle diseases and an increasing number of patients with chronic diseases.

Inability to cope with the dangers of civilisation, resulting in a deepening family crisis and breakdown of social ties.

Delays in the development of the transport network in the Małopolska Region, including abandonment of the most important transport investments of national and international significance.

Rising costs of running investments.

Failure to adapt to emerging extreme weather events and increasing environmental pollution.

Widening of disproportions in development between individual parts of the Region.

Ineffectiveness of local government efforts in developing co-operation.

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LIST OF ABBREVIATIONS

| Abbreviation | Full name |
|---------------------|--|
| R&D | Research and development |
| LFS | Labour Force Survey |
| BDL | Local Data Bank |
| BPO | Business Process Outsourcing centres |
| BPP | Multi-site Project Bank |
| CP | Policy objective (with reference to the thematic objectives in force in the given financial perspective of the European Union) |
| CPK | Solidarity' Airport - Central Motor Transport Port for the Republic of Poland |
| CTT | Technology transfer centres |
| CTW | Knowledge transfer centres |
| DIH | Digital Innovation Hubs |
| DPS | Nursing homes |
| ebi | European Investment Bank |
| efrr | European Regional Development Fund |
| efs | European Social Fund |
| ESPON | European Observation Network for Territorial Development and Cohesion |
| EQI | European Quality of Government Index |
| GDDKiA | General Directorate for National Roads and Motorways |
| GDOŚ | General Directorate for Environmental Protection |
| GERD | Gross domestic expenditures on R&D in relation to GDP |
| GOPR | Mountain Voluntary Rescue Service |
| Goz | Closed loop economy |
| GPR | Municipal revitalisation programme |
| HBSC | Health Behaviour in School-aged Children study |
| CSO | Central Statistical Office |
| IOB | Business Environment Institutions |
| ICT | Information and communication technologies |
| ISOK | National Guard Information System |
| IS WM | Smart Specialisation of the Małopolska Region |
| IT | Information technology |
| JCWP | Surface water bodies |
| JCWPd | Groundwater Bodies |
| JST | Local Self-Government Unit |
| KAS | National Fiscal Administration |
| KE | European Commission |

| Abbreviation | Full name |
|---------------|---|
| KOM | Krakov Metropolitan Area |
| KPT | Krakov Technology Park |
| NAPCC 2030 | Concept of National Spatial Planning 2030 |
| CRS 2030 | National Strategy for Regional Development 2030 |
| LAG | Local Action Group |
| LOT | Local Tourist Organisations |
| LSR | Local Development Strategy |
| MICE | Meetings, Incentives, Conferences and Exhibitions Industry |
| MFiPR | Ministry of Funds and Regional Policy |
| MOF | Urban functional area |
| MORR | Malopolska Regional Development Observatory |
| MPI | Lesser Poland Investment Plan 2015-2023 |
| SMES | Small and medium-sized enterprises |
| MPZP | Local zoning plan |
| MRP | Flood risk maps |
| MZP | Flood risk maps |
| NEET | Social group comprising young people not in employment, education or training |
| NGO | Non-governmental, "non-profit" organisations (non-government organisation) |
| NSP | National Population and Housing Census |
| CIP | Crisis intervention centres |
| OKE | District Examination Board in |
| OPP | Public Benefit Organisations |
| OSI | Strategic intervention area |
| OSP | Voluntary Fire Brigade |
| RES | Renewable energy sources |
| PAN | Polish Academy of Sciences |
| PARP | Polish Agency for Enterprise Development |
| PES | Social economy entities |
| GDP | Gross domestic product |
| PKW | State Election Commission |
| PM 2.5 | Particulate matter containing particles with a diameter of less than 2.5 µm |
| PM 10 | Particulate matter containing particles of less than 10 µm in diameter |
| PPS | Purchasing power standard |
| RDP 2007-2013 | Rural Development Programme 2007-2013 |
| RDP 2014-2020 | Rural Development Programme 2014-2020 |
| SP 2021-2027 | Cohesion policy 2021-2027 |
| PSI | Polish Investment Zone |
| PUP | County Labour Offices |
| PZPWM | Spatial Development Plan of Malopolska Region |
| PZRP | Flood Risk Management Plan |
| RCI | Regional Competitiveness Index |
| RDOŚ | Regional Directorate for Environmental Protection in |
| REGON | National Official Register of Economic Entities |
| RIPOK | Regional municipal waste treatment facilities |

| Abbreviation | Full name |
|---------------------|--|
| RIS | Regional Innovation Scoreboard |
| RLKS | Community-led local development |
| RPO WM 2014-2020 | Malopolska Regional Operational Programme 2014-2020 |
| RPO WM 2021-2027 | Malopolska Regional Operational Programme 2021-2027 |
| WM RSI | WM Regional Innovation Strategies |
| RZGW | Regional Water Management Board in Krakow |
| SAG | Economic activity zone |
| SOPO | Slide guard system |
| ED | Strategy for Responsible Growth up to 2020 (with an outlook to 2030) |
| SRWM 2011-2020 | Małopolska Region Development Strategy for 2011-2020 (currently updated, still in force) |
| SRWM 2030 | Małopolska 2030" Regional Development Strategy (draft) |
| SSC | Shared Services Centres |
| SEZ | Special Economic Zone |
| WYS | Community self-help homes |
| TOPR | Tatra Voluntary Rescue Service |
| EU | European Union |
| UJ | Jagiellonian University in Krakow |
| UMWM | Marshal's Office of the Malopolska Region |
| UNESCO | (United Nations Educational, Scientific and Cultural Organization) |
| UTW | Third age universities |
| WFOŚiGW | Regional Fund for Environmental Protection and Water Management |
| WHO | World Health Organisation |
| WIOŚ | Regional Inspectorate for Environmental Protection in Krakow |
| WM | Lesser Poland Region |
| MFF | Multiannual Financial Framework of the European Union |
| WSJO | Provincial Self-Governing Organisational Units |
| ZDW | Provincial Roads Authority in Krakow |
| ZIT | Integrated Territorial Investments |
| ZUS | Social Insurance Institution |
| ZWM | Board of the Malopolska Region |

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