Third Monitoring Report on the National Framework Strategy on Sustainable Development

2017-2018

Drafted by the National Council for Sustainable Development (NFFT)

and approved at the NFFT's meeting on December 6 2019

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1. Message to the Readers from the members of the National Council for Sustainable Development

In compliance with the decision of the Hungarian Parliament, the NFFT has assessed Hungary's progress every two years since 2015, based on the unique priorities and criteria of sustainable development. The National Framework Strategy on Sustainable Development was adopted by the Parliament in March 2013 with a term ending in 2024, which means that this report assesses the progress made in the achievement of its objectives exactly in the middle of its term. You are now reading the third report (assessing the processes of 2017 and 2018).

For the first time since these reports were first written, two of the 16 key indicators rose above average reflecting a good status even in European comparison. Hungary performs particularly well in the increase of the economic capital and in certain macroeconomic indicators. Hungary shows exemplary fiscal discipline confirmed by the stable decrease of public debt (debt-to-GDP ratio). There have been remarkable improvements in the number and rate of the active population and accordingly, reductions in the unemployment rate as well in the number and rate of materially deprived people. There are a number of long term and efficient programmes designed to strengthen national unity and the connections between Hungarians living within and beyond the borders of Hungary.

Despite these positive results, the state of sustainability in Hungary is, in general, bad, with some of the trends being very unfavourable in European and especially in Central and Eastern European comparison. It is a global phenomenon (that should be addressed by every country) that the development of the human, social and economic aspects of prosperity in a broad sense requires the destruction of a large amount of natural resources. However, developed countries rarely choose to neglect to increase and improve a dominant part of their human and social resources in order to develop their economic capital.

Competitiveness, innovation and social prosperity in a broad sense is impossible without the careful, balanced maintenance and development of our national resources. The NFFT's Action Plan Proposal of May 30 2019 reminds by looking at the state of natural resources in Hungary that the key objectives of the current government cycle will fail without environmental sustainability. This requires a more general description here: if we only focus on the improvement of the macroeconomic conditions of economic activities and the increase of the economic capital while failing to maintain the human, social and natural resources to the required extent, we cannot be sufficiently innovative, competitive and cannot become a European society offering the best quality of life.

All the data confirm this idea. Hungary shows good progress in many economic indicators compared to its own past (public debt is constantly shrinking, the employment rate is the highest ever, the EU criteria for budget deficit are constantly met and the level of material deprivation is the lowest ever) and the quarterly or yearly results of some indicators (GDP growth, investment rate) are outstanding in European comparison. However, Hungary has been failing to steadily reach the EU's average prosperity level for the last one and a half decades with its convergence rate (based on the per capita gross domestic product adjusted for purchasing power) strongly lagging behind within the eleven formerly Socialist EU member states. While we were able to catch up at a rate faster than the EU average between 1999 and 2003, in the last one and a half decades, Hungary overall has been the second country developing and converging at the slowest rate within the group of countries mentioned

above. Looking at a shorter period of time, 2017 and 2018, the years under review in this report, Hungary was able to keep up with the pace of the other countries in Central and Eastern Europe.

For this reason, the NFFT proposes a sustainability shift. The shock of the global economic crisis in 2008 and 2009 was followed by the period of crisis management between 2009 and 2013 and later the economy started growing and continues to grow nowadays leading to an increase in real wages. In recent years, economic activity, including the gross domestic product, has significantly improved, however labour productivity stagnated for a long time and natural resource productivity was steadily deteriorating, reflecting a development pattern which is not sustainable. Hungary is currently in a position when, on the one hand, it has the opportunity to make this sustainability shift and on the other, it is required to do so in order to further consolidate the increase of social prosperity. We may speed up socio-economic development and steadily keep it at a high level if we stop exploiting more and more resources as the basis of such development and focus on boosting and developing knowledge, innovation, efficiency and productivity instead. This is our idea of how we should avoid the middle-income trap along with the trap of development through the destruction of the environment.

Our strong belief is supported by the result of the competitiveness analyses of the Hungarian National Bank. The aspects of competitiveness – which, if looked at closely, reflect the ability of a country's people, the actors of society and the economy to cooperate and the implementation of the values of sustainability – overlap with the aspects determining sustainability to a significant extent. As a result, building development on the foundation of sustainability is not for its own sake; it is the best basis, in harmony with the nourishment of the proper values, knowledge, ability to cooperate, our national natural and cultural heritage, for the long term success of a nation and a happy life for all.

Budapest, 06 December 2019

2. Recommendations to strengthen the sustainability transition

Based on the indicators reviewed in this monitoring report and the quality analyses of the state of the national resources as well as taking into consideration the results of the two previous reports and despite the improvements in certain minor areas, it is predicted that the majority of the objectives of the National Framework Strategy on Sustainable Development will not be achieved by 2024 and Hungary's sustainability transition will progress at a rate slower than required. As a consequence, Hungary may be able to offer a weaker contribution at a national level to the accomplishment of the UN's Sustainable Development Goals (*SDG*s) by 2030 than allowed by its possibilities.

For this reason, the NFFT promotes a sustainability shift, based on the successful crisis management after 2008 and 2009 and the results of the subsequent growth shift.

The two key areas of the proposed sustainability shift is the reduction of the excessive use of the natural resources, the stronger representation of environmental and natural resource restrictions and the increase of our human resources at a larger scale over a longer period of time, the first step of which should be significant changes to be implemented in education.

The objectives and possible means of the environmental sustainability shift are included in detail in the NFFT's Action Plan Proposal of May 30 2019 with the following key components:

- the transformation of land use: preventing the reduction of biologically active areas, switching investments from green-field to brown-field, improving the country's water retention ability by the rehabilitation of aquatic habitats, the development of urban green areas, the increase of ecological services in agriculture;
- circular economy: promotion of the sharing economy, the radical improvement of natural resource productivity, in particular, strong development of the environmental performance of the construction industry, transport and agriculture;
- low-carbon economy: decrease of the emission of greenhouse gases, improvement of energy efficiency, preparation for and adaptation to the effects of climate change, mitigation of our related vulnerability.

The human sustainability shift should basically improve the conditions of the increase of the knowledge capital:

- the income of teachers should in a few years be aligned with the average income of graduate workers and teaching should be made an attractive profession for the most talented young people;
- teaching methodologies should be revised to ensure that students are able to fully demonstrate their creativity, their problem solving skills are significantly boosted and their competence in cooperation based on problem solving is improved,
- the time spent by students in education should be increased by substantially lowering the drop-out rate in secondary education and by raising the rate of people in higher education,
- the role of education supporting social mobility should be considerably improved and the selectivity of the Hungarian school system should be reduced.

The environmental and human sustainability shift can be achieved while maintaining our macroeconomic stability and prudence. The essential means of the environmental sustainability shift are the introduction of stricter rules and restrictive conditions for the use of natural resources, pricing the reduction of natural capital and the use of the environment (introduction of charges, taxes), the removal of environmentally harmful budget expenses, the addition of environmental criteria to specific existing subsidies to prevent the generation of surplus budget expenses by the implementation of the environmental sustainability shift. The human sustainability shift requires a large amount of budget spending, which could be partly financed by the reduction of environmentally harmful subsidies and partly by the reallocation of funds from areas where we reached or outperformed the European average. This means that the need for direct subsidies granted to businesses to create jobs and for a large expansion of the road network is gradually decreasing.

Apart from the two key areas of the sustainability shift, we make the following general proposals to help preserve and improve our national resources and achieve the objectives of the Framework Strategy.

In the field of our human resources, in addition to the shift in education described above, we approve of the government's assiduous and consistent policy actions to stop the population decline and to mitigate social exclusion due to material deprivation and propose to improve the efficiency of the interventions to further approach the European average. In the field of demographics, the compatibility of child-rearing and work (access to day care facilities, opportunities to work flexible hours and part-time) and the recognition of child-rearing as a form of economic value generation should be promoted while emigration of young graduate workers should be reduced. Similarly to education, the health sector should also be fundamentally transformed, including the reform of the institutional and funding system, the increase of public spending relative to GDP, however, the social and professional consensus, one of the pillars of such a comprehensive change, is not yet available, therefore this consensus needs to be reached and the health shift needs to be prepared first.

In order to increase the human capital, the infrastructure of trust should be further reinforced, which means additional efforts are required to reduce corruption and in order to improve trust between the people and towards institutions, transparency should be enhanced, the amount of easily accessible information should be raised and the opportunities of stakeholders to be engaged in decision making should be expanded. Within the Hungarian society, the culture of cooperation and the values promoting sustainability should be reinforced.

The key to maintaining sustained growth in the economy is the improvement of productivity. The current low level of labour productivity could be basically enhanced through the improvement of the education and consequently by increasing our innovation capacity; that is the reason why we proposed a human sustainability shift. Natural resource productivity could be increased through the implementation of the set of our proposals for an environmental sustainability shift described above.

The mitigation of sectoral "tunnel vision", the creation and strengthening of harmony among the dimensions of sustainability as well as the horizontal integration of policies should be top priorities. That is why we propose a parallel, coordinated shift in environmental and human sustainability. The reduction of environmental pollution and healthier lifestyle strategies promote better health, the increase of knowledge improves our innovation capacity, which contributes to the decrease of environmental pollution, and so on, and so forth.

The sustainability shift can be combined with the competitiveness shift proposed by the Hungarian National Bank (MNB) and the actions of the MNB's Competitiveness Programme (2019) can effectively help accelerate the sustainability transition.

Our additional detailed policy proposals defined based on current states and processes described in the monitoring report are included in chapter 3.6.

3. Executive summary

3.1 Purpose of the National Framework Strategy on Sustainable Development

Pursuant to resolution 18/2013. (III.28.) of the Parliament, the Framework Strategy (NFFS) is intended to

- contribute to developing a common agreement on the definition of sustainability;
- promote the determination of the first steps of the transition to sustainability; and
- provide long term strategy for public policy development and decision making.

The NFFS is intended to define a system of political and policy goals and means that helps maintain (the quality and quantity of) our national resources on a level

- ensuring Hungary's solid and sustained ability to successfully compete with other nations;
- facilitating the preservation of our natural and cultural heritage for future generations; and
- ensuring appropriate enhancement of resources that may be increased.

The Framework Strategy sets forth responsibilities for the period ending in 2024. NSSD has defined 34 strategic objectives and 77 tasks (instruments) for the four – human, social, natural and economic – resources.

3.2 Purpose of the monitoring report

This biennial regular monitoring report has been designed to

- monitor our national resources through indicators and qualitative analysis;
- review social responses and actions initiated and implemented in the last two years (the Government's complete report on government actions in 2017-2018 to promote the implementation of the Framework Strategy is included in *Annex 1*);
- update the public on the results achieved in sustainability transition, which areas have improved substantially and which areas require more intense efforts.

It is important to stress that the impacts of certain actions for sustainability typically appear with relatively long delays – occasionally after some decades – therefore the tendencies identified in this monitoring report do not always directly allow the fair evaluation of government actions.

This report reviews the period from 1 January 2017 until 31 December 2018.

3.3 Assessment of national resources as reflected by 16 key indicators

The current state of the indicators (their absolute value or value relative to the EU and the V3 average) is evaluated on a scale of five: poor – below average – average – above average – good.

The trends are primarily evaluated in the period under review (2017/2018) and secondly based on the changes since the first year of the Framework Strategy (2012).

Indicator	2012	2013	2014	2015	2016	2017	2018	Current state	Trend	EU average	V3 average
Total fertility rate	1.34	1.34	1.41	1.44	1.49	1.49	1.49	below average	↔	1.59[1]	1.56[1]
Expenditure on education as % of GDP	4.7	4.6	5.1	5.1	4.9	5.1	N/A	average	↗	4.6[2]	4.4[2]
Early school leavers (%)	11.8	11.9	11.4	11.6	12.4	12.5	12.5	poor	↔	10.6	6.5
Healthy life expectancy at birth (years), male/female	59.2/60.5	59.1/60.1	58.9/60.8	58.2/60.1	59.5/60.2	59.6/60.8	N/A	below average	↔	63.5/64	58.9/60.5
Severe material deprivation rate (%)	26.3	27.8	24	19.4	16.2	14.5	10.1	below average	↗	6.6	4.8
Generalised trust scale (ESS, scale of 0 to 10)	4.8	N/A	4.2	N/A	4.5	N/A	N/A	below average	↗	N/A	N/A
Corruption index (Transparency Int., on a scale of 0 to 100)	55	54	54	51	48	45	46	poor	↘	65	56
Number of non-governmental organizations (thousand)	65.3	64.5	63.9	63.9	62.1	61.2	N/A	(declining)	↘	N/R	N/R
Biologically inactive areas (as % of total area)	68	67	67	67	67	67	67.5	poor	↔	N/R	N/R
Natural resource productivity (GDP/DMC, €/kg)	1.14	1.02	0.83	0.87	0.93	0.91	0.81	poor	↘	2.07	0.92
Public exposure to particulate matter pollution [PM(10)] (µg/m3)	28.8	27.3	28.2	26.9	25.3	26.5	N/A	below average	↘	21.6	26.7
Employment rate for population aged 20-64 (%)	61.6	63	66.7	68.9	71.5	73.3	74.4	above average	↗	73.2	69.2
Investments: gross fixed capital formation (GFCF/GDP)	19.3	20.9	22.2	22.5	19.6	22.2	25.5	good	↗	20.5	20.1
R&D spending (as % of GDP)	1.26	1.39	1.35	1.35	1.19	1.33	1.53	below average	↗	1.97	1.25
Public debt (gross) as % of GDP	78.2	76.6	75.7	74.7	74.1	73.4	70.9	average	↗	81.6[1]	49.2[1]
Old age dependency ratio	24.6	25.1	25.8	26.5	27.2	27.9	28.5	average	↘	29.9	23.7

[1] 2017 data
[2] 2015 data

3.4 Progress toward achievement of the national sustainability objectives

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
1.1	**Human resources/Population**	Promotion of family values	While the positive trend in the number of marriages was disrupted, the number of children born in wedlock grew and the number of divorces decreased.	Promotion of family values. Expansion of family support system.
1.2		Reduction of migration from Hungary (competitive wages)	The rate of migration from Hungary continued to fall with the rate of people returning to Hungary further growing (please note that the exact measurement of the numbers of people leaving and returning to Hungary is methodologically challenged). Despite the increase in returns, the number of Hungarian citizens staying abroad continued to go up. Compared to other EU member states in Central and Eastern Europe, Hungary is affected by a lower rate of migration but has the highest proportion of university graduates leaving the country. Besides migration, commuting between Hungary and a foreign country is also increasing. Despite the government's robust efforts, the wage gap between Northern and Western Europe and Hungary remains significant.	The raise of the minimal wage. The increase of market wages. Initial action to align the wages of public servants.
1.3		Reduction of the rate of population decline	Hungary's population continues to fall. The number of women of childbearing age is constantly and quickly decreasing, the fertility rate is stagnating and the number of live births dropped below 90 000 by 2018. Of all the aspects affecting the number of population, government measures are focused around the increase of fertility rates paying less attention to raising life expectancy at birth (including the options to raise life expectancy by improving the quality of the environment) and to reducing migration.	Expansion of family allowances: • higher tax and contribution reductions for families with two children; • the additional loan related to the family housing allowance (CSOK) was made available to families with two children as well; • the maximum amount of the child care allowance (GYED) was increased; • depending on the number of their children, the student loan debt is suspended, reduced or cancelled for mothers • a few smaller allowances were made available to families with Hungarian children living in foreign countries;

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
				• the fertility treatment programme was expanded; • the capacity increase of day care facilities for children under 3 continued.
1.4		Development of immigration policy	Compared to overall European rates, immigration into Hungary remains low. The rate of Hungary's foreign-born population is roughly 1.8% of the total population (the EU 28 average is 8%). There have been significant changes in both the volume and the structure of immigration in recent years. There was a sudden growth in the number of immigrants of foreign origin in 2017 and 2018 (approaching 50 000 in 2018); this rise is primarily due to the number of people arriving from non EU member states (mostly Ukraine) but the number of people coming from Asia also went up. On the level of communication, the immigration policy designed to lower labour shortages and the migration policy aimed at reducing irregular migration are blurred; there is no conscious immigration policy. The government's previously approved migration strategy for 2014-2020 has by now become outdated.	The naturalization of Hungarians living beyond the borders of Hungary continued. There is strong and long term commitment to prevent irregular migration. Many programmes were launched to ensure that foreigners potentially able to come to live in Europe are able to thrive and stay in their homeland (Hungary Helps programme).
1.5		Improvement of employment of elderly population	The major source of income for the elderly (retired people) remains almost exclusively their pension payment (from public transfers), yields from private capital (private savings) and financial support within the family are insignificant.	To stimulate the employment of retired people, pensioner cooperatives were introduced in 2017 and a decision to offer preferential conditions for the employment of pensioners (they are only required to pay personal income tax and are exempt from the payment of social security and other contributions) was also adopted.
1.6	**Human resources/Knowledge**	Quality education	The acquisition of new knowledge and the problem solving skills of the students further declined and continue to be below the EU average. The income of teachers remains low and the gap between the average wage of university	A number of reforms have been made in Hungary's education system in recent years in order to improve the quality of the education but as the majority of these changes have taken place in the last few years, their impacts may not yet be effectively evaluated.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			graduates and teachers has not changed since 2010 leading to shortages in teachers in many schools.	The pay rise for teachers and the introduction of the career path model have somewhat reduced the wage tension in the education system. Government spending on education relative to GDP has grown.
1.7		Increase of period of formal learning	The early school leaving rate remained high between 2016 and 2018; the value is still far from the target and our backlog compared to the EU average keeps growing. This also means that more and more young people enter the labour market unskilled creating challenges for them to make ends meet and move ahead.	The government introduced various actions to reduce the early school leaving rate including: • the adoption of the Mid-term Strategy Against School Leaving Without Qualification in 2016, the continuation of the Vocational Training Bridge Programme, they are designed to offer alternative study options to recent or former drop-outs by allowing them to obtain qualifications; • disadvantaged students at risk of dropping out are supported by the Arany János Programmes; • a decision was made to include the after school development programmes as a new form of basic child welfare funding (they were previously financed from EU funds and maintained by foundations); • the Complex Basic Programme promotes the reduction of the drop-out rate through the further training of teachers.
1.8		Reduction of selectivity within the education system	The Hungarian remains one of the world's most selective school systems in the sense that children are assigned to different schools based on their background from a very young age. According to the latest PISA test results from 2015, Hungarian schools are the least able to reduce socio-economic differences between students.	The government continued to put its desegregation education policy in place over the time reviewed in this monitoring report including by introducing integrated education of Roma and non-Roma students in many places. The requirement for children to attend preschools (kindergarten) after the age of 3 and the development of the network of day care facilities may help the education system to allow children to catch up with their peers.
1.9		More efficient use of knowledge within the society	The transformation of the secondary education system helped strengthen the vocational education and training system, raise the prestige of vocational grammar schools and the social status of skilled workers is in general improving. However, the number of people in vocational	The government prepared a strategy called "Vocational education and training 4.0, mid-term policy strategy for the renewal of vocational and adult education and training, the response of the vocational education and training system to the challenges of the fourth industrial revolution", the general

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			training programmes continues to be below the European average. Dual training programmes have been introduced in higher education as well and the importance of the dual training system has grown.	purpose of which is to ensure that all Hungarian young people leave the school system having skills and competences beyond the basic competences that allow them to acquire the skills and competences required by the economy and pursue lifelong learning.
1.10		Sustainability introduced in lifelong learning	While the rate of people in adult training programmes has decreased in the recent period, it is a positive tendency that more unemployed and inactive people joined these programmes with the number of employed participants lowering.	The government reviewed shortage occupations and market trends and extended the list of the government-funded training programmes (OKJ) supporting new courses, programmes and occupations. The policy introduced in the education system in 2015 allowing people of all ages to learn two professions free of charge offers more opportunities to attend adult learning programmes.
1.11	**Human resources/Health**	Health consciousness	The majority of health loss attributable to risk factors (74.5%) is associated with behaviour. In Hungary, the most common health-damaging behaviours include smoking, alcohol misuse, illicit drug use, poor diet, obesity and lack of physical activity.	In 2018, the government adopted the Fifth National Health Programme designed to improve the healthcare system, including the promotion of preventive, health conscious behaviours as a key priority.[3] The regulation adopted in 2017 on public catering services is designed to promote healthier eating habits among children.
1.12		Reduction of chronic disease rates	There was a slight improvement in healthy life expectancy at birth in women while this indicator has not changed effectively for men, widening the gap even more between the two sexes. However, the values are below the EU average for both sexes. High mortality rates reflect imperfections of the healthcare system. In 2017, the leading causes of death were cardiovascular diseases and cancer (these two causes of death account for 75% of all deaths) and the gap between	In 2018, the government adopted the Fifth National Health Programme designed to improve the healthcare system, the top priorities of which include the reduction of cancer related deaths by 10% in Hungary until 2030; the improvement of public health awareness; the decrease of social/financial burden attributable to cardiovascular diseases; the prevention of musculoskeletal disorders; the prevention of chronic illnesses in adults from a very young age and the improvement of mental health.

[3]This regulation will be described in more detail under the objective “Reduction of chronic disease rates”.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			Hungary and the EU average furthered widened in this respect.	
1.13		Reduction of mortality rate (aiming to reach the EU average)	Principal progress toward this strategic objective has not been made. In Hungary, the public spending on health is below the desired level. In 2017, government spending on health was 4.8% in Hungary, which fails to reach 70% of the EU average and is far below the average of the Visegrad countries. The insufficient level of public spending on health may be associated with the health problems of the population, in particular the quality of the services of the healthcare system. The underdeveloped state of the healthcare infrastructure and shortages in healthcare staff have an indirect impact on mortality rates. This despite the fact that the number of healthcare workers grew in the period under review, the rate of healthcare professionals leaving Hungary fell and wages also rose. Our distance from the EU average is shown for example by the standardised death rates for lung and colorectal cancer, which are the highest in Hungary among EU member states. (Mortality rates are also affected by air and noise pollution, see also point 3.6.)	There are a number of scholarships available in the training system to help reduce shortages in healthcare professionals, such as the Michalicza Scholarship Programme for the MSc training of qualified nurses or the grant system of the Resident Funding Programme. In late 2018, a national colorectal screening programme was launched as part of a complex public health screening initiative.
1.14	**Human resources/Cohesion**	Social solidarity, reduction of social exclusion	The rate of population at risk of poverty or social exclusion is 19.6% (1.89 million people), which means Hungary has achieved the target set for 2020. This decrease represents significant progress compared even with the indicators in the previous report: Between 2016 and 2018, the rate of people at risk of extreme poverty and social exclusion in Hungary lowered from 26.3% to 19.6%.	Apart from dedicated social policy actions, the reduction of poverty and social exclusion is also the result of the improvements in living standards in recent years; government measures and the economic upturn of recent years led to the highest rate of income rise of the last decade. The programmes providing free food to children in need in preschools and schools all year round have also significantly contributed to this progress.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			While the risk of child poverty remains high, its dominance has vanished as the elderly seem to be exposed to poverty to practically the same extent as children nowadays.	The expansion of the family support system also helped lower child poverty.
2.1	**Social capital**	Rearrangement of social structure	The rate of people affected by relative income poverty, severe material deprivation and very low work intensity is 12.8%, 10.2% and 4.1% respectively. In 2018, for the first time after 2008, the severe material deprivation rate was below the income poverty ratio: the value of 10.1% is the lowest ever reported in Hungary. Despite the positive trend, the Hungarian society remains highly deprived compared with the rest of Europe.	Changes in the social structure were likely caused by the actions described above, however, internal peripheries still exist: the alignment of socio-economically underprivileged areas remains a challenge in the field of social policy. To facilitate their alignment, there were experimental programmes launched in segregated areas and communities with multiple disadvantages, designed to eliminate disadvantages affecting several generations (e.g. TOP/CCHOP and HRDOP to develop urban and non-urban segregated areas).
2.2		Demonstration of good examples	(Certain methodological obstacles continue to prevent the quantitative or qualitative analysis of the implementation progress of this objective.)	This topic has been embraced both by the government and the civil sector in recent years. The public education division of the Ministry of Human Capacities (EMMI) has addressed three areas to raise the awareness of students: financial awareness, digital competence and environmental awareness. This goal is supported by the Money7 (from school year 2014/2015), the Digital Thematic Week (from school year 2015/2016) and the Sustainability Thematic Week (from school year (2015/2016) initiatives. Sustainability continues to be part of the public discussion primarily as a concept related to nature and the environment but without reference to any other resources.
2.3		Support to intermediate institutions promoting sustainability	Similarly to the previous period, the civil sector has continued to shrink. The special treatment of civil organisations defined in the law on civil society organisations in 2017 may lead to the weakening of the system of intermediate institutions promoting sustainability.	In the 2017/2018 period, the government offered high amounts of grants to support the activities of civil and other social organisations (National Cooperation Fund), which facilitated the achievement of social, environmental sustainability objectives in many areas. The presentation of the “Pro Voluntaris” award continued recognising outstanding professional contribution to

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
				community organisation and supporting civil society organisations.
2.4		Promotion of the infrastructure of trust	In the period reviewed in this monitoring report, similarly to the previous years, the lack of trust remains high; in terms of generalised trust, Hungary is in the lower middle section among the surveyed (mostly European) countries. In European comparison, the level of dissatisfaction and legitimation deficit is above average, especially with regard to the rules and regulations of the market economy and democracy.	The public procurement law was modified introducing even stricter requirements, partly with the aim to further reduce the number of single tenderer procedures and negotiated procedures without a prior contract notice, to promote competition and increase public accessibility and transparency; the Electronic Public Procurement System (EKR) was launched. In 2017 and 2018, the value of public procurement contracts awarded to SMEs grew significantly accounting for 58% of all the contracts, a ratio which is outstanding not only at national but also at European level.
2.5		Reduction of stress at work	(Certain methodological obstacles prevent the quantitative or qualitative analysis of the implementation progress of this objective.)	The government's Family Friendly Workplace Programme continued during the term of this report as well. The government conducted a comprehensive survey to assess stress at work affecting and the working conditions of public administration personnel.
2.6		Preservation of our heritage, strengthening our identity	The government's cultural development programme includes both top priority national institutions and rural, local and regional cultural institutions. While there has been remarkable progress made in the development of cultural institutions, certain areas in the protection of the cultural heritage (such as the protection of the built heritage and landscape protection) have experienced some negative trends lately, demonstrated by recent changes at institutional level, procedural changes and the UNESCO's signals. Hungarian organisations operating in a foreign country receive high amounts of funding. These funds are provided for the purposes to strengthen the Hungarian communities living in the diaspora, to allow them to develop their	Funding for organisations located outside of Hungary was provided from the Bethlen Gábor Fund and a sum allocated for this purpose within the State Secretariat's budget. These funds were raised both in 2017 and 2018. In 2018, the funds provided in excess of HUF 90 billion (compared to HUF 73.5 billion in 2016) were used to support the programmes and developments of nearly 4000 Hungarian institutions and civil society organisations operating outside of Hungary.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			relations with Hungarians living in Hungary and to support Hungarian civil society organisations operating in a foreign country.	
3.1	**Natural capital/** **Ecosystem services, environmental quality**	Regard for ecological limits	As the continuous monitoring of the natural capital assets and ecosystem services is currently unavailable, the observation of ecological constraints may only be assessed in an indirect manner. The conservation status of two-thirds of the species in the EU's Habitats Directive is unfavourable or bad. The condition of habitats is even worse with 87% of the ecosystems rated as unfavourable. The mining of non-metallic minerals further increased during the period of the monitoring report, especially for gravel, sand and cement materials. The quantity of water production went up by 9% by 2017 compared to the 2014 minimum, likely explained by the growing demand for water from the increasing activities of producers and service providers. The fertiliser use per hectare increased by 12% from 2015 to 2017 caused by the dynamically growing fertiliser consumption on areas under intensive agricultural production.	There were a number of relevant strategic documents adopted by the government in the period of the monitoring report: • in 2017, the National Water Strategy (Kvassay Jenő Plan), the first government level policy in Hungarian water management, was adopted. • in 2017, (as part of the National Forest Strategy adopted in 2016) a major modification of the forest law was introduced leading to numerous changes in the regulation of forest management. In addition to these strategic documents, the 2017/2018 period included a large number of action programmes and campaigns. a research project designed to develop a methodology for the mapping of and assessing the condition of ecosystem services is being conducted under the KEHOP (Environment and Energy Efficiency Operational Programme).
3.2		Promotion of sustainable production technologies	In the area of energy use, Hungary's energy import dependency is rising; our aggregate energy import dependency in fossil fuels was nearly 80% in 2018. In the field of primary energy consumption, energy use starting growing from 2014 and the increase in energy demand exceeded our GDP growth as a result of the rise in recent years. Compared with the previous monitoring report, resource productivity has been declining. Domestic material consumption (DMC) rose, which means that economic growth generates higher material consumption.	Compared with the demand, Hungary has modest reserves of raw materials and energy sources. As the available quantities of energy sources are not even sufficient to meet 50% of the domestic demand, Hungary imports large amounts of petroleum, natural gas and electricity. However, the mining of non-metallic raw minerals grew by approximately 50% between 2015 and 2017. Since 2016, the mining of the majority of the non-metallic raw minerals has been on the rise again, due to the boost in the construction industry.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			The rate of renewable energy use in Hungary is declining, totalling less than 13.5% of final energy consumption in 2017. The reason for the decline of recent years is that as the rise in final energy consumption is in excess of the growth of the use of renewable energy sources, their ratio is decreasing. The sources of renewable energy are imbalanced: 80% is produced by the agriculture and over two-thirds are associated with use in power plants and as firewood in households. In 2017, the use of solid biomass in total was roughly 100 PJ/year equal to 9% of the total primary energy consumption. As biomass is a conditionally renewable primary energy source, the associated indirect energy use (e.g. pesticides), transportation and, in particular, the maintenance/growth of biologically inactive areas used for crop production raise concerns. PV generation (solar power) is growing dynamically. Between 2015 and 2017, the amount of photovoltaic capacity built-in doubled every year, however it still only accounts for 0.17% of the total final consumption. There is a growing trend in the use of organic farming. The quantity of household waste stagnated in 2017 and the share of selectively collected waste substantially rose, however it is still far from the EU targets for 2020: it went up from 21% in 2015 to 29%. (In the meantime, the possibilities to collect glass waste selectively decreased.) The rate of waste disposed at landfills is also lowering at a steady but slow pace.	The Waste Water Sludge Treatment and Reuse Strategy (2018-2023) was adopted. In 2018, the revision of the Jedlik Ányos Plan began, which, upon its adoption, will facilitate the introduction of a modern and market friendly regulatory environment promoting the development of the electromobility market.
3.3		Optimal value of natural capital use	In the area of greenhouse gas emissions, Hungary is at the top in the European Union among the countries with the lowest rates of emissions. However, greenhouse gas emissions grew at or over the GDP growth rate between 2014 and 2017.	The second National Climate Change Strategy specifies the targets to reach and identifies the interventions to reduce the rate of greenhouse gas emissions.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			Hungary's CO_2 emission rose by over 4.5% from 2016 to 2017.	
3.4		Sustainable land use	Between 2016 and 2018, there was no major change in the structure of land use; the size of uncultivated land stopped growing. The expansion of the built-up, residential areas seems practically irreversible; there are few good practices for the rehabilitation of brown-field areas; the failure to reuse land increases the demand for greenfield land which is scarce, which is counterproductive for sustainable development and sustainable land use. The current distribution of land use within the agriculture (the dominant rate of cropland) reduce ecosystem services while intensive production methods adversely impact soil fertility. The Ombudsman for Future Generations has raised constitutional concerns on multiple occasions: the revised forest law adversely affects forest habitats which are highly important for biodiversity and the guarantees for the protection of Lake Balaton have weakened.	In 2017, the government adopted Hungary's first National Landscape Strategy for the 2017-2026 period, which defines goals and tasks based on the three pillars of protection, management and planning. As part of the National Forest Strategy adopted in 2016, the revised version of the forest law came into force in 2017 leading to numerous changes in the regulation of forest management. The new National Spatial Plan was announced in Act CXXXIX of 2018, which identifies water management regions and water quality protection areas in compliance with the WFD.
3.5		Conservation of biodiversity	In 2017, the forest area was 1 869 213 hectares; the size of forests has not grown in the last two years. The primary use of forests is logging, restricting ecological functions, management for the pure purpose of conservation is rare or there are few cases where these two functions are balanced. Forest health has significantly declined since the previous monitoring report; tree species at the highest risk are oak and beech, explained by the increasingly lengthy periods of droughts. With regard to forest vulnerability, nearly 50% of Hungary's territory is extremely and highly vulnerable land.	The strategic documents adopted in the period of the previous monitoring report (National Forest Strategy 2016-2030; National Biodiversity Strategy 2015-2020) remain valid and effective. The number of Natura 2000 sites with a maintenance plan has considerably risen in the last few years: while the number of properly prepared and approved maintenance plans was only 38 in 2013, it went up to 325 until the end of 2017.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			In the last two years, there has been no significant change in the number of endangered species and the number of endangered animal and plant species has hardly changed since 2012. Meanwhile, the conservation status of habitats has further declined: in 2018, the protection of 81% of all habitats was unfavourable (compared to 60% in 2016). The most important risk factor is the decrease of natural and semi-natural habitats. The penetration of invasive animal and plant species is rising, which has become one of the biggest risk factors in protected natural areas. Changes in the interpretation of the regulations related to Natura 2000 sites led to poorer compliance with the restrictions.	
3.6		Reduction of environmental impact on human health	The years 2017 and 2018 brought record breaking heat: 2018 was the hottest year ever recorded in Hungary; in the area of precipitation, the higher frequency of torrents, flash floods, thunderstorms and hailstorms is predicted. Compared to other EU countries, Hungary is extremely vulnerable to climate change. One-fourth of the population live in areas affected by very high or high risk of heat waves. Vulnerability significantly varies from region to region and affects Hungary's disadvantaged areas to a larger extent. While the annual mean concentration of air pollutants has practically stagnated in the last ten years and even lowered for sulphur dioxide, there has been growth or stagnation reported for all pollutants in the last two years. The biggest problem is caused by particulate matter in ambient air (PM_{10}). Average pollution in Hungary caused by particulate matter in ambient air is unfavourable in European comparison; and it is also cause for concern that as three neighbouring countries (Slovenia, Croatia and	The second National Climate Change Strategy includes interventions aiming to monitor the climate change and reduce greenhouse gas emissions. The “Intersectoral Programme for the Reduction of Particulate Matter (PM10)”, announced by Government Decree (1330/2011.) (X.12.) will be renewed in 2018/2019. The new National Air Pollution Reduction Programme (OLP) has been completed, which includes other air pollutants in addition to PM10. This programme covers all emission sectors (transport, industry, agriculture, households) and includes horizontal measures (e.g. transboundary air pollution modelling).

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			Serbia) rank even worse than Hungary, cross border air pollution (advection) is also a serious risk for health. In 2017, 30 monitoring stations registered 1132 cases when the health limit was exceeded for the air hygiene index. Although a proposal was prepared some years ago, the regulation designed to protect the quality of indoor air has not yet been approved. The prevention of the loss of life expectancy attributable to environmental conditions must be a top priority.	
4.1	**Economic resources/** **Business capital, innovation, employment**	Balance of localization and international cooperation	The gap between gross domestic product (GDP) and gross national income (GNI) has been narrowing since hitting bottom low (93.4%) in 2007 and until 2013, GNI was growing constantly at a higher rate than GDP. Since 2013, the GDP/GNI rate has been around 96-97%. While the trade surplus has been steadily decreasing since 2017, its amount remains and is predicted to remain high in the near future. Partly this surplus and the robust growth of GDP will likely eliminate Hungary's foreign debt by 2020 and the country may again become a net foreign creditor after 50 years. Since the previous monitoring report, export growth has continued at a slower rate.	The lowering of the trade surplus is partly due to the reduced import demand of the world economy and the European Union as well as the high import demand to meet the rising domestic demand (consumption and investment).
4.2		Promotion of local economic relations	While over 70% of all workers in Hungary are employed by micro, small and medium-sized enterprises, these businesses generate less than 50% of the total economic output of Hungary. The conditions of borrowing have improved for small and medium sized enterprises; while corporate borrowing is dynamically growing, it is still not sufficient for the required supply of capital. There are no actions to support the circular economy locally.	In 2017 and 2018, the value of public procurement contracts awarded to SMEs grew significantly accounting for 58% of all the contracts, a ratio which is outstanding not only at national but also at European level.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
4.3		Reduction of rent seeking	Corruption resilience has further declined in Hungary since the previous monitoring report; while we rank as moderately corrupt at a global level, Hungary is one of the most corrupt countries of the European Union.	In the period of the monitoring report, the public procurement law was modified introducing even stricter requirements; also, the Electronic Public Procurement System (EKR) was launched speeding up public procurement procedures, improving their transparency and traceability as well as reducing administrative burden.
4.4		Reduction of business burdens, barriers	While business burdens remain high, in particular for SMEs, the government performed the largest reduction in taxes in the EU in 2017, which continued in 2018.	The corporate tax and social contribution tax payable by employers were decreased effectively compensating for the rise in expenses for businesses due to the pay rises effected.
4.5		Promotion of innovation	There was a slight increase in research and development (R&D) spending as a percentage of GDP after the previous monitoring report, dominantly due to the accelerated advance payment of EU funds. Business R&D continues to be concentrated in a few large, mainly foreign-owned companies and benefits from generous government support. Due primarily to the lack of funds, the quality of publicly financed science is declining, which also adversely impacts the career options of researchers in the public sector.	One of the objectives set by the National Research, Development and Innovation Strategy for the 2013-2020 period is the establishment of internationally competitive research bases and workshops to enable them to join international research networks. To this end, a total of 19 Hungarian universities set up 16 thematic research consortia, using EU funding. The Industry 4.0 National Technology Platform was created in 2016 to identify the directions of the activities of research institutes and industrial research and development, based on the needs of businesses and organisations, in order to meet the innovation needs of the economy.
4.6		Increase of employment	The employment rate of the population aged 20-64 has been steadily rising since 2010; the value of 74.4% from 2018, on the one hand, exceeds the EU-28 average (73.2%), and on the other, it is approaching 75%, the value Hungary committed to under the EU2020 strategy. After 2017, the increase in the number of employed people exclusively took place in Hungary's primary labour market. The opportunities for participants in public employment programmes to find a job in the competitive labour market have improved.	The higher rate of employment is the result of the higher number of people in public employment programmes and of Hungarian citizens working abroad, the raise of the retirement age and national policy and economic programmes.

C	Resource	Objective	Current state (2018 year-end)	Key social/government actions (2017-2018)
			The employment of first-time employees is especially important for sustainability: it shows a positive trend while their unemployment remains a significant issue.	
4.7	**Economic resources/** **Macroeconomic balance, prudent budgetary practice**	Control of budget deficit, decrease of public debt, promotion of financial awareness	While Hungary has achieved one of the quickest GDP growths in the EU in the last few years, instead of the generation of government reserves, the government deficit relative to GDP has slightly increased. The public debt to GDP ratio lowered from 76% in 2016 to 70.9% in 2018; and the report of the Hungarian Central Bank (MNB) on inflation predicts a further decrease. The public's financial awareness remains poor.	The government has pursued prudent budgetary policies in recent years to improve public debt and public fiscal balance. The budget deficit remains below the value of 3% based on the Maastricht criteria; according to the MNB's forecast, the public debt to GDP ratio may go below 63% by 2021. It is a top priority for the government to enhance financial literacy and incorporate it into formal education. To that end, the national strategy for the development of financial awareness was drafted in 2017, in harmony with previously launched programmes to disseminate financial and entrepreneurial information; it contains the implementation of the objectives from 2017 to 2023, divided into two-year action plans.
4.8	**Economic resources/** **Generational balance**	Gradual restoration of generational balance, promotion of long term stability of the pension scheme	The ratio of pension payments relative to GDP is decreasing, due to the system wide adjustments started in the 2010s. This is mostly the result of the reduction of the system dependency ratio (number of pensioners to contributors). Despite the higher rate of people at or older than the retirement age, the system dependency ratio fell, partly due to the reduced rate of people eligible for pension and to the higher rate of employment. In the last year, the reduction of individual pension contributions also helped lower the ratio of pension payments relative to GDP.	The two important factors improving the balance within the pension system were the real raise of the retirement age (the exit age went up to 61.4 years by 2017) and the rising tendency in activity.

3.5 Assessment of the current state of the sustainability transition

The changes that took place in the six years since the adoption of the Framework Strategy may already be measured in many instances; the third monitoring report uses the data available to describe the processes based on the criteria of the Framework Strategy.

General observations

- Compared with the previous monitoring report, the key indicators reflect many positive changes. For the first time since these reports were first written, two of the 16 key indicators were evaluated as “above average” or “good”, the two top positions on the scale of five. Nonetheless, the state of sustainability in Hungary, in general, remains unfavourable over time with the majority of the key indicators (14 out of 16) included in the middle or the two bottom categories on the scale of five.
- Within the indicators assessing our national resources, dominantly the indicators associated with the economy improved; this is the only area that performed above the EU average including the employment rate and gross fixed capital formation.
- Despite the improvements that began in the field of human resources, the state of our human resources is concerning, especially the indicators for education and health. The quick improvement of the fertility rate between 2011 and 2016 was replaced by a period of stagnation in 2017 and 2018 as the total fertility rate, despite the growing number of family benefits and grants, remains stuck at 1.49, which is far below the level allowing the reproduction of the population.
- Human and natural resources have shown weak and significant decline respectively in the last two years and ever since the adoption of the National Framework Strategy on Sustainable Development (NFFS).
- While our performance remains below the EU average, the risk of poverty has notably decreased in Hungary since 2013 due to the carefully implemented and long term employment and social policy government actions as well as the increase of the employment rate and real wages. The severe material deprivation rate dropped from 27.8% (2013) to 10.1% within the total population. Income inequality remains below the EU average and the differences in income levels have not risen over the course of our monitoring reports.
- Specific indicators reflect significant improvement in the severe material deprivation rate, the employment rate for the population aged 20-64, the gross fixed capital formation and the (gross) public debt to GDP ratio. However, the following indicators show negative trends: early school leaving rate, corruption index, the number of NGOs, natural resource productivity, exposure to particulate matter pollution and the old age dependency ratio.
- Knowledge is a resource that, if of a high quality, stimulates other resources (healthy lifestyle frequency rises, environmental awareness improves, innovations expands, job supply increases, productivity and social mobility improves etc.). For this reason, it is especially alarming that the ability to apply knowledge acquired in schools in practice is declining and Hungary’s school system is one of the most selective systems among the developed countries retaining social differences at birth to the highest degree. Knowledge capital depends on the time spent in formal education and the quality of education (including primarily the aptitude and excellence of the teachers). It is consequently especially alarming that the time spent in

formal education is much shorter than in the Czech Republic or Poland, the drop-out rate is growing contrary to the EU average tendency, the number of students in higher education is one of the lowest in Europe and the gap between the wages of teachers and the average wages of other graduate workers has not changed since 2010.

- In 2017 and 2018, the period under review (and the trends have remained the same since 2014), all three areas fundamentally affecting the quantity and the quality of the natural capital have experienced steadily negative trends. Hungary is simultaneously challenged by the lowering rate of biologically active areas caused by intensive soil sealing, the decline of natural resource productivity and growing emission of greenhouse gases. This kind of economic growth pursued since 2013 is clearly unsustainable.
- Successful measures appear to be the ones that are supported by strong political and social commitment, implemented by a solid institutional system and are based on purposeful, coordinated, innovative and long term planning and implementation. These measures (such as the reduction of public debt, the increase of employment, the fight against poverty and the attempts to halt the population decline) could offer good examples for the improvement of our national resources in the future.
- The government has demonstrated strong commitment in certain areas specifically relevant for sustainability, such as actions in the field of demographic and macroeconomic policy, however, in the case of other, especially natural and social resources as well as in education and health, interventions are generally selective while coordinated, planned and persistent policy implementation and high level political resoluteness is lacking.
- The institutional system of sustainability remains imbalanced: while many provisions of the Fundamental Law, the advocate of future generations, various advisory bodies (NCSD, the National Council for Environmental Protection, the National Competitiveness Council) and the sustainability directorate of the President's Office collectively establish a uniquely rich institutional system for sustainability in global terms, sustainability continues to be treated, in general and in its horizontal complexity, as a strategic aspect in the executive branch. Effective government coordination is lacking, horizontal integration is weak and the related parliamentary recommendation has only been formally but not efficiently implemented. Laws enacted at times in a speedy manner frequently fail to consider and incorporate the opinions and feedback offered by the above institutions. The government fails to have a structured dialogue with social representatives in order to implement the UN's and national sustainable development goals.
- In the period under review, sustainability, or more precisely, certain aspects of sustainability appeared to become increasingly important for the people and businesses as well. The obvious impacts of the climate change benefited environmental protection and awareness while growing demand for labour and rising wages in the economy put a stronger focus on human factors such as lifelong learning, better work conditions and health consciousness.

Not unlike at the time of the preparation of the previous monitoring report, the trends in Hungary's demographic processes in the field of human resources remain one of the most urgent sustainability issues. Despite the multiple government measures supporting families, introduced after the previous monitoring report, the number of marriages and childbirths is stagnating. The increase of the capacity of day care facilities and the employment of parents with young children in flexible or part-time schemes remains a pressing issue. In the meantime, as the ageing of the population continues, issues

regarding the sustainability of pension system become more urgent although the pension system will remain economically stable until 2030. Emigration continues to be a problem for Hungary: while the number of people returning to Hungary has been clearly growing in recent years and the pace of emigration is now lower, the migration balance between people leaving and returning to Hungary remains negative. Additionally, unlike other immigration patterns in Central and Eastern Europe, the rate of Hungarian graduate workers leaving their home country is much higher.

In the field of health, life expectancy at birth failed to effectively rise in 2017 and 2018 but the self-perceived health of the Hungarian people improved and healthy life expectancy at birth slightly rose for women. However, various behaviours adversely affecting health, in particular physical inactivity, smoking and unhealthy diets, remain a severe health risk; among the diseases, high blood pressure is extremely prevalent, affecting almost the entire population aged 75 and older. The prevention and monitoring of the health issues associated with environmental conditions continues to lack the required focus. While there have been some positive changes to make the health sector more sustainable, including making the wages of health care workers more competitive, further action is needed. In Hungary, the rate of public funds spent on financing the health sector, relative to GDP, is gradually lowering. In 2017, public spending on health was 4.8%, not even reaching 70% of the EU average and notably lagging behind the average of the Visegrad countries, which is likely to be associated with the problems of the population's health status, especially the quality of the services of the health care system. This means that public spending on health relative to GDP needs to be increased.

Hungary's education system continued to decline after the previous monitoring report, the gap between our quantitative and qualitative indicators and the European average or the average of the Visegrad countries, our direct competitors (especially the Czech Republic and Poland) keeps growing. The selectivity of the education system further increased, which means that schools are unable to reduce the socio-economic differences between students. While the number of early school leavers continued to rise compared with the previous report, the participation of low skilled workers in lifelong learning and further training remains poor. The problem solving skills, especially the collaborative problem solving skills of students are the poorest among the developed countries.

It is important to highlight in the field of social capital that the improvements started in social inequalities and poverty continued: In Hungary, the risk of social exclusion went down from 26.3% in 2016 to 19.6% in 2018, which means that Hungary has reached the EU2020 target. The rate of people living in low work intensity households fell by fifty per cent (4.1%) while the number of people living in severe material deprivation lowered by 40% in the same period although their rate remains high in European comparison (10.1%). Meanwhile, the rate of children at risk of poverty dropped significantly, due primarily to the availability of free food in preschools (kindergartens) and schools. The income inequality in Hungary is lower than the EU average (we are on the same level as Sweden and Austria), the differences in income levels have remained stable since 2014, income polarisation is not growing.

Hungary's corruption index has further declined since the previous monitoring report remaining one of the worst rates throughout the EU. While the non-governmental sector has also continued to shrink, the revenues of these organisations (not equally based on their types) rose.

The government has made robust efforts in the recent period to nourish the heritage of the past and reinforce national unity leading to a significant increase in financial and cultural support provided to the diaspora.

On the positive side, the state and sustainability of the natural resources has become a topic of public discussion in the last two years with the environmental movements and initiatives reaching more and more people. Nonetheless, our natural resources have failed to improve in the last two years or the last ten years. While article P) of the Fundamental Law stated that natural resources form the common heritage of the nation and must be protected, maintained and preserved for future generations, their documentation is insufficient and the changes are still not reported yearly.

In Hungary, the disappearance of habitats, the decline in the state of the remaining habitats and land degradation appear to be a sustained and severe trend. Species become threatened while the number of other species falls. The disappearance and steady degradation of natural habitats, i.e. the loss of biodiversity leads to a reduction in ecosystem services. For example, the decrease in the number of pollinating insects threatens pollination as an ecosystem service.

The rate of biologically inactive areas has been stagnating at a high level for a relatively long time. The challenges here include the rise of fertiliser use, the prevailing high rate of intensive agricultural production, the associated growing soil degradation together with the insufficient ecological and chemical condition of the surface and underground water reserves.

Resource productivity shows a negative trend: Hungary needs to use more natural resources than the EU average to obtain the same economic result. This is partly explained by the boom in the extremely material-intensive construction industry. An improvement in waste management is the growing rate of selectively collected waste and the simultaneous rise in the quantity of recovered waste although we are nowhere near to complying with the EU requirements for reuse and recycling rates.

In the area of air quality, the pollution by particulate matter in ambient air (PM_{10} and $PM_{2,5}$) is the biggest problem in Hungary, which mostly comes from residential heating using solid fuels and transport. While this area shows a positive trend over time, certain monitoring stations regularly and in growing numbers report concentration levels of PM_{10} exceeding the daily limit. High concentration of PM_{10} is a top cause of death. Noise pollution adversely affecting health remains an issue to be addressed.

As an impact of the climate change, extreme weather events are becoming more frequent in Hungary. Critical issues here include the number of days with extremely hot weather, droughts and adaptation to torrents. As a positive action in the area of water management, objectives to retain water and to create farms with water saving irrigation systems have been defined.

Since the previous monitoring report, the former positive trend in energy intensity turned into stagnation. The year-on-year growth in primary energy demand was 4.2% in 2017 exceeding the rate of GDP growth. The rate of renewable energy use in Hungary is declining, totalling less than 13.5% of final energy consumption in 2017. Furthermore, the sources of renewable energy are imbalanced: four-fifth is produced by the agriculture and over two-third is associated with use in power plants and as firewood in households while the use of biomass defined as a conditionally renewable energy source is also increasing. An improvement, however, is the dynamic growth of PV generation (solar power) identified as a fully renewable source of energy but its share is still very low totalling only 0.2% of the total energy consumption.

It is to be highlighted that Hungary is still among the best in the EU in terms of maintaining a low level of greenhouse gas emissions. However, the growth of greenhouse gas emissions equalling or exceeding the gross domestic product between 2014 and 2017 should be treated as a risk factor.

The adoption of a number of strategic documents and programmes in 2017 and 2018 designed to protect and preserve our natural heritage as well as to improve our adaptability could pave the way for a positive turn. However, the conditions to implements these strategies are often absent as transformations in the institutional system and changes in procedures have a counterproductive effect.

Since the previous report, the Hungarian economy grew even stronger reflected primarily by GDP growth, higher employment, the rise of corporate borrowing, the increase of the net financial wealth of households and the decrease of public debt relative to GDP.

While economic growth stimulated a dynamic increase in consumption and investments, this did not trigger any tendencies threatening macro prudence on the consumption side of the gross domestic product. After a period of stagnation, the net financial wealth of households has massively grown in the last ten years while foreign direct investment is also rising (after a temporary decline) in Hungary. The financing options of investments into human and physical capital in general improved.

While the trade surplus has been steadily decreasing since 2017, its amount remains and is predicted to remain high in the near future. Partly this surplus and the robust growth of GDP will likely eliminate Hungary's foreign debt by 2020 and the country may again become a net foreign creditor after 50 years. Since the previous monitoring report, export growth has continued at a slower rate.

The conditions of borrowing have improved for small and medium sized enterprises; while corporate borrowing is dynamically growing, it is still not sufficient for the required supply of capital. There has not been any effective improvement in administrative burdens for SMEs, which remain extremely overwhelming despite the government's tax reduction, of the highest rate in the EU, which started in 2017 and continued in 2018.

There has been dynamic growth in the area of employment: the employment rate is over the EU average and is steadily approaching the EU2020 target. Meanwhile, labour productivity stagnated for a long time, reaching the level of 2010 in 2017 only and further improving in 2018. It is a positive development that the increase in the number of employed people exclusively took place in Hungary's primary labour market from 2017. The employment of first-time employees is especially important for sustainability: it shows a positive trend while their unemployment remains a significant issue.

While research and development continues to lack the required funds and human resources, there was a slight increase in research and development (R&D) spending as a percentage of GDP after the previous monitoring report, dominantly due to the accelerated advance payment of EU funds. While financing issues may be tackled through appropriate government measures, the required human resources may only be provided by first delivering a massive improvement in the efficiency of the education system.

3.6 Policy recommendations:

In order to promote the transition towards sustainability – and to support the achievement of NFFS's objectives – the present monitoring report makes the following policy and horizontal recommendations in addition to the general recommendations included in chapter 2:

A) Improvement of high level political commitment towards sustainability

- Sustainability as a value has become part of the public discussion, which is an extremely positive development. However, further enhancement of the communication linked to sustainability should consider that, on the one hand, the meaning of expressions previously used in the area of environmental protection has significantly changed through the public discussion, in some cases, becoming independent from or even reverse to the original meaning causing a lack of terms that communicate the same message for all the people. On the other hand, sustainability continues to primarily exist in its environmental/natural dimension remaining absent in relation to human, social and economic capital, despite the fact that sustainability requires a complex approach and interpretation.
- In general, awareness about the definition of sustainability agreed to in the Framework Strategy needs to be further raised and the application of this definition in public administration should be improved. As objectives of the Framework Strategy have only selectively, inhomogeneously guided certain policy decisions, the commitment of high level political leaders toward the promotion of sustainability should be strengthened and the coordination of policies on ministerial level should assume a real, functional role in the implementation of NFFS. Sectoral policies should be constantly revised in order to promote the objectives and the philosophy of the Framework Strategy.
- In order to improve the long term impacts of public policy decisions, the institution of preliminary sustainability studies should be introduced for which a professional approach has been elaborated by NFFT.

B) Conscious and stimulating population policy

- To improve demographic trends, measures to encourage higher birth rates should be maintained and expanded, including in particular, further increasing the capacity of day care facilities and supporting the employment of workers with young children (flexible and part-time jobs, working from home). Fertility indicators show that most parents choose not to have a second child, either due to the late arrival of the first child or individual decisions made after the birth of the first child. However, as government measures seem to have been successful in encouraging parents to have a third child after the first two, the further expansion of actions designed to improve birth rates is strongly recommended for second children. Moreover, in order to manage the health aspects of reproduction, access to fertility treatment, various screening and test programmes for couples planning families such as the launch and promotion of related programmes such as family planning guidance may be considered.
- Other solutions to disrupt the population decline such as the increase in healthy life expectancy and the reduction of emigration (in particular among generations of reproductive age) should also be enhanced. Furthermore, the recognition of child-rearing as a form of economic value generation and parental security should also be improved. Stronger focus should be placed on the deeper understanding of demographic processes and behaviours of Hungarian communities living within and beyond the borders of Hungary.
- There has been a great amount of progress achieved in the field of national policy since the previous monitoring report; it is important to ensure that existing programmes and forms of support remain accessible for the Hungarian community and its organisations living beyond the borders of Hungary in the long term; this will create and consolidate a trustful bond that will massively contribute to the nourishment of the Hungarian cultural treasures and heritage and to the reinforcement of connections between Hungarians living within and beyond the borders of Hungary.

C) Promotion and dissemination of health conscious behaviours

- In health care, the continued support and promotion of screening programmes remains a top priority, which help improve the early diagnosis of health conditions.
- It is highly recommended that programmes designed to help develop love for sports and learn the pleasures of exercise be introduced and promoted as physical inactivity is a severe health risk. Supporting the operation of amateur sports clubs would be especially important as opportunities to choose from a wide range of sports and exercise activities, which could fill the gap between physical education at school and competitive sports, are missing.
- Stress at work is not an individual but a collective problem, which causes quantifiable losses in the economy. To address that problem, we recommend that a comprehensive plan to treat and reduce stress at work be developed and awareness raising and educational programmes be launched and promoted.

D) Improvement of quality and efficiency in education

- The current funding system of public education strongly contributes to the selectivity of schools. Religious and minority schools are increasingly popular; they receive higher normative funding, have more elbowroom and their own admission systems, which further consolidates the selectivity of the education system and supports the establishment of elite schools. We recommend that the above aspect be considered in planning future changes in the public education system.
- Engaging not only students but also parents in career guidance programmes may help all students choose the type of school in secondary and higher education best suiting their abilities and interests. This could help resolve the dilemma of how to increase the reputation of vocational training while also stimulating the growth of the number of university graduates as Hungary needs a higher rate of people with higher education degrees to support its current development and future sustainable development.
- It would be crucial to strengthen financial education and teach it in schools. While the country's dynamic economic growth does not yet go hand in hand with the growth of financial awareness, it is an improvement that the dissemination of financial and entrepreneurial competences and skills is now a top priority for the government.
- R&D spending should be raised, the quality of state-financed science should be improved and research careers should be made more attractive including in particular by offering fair and competitive wages to the academic and research staff. It is a step forward that research centres have been set up with government funding, however their sustained survival should also be ensured partly in order to strengthen Hungary's role on the international scientific scene.

E) Increasing the competitiveness of wages and reducing regional differences

- Wages are importantly required to be made more competitive, in particular in professions experiencing a high rate of shortages due to the lack of qualified workers or the departure of qualified workers from Hungary. We see a positive trend among medical doctors due to the introduction of the Resident Programme and other grant/scholarship programmes, which should be maintained and strengthened in the future and may also be used as an example in other understaffed professions.

F) Long term economic stability

- As a consequence of low productivity, the rate of potential growth determining the long term growth opportunities of Hungary's economy is low; it is a question whether the current high

rate of economic growth can be maintained in the long term. That is the reason why labour and natural resource productivity must be improved to a significant degree and in a sustained manner.

- The pension system will remain sustainable in the years to come, the pension system deficit is predicted to start rising after 2030. In the long term, this problem may be tackled by maintaining or further increasing the high rate of employment, however this requires the improvement of the performance of as well as the substantial reduction of the inequalities of the education and the health care systems.

G) Improvement of natural resource productivity and development of the circular economy

- Compared with the previous monitoring report, resource productivity has been declining. The available data show that economic growth triggers the increase of material use, which can cause not only economic (productivity) but environmental sustainability problems as well. The improvement of resource productivity could gain a new momentum by the widespread adoption of the circular and sharing economy and by a boost in the service and the R&D&I sectors. The widespread adoption of the circular economy could enable production and export to grow while causing less environmental damage.
- The increased use of renewable energy sources is a positive process, however the sources of renewable energy are imbalanced in Hungary: four-fifth is produced by the agriculture and over two-third is associated with use in power plants and as firewood in households. These together with the large amounts of conditionally renewable biomass used may be challenges for sustainability. In the field of the use of renewable energy sources, we recommend that the mix of energy sources be adjusted in order to ensure the dominance of fully renewable energy sources, for example, the dynamically growing use of solar power (PV generation) should be promoted. Furthermore, informative, educational, awareness raising campaigns should be organised on the importance of the use of renewable energy sources and the Energy and Climate Awareness Raising Action Plan should be completed by sharing information and best practices on energy poverty, the management of the use of illegal heating materials and the environmental impacts of the use of biomass and lignite in households.
- The government should offer benefits (for example by reducing taxes and employment contributions or paying the costs of utilities) to promote the setup and operation of package free shops.
- The policies on taxes and subsidies should be reviewed and revised in order to limit the excessive use of natural resources.

H) Improvement of climate change vulnerability

- Compared to other EU countries, Hungary is extremely vulnerable to climate change. One-fourth of the population live in areas affected by very high or high risk of heat waves; vulnerability significantly varies from region to region and affects Hungary's disadvantaged areas to a larger extent. Climate change is predicted to increase the frequency of torrents, thunderstorms, hailstorms and droughts. The growing risks caused by the climate change require a complex approach and management as well as the urgent implementation of the National Climate Change Strategy. In cities, it is a pressing and unavoidable task to maintain and expand green areas including, in particular, by planting trees to provide shade from the sun as a solution helping the adaptation to climate change.

I) Improvement of the protection of biodiversity and natural habitats

- In order to reduce the decline in biodiversity, the protection of natural habitats must be urgently addressed as the most frequent cause of the decrease of the natural capital is the destruction of natural habitats. This should be a priority at the selection of investment sites by limiting green-field investments and diverting needs towards brown-field areas.
- While Hungary has one of the highest per-capita freshwater resources in Europe, their source is primarily the large rivers flowing through the country. The ecological and chemical condition of surface and underground water is declining. We recommend that stronger focus be put on the protection of Hungary's freshwater resources and the storage of water collected when it is available in large quantities, for future use (such as irrigation).
- In order to promote the knowledge-based society and the idea of sustainable development, the general public (businesses, local government decision makers, people) should be educated about the trends reflecting the biodiversity of natural and agricultural habitats as well as the state of the natural resources, also involving the printed and electronic press and social media.

J) Management of the sustainability challenges of public utilities

- The issues with public water supply entities and the infrastructure managed by these providers still need to be addressed as they have not been resolved since the previous monitoring report. Changing residential consumption patterns, the economic impacts of the utility cost reduction action by the government and the modernisation requirements of the out-of-date infrastructure present real sustainability challenges while the financial and technical unsustainability of the system cause severe environmental sustainability issues.
- The operating problems of the waste management public service also need to be urgently addressed. The significant and constant transformations in this sector, residential habits and the economic impacts caused by service charges and the utility cost reduction action of the government present real sustainability challenges; a further decline in the waste management public service will lead to severe environmental sustainability issues.

K) Improvement of the quality and quantity of data

- Data related to natural resources should be presented in a more detailed (e.g. sector-time series) and precise manner, as follows:
    - relating to particulate matter in ambient air (in particular, indicators on health conditions caused by particulate matter);
    - statistics relating to climate change (survey method for climate change vulnerability should be introduced);
    - a renewable energy potential estimate should be developed for Hungary by region to enable the precise determination and regional division of the targets for each energy type within the national targets;
    - data relating to the condition of Hungary's freshwater resources are out-of-date, need to be updated and extended;
    - surveys and databases relating to invasive species in Hungary are incomplete; as the spread of non-native species is one of the most severe risks for nature, surveys should be more precise, organised in databases and distributed;
    - climate change and the associated frequency of droughts will likely lead to enormous damage caused by insects; to protect oak and beech forests, the monitoring of defoliation should be extended.

IN-DEPTH ANALYSIS

4. Introduction to the in-depth analysis

In order to promote sustainable development, to protect the possibilities of future generations and to ensure long term, responsible management of our national resources, as set out in the Fundamental Law of Hungary, the Parliament adopted the National Framework Strategy on Sustainable Development for the period 2012–2024, in March 2013. Pursuant to resolution 18/2013. (III.28.) of the Parliament, the Framework Strategy (NFFS) is intended to

- contribute to developing a common agreement on the definition of sustainability;
- promote the determination of the first steps of the transition to sustainability; and
- provide long term strategy for public policy development and decision making.

The NFFS defines four national resources: human, social, natural and economic resources that are necessary to be preserved and increased in terms of quantity and quality in order to promote wealth and mental well-being of all generations. The promotion of transition toward the sustainability of these four resources is not only a political and government issue; it is the responsibility of the society as a whole – of each person, family, business and non-governmental organisation as well.

The Framework Strategy defines three establishments to monitor the NFFS: the indicator report, the biennial parliamentary report (i.e. the monitoring report) and the review of the strategy every four years. Pursuant to articles 3. d) and 4. a) of resolution 18/2013 of the Parliament, the Monitoring Report is mandated to

- inform about government actions promoting the implementation of the Framework Strategy every two years;
- monitor the implementation of the Framework Strategy, support the assessment of progress and provide information on implementation and progress to the Parliament every two years.

The government decree adopting NFFS mandates the National Council for Sustainable Development (NFFT) to draft the Monitoring Report.

Since the adoption of the Framework Strategy, already two monitoring reports have been prepared: the first and the second monitoring report was compiled for the period between 2013 and 2014 and 2015 and 2016 respectively, which offered an adequate initial form both in content and structure for the preparation of the current monitoring report for 2017/2018. The information collected in the six years since the Framework Strategy's adoption is sufficient to describe the tendencies for the majority of the resources but data are still lacking in certain areas preventing objective monitoring to some extent. Summary analysis for each resource is composed as follows:

- Each resource analysis includes a general overview based on the most recent data.
- This is followed by the presentation of relevant key indicator values and the assessment of current trends. To ensure comparability, the key indicators presented in this Monitoring Report have not been changed and comply with the ones in the previous report, based on available information.
- The objectives defined by the NFFS for each resource have been identified first, followed by the assessment of social and economic trends affecting sustainable development for each of

these objectives. Some of the objectives have been combined while others have been analysed in more detail to highlight connectivity and interrelations.

- The assessment of social and economic trends included the evaluation of tendencies that affected the achievement of the specific objective. The role of the government, businesses, non-governmental organisations and individuals has been studied depending on the importance of their impact on the resource.
- Resource analysis also focused on the presentation of the most important government programmes and strategies affecting the specific resource.
- Each chapter is concluded by the presentation of the most essential positive trends and key risks for each resource.

This Monitoring Report is based on the guidelines in the Monitoring Handbook written by HÉTFA Research Institute (2013). Following its guidance, changes in each resource have been defined based on the following professional resource materials:

- Csapó B. (2019): Szakterületi értékelés a Nemzeti Fenntartható Fejlődési Keretstratégia előrehaladási jelentéséhez, Emberi erőforrások, Tudás; Cortex Informatikai Oktatási és Szolgáltató Bt. 46 o.
- Gödri I. – Kapitány B. – Kovács K. – Makay Zs. (2019): Szakterületi értékelések a Nemzeti Fenntartható Fejlődési Keretstratégia harmadik előrehaladási jelentéséhez: Emberi erőforrások – Demográfia; KSH Népességtudományi Kutatóintézet, Budapest, 69 o.
- H-SOFT Kft. (2019): Szakterületi Értékelések A Nemzeti Fenntartható Fejlődési Keretstratégia Harmadik Előrehaladási Jelentéséhez, Gazdasági erőforrások – Növekedés, K+F, tőkeállományok, makrogazdasági egyensúly, eladósodottság; Pécs, 93 o.
- Oberfrank F. (2019): Előrehaladási Jelentés, A Nemzeti Fenntartható Fejlődési Keretstratégia végrehajtásának állása az Emberi erőforrások – Egészség területén; Integra Consulting Zrt. 61 o.
- Pálvölgyi T. – Esses D. – Simon A. – Szalmáné Dr. Csete M. (2019): Szakterületi értékelések a Nemzeti Fenntartható Fejlődési Keretstratégia harmadik előrehaladási jelentéséhez: Természeti erőforrások; Env-in-Cent Környezetvédelmi Tanácsadó Iroda Kft. 119 o.
- Tóth I. Gy. – Branyiczki R. (2019): Fenntartható fejlődés Magyarországon, Társadalmi kirekesztés, szegénység és társadalmi kohézió, Harmadik monitoring jelentés; Tárki, Budapest, 50 o.
- Tóth I. Gy. – Medgyesi M. – Gál R. I. (2019): Fenntartható fejlődés Magyarországon, Társadalmi újraelosztás, korosztályi számlák, gyermeknevelés finanszírozása, nyugdíjrendszer Harmadik monitoring jelentés; Tárki, Budapest, 32 o.
- The Monitoring Report used the reports, annual reports of the commissioner for fundamental rights and those published jointly with his deputies as well as the position statements and signal messages of the ombudsman for future generations as background materials.

The compilation of the Monitoring Report was supported by HÉTFA Research Institute.

5. Progress made in the achievement of the objectives under the National Framework Strategy on Sustainable Development

5.1 Human resources

5.1.1 General overview

The objectives defined for human resources in the National Framework Strategy on Sustainable Development focus on four key areas: demographic processes, the performance of the education system, health indicators, social inequalities and cohesion.

Hungary's population has been declining ever since the adoption of the NFFS. There has been no significant change in the processes affecting demographics. After a boost between 2011 and 2016, fertility rates have been stagnating for the last two years; the number of births is falling in parallel with the drop in the number of women of childbearing age leading to the gradual ageing of Hungary's society. As there has been no effective rise in life expectancy at birth either, Hungary's population continues to decline. The migration balance of the Hungarian population is negative and while the rise in the rates of people leaving Hungary has decreased and the available data show that the number of people returning to Hungary is growing, all in all, the number of Hungarians living abroad for longer periods of time is steadily increasing. What is particularly alarming in the pattern of migration is that while the number of people leaving Hungary is lower than in other Eastern European countries (Hungary has the third lowest number among 11 countries), the rate of young university graduates leaving the country is the highest in Hungary.

The indicators for school performance reflect a further increase in the selectivity of the education system, which means that schools are unable to reduce the socio-economic differences between students. As the early school leaving rate has further risen since the previous report and the rate of people in higher education is low in European comparison, the gap in terms of the time spent in formal education continues to widen compared to, for example, the Czech Republic and Poland. Another important aspect for the maintenance and increase of the knowledge capital is the quality of education where a key requirement is the recruitment of talented and highly trained teachers. There has been no notable progress made in this respect since 2010 as the gap between the wages of teachers and the average wages of university graduates has remained unchanged to this day because the partial consequences of the pay rise in the public education system – with regard to the gap between the wages – have been set off by the quick rise of the wages of university graduates working in the labour market.

While the self-perceived health of Hungarian people has improved, statistical data show that life expectancy at birth and healthy life expectancy at birth have been stagnating, with some ups and downs, since the adoption of the Framework Strategy. Healthy life expectancy at birth has been shifting between 60.1 and 60.8 years for women and 58.2 and 59.6 years for men since 2013, the three indicators for the 2015-2017 period reflect a slight improvement for both sexes. However, there has been clear progress reached compared with data from 10 years ago. While behaviours adversely affecting people's health, including in particular smoking, lack of physical activity, poor diet and alcohol

misuse – remain high risks for morbidity, screening tests continue to be rather unpopular with people. The problems of our health care system are demonstrated partly by the figures for preventable death showing that Hungary is one of the worst performing countries in the EU.

In the area of social inequalities and poverty, the improvements started in the previous monitoring period have continued: Between 2016 and 2018, the rate of people at risk of social exclusion in Hungary lowered from 26.3% to 19.6%. Income poverty decreased from 14.5% to 12.8% and the rate of people living in a household with low work intensity reduced by 50% (4.1%) – both indicators are better than the EU average. In the same period, the number of people affected by severe material deprivation dropped by 40% (the highest rate in the EU), however their rate remains high in European comparison (10.1%).

5.1.2 Changes in key indicators

Indicator	Latest value	Most recent value known at monitoring report for 2015–2016	Assessment of the changes in NFFS's key indicators
Total fertility rate	1.49 (2018)	1.49 (2016)	The total fertility rate has been stagnating for two years, the rise that started in 2012 stopped in 2017; and it remains too low to be able to constrain the population decline in the mid-term.
Expenditure on education as % of GDP	5.1 (2017)	4.9 (2016)	Compared to the previous period, expenditure is gradually rising (the growth was higher in primary than in higher education).
Early school leaving rate (%)	12.5 (2018)	12.4 (2016)	It has increased since the previous report; achieving the target of 10% became even more improbable. The indicator went down by 0.3 percentage points for men but rose by 0.5 percentage points for women.
Healthy life expectancy at birth (years; male/female)	Women: 60.8 (2017); Men: 59.6 (2017)	Women: 60.2 (2016) Men: 59.5 (2016)	There was a slight improvement in healthy life expectancy at birth in women while this indicator has not changed effectively for men (causing an even wider gap between the two sexes). However, the values are below the EU average for both sexes.
Severe material deprivation rate (%)	10.1 (2018)	23.9 (2014)	Compared with the previous period, strong progress has been made; the value for 2018 was the lowest ever registered.

5.1.3 Objectives and challenges defined in the NFFS

The National Framework Strategy on Sustainable Development defines the following objectives for human resources:[4]

[4]Changes in wages for the second objective will be discussed in detail in the chapter on economic resources.

Population, demographics

- 1) Promotion of values related to partnership and family (education, institutions)
- 2) Promotion of competitive wages in professions affected by critically high rate of migration
- 3) Reduction of the rate of population decline
- 4) Development of immigration policy
- 5) Promotion of possibilities for the elderly population for social participation

Knowledge – education

- 6) Quality education;
- 7) Increase of period of formal learning;
- 8) Reduction of selectivity within the education system
- 9) More efficient use of knowledge within the society and in the economy
- 10) Incorporation of sustainability (values and practice) into lifelong learning as a whole

Health

- 11) Establishment of health conscious behavioural patterns
- 12) Reduction of the number of chronic non-communicable diseases
- 13) Alignment with Central European average in the reduction of mortality

Poverty, exclusion – social cohesion

- (8) Reduction of selectivity within the education system)
- 14) Social solidarity
- 15) Rearrangement of social structure
- (16) (Increase of employment)

5.1.4 Social and economic developments affecting the objectives

5.1.4.1 Population and demographics[5]

The key factors affecting demographic processes are childbirth and fertility, ageing and mortality as well as the issues of international migration. In the period under review in the monitoring report, the former positive trend in fertility rates discontinued: childbirths were stagnating despite the broad range of family welfare measures. The ageing of the population and the reduced number of women of childbearing age also prevent a demographic shift.

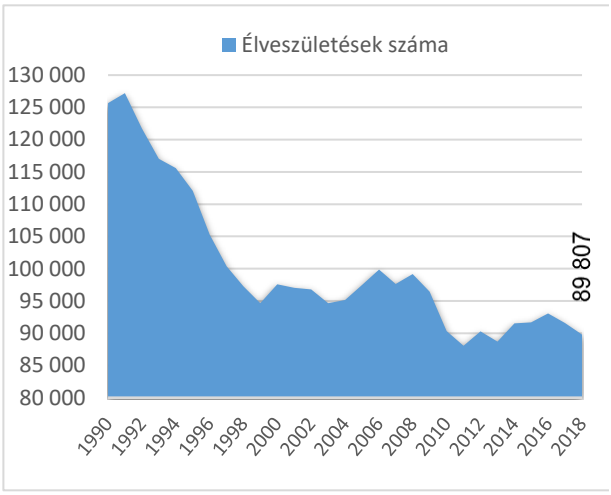
In the area of migration trends, both the degree and the structure of immigration and emigration have significantly changed in recent years. The rate of people coming to live in Hungary from Ukraine has substantially risen. The number of asylum seekers decreased to a minimum level by 2017/2018. The number of Hungarians leaving Hungary continued to grow, albeit at a slower pace; commuting to neighbouring countries is also increasing. In the meantime, the social security data of the National Health Insurance Fund suggest a growing number of Hungarians returning to Hungary.

The fifth objective will be discussed both in the section on health and the chapter on economic resources.
The sixteenth objective will be discussed in the chapter on economic resources.
[5]The chapter on demographic processes was prepared based on a study by Gödri et. al (2019).

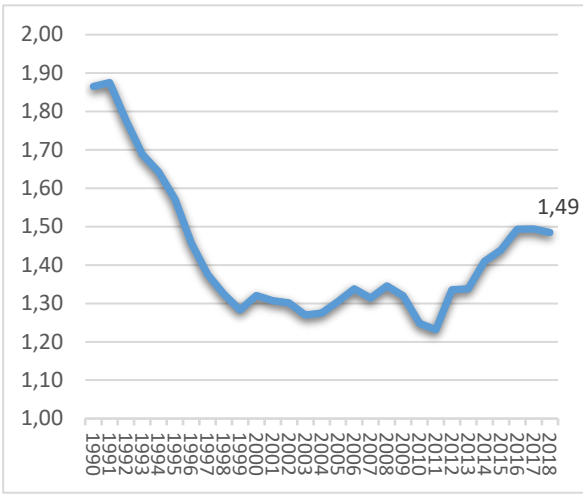
Childbirth

Fertility rates are important indicators of the changes in demographic trends. Since 2016, the signs of a negative trend have been reported in this area, compared to the improvements of the previous years.

1. *Figure 1: Number of live births (persons) from 1990 to 2018*



2. *Figure 2: Total fertility rate, from 1990 to 2018*

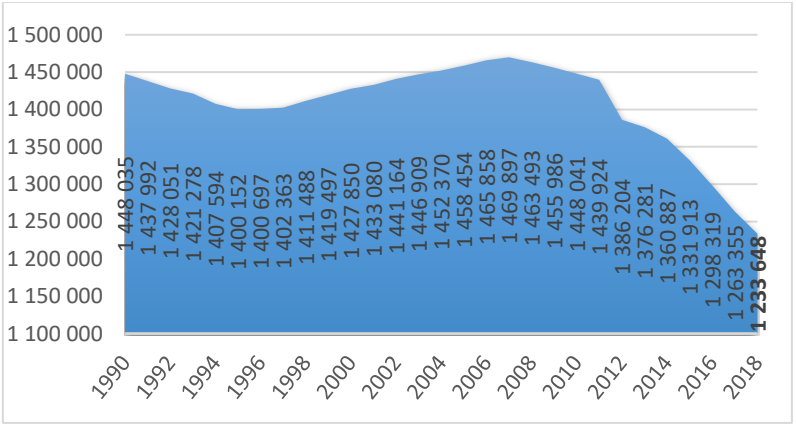


Source: KSH-STADAT

While the number of women of childbearing age is falling at a steady and fast pace (the number of women aged 20–39 went down by nearly 214 000 between 2010 and 2018), the total fertility rate (TFR)[6] stagnated in the period under review. The TFR of below 1.5 is still too low to stop the population decline in the mid-term (2.05) and it is below the EU average. These two processes led to the number of live births dropping below 90 000 in Hungary by 2018.

It is a positive trend that both the number of abortions (26941) and their rate per 100 live births (30) further decreased by 2018: both indicators went down by one-third compared to 2010.

3. *Figure 3: Change in female population aged 20–39 between 1990 and 2018*



Source: Eurostat

As the change in the age structure (the generation of the so-called “Ratko grandchildren” exiting their reproductive period) is expected to cause a further decrease in the number of women of childbearing

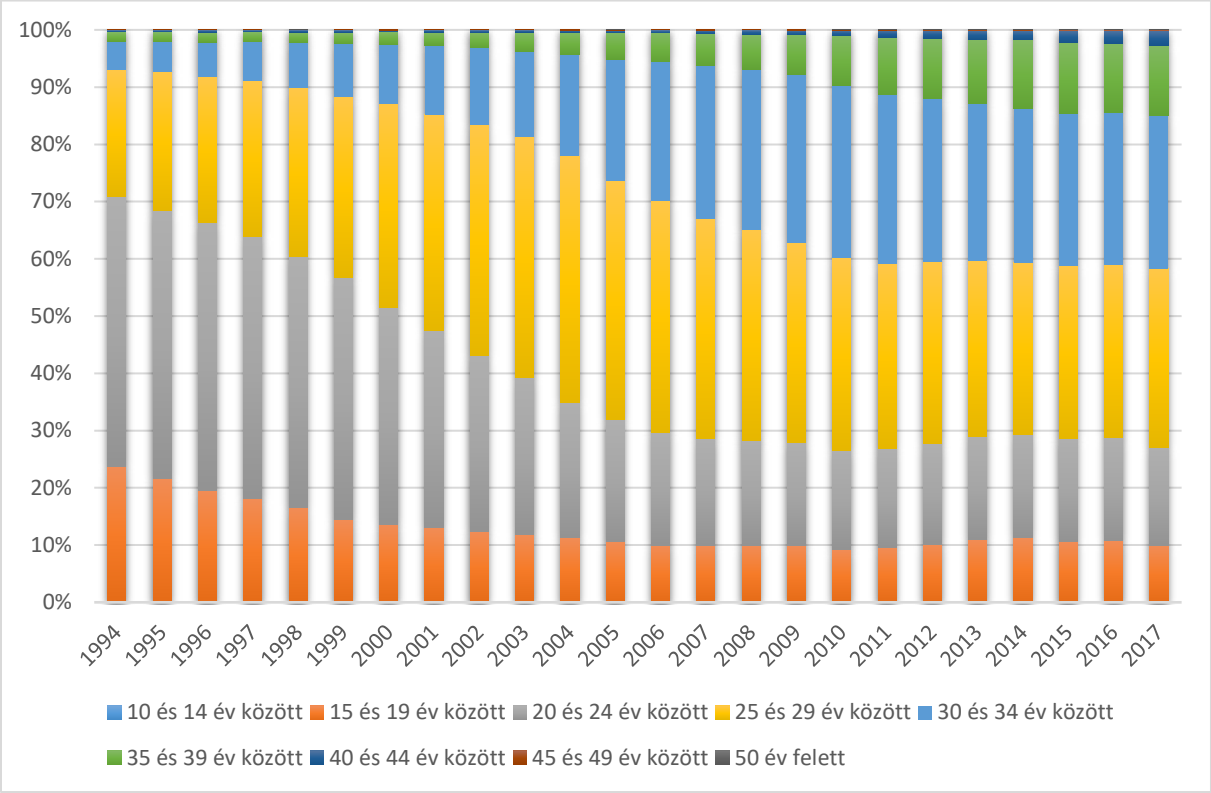
[6]This indicator shows the number of children born to a woman over her lifetime if she were subject to the fertility rates of the specific year. If the indicator is higher than 2.0, the country is able to sustain population levels.

age (although probably at a slower pace), the willingness of people to have children would be required to rise significantly in order to increase the number of births.

Another aspect relevant to fertility rates is that the mean age of first-time mothers has been rising even since the regime change in 1989. Between 2016 and 2018, the age of women at childbirth slightly increased, mostly for first children (from 28.4 years to 28.6 years). As the mean age of women at childbirth is still nearly one year lower than the EU average, a further increase is not unlikely.

The key problem for fertility rates in Hungary is that many people do not have any children or have their first child much later than before: in 2018, 48% of women aged 30–34 and over 25% of women aged 35–39 were childless. In the meantime, the probability to have a third child – likely in part as the result of the demographic policy interventions – clearly rose, which means that the rate of families with three or more children only slightly decreased while the number of families with two children dramatically dropped.

4. *Figure 4: Birth of first child based on age groups between 1994 and 2017*



Source: Eurostat (1) (2)

Similarly to fertility rates, the positive trend in the number of marriages has discontinued in recent years as well. After the boost between 2011 and 2016, there has been a stagnation since 2016: there were nearly 51 000 marriages both in 2017 and 2018 while the number of divorces fell (in 2018, around 17 000 marriages ended with a divorce). It is a positive trend that the number of children born inside marriage began to grow: from 52% in 2015 to 58% in 2018.

Family support, compatibility of work and family

In international comparison, Hungary's family welfare system is clearly generous, pro-natalist and demographics-centred. In total, the government spends 5% of Hungary's annual GPD on family support through financial assistance, benefits in kind and tax benefits.

A survey in 2019 shows that the most effective components of the Hungarian family welfare system are the ones that focus on employment and/or on stable living and housing conditions. The survey finds that the factors most efficiently stimulating childbirth are the ones that improve the chances of women to return to the labour market after childbirth, such as the employment of women at the time of the decision about having a child, the availability of day care facilities for babies and opportunities for employment with flexible hours or part-time. In addition, the rise of the disposable income due to tax benefits and affordable housing through the family housing allowances has a positive impact on childbirth as well (HÉTFA, 2019).

While there were no radical changes in the policies and laws in the period under review (after the introduction of the family housing allowance scheme (CSOK[7]) but before the family protection action plan), continuous efforts are made in this area with the expansion of some of the allowances and benefits, including:

- the family tax benefit for families with two children was further raised;
- the additional loan related to the family housing allowance (CSOK) was made available to families with two children as well;
- the maximum amount of the child care allowance (GYED) was increased;
- a few smaller allowances were made available to families with Hungarian children living in foreign countries (e.g. the so-called "baby bond" under the programme dubbed "Umbilical Cord");
- depending on the number of their children, the student loan debt is suspended, reduced or cancelled for mothers;
- the fertility treatment programme was expanded: the number of government-funded fertility treatment programmes rose subject to the success of the treatment (to encourage the birth of more children in a family) and the government-funding of related medications grew to 90%.

Within the family support system, there were concerns raised about the positive impacts of CSOK on fertility rates (see for example Lentner et al 2017). Based on a government background material (KINCS 2018), families entering the CSOK scheme agreed to have a total of 28 686 children, unborn at the signing of the agreement, between January 1 2016 and May 31 2018. However, it is important to stress that the CSOK was not designed to improve the fertility rates, it was introduced to reduce the housing problems of families with three or more children and as a general measure to boost the economy.

One of the key components of the family welfare system is the network of day care facilities for children under 3. The laws and regulations on day care facilities and pre-schools for children under 6 (early childhood education and care) changed both in 2017 and 2018. In 2017, the system of day care facilities for young children went through a fundamental transformation[8] with more flexible forms of day care introduced including standard, mini, workplace and family day care facilities.[9] (KSH, 2019)

[7]Family housing allowance scheme.

[8]While earlier only cities with a population over 10 000 were required to run day care facilities for children under 3, the new law requires all communities where at least the families of five children under 3 request this service or where the number of residents under 3 exceeds 40 to provide day care services for these children in some manner (e.g. by cooperating with another community).

[9]Normal and mini day care services are provided in an institutional form and workplace and family day care services are offered for a charge. Mini day care facilities accommodate smaller groups of 7 to 8 children. The family day care centres created from the previous family pre-schools, similarly to workplace day care centres – are also required to work with smaller groups (5 to 7 children). The law also provides for other forms of daytime care for this target group and older children, up to the age of 16, such as daytime supervision for children and alternative form of daytime care.

In 2018, there were changes in the system of the government funding for the maintenance of day care facilities; earlier, the maintenance of traditional day care facilities, typically run by local governments, was not included in the government normative funding, which prevented the increase of the capacity and any upgrade or modernisation of these facilities. It is too early to decide whether the new system will really reduce the financial risk of the organisations maintaining these facilities for the long term (KSH, 2019).

The impact of the measures implemented is already noticeable in the system. The new institutions added, the increased capacity of day care facilities and the funds available through applications caused a marked rise in the number of available places: the total number of children served went up by nearly 1500 between 2015 and 2018. Based on 2018 figures, the utilisation rate of day care facilities was 95%. In terms of capacity, the most dynamic growth took place in mini day care facilities. The new places created in traditional day care facilities compensated for the decrease in the capacity of family day care centres. Despite the improvements in recent years in the nationwide availability of these services and in the utilisation rate of these facilities as well as the modification of the relevant laws, there are still regional inequalities in the access to these services. In the meantime, the number of children under 3 who did not have access to daytime care services in any form in their home town, decreased (KSH, 2019).

1. *Table 1: Main indicators of day care services for children under 3*

Year	(A) Number of children aged 0–2	(B) Capacity of day care facilities	(C) Number of children on roll in a day care facility	(D) Number of children under 3 on roll in a family day care centre[10]	Ratio in % [C+D/A*100]
2012	274,265	36,635	37,163	3,305	14.8%
2013	266,971	37,654	36,819	3,522	15.1%
2014	268,122	38,614	37,269	4,452	15.6%
2015	273,502	39,519	37,906	5,166	15.7%
2016	274,996	39,944	38,123	5,322	15.8%
2017	280,226	46,475[11]	44,093	-	15.7%
2018	281,495	47,169	44,577	-	15.8%
…					
2020	*~281,000*	*~60,000*	*~60,000*		*~21.3%*

Source: KSH Daytime child care services, 2018[12]; own calculation

According to the government target, the capacity of day care facilities could go up to 60 000 by 2020 (using government and EU funds) offering day care services to roughly 20 to 21% of the children aged 0–2.

[10] Family day care centres were cancelled by Act XXXI of 1997 from January 1 2017.

[11] As a result of law modifications, from 2017, the capacity of day care facilities must include available places in traditional, mini, workplace and family day care facilities.

[12] KSH (2019b): Daytime child care services, 2018. Statisztikai Tükör. KSH, Budapest. URL: http://www.ksh.hu/docs/hun/xftp/stattukor/kisgyermnapkozbeni/kisgyermnapkozbeni18.pdf (Download date: 16/07 2019)

The compatibility of family and work is key for family planning decisions and careers which are more compatible with child rearing may help improve fertility rates. The employment rate of women continued to rise: the employment rate of women aged 15–64 was 62.3% in Hungary in 2018. This rate includes women aged 25–49 with young children, which also rose. The employment rate of women with three or more children also significantly improved.

2. *Table 2: Labour market attributes of women aged 25–49*

	2010	2015	2016	2017	2018
Female employment rate	66.6	73.4	75.3	76.5	76.6
Employment rate of women with 3 or more children	37.1	44.8	48.8	48.9	52.4
Employment rate of women with children aged 0–2	12.4	14.8	14.2	15.2	15.4
Employment rate of women with children aged 3–5	58.5	69.5	71.9	73.7	75.3
Gender pay gap (%)	14	16	17	NA	NA

Source: KSH Equal opportunities in the labour market (2013–2018)[13]

Due to the introduction of GYED Extra (child care allowance extra) designed to enable parents with young children to return to the labour market, a total of 47 532 parents could work in 2017 while receiving some form of child care allowance (including 28 330 with GYED, 19 202 with GYES, working over 30 hours per week). This number is higher by 5 047 people compared to 2016. In addition, the benefits of the GYED Extra (e.g. allowance paid for multiple children, for university students, for university graduates) were provided to around 88 000 parents with young children. However, flexible and part-time work arrangements remain underrated in Hungary with around 4.2% of the employees (including 6.3% of the female employees) working part-time in 2018 (KSH).

Methods to encourage employers to use these types of work arrangements to a higher degree include the award of the title 'Family Friendly Workplace' and the related grant and benefit options. In 2018, the State Secretariat for Family and Youth Affairs announced the application for the eighth time, with a budget of HUF 75 million in collaboration with the Human Resources Grant Manager.

In summary, both the number of the various forms of family support and the available funds have significantly grown since the adoption of NFFS. These family support forms are designed to promote childbirth, the labour market integration of parents of young children and to improve the financial and housing situation of families. The rise in the costs of family support schemes while fertility rates stagnate raises concerns about the efficiency of the support system: the generosity of Hungary's family support system failed to be reflected in the fertility rates in the period under review.

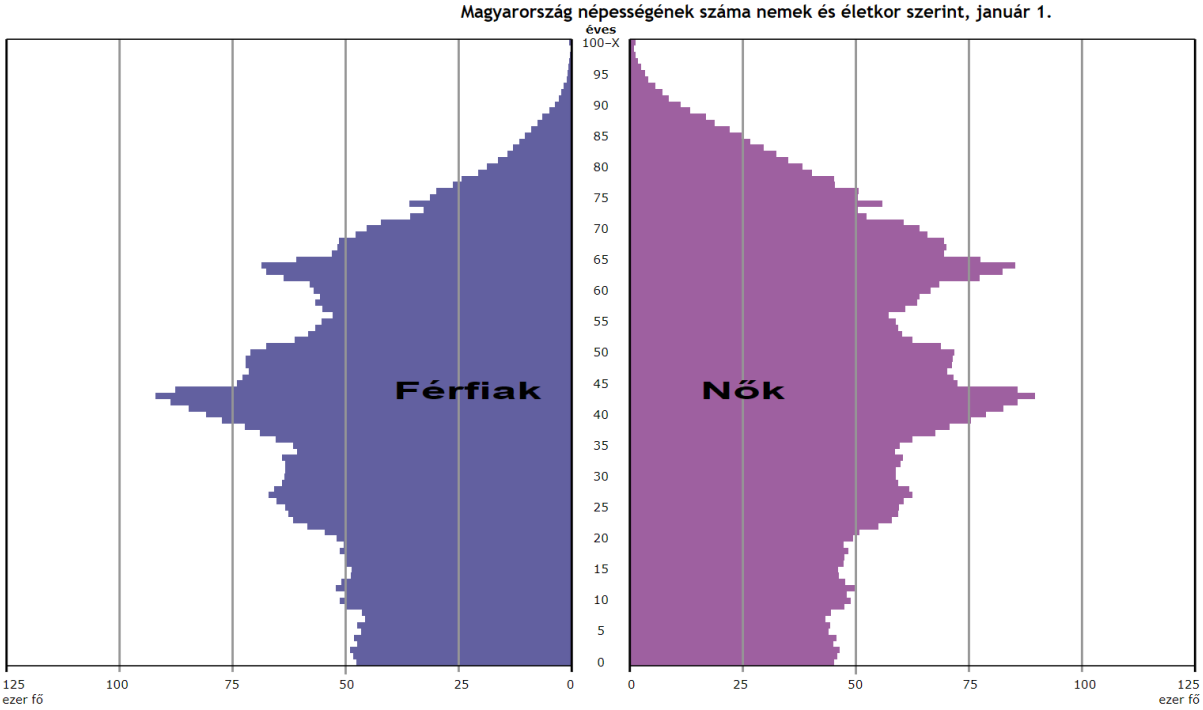
Ageing

The long term rise in life expectancy and the decrease in the number of births collectively lead to an increase in the size and rate of the elderly population. The size of the elderly age groups has continued to grow in Hungary in the last few years: the comparison of January 1 2017 and January 1 2019 shows that the number of people aged 65–84 went up by 55 000 (from 1 638 000 to 1 693 000) in those two years while the number of people over 85 grew by about 7 000 (from 190 000 to 197 000). Based on

[13] KSH Equal opportunities in the labour market (2013–2018). URL: https://www.ksh.hu/thm/2/indi2_3_3.html (Download date: 10/07 2019)

the rate of people aged 65–79, Hungary is considered as a 'moderately old' country within the European Union.

5. *Figure 5: Population pyramid – The population of Hungary by gender and age, 2019*



Source: KSH

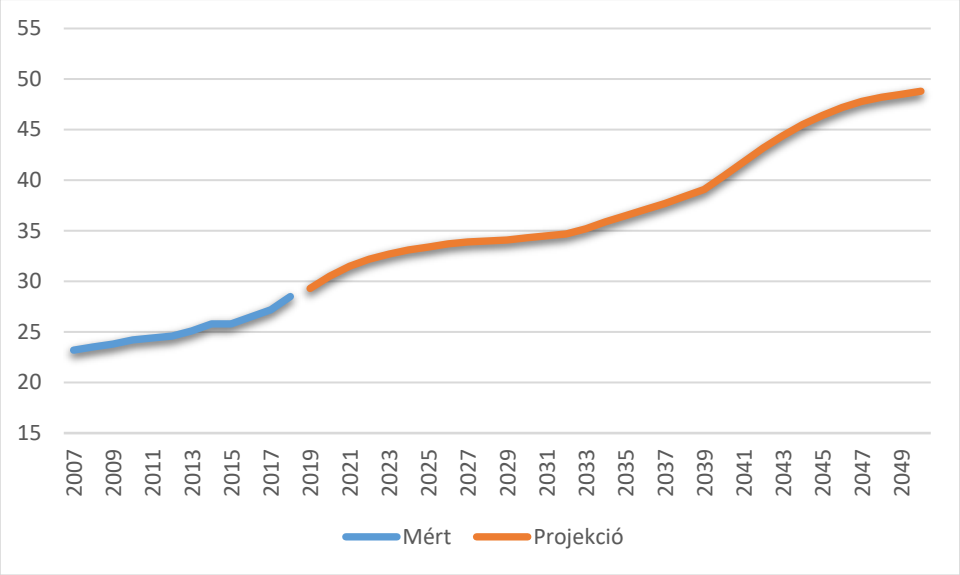
Despite the low ageing tendencies, the relative decrease in the number of the younger population leads to not only a rise but a faster rise in the old age dependency ratio[14], standing currently at 29.3, which means there is one elderly dependent person per three people of working age. The Eurostat[15] predicts that the old age dependency ratio will reach 50 by 2050, which means that there will be one elderly dependent person per two people of working age.

Another key indicator of the ageing process is the so-called *ageing index*, which shows the relative size of the population aged 65 and over compared to the youngest age group aged 0–14. In harmony with previous trends, the ageing index has further risen, standing currently at 133.

[14] The ratio of people aged 65 and over compared to the ratio of people aged 15–64.

[15] Eurostat: Demographic balances and indicators by type of projection. http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do (Download date: 16/07 2019)

6. *Figure 6: Changes in old age dependency ration (%) in Hungary between 2007 and 2019 (2050)*



Source: Eurostat

Migration

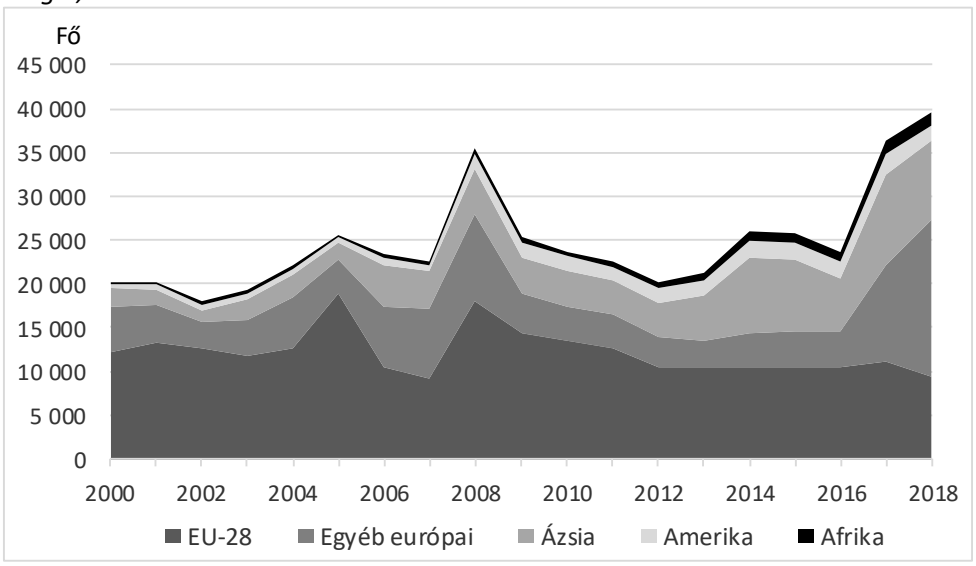
Hungary's demographic processes are significantly affected by both emigration and immigration. There have been significant changes in both the volume and the structure of immigration in recent years. There was a sudden rise in the number of foreign nationals coming to live in Hungary in 2017 and 2018 (it was over 36 000 in 2017 and reached nearly 50 000 in 2018). This increase is primarily caused by the higher number of people arriving from non EU member states (mostly Ukraine[16]) while the number of people from Asia, and to a lesser extent from the American and African continent, also rose.

The majority of these immigrants continue to come from the younger and male population. The ratio of men has become even more marked in the last two years: rising from 57% to 59-62%. Since 2000, roughly two-thirds of the foreign nationals coming to live in Hungary have been from the 15–39 age group, however, since Hungary's entry in the EU, more and more retired older people have arrived from the old EU member states (mostly Austrian, German and Dutch nationals).

All in all, the immigration rate in Hungary, based both on the number of immigrants and their ratio per 1000 residents, remains below the EU average. While the raw immigration rate based on the number of foreign nationals was only 5 thousandths (including also Hungarian nationals from neighbouring countries, it was 5.3 thousandths), this indicator in many traditional West European immigration countries was around 8 and 15 thousandths.

[16] While after 2008, partly due to the decrease in the number of jobs caused by the economic crisis and the simplified procedure of naturalisation introduced in 2011, the number of immigrants from Ukraine went down below 2000 and then 1000 persons per year, it was above 6000 in 2017 and reached nearly 13 000 in 2018.

7. *Figure 7: Number of foreign nationals migrating to Hungary by the continent of the country of origin, 2000–2018*



Source: KSH, Demographic Yearbooks; projection for 2018

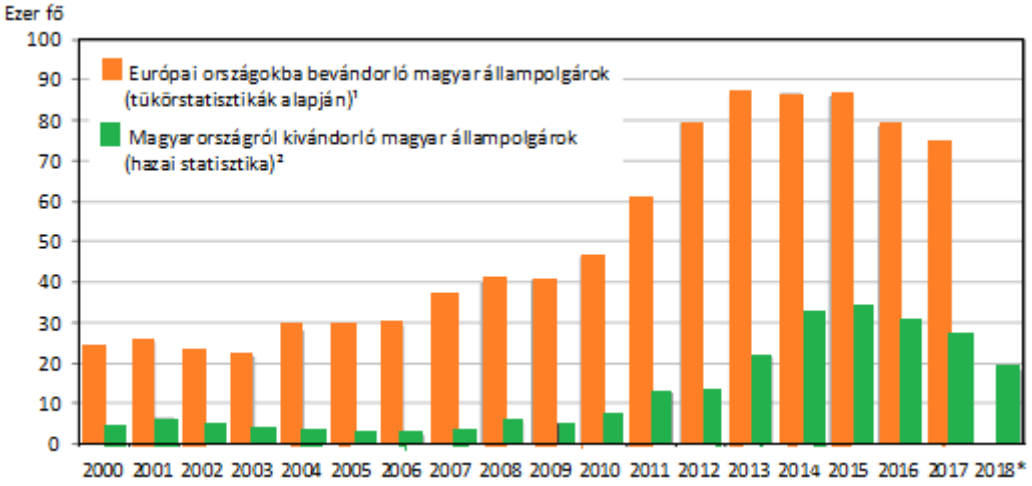
Due to the barrier erected on the border between Hungary and Serbia and Hungary and Croatia, the number of asylum seekers registered in Hungary radically fell after September 2015, following a former steep rise. While the number of asylum seekers registered in Hungary was 177 135 in 2015, 29 432 in 2016, it was only 3397 in 2017, decreasing even further to 671 in 2018, including mostly people from Afghanistan and Iraq.

The number of *long-term residents of Hungary* was 161 809 on January 1 2018 and, based on preliminary data, 180 773 on January 1 2019, which represents 1.7 to 1.8% of the total population. While it has risen about 20% since 2012, its rate remains substantially below the EU28 average (7.9%). Apart from its quantity, the countries where the long-term residents of Hungary come from have also significantly changed. At the beginning of 2017 and 2018, the rate of people coming from neighbouring countries, ranging between 56 and 68% in the 2000s, was only around 28% (including a rise in the rate of Ukrainian nationals and a radical decrease in the rate of Romanian nationals).

The number of foreign-born Hungarian nationals, migrating to Hungary, which started rising after the introduction of the simplified naturalisation procedure, steadily fell from 2016 (from 17 to 18 000 earlier to 10 224 by 2018), including the rate of people coming from neighbouring countries falling from 97% to 92%.

Based on various mirror statistics, the rate of outward emigration has slightly fallen in recent years but remains a top challenge for the country. While the number of Hungarian nationals leaving their home country reported in official national statistics is far below the figures in mirror statistics, it clearly reflects the rising outward emigration trend since 2011 (see Figure 3.9).

8. *Figure 8: Number of people emigrating from Hungary and migrating into another European country (person; flow), 2000–2017(2018)*

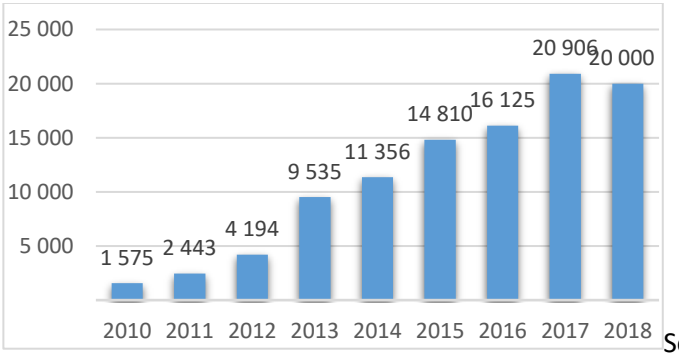


Source: Eurostat database (last update: 16 April 2019), combined with German (DESTATIS) and Austrian (Statistik Austria) data from 2009; [2]KSH, Demographic Yearbooks (until 2009, personal data and permanent address records of the Central Office for Administrative and Electronic Public Services (KEKKH), after 2010, based on social security number records of the National Health Fund (OEP)).
Note: Aggregate number does not include data from the United Kingdom after 2006 and from France after 2000 and also excludes figures for emigration outside the EU.
* projection for 2018.

Besides migration, commuting between Hungary and a foreign country is also increasing: labour market statistics from Austria show that 92 000 Hungarian nationals are employed in Austria while the number of people with a permanent residence is only around 13 000.

In recent years, the number of Hungarian nationals returning from abroad has begun to grow as well, however the exact number and composition of these people is not known; the increasing pace of the process is concluded based on data from NEAK (National Health Insurance Fund, formerly known as OEP) and mirror statistics.

9. *Figure 9: Number of native-born Hungarian nationals immigrating (i.e. returning) to Hungary (person; stock), between 2010 and 2017(2018)*

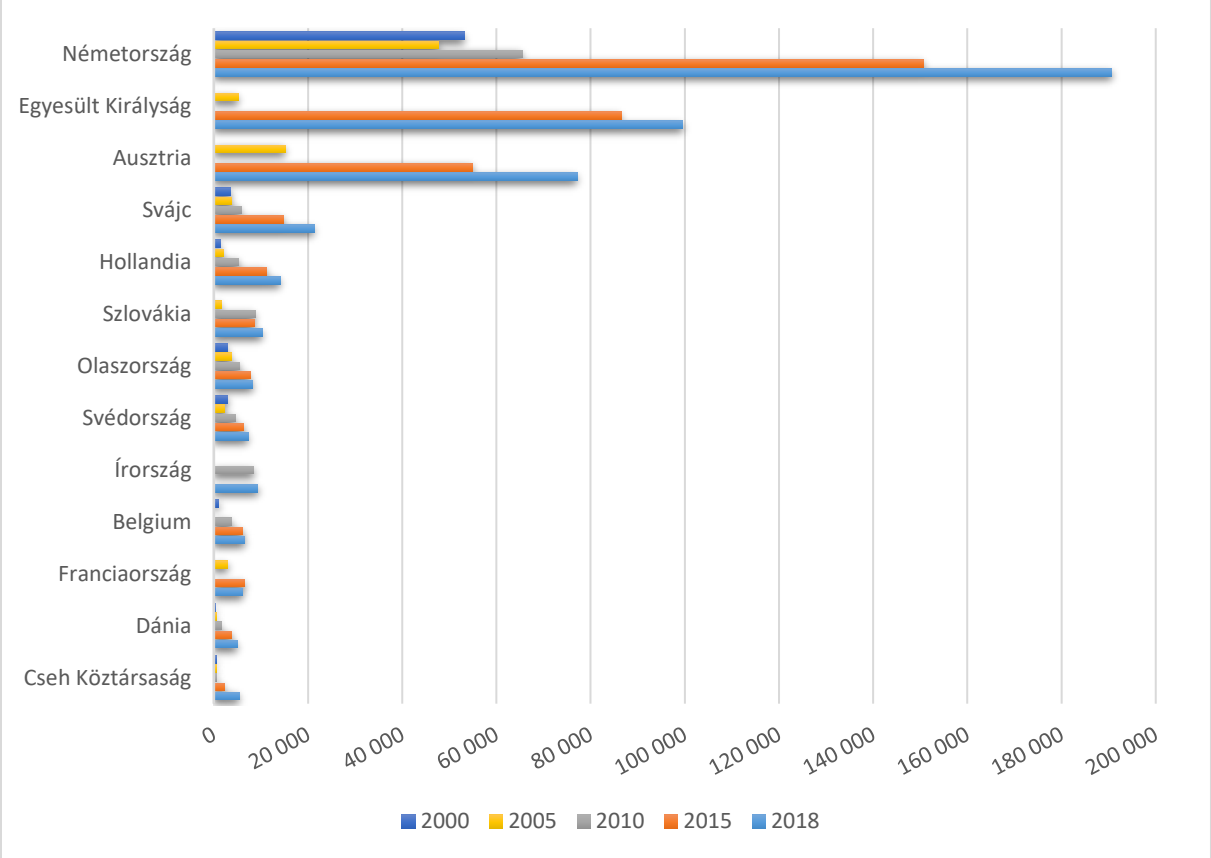


Source:KSH-STADAT, * projection for 2018

Despite the increase in returns, the number of Hungarian nationals living abroad continued to rise: in early January 2018, it totalled 477 000 in EEA countries and including territories outside Europe, it is estimated – by experts – to range between 570 000 and 610 000. Based on the latest UN data, the

number of international migrants born in Hungary was 637 000 in 2017, which is 6.6% of the total native-born population. Despite the increase, this rate remains far below the rates reported from countries affected by higher rates of emigration (Romania, Bulgaria, Baltic countries and Poland). However, the impacts of emigration on demographics and the labour market are becoming increasingly noticeable.

10. Figure 10: Number of Hungarian nationals living in top countries of destination in Europe (person)



Source: Eurostat

New methods for the assessment of the movement of the Hungarian population and demographic trends within the Carpathian Basin are highly recommended as traditional statistical methods do not always indicate any different migration processes. For example, due to the dual citizenship popular with foreign-born Hungarians, statistics and records have failed to offer reliable information on the number of these people moving permanently to Hungary in the last 30 years (due to their naturalisation). In the meantime, there are strong hypotheses that the migration directions of foreign-born Hungarians have radically changed in recent years: Hungary is no longer their destination, they want to move from the Carpathian Basin. As the relocation of foreign-born Hungarians from their country of origin into Hungary played an important role in the replacement of Hungary's population (it would have fallen below 10 million 10 years earlier without these people), the analysis of the current processes could be critical. In the meantime, lifestyle patterns that defy categorisation by traditional statistical methods have become widespread both among foreign-born and native-born Hungarians, such as international dual residence models.

5.1.4.2 Knowledge – education[17]

There are two key ways the improvement of the education systems can contribute to sustainable development. On the one part, schools should strongly focus on teaching sustainability to their students. On the other, the development of the education system, the general improvement of the quality of education and raising the educational attainment level of more and more people within the society will help build a knowledge-based economy, change the employment structure and transform economic activities to ensure they cause less environmental damage. Higher educational attainment levels enable scientific research to more efficiently promote sustainable development (Csapó, 2019).

Changes in student school performance

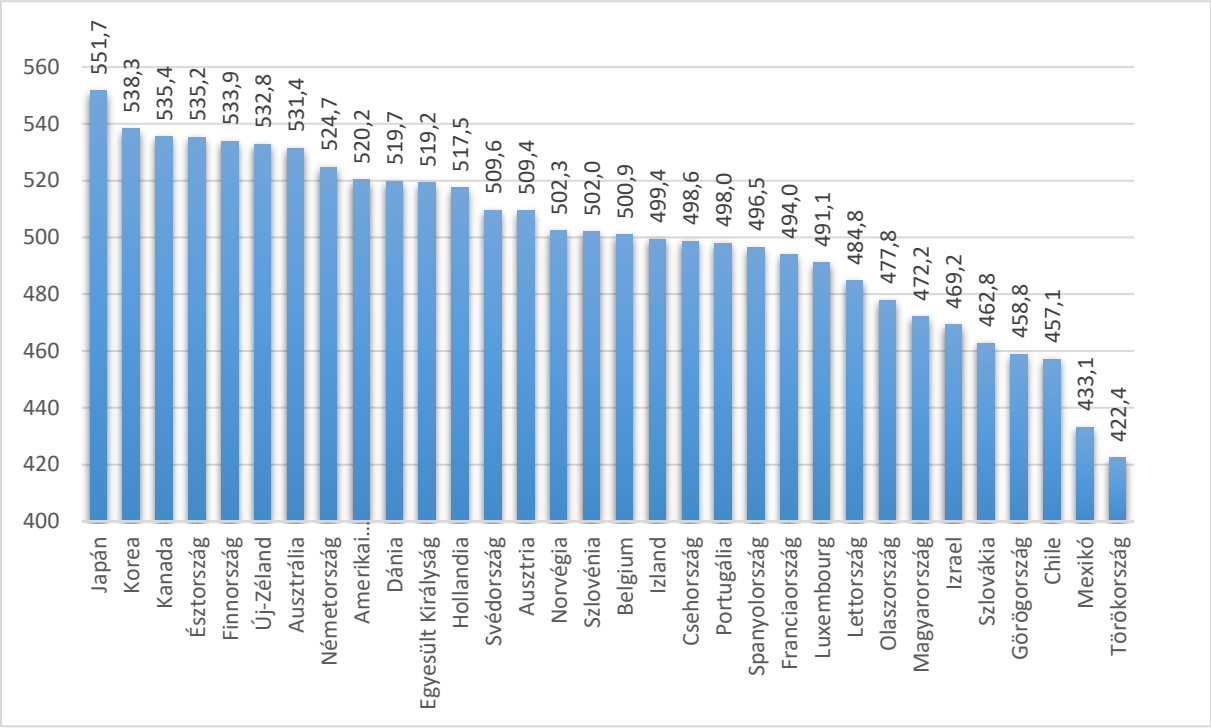
Changes in the performance of students at school precisely reflect the quality of education delivered by a country's school system. The quality of education is assessed by a number of international organisations in a number of international tests including the PISA assessment conducted in OECD countries, which offers comparability on international level for Hungary. This international test assesses student performance in three core subjects (science, mathematics and reading comprehension) plus in an innovative, variable field. There has been no new survey since the latest monitoring report (the results of the 2018 PISA test will only be published in December 2019), however the findings of the fourth area of the 2015 PISA test, assessing collaborative problem solving skills, were released only in 2017 hence they were not included in the previous report.

As it was presented in the previous report, the performance of Hungarian students in the key competence areas is declining. This also affects their problem solving skills. A little over one-third of the students (37.3%) are low achievers not even reaching competence level 2. What is particularly alarming is that Hungarian students performed about 10% poorer than the potential (estimated) results based on the results of the three core subjects. On the one hand, these results mean that a large proportion of Hungarian students lack the essential skills needed in modern societies to work together. On the other, it shows that Hungarian school education does little to develop people's thinking, i.e. many young people are unable to solve problems in unfamiliar situations.

It has been clear since the beginning of PISA tests that the Hungarian is one of the world's most selective school systems in the sense that children are assigned to different schools based on their background from a very young age. A typical indicator of this aspect is the level of difference between schools where Hungary is usually placed in the top three in any type of tests. The same happened in the case of collaborative problem solving where we are second after Israel. On a list ranking countries based on how much the socio-economic status of students predicts their performance at school, Hungary would be first, meaning that our schools are the least able to reduce socio-economic differences between students. These data do not only reflect a negative tendency but also indicate that we are moving away from the average of the developed countries at a pace which poses severe challenges even for sustainability.

11. Figure 11: The results of the PISA 2015 collaborative problem solving test in OECD countries

[17] The Knowledge section is based on the study by Csapó B. (2019).

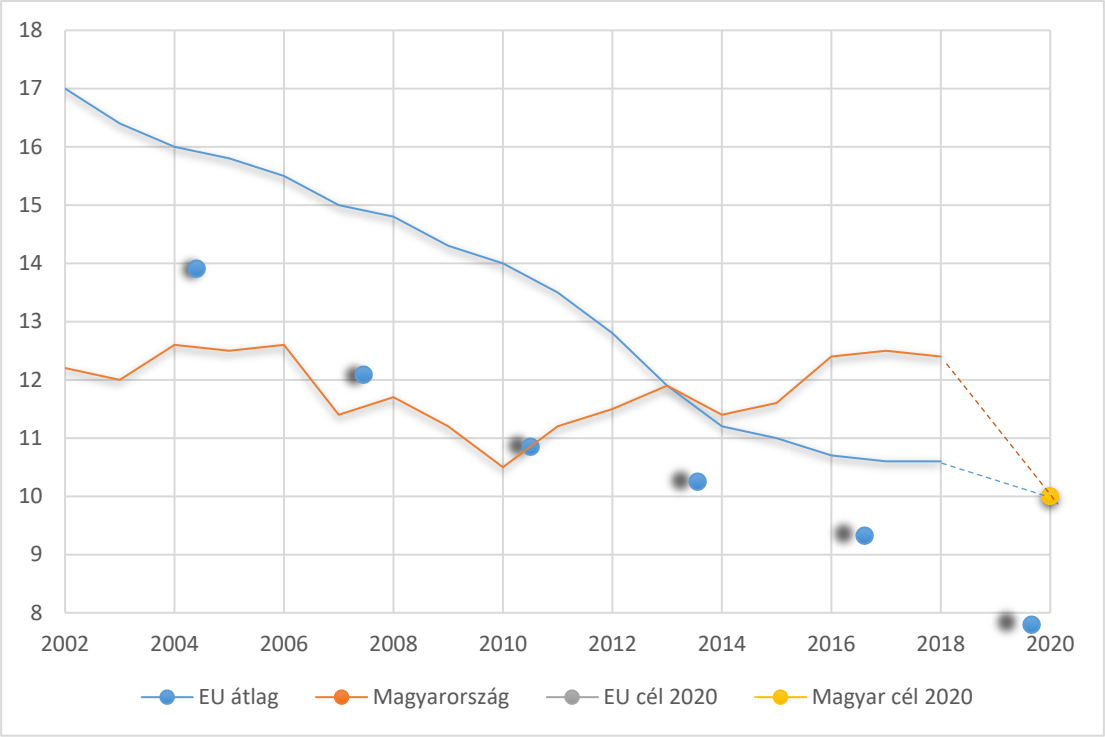


Source: OECD, 2017b Figure V.3.3

One of the key objectives of the EU 2020, which is also relevant to Hungary, is the reduction of the early school leaving rate below 10% reflecting an effort to ensure that students leave the school system with the highest possible level of educational attainment. Based on KSH data, the early school leaving rate was stationary between 2016 and 2018, i.e. this value is still far from the target and our backlog compared to the EU average keeps growing. There are only five other countries across the EU where the early school leaving rate is higher than in Hungary (Bulgaria, Malta, Italy, Romania and Spain), however their indicators are much worse than Hungary's (the value for the last three countries on the list is over 16%).

If we look at early school leavers by sex, the rate for men tends to be higher. Based on KSH data, the previous tendency turned around in 2017: there were more women who dropped out of school prematurely than were men. However, the traditional pattern returned by 2018, i.e. there are more male early school leavers than female ones. To understand these changes, more in-depth analyses would be required. One of the reasons may be that boys and girls choose the various types of schools in different proportions, which have different early school leaving rates (Csapó, 2019).

12. *Figure 12: Changes in early school leaving rates (%) in Hungary and the EU average between 2002 and 2018*



Source: Eurostat; KSH-STADAT

Based on the relevant surveys of the Office of the Commissioner for Fundamental Rights, the improvement of the rates of students in primary education as well as in vocational education and training could effectively promote the entry of people into the labour market with the highest attainment level possible as well as the social integration of young people in correctional facilities.

Following the recognition of the growing problem of early school leaving, the government, in 2016, devised the Mid-term Strategy Against School Leaving Without Qualification and also introduced the two-year-long Vocational Training Bridge Programme designed to offer alternative study options to recent or former drop-outs in order to allow former students dropping out without qualifications to return into the education system and to obtain qualifications. Students in the Vocational Training Bridge Programme also receive a scholarship, which may also encourage these early school leavers to continue their studies. Disadvantaged students at risk of dropping out are supported by the Arany János Programmes, which offer complex pedagogical and cultural assistance.

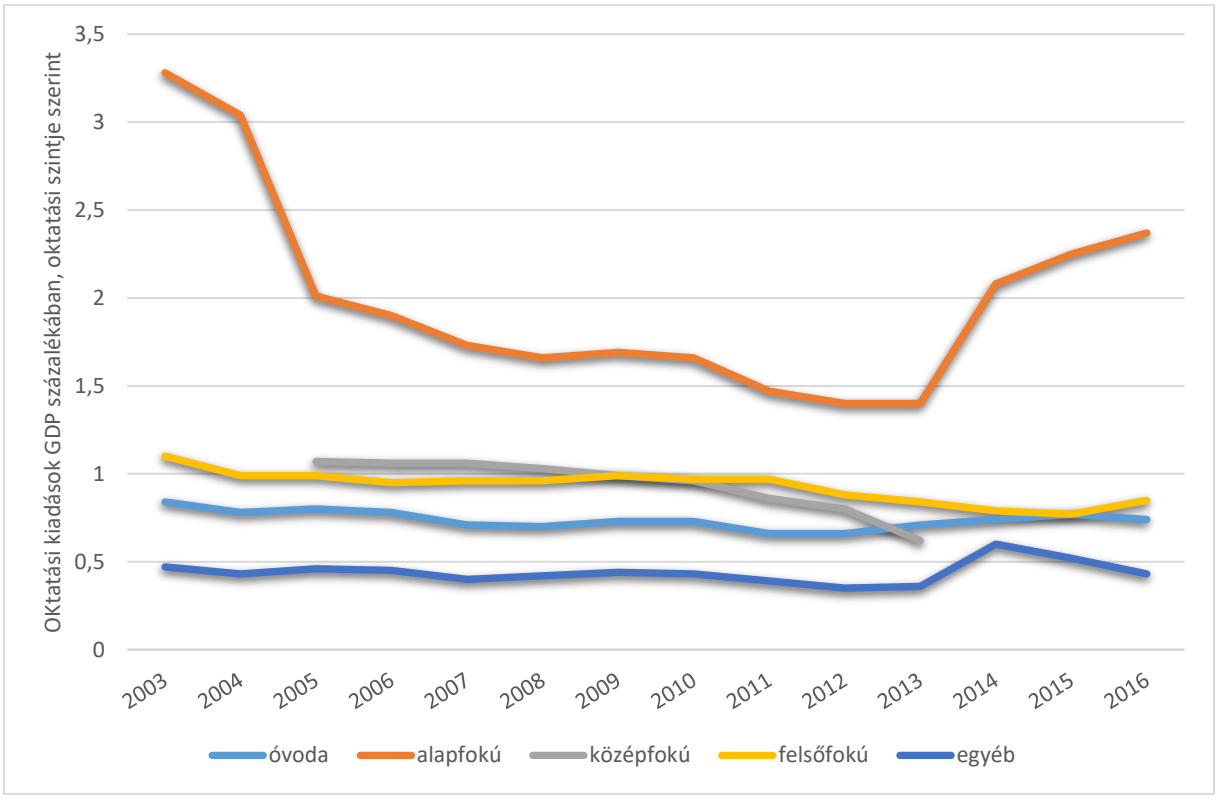
There were various EU-funded programmes launched to reduce the early school leaving rate and improve the attainment level of low-skilled workers. The after school development programmes are the most effective ones to promote the empowerment and the social integration of children. The revised version of Act XXXI of 1997 on the Protection of Children and the Administration of Guardianship requires after school development programmes to be included in the public institutional system as a form of basic child welfare funding as of January 1 2019. The central budget for 2019 allocated a total of 2507 million HUF to fund the establishment of 196 after school development programmes for 5500 children.

Furthermore, the Complex Basic Programme was developed designed to promote the reduction of the early school leaving rate through the further training of teachers. To date, 7000 teachers have participated in the programme in disadvantaged regions, connected to the issue.

In addition to low achievers, government programmes also focus on talent management. The 2017/2018 action plan under the National Talent Programme for 2008–2018 provides opportunities for children to cultivate their talents from as early as preschool, in the form of thematic camps, the improvement of the educational environment and the involvement of experts. A new element of the action plan is the introduction of talent management programmes for young foreign-born Hungarian people and international networking.

A related topic is the quantitative analysis of government spending on education. The new classification system introduced in 2014 restricts the comparability of the data on government spending before and after 2014. However, there has been a growing tendency since 2014: between 2014 and 2016, government spending went up by 0.17 percentage point from 4.21% to 4.38%.

13. *Figure 13: Expenditure on education as % of GDP between 2004 and 2016*



Source: KSH

The efficiency problems of the Hungarian school system are clearly demonstrated by the high (and rising) rate of low achievers and the high early school leaving rate. Furthermore, the social selection of students is high with schools playing a key role in the reproduction of social inequalities. The negative tendencies of Hungary's education system are also highlighted by the EU: a document published by the European Council in 2018 identifies early selectiveness, the significant segregation of Roma students and the high early school leaving rate as key problems.[18]

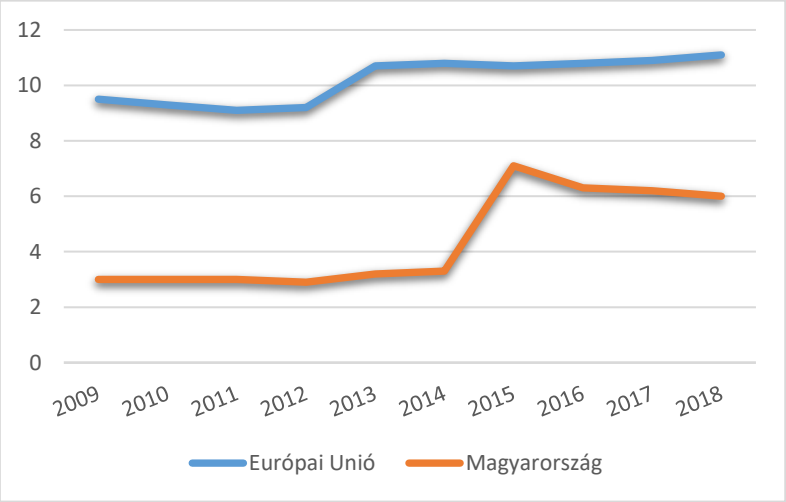
[18] Council of the European Union, 2018. p. 9.

Lifelong learning

Nowadays, knowledge-based society is not a blank term but a truly measurable practice; the knowledge and skills acquired in schools are not always enough to tackle every new challenge and the potential of adult learning is becoming a priority.

Since the previous report, the rate of Hungarian adults participating in adult education has steadily lowered, albeit at a slow pace: The rate of adult (people aged 25-64) participation in learning was 6.3% in 2016, 6.2% in 2017 and only 6% in 2018. Furthermore, the higher educational attainment level correlates with higher participation in learning, i.e. low skilled people remain reluctant to study at later stages in their lives as well.

14. *Figure 14: Rate of population aged 25–64 in adult education in Hungary and the EU between 2009 and 2018*

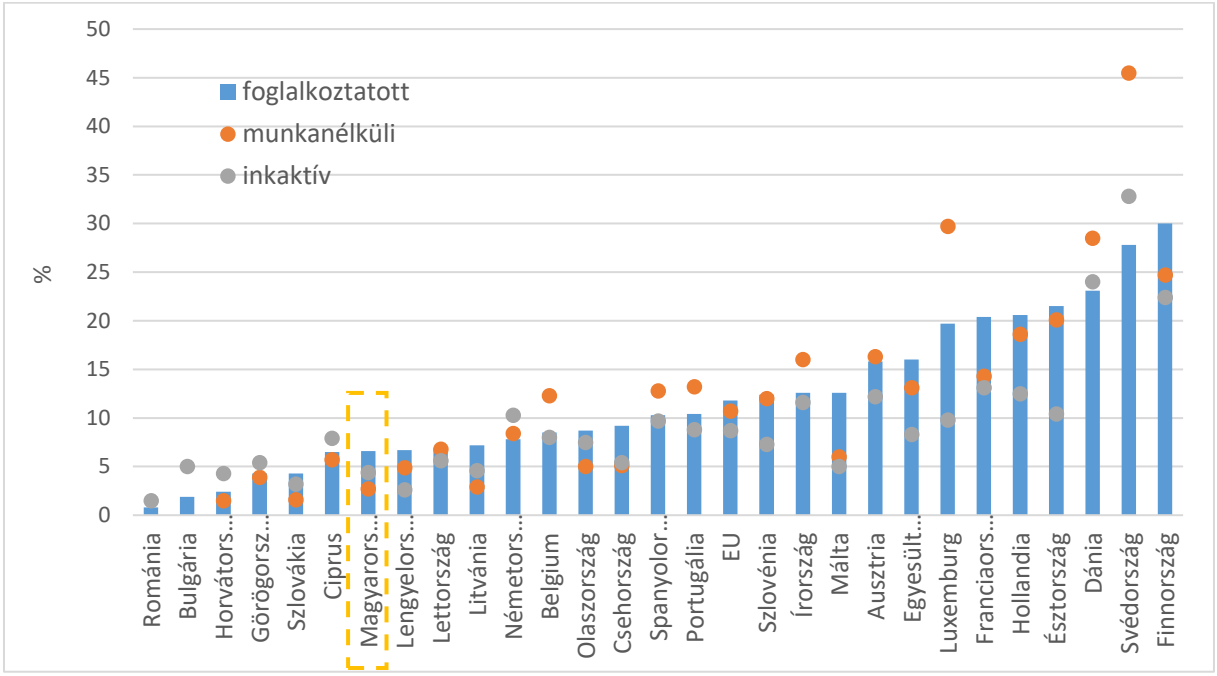


Source: Eurostat

Meanwhile, progress has been made since the previous monitoring report in the participation in learning of both unemployed and inactive people as their rate has been growing, likely as the result of the labour market programmes[19]: between 2016 and 2018, a rise of 0.8 percentage point for unemployed persons and 1 percentage point for inactive persons was reported by Eurostat. Hungary, however, remains far below the EU 28 average with the highest gap for unemployed persons (in 2018, the indicator was 2.7% for Hungary and 10.7% for the EU). The participation of employed persons in adult learning lowered from 7.4% in 2016 to 6.6% in 2018.

[19] For example, GINOP 6.1.1-15; GINOP 6.1.3-16.

15. *Figure 15: Rate of population aged 25–64 in adult education by labour status in the EU in 2018*



Source: Eurostat

It is not only the rate of the adult participation in learning which is below the EU average but also the expected years of schooling at the school entrance age. The latest data from 2017 show that the expected years of schooling for Hungarian students are 15.1 years[20] while the EU average 16.6 years. This indicator has been practically stationary for Hungary between 15.0 and 15.5 years since 2013; it seems that the main tendency was not affected by the lowering of the school leaving age. On average, girls are expected to be at school for nearly a year longer than boys.

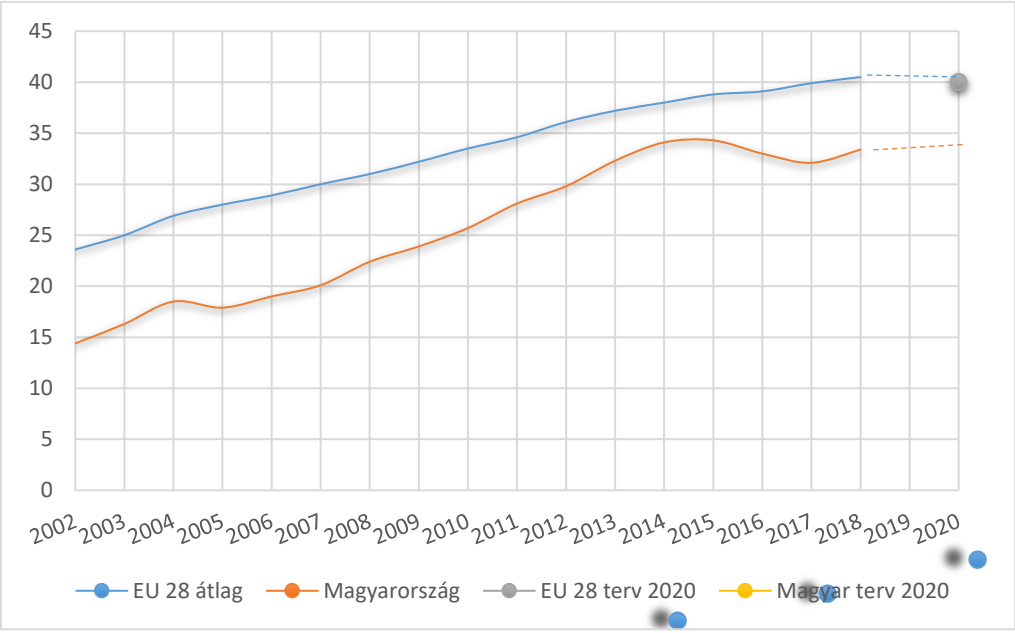
Changes in the higher education and tertiary attainment rates

In addition to the reduction of the early school leaving rate, another education related priority target of the EU 2020 strategy is the increase of the tertiary attainment rates. The EU target for the tertiary educational attainment level of the population aged 30 to 34 is 40%. Hungary's target is 34%.

The EU average shows steady growth while Hungary's progress, especially in the last five years, has been quite uneven. Until 2014, Hungary improved at a faster pace than the EU but the rate of tertiary graduates has been gradually lowering among 30-34-year-olds since the highest value was reached in 2015 (34.3%): falling to 32.1% in 2017. However, the latest data from 2018 reflect a slight rise (33.7%). Following the funding and administrative reform of the higher education system, the number of applicants for and admitted students to higher education programmes has decreased since 2011, which predicts an even slower rise in the rate of tertiary graduates. In EU comparison, we are one of the last countries among the 28 member states followed by only four countries (Portugal, Italy, Croatia and Romania) where the rate of tertiary graduates is worse than in Hungary (Csapó, 2019).

[20] The United Nations Development Programme publishes data on social development on a regular basis including an indicator on the expected years of schooling at the school entrance age.

16. *Figure 16: Rate of tertiary graduates in the population aged 30 to 34 in Hungary and the EU 28 average (%) between 2002 and 2018(2020)*



Source: Eurostat, table [edat_lfse_03]

In summary, both Hungary's present state of development and future sustainable development would require a higher rate of tertiary graduates.

Changes in Hungary's education system, efficiency improvements

A number of reforms have been made in Hungary's education system in recent years. These reforms equally intend to improve the efficiency of education and the society's factual knowledge. As some of these reforms have been implemented in the last few years, their impacts may not be analysed in a comprehensive manner but in the meantime there are former changes whose effect manifested in the previous period.

- Due to the introduction of compulsory participation in preschool education from the age of 3, 95% of four-year-olds attended preschool in the 2017/2018 school year. The expansion of the early childhood education and care equally contributes to the empowerment of disadvantaged children and the reduction of child poverty (through the provision of free access to kindergarten and school meals).
- The restructuring of the secondary school system led to a stronger vocational education and training system with a higher prestige for vocational grammar schools. However, the number of people in vocational education and training programmes continues to be below the European average.
- Thanks to the introduction of free access to training programmes to acquire a second qualification, the participation in adult learning has steeply risen since 2016 and this high number has been more or less stable in the last three years (around 50 000 people participate in adult learning at vocational training institutions).
- While the pay rise for teachers and the introduction of the career path model have somewhat reduced the wage tension in the education system, the increase in average wages in recent years has eliminated the impact of the pay rise. Based even on cautious estimates, 'teacher

shortages' are 1 to 2% at minimum, i.e. at least 1300[21] (or up to 3000 to 3500 according to other surveys[22]) more teachers would be necessary. This challenge could further worsen by the number of teachers retiring after 2022.

- The number of applicants for initial teacher training has slightly decreased since 2016. Meanwhile, 2500 students of all the admitted students for teacher training programmes in 2018 receive the KLIK[23] Stipendium, which means they agreed to work for a time at a public school after graduation.
- Following the structural and financing reform of the public education system, religious and minority schools became increasingly popular. Based on KSH data, the rate of students attending non-public schools went up to 18% by 2017 from 12% in 2010 and the number of public education institutions managed by minorities grew from 12 to 76 while the number of students attending religious schools nearly doubled (as the total number of students was falling). Religious schools receive higher normative funding and have more freedom as well as their own admission system, which in combination lead to the increased selectivity of the education system.
- Dual training programmes have been introduced in higher education as well and the importance of the dual training system has grown. Simultaneously, the R&D&I grants remained available, the Higher Education Excellence Programme continued: the 13 participating institutions received a total of HUF 15 billion.

The OECD conducts a triennial survey in its member states and partner countries testing 15-year-old students to evaluate the efficiency of public education systems. The OECD report, *Equity in Education: Breaking Down Barriers to Social Mobility*, published in 2018 identifies a close relation between the socio-economic status of the school and the performance of students: In Hungary, over half of the disadvantaged students (56%) have been studying in disadvantaged schools in the last decade. This is a very high rate, practically all other European OECD member states have better mobility than Hungary. The report also highlights that disadvantaged students who are socially and emotionally resilient tend to do significantly better academically than their peers who feel socially and emotionally insecure. Hungary performs very poorly in this respect as well: the rate of people who feel satisfied is below 20% (OECD, 2018).

Environmental and sustainability education

A number of initiatives promoting environmental education and education for sustainable development as well as awareness raising were launched in the short or long term. These include the Green Kindergarten, the Hungarian Network of Eco-schools, Forest School and BISEL programmes.

The Network of Green Kindergartens was designed to provide environmental education in preschool education and care in a planned and coordinated manner. Environmental awareness has been at the heart of preschool education and care for a long time. Creative workshops for preschool teachers were set up where exemplary pedagogical methodologies were developed together with the tools and resources to be used in preschool environmental education. The Green Kindergarten programme in Hungary is operated by the State Secretariat for Environment with the involvement of one of its

[21] https://eduline.hu/kozoktatas/20181215_oktatasi_allamtitkar_pedagogushiany
[22] https://eduline.hu/kozoktatas/20190716_tanarhiany
[23] The Klebersberg Training Stipendium Programme introduced in 2013 was designed to motivate students in teacher or SNI teacher training programmes to work as teachers for a long term and to provide them with employment opportunities after graduation (https://kk.gov.hu/klebelsberg-kepzesi-osztondij

background institutions (The Museum and Library of Hungarian Agriculture). In December 2018, there were 945 Green Kindergartens including 160 Permanent Green Kindergartens and 20 base kindergartens in Hungary.

The Network of Hungarian Eco-schools has been working since March 2000 as part of an international network, under the OECD–CERI (Organisation for Economic Cooperation and Development, Centre for Educational Research and Innovation) ENSI (Environment and School Initiatives) project. The network coordinates, provides information, continuing training and events to schools that place emphasis on the education of sustainable development including in particular its environmental aspects. At the end of 2018, there were 997 eco-schools in Hungary including 429 Permanent Eco-schools. Approximately 30% of students attend an eco-school. All except one of the vocational education and training institutions managed by the Ministry of Agriculture are eco-schools.

Education for sustainable development is one of the goals of public education, included in the first section of the national public education law reflecting its importance, and a priority development area of the National Curriculum. Sustainability education is an internationally and nationally inspiring pedagogical area based on the best practices of environmental education, able to quickly address new challenges. And its most progressive practice is the ECO School Programme, the education for complete institutional sustainability. A total of 59 of our institutions were awarded the ECO School title including 12 with the permanent ECO School title.

A new component of the system is the School Garden programme. School Gardens allow ecological awareness raising and experimenting, the demonstration of the cycles of our natural environment; the presentation of environmental issues and the testing of alternative solutions; connection with the components of the environment and daily food; promotion of environmental and social responsibility through collaboration; the simultaneous development of senses, mind and body; the experience of the pleasures of real life to level off the virtual experiences of the children. School Garden activities also have a therapeutic effect on special needs students. Funded by the Ministry of Agriculture and with the involvement of the Foundation for School Gardens, the National School Garden Development Programme was launched in 2018, which supported the creation of 50 new school gardens as well as the extension and improvement of a number of existing gardens.

***

In summary, the current education system does not fully support the achievement of the objectives of NFFS; further measures are needed to improve the indicators related to the early school leaving rate and the quality of education.

5.1.4.3 Health

In addition to individual prosperity and well-being, people’s health has an impact on the demographics, employment policy status as well budgetary planning and sustainability of a country. Health and healthy life expectancy at birth are influenced by environmental impacts and individual lifestyle decisions. All in all, changes in health will affect all other socio-economic processes (and vice versa).

Life expectancy at birth

Besides being a key measure of a country's socio-economic development and the health status of the population, life expectancy also sheds a light on mortality patterns. In Hungary, the average life

expectancy at birth was 75.8 years in 2017, including 72.4 years for men and 79.0 years for women. These numbers indicate only an insignificant amount of rise between 2014 and 2017 with life expectancy practically stagnating for both sexes. While this phenomenon is present in many other European countries, it is rare in countries with relatively low life prospects such as Hungary.

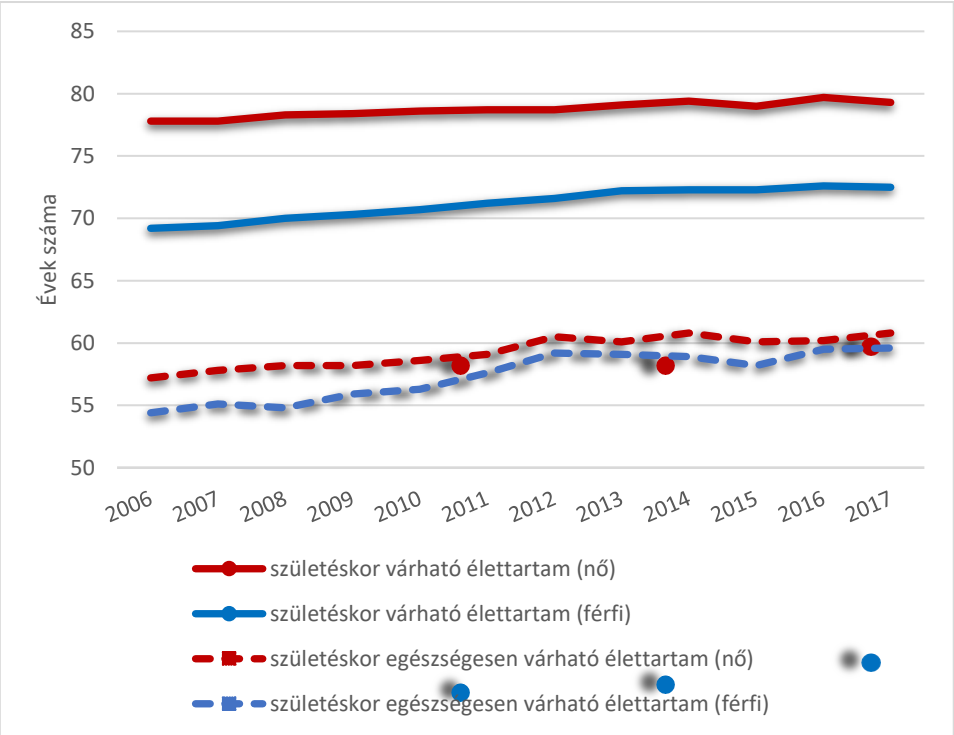
In 2017, the life expectancy at age 65 was 14.5 years for men and 18.4 years for women: these values are 3.6 and 3 years lower, respectively, than the EU average.

Health status

Healthy life expectancy at birth is 60.8 years for women and 59.6 years for men, which is worse than the EU average but ranks Hungary in the middle on the list of European countries. Following a slight decrease earlier, this indicator shows some improvement. High mortality rates relative to the population's health status reflect imperfections of the healthcare system.

Self-reported or self-perceived health is a widely used measure to assess people's health. The perception of health is improving both in the short and in the longer term: 60% of the Hungarian population rate their health as good or very good with men having a more positive assessment of their own health.

17. *Figure 17: Changes in life expectancy at birth in Hungary between 2006 and 2017*



Source: Eurostat

Morbidity, top causes of death

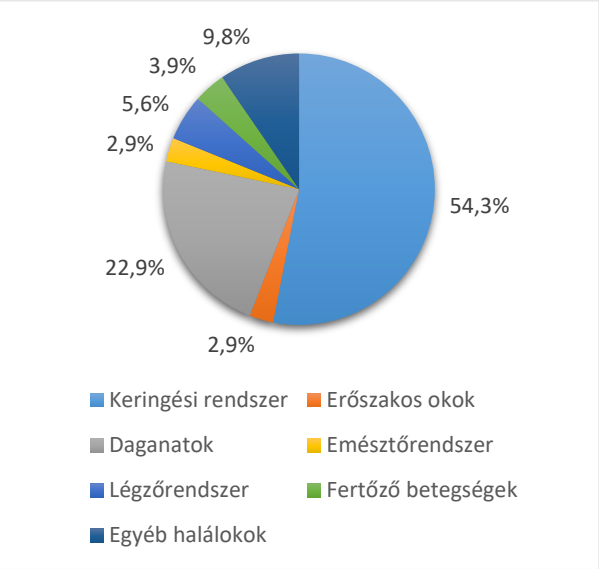
In Hungary, the most common diseases are associated with hypertension: in 2017, there were 3960 medical problems per 10 000 persons aged over 19. Nearly 100% of the elderly population aged 75 and over have been diagnosed with hypertension (9188 diseases per 10 000 persons). Other severe

co-morbidities include ischemic heart disease, diabetes and asthma. In the period under review, the prevalence of ischemic heart disease was stationary while the prevalence of diabetes and asthma further rose. The rate of asthma also increased in the population aged 8–18 as one of the health-related impacts of environmental factors.

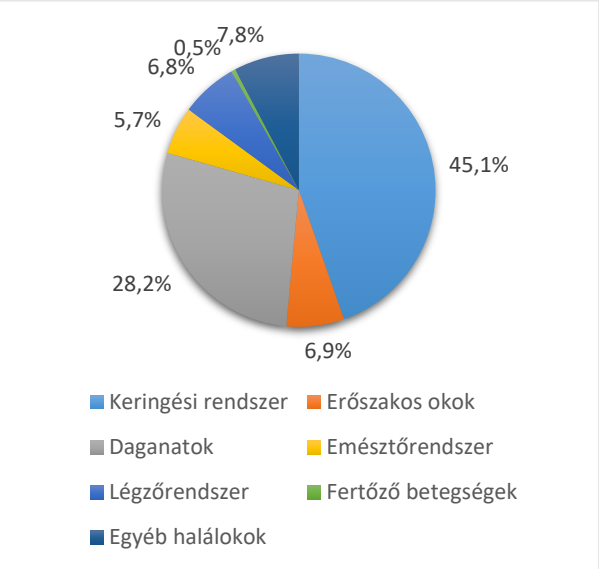
In 2017, the leading cause of death was cardiovascular diseases followed by cancer in frequency. These two causes of death account for three-quarters of all deaths. Diseases of the respiratory and the digestive system in combination with violent deaths account for roughly 15% of all deaths.

As regards cancer, Hungary is the "global leader" in the prevalence of colorectal cancer while, among women, the mortality rates of cervical cancer are high in international comparison, being twice as high as the EU average. One of the challenges for the early detection of cancers is the low participation of the population in screening programmes (only two-fifths of the people have attended a screening in the last two years). To address this problem, the "Screening Near Your Home" programme was launched in 2018, initially as a pilot project, and the group of screening tests performed by health visitors was expanded to include cervical screening and the detailed examination of early childhood development.

18. *Figure 18: Mortality rates by leading causes of death among women, 2017*



19. *Figure 19: Mortality rates by leading causes of death among men, 2017*



Source: KSH: The indicators of sustainable development for Hungary, 2018.

The trends of the amenable mortality rates indicative of timely and quality health care were also examined in detail. Amenable mortality is defined as premature deaths that could have been avoided through optimal (timely and effective) health care. In 2017, there were 24 136 amenable deaths, 18% of all deaths, roughly 240 per 100 000 population in Hungary (Oberfrank, 2019). Hungarian data for recent years show a break in the previous positive trends in amenable mortality. While the estimate for the decrease in this cause of death was 3% per year both for the period between 2000 and 2015 and 2010 and 2014, it fell less than 1% between 2014 and 2017, which means that the contribution of

health care to the reduction of mortality, i.e. the rise of life expectancy was insignificant in this period (KSH, 2019a).

In addition to treatment, disease prevention is equally important where one of the key methods is vaccination. In the period under review, the optional Meningococcal C vaccine was made available free of charge for children aged 0–2 as of January 1 2017. In 2019, varicella vaccine was introduced as a free, compulsory vaccination. In the school years 2016/2017 and 2017/2018, three-quarters of the girls eligible (in grade 7, after the age of 12) for the human papilloma virus (HPV) vaccine, available free since 2014, were immunised with the two-component HPV vaccine.

As the majority of health loss attributable to risk factors (74.5%) is associated with behaviour, public health policy planning should very importantly focus on interventions to change health behaviours (Oberfrank, 2019).

A significant share of deaths and diseases is caused by environmental impacts. The most dominant impact is air pollution (PM_{10} and PM_{25} emission), which causes 13 000 premature deaths in Hungary, based on the calculations of the European Environment Agency, i.e. these people, on average, lose over 10 years from their lives. Analyses conducted in the period under review confirm that poor indoor air quality can lead to the diseases of the respiratory system, which can be the result of multiple factors. Due to its adverse effects on health, there is growing public protest against noise pollution caused by air traffic. Furthermore, extreme weather events also pose a severe risk, for example, in the last few years, the number of deaths has increased by over 15% during these periods.

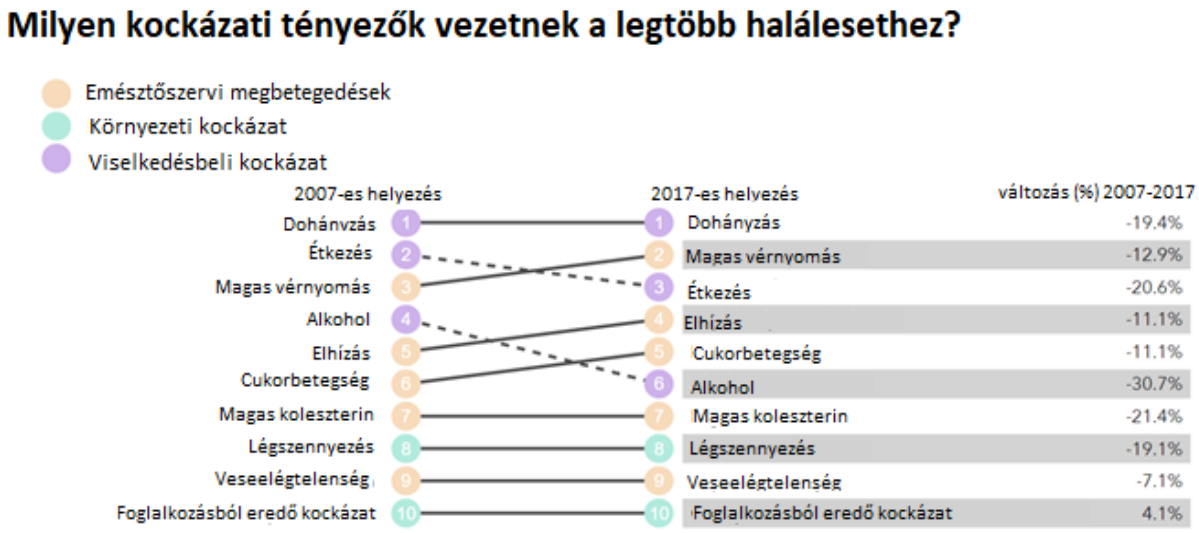
Prevalence of unhealthy behaviours

Unhealthy behaviours have been proven to be the cause of various diseases. Smoking, alcohol misuse, illicit drug use as well as unhealthy diets, obesity and physical inactivity are all risk factors for death.

As the latest data on the population's habits related to smoking and alcohol use are from 2014, there is no information on the changes that have taken place since the previous report. In 2014, over one-fifth of the Hungarian adult female population and nearly one-third of the male population were daily smokers. The country profile prepared by IHME shows that smoking as a risk factor continued to drive the most deaths in Hungary in 2017. In addition to the problems related to excessive alcohol use, dietary risks (high body mass index, high blood sugar levels, high cholesterol levels) also increased.

In Hungary, over 50% of the population over 16 are overweight or obese, 40% are at a normal weight and 4% are underweight. A large portion of the population do not do any physical activity.

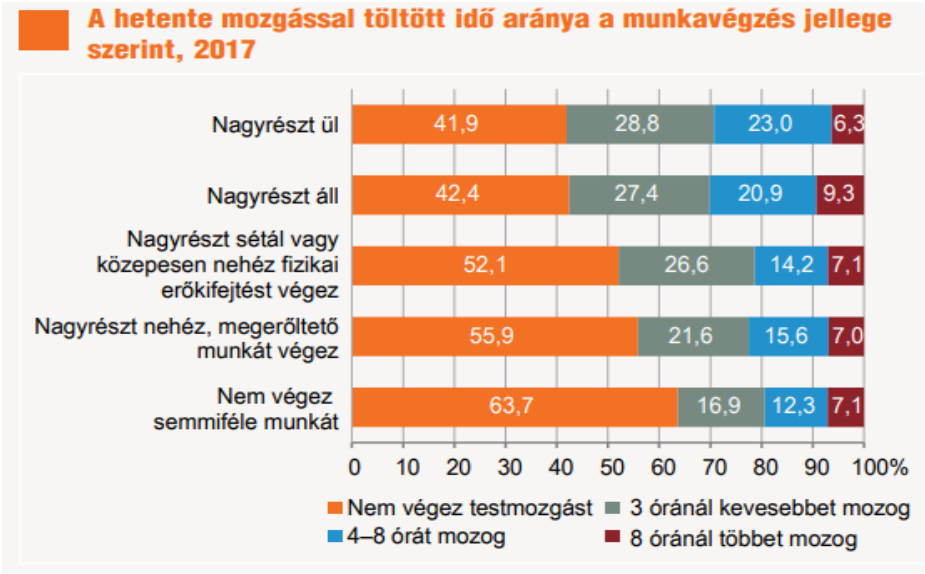
20. *Figure 20: Overview of risk factors for death, 2017*



Source: Institute for Health Metrics and Evaluation (IHME), Country Profiles: Hungary[24]

To improve the rate of physical activity, daily physical education classes were introduced in the education system in 2012. In most part likely as a result of this action, the highest rate of physical activity within the population is performed by students (nearly 50% pursue a physical activity for 4 hours every week) and the increase of childhood excess weight and obesity discontinued, based on OECD data from 2016. To promote optimal conditions for daily PE classes, new gymnasiums in 22 locations and new swimming pools in 16 locations were built under the National Public Education Infrastructure development Programme until the end of 2018.

21. *Figure 21: Weekly hours of physical exercise based on the type of work performed, 2017*



Source: KSH, 2018c[25].

One of the factors influencing excess weight is the nutritional value of food, which depends on soil health. Only plants grown on healthy soil contain the essential nutrients for the human body. Nutrient

[24] http://www.healthdata.org/hungary (Download date: 09/ 07 2019)
[25] KSH: https://www.ksh.hu/docs/hun/xftp/stattukor/egeszsegallapot1617.pdf (Download date: 16/07 2019)

deficiencies in food may lead to dietary disorders and malnutrition may manifest in the form of obesity.[26] In addition to physical activity, this aspect should also be included in health prevention policies.

Based on confiscation and consumption data, cannabis derivatives remained the most widespread illicit drug on the market in 2017. Amphetamines, ecstasy and cocaine remain the most popular stimulant drugs. In 2017, the confiscation rate of ecstasy tablets with high MDMA content slightly rose while there is a steady growth in the confiscation of cocaine of consumer quantity, which may show the increasing availability and use of this drug. Based on confiscation data, the availability of new psychoactive substances has been constantly decreasing since 2015 (Drog Fókuszpont, 2018).

Health care workers

The National Healthcare Services Centre publishes a report on the human resource status of the health care sector every year. The statistics show that in the period under review:

- both the number of qualified health workers included in the basic registry and health professionals included in the license registry[27] rose;
- in 2018, the number of people to whom official certificates required for working abroad were issued continued to lower, including a significant decrease in the number of Hungarian doctors and health professionals planning to leave Hungary;
- the number of people who had their health training and certificates obtained in a foreign country, recognised in Hungary, grew;
- there was a multi-step salary increase completed for health workers;[28]
- as for registered vacancies in the health sector, the ratio of occupied and vacant position is stationary.

Despite the positive trends, the shortage of health professionals remains an issue in combination with ageing: nearly one-third (33%) of the doctors are 60 or over. In the meantime, the rate of younger generations is also growing: 20% of the registered physicians are between the age of 25 and 34.

To reduce the shortage of health professionals, students in formal full-time health training programmes can apply for scholarships. Participants in the MSc programme for qualified nurses may apply for the Michalicza Scholarship, similarly to the system of the KLIK Stipendium. Furthermore, the grant system of the Resident Funding Programme was introduced by the government in 2011, which is constantly extended; in 2017 and 2018, a total of 1622 medical specialists and clinical pharmacists participated in the grant system.

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[26] R. Vargas Rojas – M. Achouri – J. Maroulis – L. Caon: Healthy soils: a prerequisite for sustainable food security. *Environ Earth Sci* (2016) 75:180, 179, 180, link.springer.com/article/10.1007/s12665-015-5099-7; *Global nutrition report from promise to impact, ending malnutrition by 2030*
http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/130354/filename/130565.pdfxix-xx

[27]Independent health care services are subject to registration in the license registry.

[28] The salaries of physicians and clinical pharmacists with a specialty certification were raised in two steps: in the first step, their basic salary went up by gross HUF 107 000 from September 1 2016 and in the second step, by gross HUF 100 000 from November 1 2017.
The basic salary of physicians and clinical pharmacists with no specialty certification rose by gross HUF 50 000 from November 2017. On average, the basic salary of physicians went up by 56.8% between 2016 and 2017.
The salary increase of health professionals was and is completed in 4 steps leading to an average rise of 53% between 2016 and 2018.

5.1.4.4 Poverty, exclusion – social cohesion[29]

The NFFS addresses objectives related to social solidarity and equal opportunities under human resources. This issue is closely associated with social resources, in particular the topic of social cohesion and social structure. While this chapter partly overlaps with the area of social resources, these topics should be reviewed and evaluated together, due to their complexity.

Rate of people at risk of poverty or social exclusion

EU member States agreed to reduce the number of people living in severe material deprivation and social exclusion and the number of people at relative risk of poverty and social exclusion by 20 million throughout the European Union between 2008 and 2020. As part of that, Hungary committed to reducing the number of the affected population by 450 000 to 1.93 million (compared to 2.38 million in 2008).

The EU 2020 strategy uses three indicators to assess the efficiency of the fight against poverty or social exclusion:

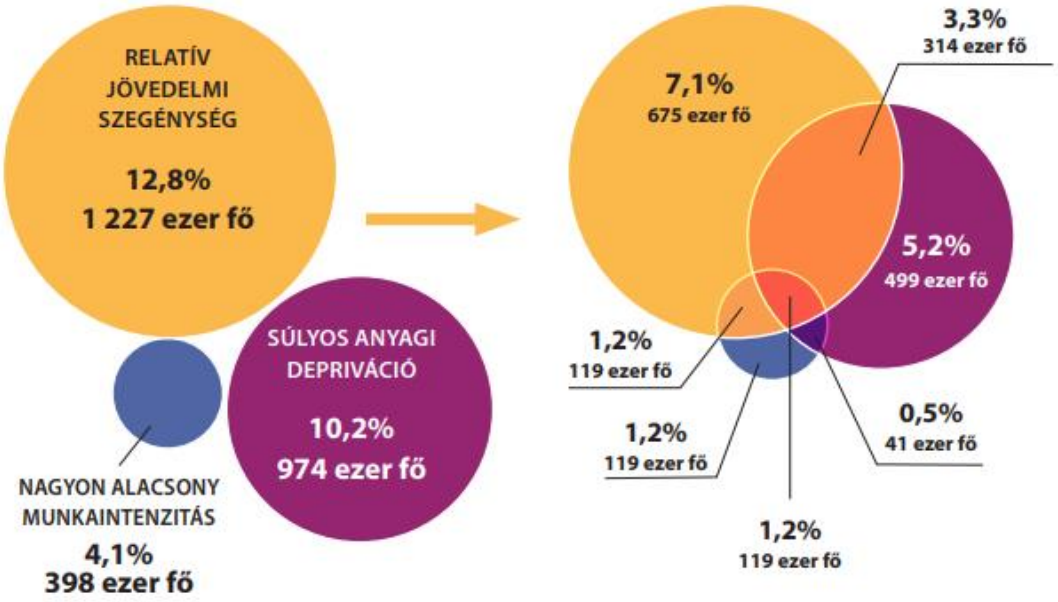
1. *Lives in relative income poverty*: the equivalised disposable income in a household is lower than the poverty threshold (less than 60% of the median income).
2. *Lives in severe material deprivation*: the household is affected by at least four problems defined by a total of nine fundamental indicators or the lack of assets.
3. *Lives in a household with low work intensity*: the working-age members of the household worked maximum 20% of their potential in the reference year.

The resulting headline indicator equally reflects professional aspects and the political compromise of member states as there are significant differences across the member states regarding these three components. This allows the identification of the indicator that has the highest impact on the headline indicator in each member state (NFFT, 2015).

Contrary to the EU average, the rate of people affected by severe material deprivation was the highest of the three indicators in Hungary from 2008, however the order changed by 2018: the severe material deprivation rate went below the relative income poverty rate. Based on the KSH's publication "Household Living Standards 2018", the composition of people living in poverty or social exclusion changed as follows. The rate of people affected by relative income poverty, severe material deprivation and very low work intensity is 12.8%, 10.2% and 4.1% respectively. The intersections of the various categories show that 1.2% of the population (119 000 persons) are affected by all the three problems while 5% are affected by two disadvantages, which means that 6.2% (539 000 persons) of the people are in the most severely affected group.

[29] This chapter is based on the following study: Tóth I. Gy. – Branyiczki R. (2019): Fenntartható fejlődés Magyarországon, Társadalmi kirekesztés, szegénység és társadalmi kohézió, Harmadik monitoring jelentés, Tárki, Budapest.

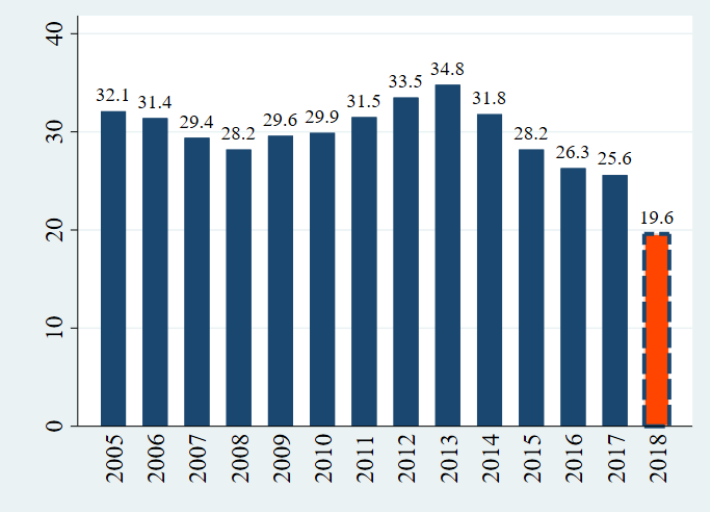
22. *Figure 21: Single and multi-dimensional presentation of the rate of people at risk of poverty or social exclusion, 2018*



Source: KSH 2018. (Household living standards, page 14)

In general, the rate of population at risk of poverty or social exclusion is 19.6% (1.89 million people), which means Hungary has achieved the target set for 2020. This decrease represents significant progress compared even with the indicators in the previous report: Between 2016 and 2018, the rate of people at risk of poverty or social exclusion lowered from 26.3% to 19.6% in Hungary, which is closely related with the economic upturn, higher salaries and the rise in general employment levels.

23. *Figure 23: The rate of people living in poverty or social exclusion in Hungary relative to the total population, 2005–2018*



Source: Eurostat

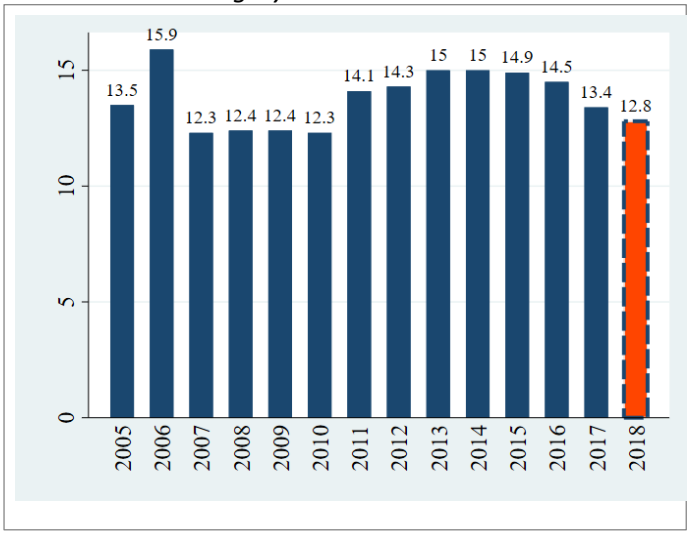
In summary, this indicator is encouraging as all three rates have improved in Hungary since the latest monitoring report and progress has been made to achieve the objective defined in the NFFS. However, internal peripheries still exist: the elimination of disparities affecting certain social groups (young people, single parent households, unemployed people, Roma population) and socio-economically underprivileged areas remains a challenge in the field of social policy. To facilitate their alignment, there were experimental programmes launched in segregated areas and communities with multiple disadvantages, designed to eliminate disadvantages affecting several generations (e.g. TOP/CCHOP and HRDOP to develop urban and non-urban segregated areas).

Income poverty

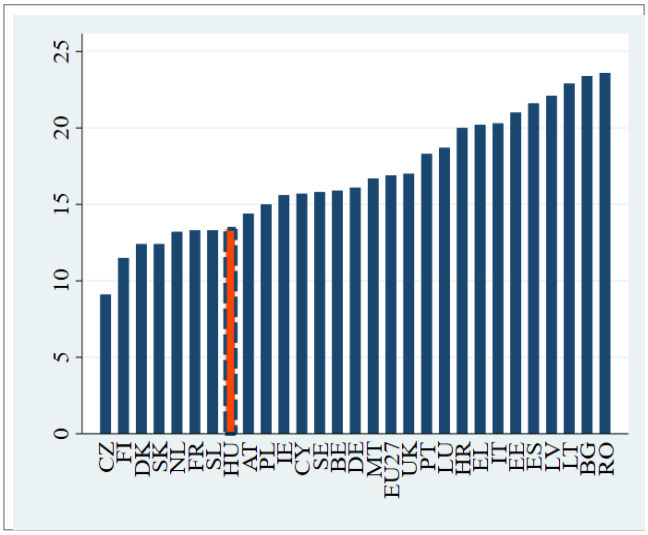
In statistics, relative income poverty is defined based on a relative poverty threshold. The threshold used by the most widely used indicator is 60% of the median of equivalised household income[30].

Between 2007 and 2013, income poverty was constantly rising in Hungary followed by a stagnation and a steady decrease after 2015. While 14.5% of the total population were affected by poverty in 2016, this rate fell to 12.8% by 2018. We improved our ranking on the EU28 list: in 2015, we were 11th and moved up to the 7th place in 2017. The Czech Republic has the lowest poverty rate while Romania has the highest.

24. *Figure 24: Changes in relative income poverty rate in Hungary between 2005 and 2018*



25. *Figure 25: Relative income poverty across EU countries in 2017*



Source: Eurostat. The share of persons with an equivalised disposable income below 60% of the household median equivalised disposable income.

Severe material deprivation

In contrast to the relative nature of income poverty, severe material deprivation offers a better understanding of the differences in living standards across countries. There has been remarkable

[30] Using equivalence scales, the equivalised household income considers the variations in consumption needs of household members of different age as opposed to the per capita household income method. This indicator has been calculated based on the OECD-modified scale. This assigns a value of 1 to the household lead, of 0.5 to each additional adult member and of 0.3 to each child.

progress made since the previous monitoring report: while the indicator was 16.2% in 2016, it was only 10.1% in 2018, which is the lowest ever registered value in Hungary. This positive tendency is most probably the result of the improvements in living standards in recent years; government measures and the economic upturn of recent years led to the highest rate of income rise of the last decade. Despite the positive trend, the Hungarian society remains highly deprived compared with the rest of Europe: In 2017, Hungary reported the fourth worst rate in the EU[31].

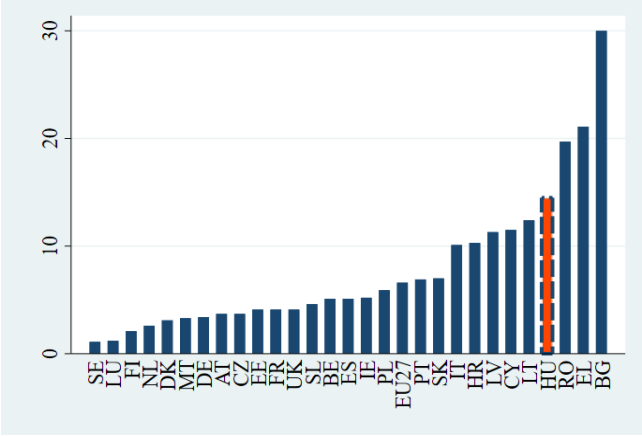
3. *Table 3: Fundamental indicators of severe material deprivation in Hungary between 2015 and 2018 (%)*

	2015	2016	2017	2018
Arrears on mortgage payment or housing expenses	21.6	19	15.7	12.8
Lack of resources to cover unexpected expenses	70.7	50.7	31.5	33.2
Can't afford to buy a telephone	1.4	1.3	1.1	1.2
Can't afford to buy a colour TV	0.4	0.6	0.6	0.6
Can't afford to buy a washing machine	1.0	1.0	0.7	0.7
Can't afford to buy a car	19.8	20.6	20.1	17.4
Lack of one week's annual holiday away from home	55.1	50.6	48.2	43.0
Lack of meal with meat, chicken, fish every second day	23.7	19.1	16.4	12.4
Lack of heating to keep home adequately warm	9.6	9.1	6.8	6.0
Severe material deprivation (at least 4 items)	19.4	16.2	14.5	10.1

Source: KSH-STADAT

Figure 25: Percentage of total population affected by severe material deprivation in Hungary between 2005 and 2018

26. Figure 26: Percentage of population affected by severe material deprivation across EU countries in 2017



Source: KSH-STADAT. The rate of population that cannot afford or do not have access to at least four goods or services from the nine selected items.

People living in households with low work intensity

Based on the EU statistical practice, the rate of people living in households with very low work intensity is calculated for the population aged between 0 and 59. The rate of this population has been steadily decreasing in Hungary since 2013 (13.6%): It lowered from 8.2% in 2016 to 4.1% in 2018.

[31] As the rate of people affected by severe material deprivation was not available in all the EU member states in 2018, the latest results used for the EU comparison are from 2017.

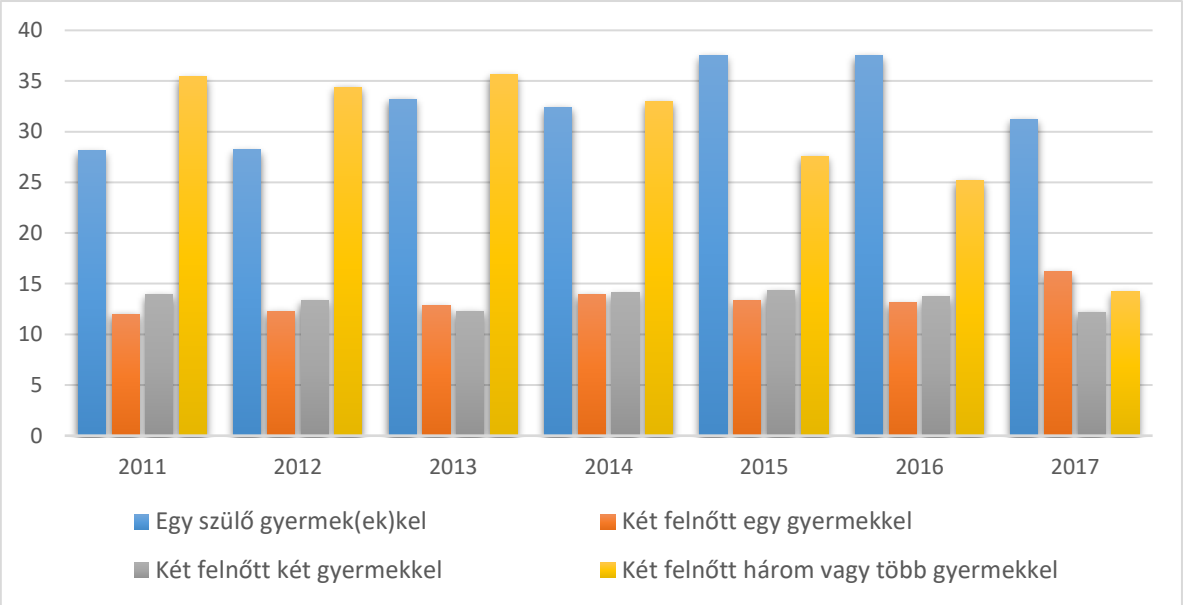
The employment of people excluded from the primary labour market is supported by the public employment programmes and other active employment policy means. While public employment programmes are able to mobilise a large portion of long-term unemployed persons, the engagement of these people in employment programmes reached its limits by 2018: roughly 25% of job seekers are unable to break out of long-term unemployment. Government reports show that a part of these people are less physically fit for regular work and many public employers are unable to employ them in the long term due to mental, social, family, work conduct reasons and work socialisation problems. Some of them work in simplified employment or earn money unofficially on an occasional basis. It is becoming increasingly challenging to engage these people in public employment and other programmes. Long-term unemployed people need complex, personalised help, which can only be effective after a longer development process and full-time employment is not a real option for many of them. There were a number of EU funded programmes launched to help these people, such as "Better Chances" applications to support the employment of Roma women or projects offering help in a complex manner to people with reduced capacity to work find jobs.

Changes in income inequalities

Child poverty

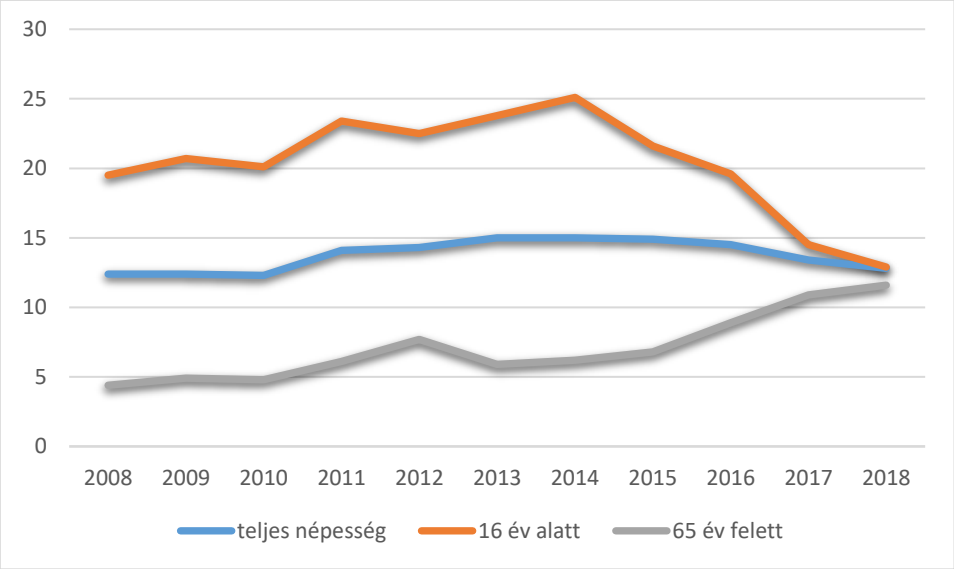
To level off social disadvantages, it is essential to ensure that the most underprivileged children get access as early as possible to real empowerment opportunities. As poverty can have a significant adverse impact on the performance of children at schools and their labour market prospects, it is an important indicator for sustainability. In Hungary, the rate of children (under 18) affected by income poverty was growing in the years after the economic crisis until 2014 then it went down from 25% in 2014 to 15% in 2017, which is lower than the EU28 average (20%). However, the proportion of people affected by income poverty remains higher among children than in the total population but he gap substantially decreased by 2017.

27. *Figure 27: Poverty risk of different types of families with children (relative income poverty rate based on household types (%)) between 2011 and 2017*



Source: KSH Information Database

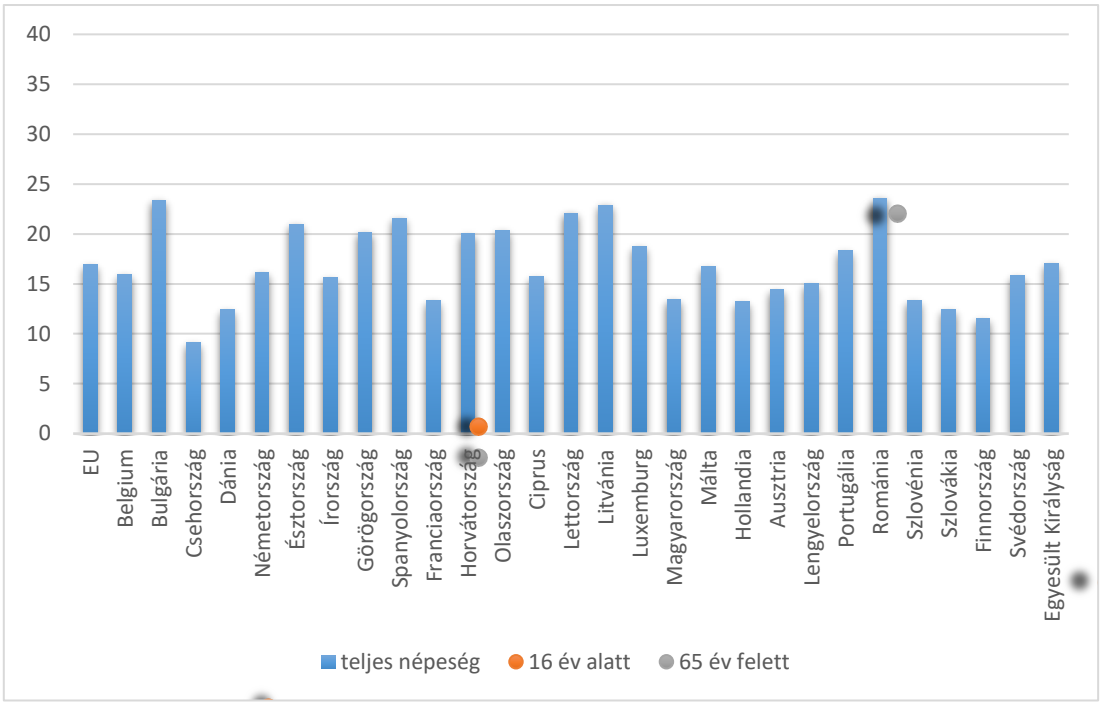
28. *Figure 28: Changes in the relative income poverty rate among children, the elderly population and the total population between 2008 and 2018*[32]



Source: Eurostat

29. *Figure 29: Relative income poverty rate among children, the elderly population and the total population in EU member states in 2018*

[32] At-risk-of-poverty threshold: 60% of the national median equivalised disposable income.

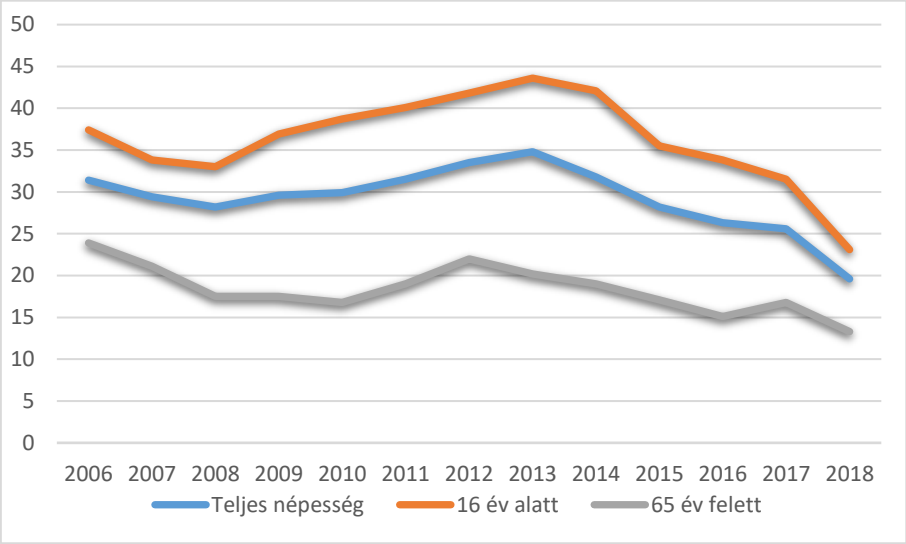


Source: Eurostat

The indicator reflecting the rate of children at risk of poverty or social exclusion went up from 33% in 2008 to 44% in 2014 and then lowered to 32%, which is practically the value registered prior to the crisis. The portion of people at risk of poverty or social exclusion is higher among children than in the total population (26% in 2017) and the gap between children and the elderly has fallen in recent years. In international comparison, the rate of 32% in Hungary is higher than the EU average (25%). Hungary in combination with Italy, Spain and Lithuania have the second worst rate of risk of poverty or social exclusion among children (these countries have a rate of 31 to 32%).

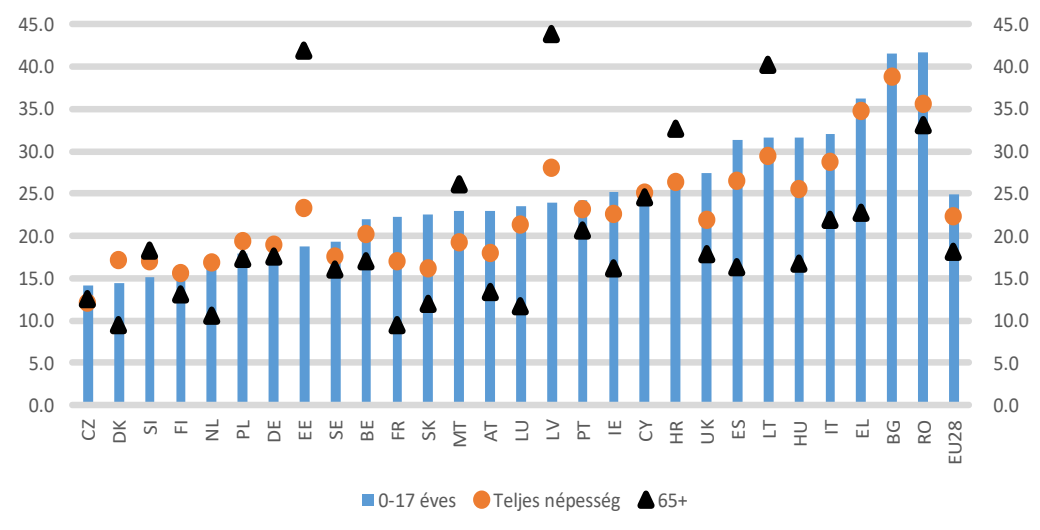
The results achieved in the reduction of child poverty are partly due to the expansion of provision of free access to school meals including during school breaks. While in the 2016/2017 school year all children in lower primary school grades had free access to school books, from the 2018/2019 school year, every student in grades 1 to 9 (all primary school grades and the first year of the secondary school) have free access to school books. This raised the total number of students with free access to their school books to 1 018 000, i.e. 85% of all students.

30. *Figure 30: Changes in people affected by poverty or social exclusion among children, the elderly population and the total population (%) between 2006 and 2018*



Source: Eurostat

31. *Figure 31: Rate of people affected by poverty or social exclusion among children, the elderly population and the total population (%) in EU member states in 2018*



Source: Eurostat

Old-age income poverty

The rate of people over 65 affected by income poverty has practically doubled since 2015: rising from 5% to 10%. However, the rate of elderly people living in income poverty remains lower than the rate for population as a whole (14%). While the rate of elderly people affected by poverty or social exclusion has also risen since the previous monitoring report, its degree was lower than before, climbing from 15% to 17%, which is lower than the rate for the population as a whole and the EU28 average.

In this area, the revision of the access to social transfers may be required while the policies related to disabled and old people should be harmonised in order to remove the multiple disadvantages affecting old people with disabilities.

Public attitude toward differences in income levels

One striking characteristic of Hungary's society is the very low level of tolerance toward differences in income levels despite the fact that objective indicators of differences in income levels are not particularly high in the European Union (Fábián and Tóth, 2014). This is confirmed by the Gini coefficient, a measure of income inequalities that stood at 28.1 in Hungary in 2017 while the EU average was 30.7, i.e. income inequality is lower in Hungary than in the EU.[33]

Household debt

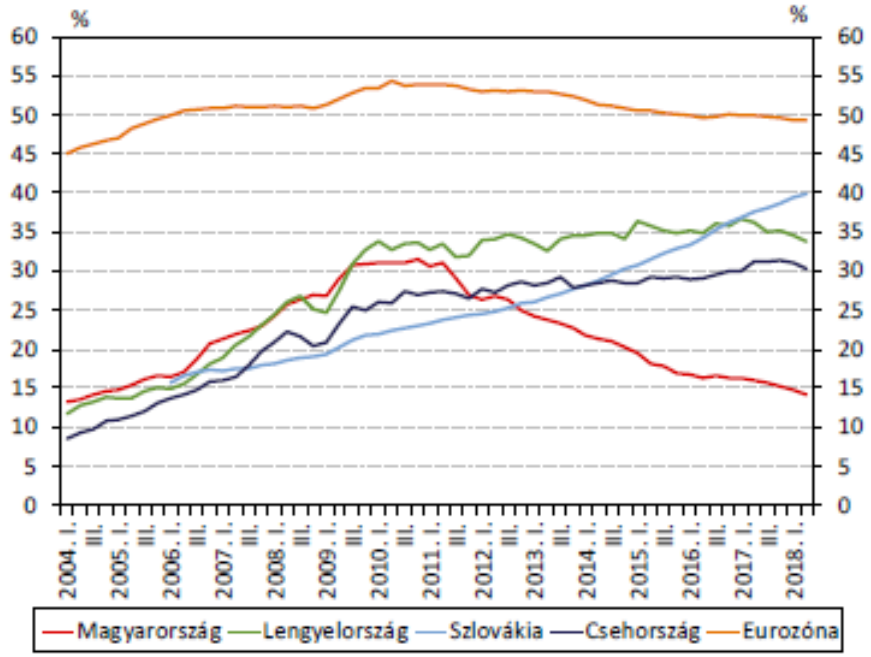
Primarily due to the rise in household income, household borrowing has significantly increased since the previous monitoring report. While the amount of household debt was shrinking every year between 2010 and 2016, this tendency reversed by the end of 2017 and the growth continued in 2018 as well: household debt went up by over 5%. Based on the data of the Hungarian Central Bank (MNB), demand grew both for mortgage loans and consumer credits, characterized for both segments by a marked rise in the average amount of loans and the moderate increase of the re-payment period (MNB, Inflation Report, 2019).

In 2018, 56% of all household debt was concentrated with banks, 28% and 13% lent by mortgage loan institutions and housing saving banks respectively. In late 2018, loans provided by savings and lending institutions accounted for 3.4% of the total amount of loans. Based on forecasts, this positive household borrowing trend seems to be lasting. (KSH, 2019)

Meanwhile, rising household debt does not pose the threat of excessive indebtedness. The private sector debt to GDP went through a significant adaptation phase after the 2008 economic crisis and remains one of the lowest in the EU and the Central and Eastern European region. The debt brake rules introduced in the last few years help reduce the interest risk: the adjustment of the payment-to-income ratio in October 2018 shifted the demand toward loans with longer fixed interest periods (MNB Financial Stability Report, 2018).

[33]Source: Eurostat

32. *Figure 32: Changes in household debt to GDP in the region*



*Note: Debt owed to lending institutions
Source: MNB Financial Stability Report, 2018.

The rate of non-performing household loans has halved since the end of 2016, lowering to 8.4% by 2018. Despite the positive tendency, this rate is still high. Two-thirds of the non-performing household loans are mortgage loans. The primary reason for the reduction of the rate of non-performing household loans is the portfolio "clean-up" activities of lending institutions (MNB Financial Stability Report, 2018).

The rating of mortgage loans changed in 2018. The rate of problem free loans was improving steadily from 2015 rising from 89% in 2016 to 93% in 2017. Based on the new rating categories introduced in 2018, the rate of performing loans reached 95%. (KSH, 2019)

Financial literacy

Thanks to the favourable market conditions, disposable household income is rising, however this does not imply the improvement of the financial awareness of the population. Based on the OECD's survey in 2015, financial literacy in Hungary is below average, ranking Hungary 22nd on a list of 30 countries (Potóczky, 2017).[34]

It is a top priority for the government to enhance financial literacy and incorporate it into formal education. To that end, the national strategy for the development of financial awareness was drafted in 2017, in harmony with previously launched programmes to disseminate financial and entrepreneurial information. The overall objective is to teach financial knowledge to the people, which can strongly contribute to the stable and sound operation of Hungary's financial institutional system and to the improvement of Hungary's competitiveness. The strategy contains the implementation of

[34] This survey was conducted in 30, mostly European countries, including 17 OECD member states. The responses were collected from the population aged 18 to 79, from a minimum sample size of 1000 persons. Financial literacy was assessed through three core and a complimentary component: financial attitude, financial knowledge and financial behaviour.

the objectives from 2017 to 2023, divided into two-year action plans. The first two-year period action plan (2018-2019) focuses on the establishment of a conscious financial behaviour and the steps of the development of financial education.

5.1.5 Government measures

In the period under review, the following strategic documents and interventions were connected to the sustainability of human resources.

- Out of the government measures, the need for further expansion of the family support system should be highlighted. The support system envisaged by the government is built on the following pillars:
    - the different forms of family support are related to work;
    - the ability of young couples to start an independent life is a top priority;
    - more children means more support and women with three or more children can have access to extra support;
    - the state recognises the institution of real full-time motherhood;
    - the government supports the employment of women with young children;
    - family members caring for their sick children in their homes receive a higher amount of support;
    - the physical, mental and psychological development of our children is a value that must be protected by the Hungarian state;
    - each child has the right to a mother and a father;
    - budgetary support to families with dependent children must be adopted with a two-thirds majority.
- In 2018, the government prepared a strategy called "*Vocational education and training 4.0, mid-term policy strategy for the renewal of vocational and adult education and training, the response of the vocational education and training system to the challenges of the fourth industrial revolution*"[35], the general purpose of which is to ensure that all Hungarian young people leave the school system having skills and competences beyond the basic competences that allow them to acquire the skills and competences required by the economy and pursue lifelong learning.
- One of the notable government measures introduced in the period of the monitoring report in the field of higher education is the increase of the maximum amount of the student loan while Student Loan 2, which can be used for tuition and training fees, is now interest free. Simultaneously, additional scholarship programmes were launched for students in shortage occupations to encourage them to pursue a long term career in their field of expertise (e.g. Michalicza Scholarship Programme, expansion of the components of the Resident Scholarship, extension of the KLIK Stipendium, New National Excellence Programme). Furthermore, the amount of the normative funding for students also rose, which also affects the sum of scholarships and other cash benefits.
- In 2018, the government adopted the Fifth National Health Programme designed to improve the healthcare system (*Government Decree 1722/2018 (XII. 18.) on National Health Programmes and the related policy programmes for 2019-2022).* Its main objectives include:

[35] http://www.kormany.hu/download/6/fe/20000/K%C3%B6znevel%C3%A9s-fejleszt%C3%A9s.pdf
(Download date: 16/07 2019)

1. *National Cancer Control Programme*: aims to reduce cancer related mortality by 10% in Hungary until 2030.
2. *National Cardiovascular Programme*: aims to effectively reduce overall mortality rates, improve people's health attitudes, reduce the social/economic burden caused by cardiovascular diseases.
3. *National Musculoskeletal Programme*: aims to help young generations have healthy, correct posture, be able to efficiently tolerate physical work and stress and do regular physical exercise as adults; prevent musculoskeletal diseases in adults.
4. *National Child Health Programme*: aims to remove the impacts of child poverty, provide the opportunity of a healthy early life, prevent chronic diseases in adulthood from a very young age.
5. *National Mental Health Programme*: aims to promote the improvement of Hungary's public health indicators associated with mental health by providing efficient treatment of mental problems and improving the related health care services.

- The revised version of the decree on public catering services, in force since January 1 2017, responded to popular needs and the interests of consumers related to healthy diets. The changes adopted include the adjusted the maximum quantity of daily salt content per portion in meals supplied in preschools, the available quantity of ingredients, energy levels from sugar and also fresh milk.

5.1.6 Summary conclusions

Positive trends	Risks
There was a significant decrease in the number of abortions.	The total fertility rate is stationary while the number of births is lowering.
The number of marriages is stationary while the number of divorces lowered.	To a great extent, women with young children remain unable to return to the labour market due to the lack of available places in day care facilities for children under 3 and the opportunities for flexible work arrangements.
Both the places available at and the number of day care facilities for children under 3 increased.	Based on the results of the PISA assessment, Hungarian students appear to perform in problem solving skills below the expectations.
The labour market participation of women and mothers rose.	While the early school leaving rate is not approaching the EU2020 target, the previous rise in the rate discontinued.
The forms and amount of family support were further increased.	The selectivity of the education system is growing.
The volume of emigration lowered.	The rate of participation in adult learning slightly lowered and remains significantly below the EU average. The motivation to study is particularly low among low-skilled people.
There was a measurable growth in the number of Hungarian workers returning to Hungary.	Both the number of students and applicants in higher education lowered and the number of tertiary graduates is stagnating.
There was a significant rise in the participation rates of inactive and unemployed persons in adult learning programmes.	
Since the option to obtain a second qualification free of charge was introduced in 2016, there has been a steep rise in the number of people participating in adult learning.	

While healthy life expectancy at birth is steadily growing, life expectancy at birth is stagnating. **There was a reduction in the number of people to whom official certificates required for working abroad were issued, including a significant decrease in the number of Hungarian doctors and health professionals planning to leave Hungary.** **There was a multi-step salary increase completed for health workers.** **All the objective indicators related to social exclusion and poverty improved. In general, the rate of population at risk of poverty or social exclusion is 19.6% (1.89 million people), which means Hungary has achieved the target set for 2020.** **There was a marked decrease in the rate of child poverty.** **Household debt was growing while the rate of performing loans further rose and the debt to GDP ratio continued to decrease.**	The healthy life expectancy within life expectancy is above the EU average. High mortality rates relative to the population's health status reflect imperfections of the healthcare system. Nearly 100% of the elderly population aged 75 and over have been diagnosed with hypertension (9188 diseases per 10 000 persons). The shortage of health professionals remains an issue. One-third of the physicians (33%) are aged 60 or over. Hungary continues to be a significantly deprived country. While old-age income poverty has risen in the last two years, it remains below the EU average.

5.2 Social resources[36]

5.2.1 General overview

A nation's social resources include the combination of moral standards and values; relations between individuals and trust; organisations, networks established by individuals, institutions; cultural activities and cultural heritage.

Compared to the monitoring report of 2015/2016, many of the indicators reviewed demonstrate an improvement in the state of the Hungarian society (the employment rate increased, real wages rose, the unemployment rate and the severe material deprivation rate decreased), however Hungary remains a strongly deprived country within Europe. The lack of trust remains high, the level of dissatisfaction and legitimation deficit is above average in European comparison, especially with regard to the rules and regulations of the market economy and democracy.

Similarly to the previous period, the civil sector has continued to shrink while the total revenues of civil organisations have risen. There are negative tendencies in the field of corruption: Hungary's position has declined both in the European Union and the region of Central and Eastern Europe.

5.2.2 Changes in key indicators

Indicator	Latest value	Most recent value known at monitoring report for 2015–2016	Assessment of the changes in NFFS's key indicators
Generalised trust scale (ESS, scale of 0 to 10)	4.5 (2016)	4.2 (2014)	There has been a 0.2 point rise compared to ESS 2014.
Corruption index (Transparency Int., on a scale of 0 to 100)	46 (2018)	48 (2016)	Since 2012, there has been a steady reduction in the value of this indicator (there was a slight improvement in 2017); overall, corruption is worsening.
Number of non-governmental organisations (thousand)	61.2 (2017)	62.1 (2016)	Since 2012, the number of civil organisations has been gradually decreasing in Hungary.

5.2.3 Objectives and challenges defined in NFFS

The National Framework Strategy on Sustainable Development defines the following objectives for social resources:[37]

[36] This chapter was prepared based on the study by Tóth and Branyiczki (2019).
[37] The current situation in social structure is discussed under human resources.

(1) Rearrangement of social structure)

Sustainable lifestyles and life strategies

- 2) Demonstration of good examples for the general public
- 3) Support to (civil, professional, religious) organisations representing favourable behavioural patterns for sustainability

4) Promotion of the infrastructure of trust

5) Increase of satisfaction with working conditions, enjoyment

6) Nourishment of our heritage, strengthening of identity

5.2.4 Social and economic developments affecting the objectives

5.2.4.1 Demonstration of sustainable lifestyles and life strategies to the general public

Since the previous monitoring report, the issue of sustainability has clearly become an important part of public discourse in Hungary. Meanwhile, the meaning and use of the associated expressions have become controversial. Greenfield investments are embraced by many people as environmentally friendly because they are mistaken for green investments. This incorrect interpretation is supported by an award recognising the largest greenfield investment every year, granted by a government organisation responsible for the stimulation of foreign investment, which expressly conflicts the objectives identified in the NFFS. The terms ecosystem and ecosystem services are also used taken out of the context of the natural environment, which poses challenges for the communication in favour of the protection of the natural resources. On the other hand, sustainability remains almost exclusively associated with nature and the environment while the sustainability of other resources such as social or economic resources are addressed to a much lesser extent.

This topic has been embraced both by the government and the civil sector in recent years. The public education division of the Ministry of Human Capacities (EMMI) has addressed three areas to raise the awareness of students: financial awareness, digital competence and environmental awareness. This goal is supported by the Money7 (from school year 2014/2015), the Digital Thematic Week (from school year 2015/2016) and the Sustainability Thematic Week (from school year (2015/2016) initiatives. In school year 2017/2018, a total of 320 000 students from 1522 schools participated in the sustainability thematic week and 430 teachers attended the related teacher training programme. The representatives of the Ministry for Innovation and Technology regularly deliver presentations and attend round table discussions in universities and secondary schools, on the international and Hungarian climate policy, environmentally conscious behaviours and climate friendly lifestyles. In school year 2017/2018, over 1000 students participated in these events.

There are several community campaigns in the field of waste collection as well every year such as the Pick It Up Yourself, the PET Cup or the European Week for Waste Reduction, which attract more and more participants from year to year.

There are also many different initiatives and movements related to conscious living and consumer habits in the social media. These include the Plastic Free July or other zerowaste movements. These, however, usually do not reach beyond the scope of the social media and the press; initiatives or regulatory decisions with a truly broad impact are still lacking.

Out of the civil organisations of market players, the Business Council for Sustainable Development in Hungary (BCSDH) has been working tirelessly to promote social, economic and ecological sustainability in Hungary since its establishment in 2007. The organisation, which includes 90 companies, created a number of initiatives such as the remarkable Action 2020[38], which focuses on the development and dissemination of business solutions related to sustainable living. It seeks to identify ways to enhance the positive impact of the business sector in the field of sustainable living.

Based on a survey of the BCSDH, there has been a sharp growth in the number of conscious consumers in Hungary in recent years who are interested in buying more sustainable products and services: there is increasing demand for healthier, more eco-friendly and more sustainable products or new solutions such as the sharing economy[39]. Sustainable companies and brands perform above the average. Studies show that lifestyles based on excessive consumption are no longer attractive to Generation Y. *More* is gradually being replaced by *better*. 70% of the Hungarian consumers would be ready to spend more on a product in eco-friendly, biodegradable packaging. (BCSDH, 2018)

In light of the above, businesses play an especially important role in changing consumer habits and attitudes and in ensuring that sustainable solutions become available to more and more people. To that end, the companies that joined the BCSDH's initiatives devised and introduced many business solutions to promote sustainable living.

Role of non-governmental organisations

The influence of the civil society is reflected by the number, the degree of organisation and activities of NGOs. As a result, changes in the size, the social and economic power of the non-profit sector are shown by the number of non-profit organisations, the real value of revenues and the number of employees.

Based on KSH data, there were 61 151 civil organisations in Hungary in 2017[40], i.e. the size of the Hungarian civil sector decreased to some extent: the number of registered organisations was down by 1001 and 465 compared to 2015 and 2016 respectively. Nearly one-third of the organisations (19 927) operated as foundations and two-thirds (41 224) as non-profit partnerships. Similarly to previous times, the three most significant activities of the foundations were education (32.7 %), social care (16.0%) and culture (14.9%) (KSH, 2019).

One of the reasons why the number of these organisations has been lowering for years is the impact of Act CLXXV of 2011 on the Right of Association, Non-profit Status and the Operation and Funding of Civil Society Organisations ("civil law"), which started a "cleansing" process in the sector. As a consequence of the civil law, only a little over 20% of the registered organisations were eligible for the public benefit organisation title at the end of 2015 while their ratio was 55% in 2013 (KSH, 2019).

The total revenues of the civil organisations have risen in recent years: the revenues generated by all the civil organisations were roughly HUF 1 192 458 million in 2017. A little over 50% (HUF 1 033 158.5 million) were generated by non-profit businesses, in particular by organisations engaged in economic

[38] The Action 2020 Hungary programme is an initiative of the Business Council for Sustainable Development in Hungary (BCSDH), which calls the business sector to urgent action. The programme identified 20 specific macro level goals in five areas (food supply, sustainable living, employment, climate change and water) with the involvement of over 130 scientists and civil experts, corporate leaders and business professionals.

[39] Sharing economy means users share their unused capacity, resources in on-demand manner, based on trust and promoting sustainability.

[40] The most recent data available on the civil sector are from 2017.

and settlement development. The portion of the revenues received by civil organisations involved in traditional areas, mainly free time and educational activities was much lower than their influence. Another important detail is that the ratio of government funding substantially grew compared to 2016: 44% of the revenues of the sector as a whole were from government or local government budgets, which is a year-on-year rise worth HUF 194 billion. Meanwhile, the self-generated revenues (from core and business activities) reduced to 43% (KSH, 2019).

Based on KSH data, a total of 11 124 people did voluntary work connected to an organisation in Hungary in 2018. Most of them were active in the field of public administration, the service industry, education and entertainment. To support the coordination of voluntary work, the government set up the onkentes.gov.hu portal in the middle of 2015, which is a meeting point for volunteers and those in need of help.

The role of the civil organisations is affected by how they are able to represent their interests. Due to the public administration reform, there are fewer and fewer procedures allowing them to seek justice and represent their interests in the form of administrative proceedings.

5.2.4.2 Promotion of the infrastructure of trust

Generalised trust and trust in the legal system[41]

Generalised trust, i.e. our general view of the trustworthiness of other people and human relationships, is one of the key components of social capital. The relevant literature says that a high level of generalised trust significantly contributes to the stratification of the civil society and the improvement of social tolerance (Stolle, 2002).

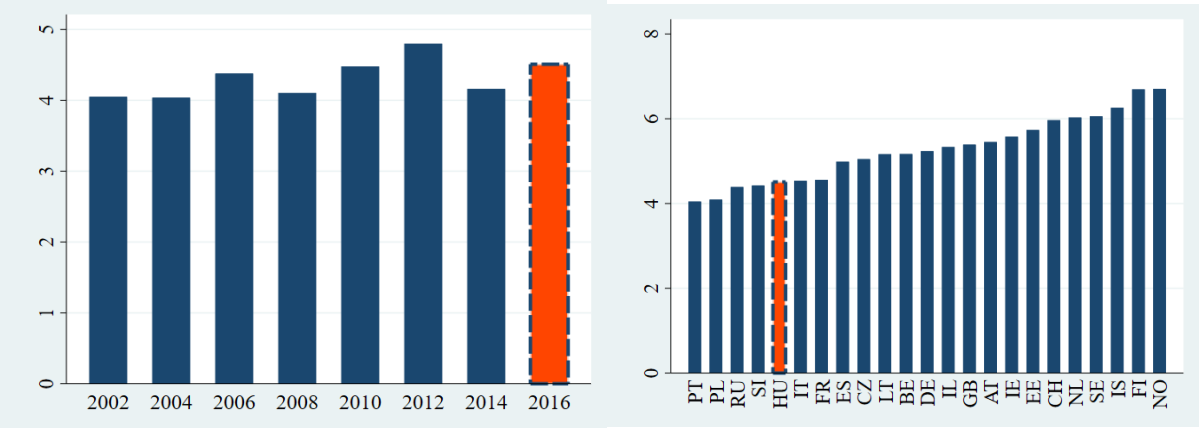
With regard to generalised trust, Hungary ranks in the lower middle range of the surveyed – in most part European – countries. In 2012, the level of mean generalised trust was 4.8 on a scale of 11, which then dropped to 4.2 by 2014[42]. While the latest Eurostat data from 2016 reflect an increase, Hungary with its mean score of 4.5 remains in the fourth place from the end of the list of the countries participating in the European Social Survey (ESS). Scandinavian countries continue to have the highest levels of trust while Balkan, Eastern European and Mediterranean countries report lower levels of trust.

Similarly, trust in the legal system is also quite low in Hungary: in 2016, Hungary scored 5.4 on a scale of 0 to 10. It is important to note that there has been a rising tendency since the previous monitoring report: while the indicator remains below the EU average, trust in the legal system and justice increased between 2014 and 2016, which means that there was progress made in the field of justice and legislation. However, a recent study finds that the gradual breakdown of the rule of law continues; a serious threat, beyond the change of the formal rules, is posed by the growing void between formal rules and the actual procedures and practices of institutions (Jakab and Gajduschek, 2018).

33. Figure 33 and 34: General trust in people on a scale of 0 to 10 in Hungary and in other countries participating in the European Social Survey, 2016

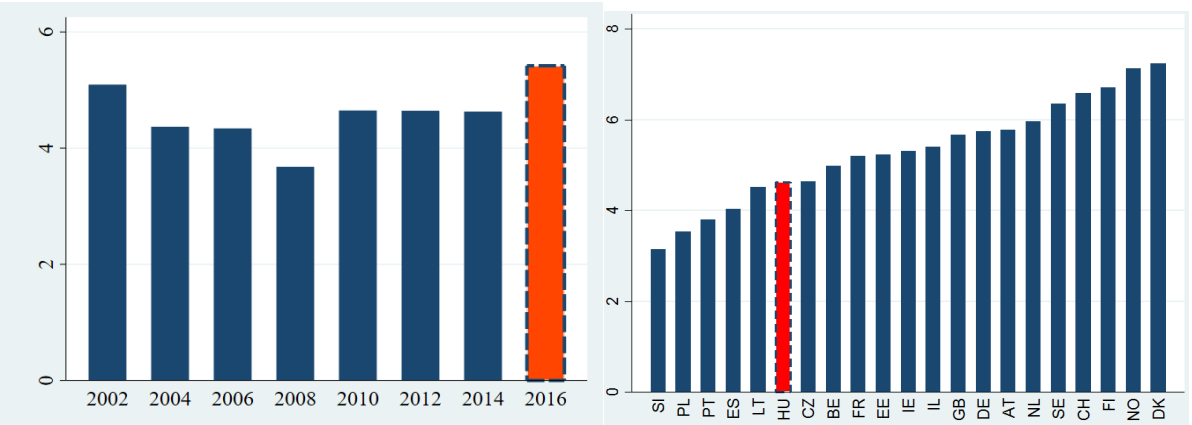
[41] The latest available data are from 2016; the previous monitoring report analysed data from 2014.

[42] Reminder: data for the 2014 ESS round were collected in Hungary between April 24 2015 and June 26 2015 while data for the 2016 round were collected between May 14 2017 and September 16 2017.



Source: European Social Survey (ESS) Question: Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people? Please tell me on a score of 0 to 10 where 0 means you can't be too careful and 10 means that most people can be trusted. Higher average score on the graph represents higher level of trust.

35. *Figure 35 and 36: Trust in the legal system in Hungary and in countries participating in the European Social Survey, 2016*



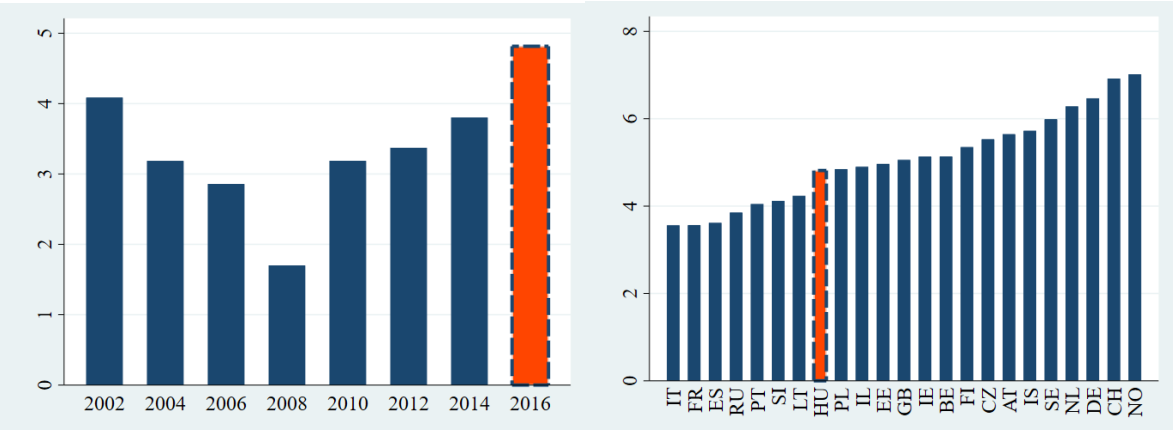
Source: European Social Survey (ESS) Question: Using this card, please tell me on a score of 0–10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all and 10 means you have complete trust. Firstly, how much do you trust in ....'s legal system? Higher average score on the graph represents higher level of trust.

Satisfaction with the state of the economy

Satisfaction with the state of the economy continues to reflect a positive trend: In 2016[43], satisfaction measured by the ESS was 4.8 on a scale of 10, which is a significant improvement compared to previous rounds. In the meantime, we remain in the lower middle range in European comparison.

Figure 37 and 38: Satisfaction with the present state of the economy in Hungary and in countries participating in the European Social Survey, 2016

[43] Unfortunately, the latest available data are from 2016; the previous monitoring report analysed data from 2014.



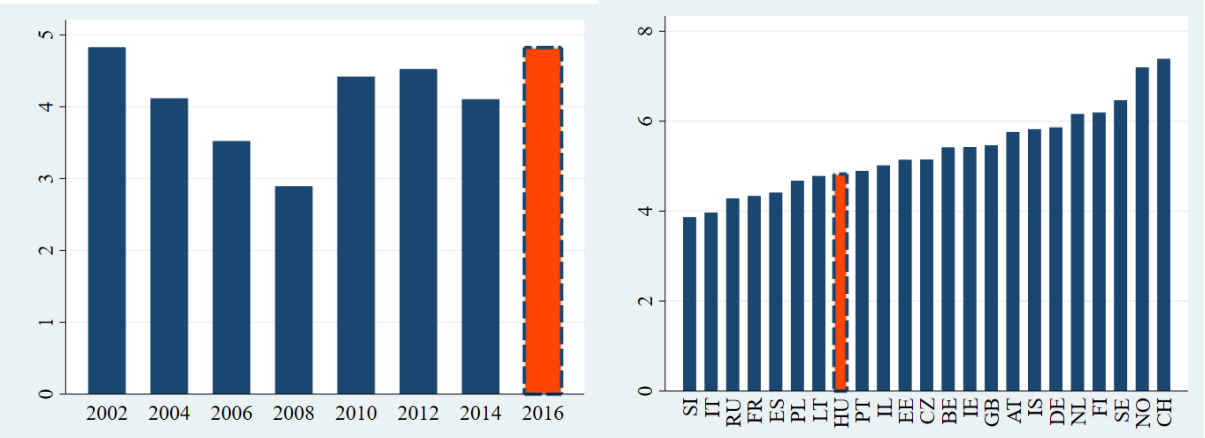
Source: European Social Survey (ESS) Question: On the whole, how satisfied are you with the present state of the economy in (Hungary)? Please answer using this card where 0 means extremely dissatisfied and 10 means extremely satisfied. Higher average score on the graph represents higher level of satisfaction.

Satisfaction with the democratic system

Between 2002 and 2008, simultaneously with growing dissatisfaction with the state of the economy, satisfaction with the way democracy works in Hungary started to fall as well dropping from a medium (4.8) to a low level (2.9) (on a scale of 0 to 10). There was a rise after 2010 and the indicator was 4.8 in 2016; this places Hungary in the lower middle range among ESS countries.[44]

A study from 2019 analysed the positive correlation between satisfaction with democratic and economic performance. Eight-in-ten Hungarians who say the national economic situation is poor are also dissatisfied with the performance of the country's democracy, compared with just 26% of those who believe the economic situation is good. (Pew Research Center, 2019).

Figure 39 and 40: Satisfaction with the democratic system in Hungary and in countries participating in the European Social Survey, 2016



Source: European Social Survey (ESS) Question: On the whole, how satisfied are you with the way democracy works in Hungary? Please answer using this card where 0 means extremely dissatisfied and 10 means extremely satisfied. Higher average score on the graph represents higher level of satisfaction.

[44] The latest available data are from 2016; the previous monitoring report analysed data from 2014.

Corruption and rent seeking

Transparency International (TI) determines the Corruption Perceptions Index (CPI)[45] every year that measures public sector corruption in a country based on interviews of experts and businesspeople examining the degree of infection in public institutions, the economy and the society. In 2018, Hungary was in place 64 with a score of 46 on a list of 180 countries. This means that Hungary improved its corruption resilience compared to 2017 by two places and one point only. Hungary's position has declined both in the European Union and the region of Central and Eastern Europe. While Hungary ranks as moderately corrupt at a global level, it is one of the most corrupt countries in the European Union: in 2018, only two countries – Greece and Bulgaria – had a worse anti-corruption performance than Hungary. Similarly to the trends of previous years, Nordic countries topped the list in 2018 as well.

The government announced the National Anti-corruption Programme in 2015. As part of that, the public procurement law was modified in the period under review, introducing even stricter requirements, partly with the aim to further reduce the number of single tenderer procedures and negotiated procedures without a prior contract notice, to promote competition and increase public accessibility and transparency. The Electronic Public Procurement System (EKR) was introduced in compliance with EU directives, which means that all public procurement and concession procedures are conducted through the EKR, operated by the Prime Minister's Office, from April 15 2018. The new system speeds up public procurement procedures, improves their transparency and traceability as well as reduces the administrative burden.

Based on the latest survey of the World Economic Forum, Hungary was only the 69th most competitive country in 2016 while ranking 28th in 2001. Satisfaction with public institutions is extremely low indicated by a drop from place 26 in 2001 to 114 in 2016. In 2017, there was a slight improvement in both indicators: Hungary moved up to place 60 in the competitiveness ranking and place 101 regarding satisfaction with public institutions. [46] Nevertheless, the performance of the government institutions remains very poor in Hungary. In the area of conflict of interest regulation, Hungary ranks 121st among the 140 countries surveyed while it managed to take only place 134 in terms of the efficiency of the legal framework challenging regulations. Based on the responses, Hungary ranks 108th and 103th among the 140 countries surveyed with regard to property rights and judicial independence respectively. [47]

5.2.4.3 Increase of satisfaction with working conditions, enjoyment

Satisfaction with working conditions

Stress at work is not an individual problem, it is a collective issue. Half of the time spent on sick leave and sick pay is attributable to work-related stress. Long term stress can easily lead to serious health conditions (e.g. anxiety, depression, ulcer). Stress can cause various diseases, the loss of concentration

[45] CPI: http://transparency.hu/INDEXEK

[46] Due to a completely new methodology used for the 2018 competitiveness survey of the World Economic Forum, the latest data cannot be compared with previous data, however, they continue to confirm that Hungary's competitiveness remains significantly lower compared to the levels registered around the millennium.

[47] https://transparency.hu/wp-content/uploads/2019/01/CPI_2018_narrativ_20190128.pdf
(Download date: 16/07/2019

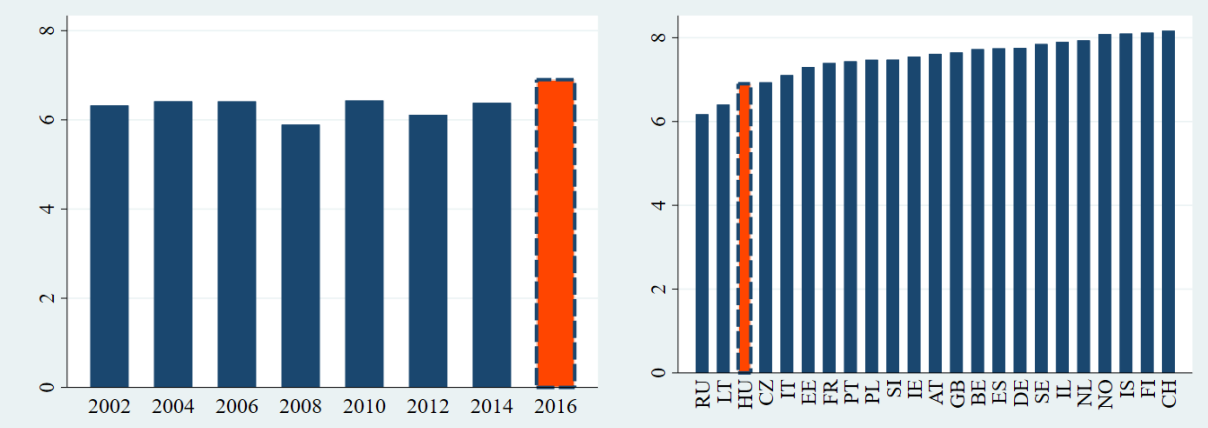
and motivation, which impairs the capacity and the productivity of workers and indirectly of employers also. Work-related stress causes quantifiable losses in the economy. The survey of the European Agency for Health and Safety at Work shows that the loss of production caused by untreated work-related stress amounts to nearly EUR 136 billion in the European Union every year (including HUF 440 billion in Hungary). In Hungary, 21% of the employers have a plan to manage work-related stress, which is the lowest rate in the EU (Dabrónaki, 2017).

In Hungary, the sectors affected by the highest rate of irregularities related to occupational health and safety and employment are the construction industry, agriculture, the catering, the trade and the processing industries. To address this issue, funding under the Economic Development and Innovation Operational Programme was offered to improve the working conditions in these industries. In the meantime, the growing demand for labour[48] is increasingly stimulating employers to offer better working conditions than their competitors.

Personal happiness

In 2016[49], Hungary scored 6.4 in personal happiness on a scale of 0 to 10. This is a strikingly low value across all the countries surveyed. The average level of happiness in the majority of the ESS countries is above 7. Meanwhile, the analysis of the tendency shows that after a decrease in 2012, the level of personal happiness of Hungarians has been rising, being currently the highest since the beginning of the period reviewed (2002). In 2014, Hungary was the last; by 2016, we outperformed Russia and Lithuania. While it is a well-known paradox that economic development does not automatically lead to higher levels of personal happiness of individuals, there are countries where personal happiness was constantly rising between 2002 and 2012. And these countries do not only include developed countries such Norway but also, for example, Slovakia and Poland from our region where the economic indicators happened to be better (e.g. GDP and real wages) than in Hungary.

Figure 41 and 42: "How happy would you say you are?" Average scores in Hungary and in countries participating in the European Social Survey, 2016



Source: European Social Survey (ESS) Question: Taking all things together, how happy would you say you are? Please use this card. On the scale of responses, 0 means extremely unhappy and 10 means extremely happy. Higher average score on the graph represents higher level of satisfaction.

[48] For more information see the section on Economic resources.

[49] The latest available data are from 2016; the previous monitoring report analysed data from 2014.

5.2.4.4 Nourishment of our heritage, strengthening of identity

The government's cultural development programme includes both top priority national institutions and rural, local and regional cultural institutions. Decree 30/2014. (IV.10.) of the Ministry of Human Capacities defines the key responsibilities of the national museum, the national speciality museum, the national library, the national speciality library and the library of the national university including social convergence, the reduction of social disadvantages, modern dissemination of knowledge and information, the constant improvement of general access to cultural assets and the empowerment of underprivileged regions and groups.

The investments related to institutions with a national scope of responsibilities that took place in the period under review include the reconstruction of the palace in Andrássy road housing the Hungarian National Opera, the construction of the new art studio of the Opera House, the reconstruction of the Museum of Applied Arts, the renewal of the Hungarian National Museum (first by the restoration of the Museum Garden), the construction of the Transylvania section of the Open Air Museum and the reconstruction of the Budai Vigadó.

The most prominent cultural investments in the rural areas are the cultural projects of the Modern Cities Programme, which focus on cultural community spaces of cities with county rights. The Folk Architecture Programme granted by the Prime Minister's Office supports the restoration of the folk architecture heritage while the Makovecz Imre Programme offers funding for the construction of the unbuilt plans of Imre Makovecz and the conservation of the buildings he designed.

The Intellectual Cultural Heritage in Hungary portal is a site for the general public offering information on programmes, traditions and good practices related to the preservation of cultural heritage and traditions, on the outstanding items of the Hungarian cultural heritage, the related regulatory documents and the contact details of the related organisations.[50]

However, there were certain changes in the legislation and investments related to architecture, municipal landscapes and urban planning that pose a threat for the protection of cultural heritage including the changes having a potential impact on the listing of the historical quarter in Budapest as a UNESCO World Heritage Site. The dissolution of the independent institutional system responsible for the protection of cultural heritage, the cancellation of numerous procedural guarantees to the means of environmental protection and nature conservation threatens the efficiency of the protection.

There were many programmes in 2017 and 2018 as well helping to strengthen the Hungarian identity of the diaspora and supporting Hungarian organisations outside Hungary. Hungarian cultural and educational organisations outside Hungary and the organisations in Hungary supporting foreign-born Hungarians are primarily financed from the budget of the State Secretariat for National Policy and the Bethlen Gábor Fund. The amount allocated for this purpose was HUF 81 billion in 2017 and over HUF 90 billion in 2018. Grant programmes contributed to the programmes and developments of over 3000 and nearly 4000 Hungarian institutions and civil organisations outside Hungary in 2017 and 2018 respectively.

[50] Link to the portal: http://szellemikulturalisorokseg.hu/index0.php?name=f1_szko

There are multiple other programmes designed to support Hungarian communities living in the diaspora and to develop connections with Hungarians living in Hungary. In 2017, the government announced the Csoóri Sándor Programme, which primarily offers professional support to folk dance groups, folk song groups and folk music bands, which work to maintain Hungarian and ethnic traditions across the Carpathian Basin. In the period under review, the Petőfi Sándor and Kőrösi Csoma Sándor programmes supporting dispersed Hungarian communities in the Carpathian Basin continued, together with the Mikes Kelemen programme designed to collect the heritage of the Hungarian diaspora, the Diaspora Programme offering study tours to young people in the diaspora to Hungary and the Rómer Flóris Plan working to protect our built heritage. Under the Without Borders Programme, students of Hungarian schools can go on government-funded field trips to visit areas of the neighbouring countries where foreign-born Hungarian communities live. Funding was also made available to Hungarian theatre and dance organisations outside Hungary; the Library Institute provided continuing education to culture and library professionals as part of its transboundary training activities. In 2017, the establishment of the folk art network system of the Carpathian Basin began under the coordination of the Hungarian Heritage House, which is planned to be completed by 2019.

5.2.5 Government measures

In the period between 2017 and 2018, the government did not adopt any documents, in the field of social resources, comparable in scale to the Hungarian National Social Inclusion Strategy (NTFS) or the National Anti-corruption Programme, however these remain effective government strategies, which are in principal constantly monitored and their action plans are being implemented.

Major government measures affecting social resources and adopted in the period of the monitoring report include the following:

- One of the pillars of the Second National Climate Change Strategy published on October 31 2018, “Partnership for Climate” Awareness Plan (the “Plan”). The Plan is designed to integrate the aspects of climate awareness and sustainability into planning, decision making and actions at all levels of the society including education.
- The draft concept for the revision of the National Curriculum and the National Core Programme of Preschool Education, in force since September 1 2018, include education for sustainable living, and in particular environmental awareness, healthy living, education for national identity and democracy as priority areas. Simultaneously, the teaching competences assessed for the evaluation of teachers were completed with the following as of January 1 2019: skills and experience in environmental education, true representation of the values of sustainability and the method of teaching attitudes related to environmental awareness.
- In August 2015, the government adopted the Energy and Climate Awareness Raising Action Plan (Government resolution 1602/2015. (IX.8.)) designed to disseminate energy and climate awareness. As part of that many EU funded projects were implemented to raise awareness (e.g. community energy efficiency programmes) and to improve energy efficiency (e.g. instalment of solar panel systems using zero interest loans).
- The Museum Digitisation Strategy and its action plan adopted with Government resolution 1404/2017. VI.28.) on the Museum Digitisation Strategy and Government resolution 1175/2018. (III.28.) on the actions required between 2018 and 2021 to implement the Museum Digitisation Strategy offers a comprehensive concept for the coordination of the

digitisation activities of public museum collections, enables the service-oriented, user friendly presentation of and allows full access to our cultural heritage. The programme aims to cover the complete Hungarian cultural heritage (located within and beyond the borders of Hungary) including the digitisation of cultural assets of Hungarian origin or with Hungarian reference maintained by Hungarian institutions, organisations outside Hungary.

5.2.6 Summary conclusions

Positive trends	Risks
Sustainability as a value has become a frequently discussed topic and part of the public discourse. Programmes supporting national unity and the survival of the Hungarian diaspora are widely available. The level of personal happiness is rising. The latest available data show an improvement in the indicators of the infrastructure of trust.	In the public discourse, sustainability continues to primarily exist in the dimension of climate change remaining absent in relation to human and social capital and other environmental issues despite the fact that sustainability requires a complex approach and interpretation. Similarly to the previous period, the civil sector has continued to shrink. In line with the previous tendency, corruption resilience in Hungary further declined within the European Union and the Central and Eastern European region as well. Hungarian people are still one of the unhappiest nations in Europe and have low levels of trust towards other people and public institutions.

5.3 Natural resources

5.3.1 General overview

The state and the sustainability of the use of natural resources has become a topic of public discussion in the last two years with the environmental movements and initiatives reaching more and more people. Nonetheless, our natural resources have failed to improve in the last two years or the last 10 years. The rate of biologically inactive areas has been stagnating at a suboptimal level for a relatively long time. One of the challenges here is the rise of fertiliser use, which is partly associated with the insufficient ecological and chemical condition of the surface and underground water reserves.

Resource productivity shows a negative trend, which means that Hungary needs to use more natural resources than the EU average to obtain the same economic result. This is partly explained by the boom in the construction industry. An improvement in waste management is the steadily growing rate of selectively collected waste and the simultaneous rise in the quantity of recovered waste. In the meantime, the quality of the selectively collected waste worsened and its increased quantity continues to challenge the achievement of the EU targets. (By 2020, the preparing for re-use and the recycling of waste materials such as paper, metal, plastic and glass from households should reach at least 50 %. By 2030, 65% of household waste should be recycled, the selective collection of glass waste directly from the households is still not available, however the majority of the selective waste collection stations were removed, which means that the selective collection of glass waste is unresolved.)

Large-scale monoculture production reduced the habitat of many species. The conservation status of some species is threatened by their restricted access to food supply, disturbances to their nests during their breeding time and the inadequate use of pesticides. The top risks identified by experts to threaten our protected natural areas include the penetration of invasive species, the degradation of habitats and the related loss of biodiversity.

In the area of air quality, the pollution by particulate matter in ambient air (PM_{10} and $PM_{2,5}$) is one of the biggest problem in Hungary, which mostly comes from residential heating using solid fuels and transport. While this area shows a positive trend over time, certain monitoring stations regularly and in growing numbers report concentration levels of PM_{10} exceeding the daily limit. Indoor air quality is not sufficient either and it is not purely the result of bad outdoor air and poor heating habits. Moulding caused by insulation is a serious issue while the incorrect use of air conditioning devices leads to diseases of the respiratory system.

As an impact of the climate change, extreme weather events are becoming more frequent in Hungary. Critical issues here include the number of days with extremely hot weather, droughts and adaptation to torrents. As a positive action in the area of water management, government measures suggest efforts to retain water and to create farms with water saving irrigation systems.

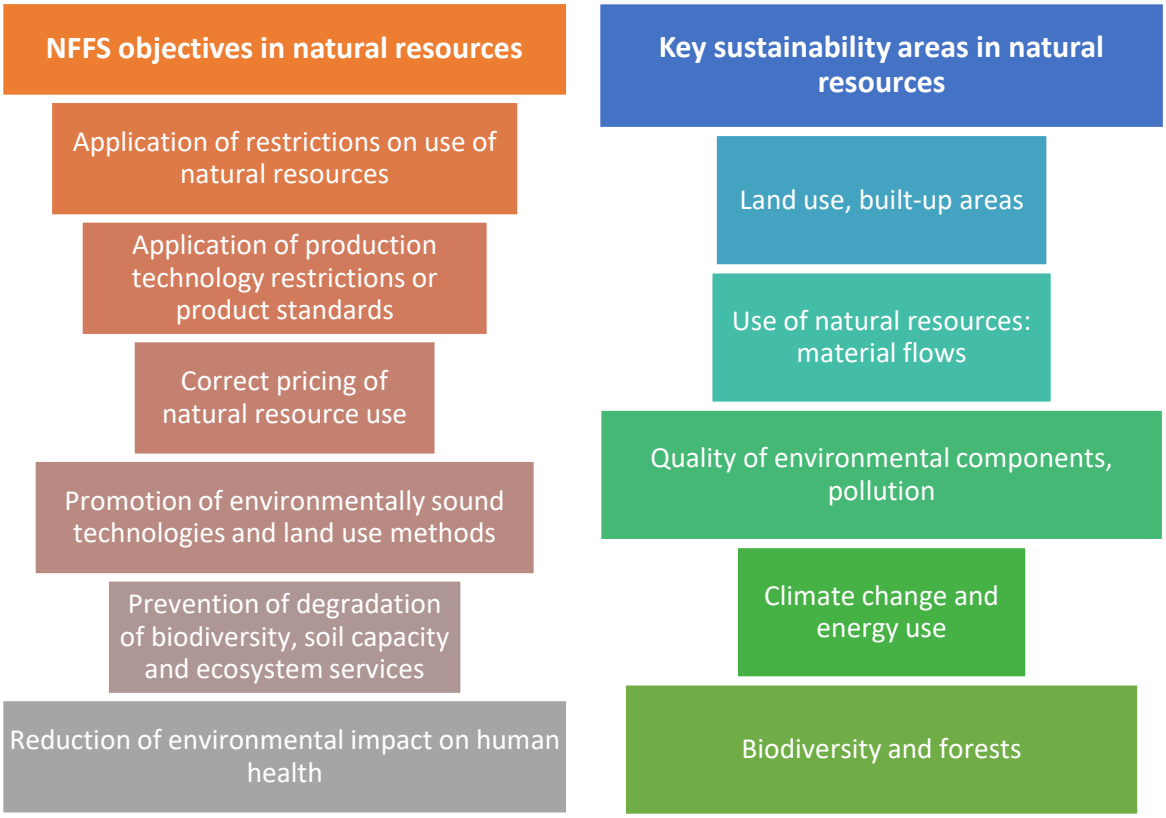
5.3.2 Changes in key indicators

Indicator	Latest value	Most recent value known at monitoring report for 2015–2016	Assessment of the changes in NFFS's key indicators

Biologically inactive areas (as % of total area)	67.5 (2018)	67 (2016)	The size of biologically inactive areas has been essentially stationary for years.
Natural resource productivity (GDP/DMC, €/kg)	0.81 (2018)	0.93 (2016)	Compared to the previous monitoring report and the year of the NFFS's adoption, resource productivity has been significantly declining. The key to the improvement of resource productivity could be the more widespread adoption of the circular economy and the reduction of the relative importance of material intensive economic sectors.
Public exposure to particulate matter pollution [PM(10)] (µg/m3)	26.5 (2017)	26.9 (2014)	Stationary value.

5.3.3 Objectives and challenges defined in NSSD

The NFFS identifies six objectives for the area of natural resources. In the light of these objectives, the transition to sustainability may be analysed based on five areas of natural resources all having a key importance for Hungary.



5.3.4 Socio-economic and environmental developments affecting the objectives

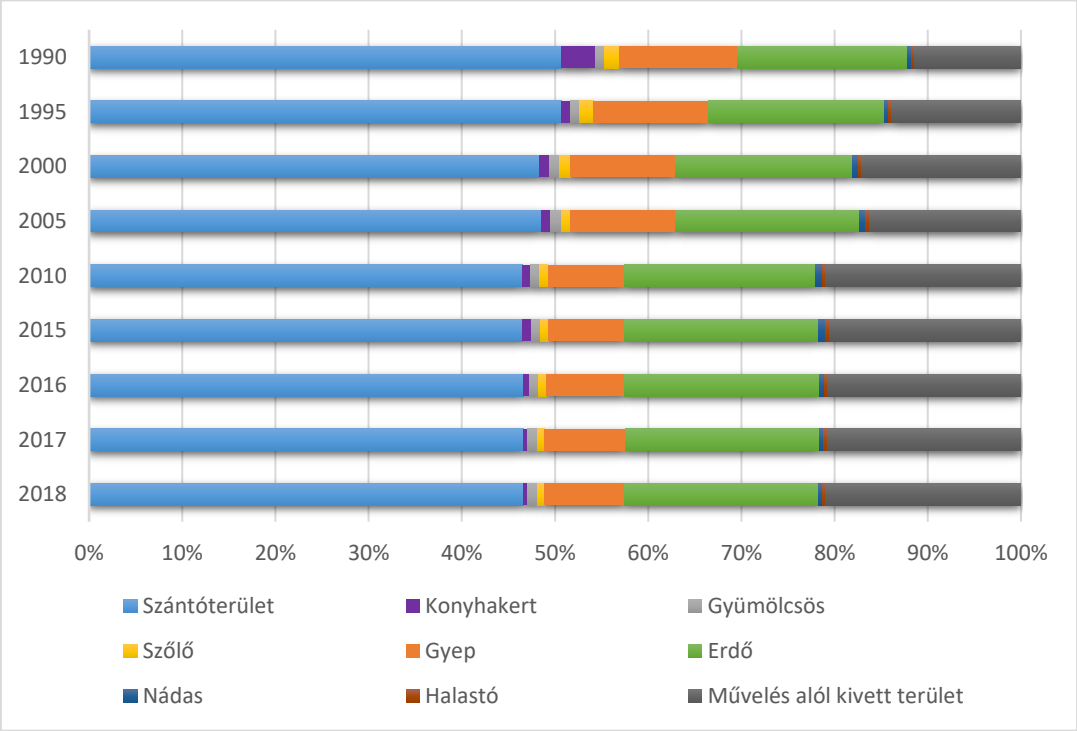
5.3.4.1 Land use and built-up areas

The change in man-made land cover has a strong impact on the natural environment, biodiversity and the ecosystem services. Similarly to earlier tendencies, data show that man-made land cover continues to rise: between 2009 and 2015, its rate went up by 14%, from 3.6% to 4.1% (Pálvölgyi et al, 2019).

In the meantime, the national structure of land use has not changed substantially in the last eight years: the biggest changes include the further decrease of the importance of vegetable gardens and the marked reduction of reeds. The growth of the size of uncultivated land has stopped. The area of Hungary used for agricultural production is 57% including 47% cropland where mostly wheat, corn and sunflower is grown.

National data obviously reflect significant regional variations. While 40% of Nógrád county is covered by forests, the same rate for Békés and Jász-Nagykun-Szolnok counties is only 5%. Meanwhile, these two regions in the Great Plain accommodate over 44% of cropland (KSH, 2019b).

Figure 43: Land use in Hungary, 2018



Source: KSH-STADAT

The rate of biologically inactive areas has been essentially stationary for ten years: being 67.5% in 2018. In addition to built-up areas, cropland should also be classified as biologically inactive areas as single-crop production methods (monoculture) do not allow full vegetation coverage and restrict biodiversity.

Increased demand for transportation and the concentration of the people cities further raises the volume of infrastructure investments, the intensity of land use, which breaks up the land, changing its character and creating an ecological barrier between habitats. This is also a serious challenge for climate change and Hungary performs particularly poorly in the reduction of greenhouse gases caused by road transportation.

The growth in the size of built-up and residential areas seems essentially irreversible, which, through the long term sealing of the surface of the earth, can have numerous adverse effects on biodiversity, the quality of ecosystem services and habitats and may impair the water cycle as well (Pálvölgyi et al, 2019). Meanwhile, there are few good examples for the rehabilitation of brownfield areas, explained partly by the risks of such investment and the closely associated problem of complex contamination (KSZGYSZ, 2019). There are still no publicly accessible records on sites designated for remediation, there is no a remediation priority list, there are no calculations on the costs of remediation projects on hold or on adjusted budgets due to failed remediation projects. The failure to reuse brownfield areas increases the demand for the scarcely available greenfield areas, which adversely affects sustainable development and sustainable land use.

One of the objectives of the National Landscape Strategy for 2017-2026[51] is the tracking of the changes of landscape use and character, which could offer important practical information to public administration staff and professionals responsible for planning development projects in order to ensure the long term preservation of our landscape heritage.

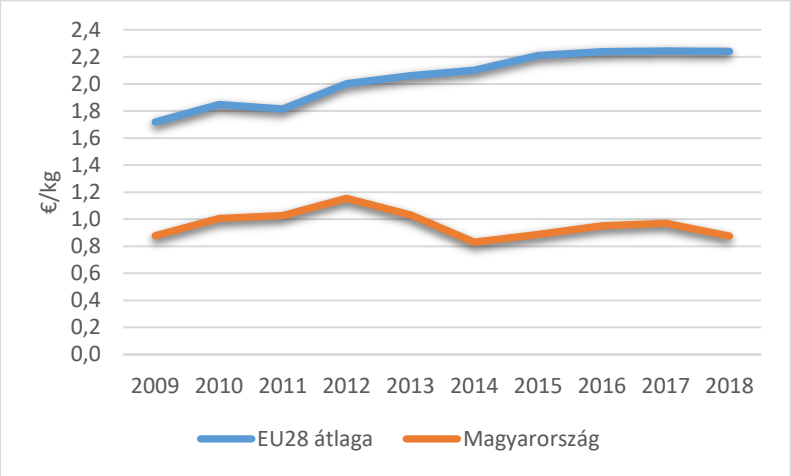
5.3.4.2 Use of natural resources

Since the industrial revolution, production and consumption have been dominated by a linear model in which raw materials are extracted, goods are manufactured from raw materials, sold, used, and then discarded as waste. The majority of the natural resources used as raw materials are available in scarcity, and become even more scarce as production volumes rise, and cannot be replaced at all or only at a very high cost (Ellen MacArthur Foundation, 2013). One of the objectives of the NFFS is to rationalise the use of natural resources through proper pricing and regulatory incentives as well as technology or other developments (e.g. adoption of the circular economy[52]). Below, the main indicators related to the use of natural resources are analysed.

One of the indicators of natural resource management is domestic material consumption (DMC), which shows the rate of the use of natural resources in parallel with economic growth (HOI, 2018). Disrupting the former positive trend, resource productivity declined in Hungary, i.e. Hungary uses 1.25 kg materials to generate EUR 1 while the EU only needs 0.45 kg on average. A new impetus for the improvement of resource productivity could be the development of the tertiary (services) and the quaternary (R&D&I) sectors and the broader adoption of the circular economy.

[51] Government resolution 1128/2017. (III. 20.) on the National Landscape Strategy for the period between 2017 and 2026.
[52] The basic idea of the circular economy is that products or their certain parts are reused or recycled based on the circular model helping to significantly reduce demand for natural resources.

Figure 44: Changes in natural resource productivity in Hungary and the EU between 2008 and 2018



Source: Eurostat

As part of the total material consumption, the use of raw minerals is worth a closer look. Compared with the demand, Hungary has modest reserves of raw materials and energy sources. With regard to metallic raw minerals, ore mining in Hungary has been reduced by decreasing local reserves, the availability of raw materials in the global market at lower prices and more stringent environmental regulations. The extraction of iron ore, lead-zinc ore, copper ore, noble metal ores, manganese ore and uranium ore was suspended and bauxite mining is taking place only in Bakonyoszlop at present. However, the mining of non-metallic raw minerals grew by approximately 50% between 2015 and 2017. Since 2016, the mining of the majority of the non-metallic raw minerals has been on the rise again, due to the boost in the construction industry (Pálvölgyi et al, 2019).

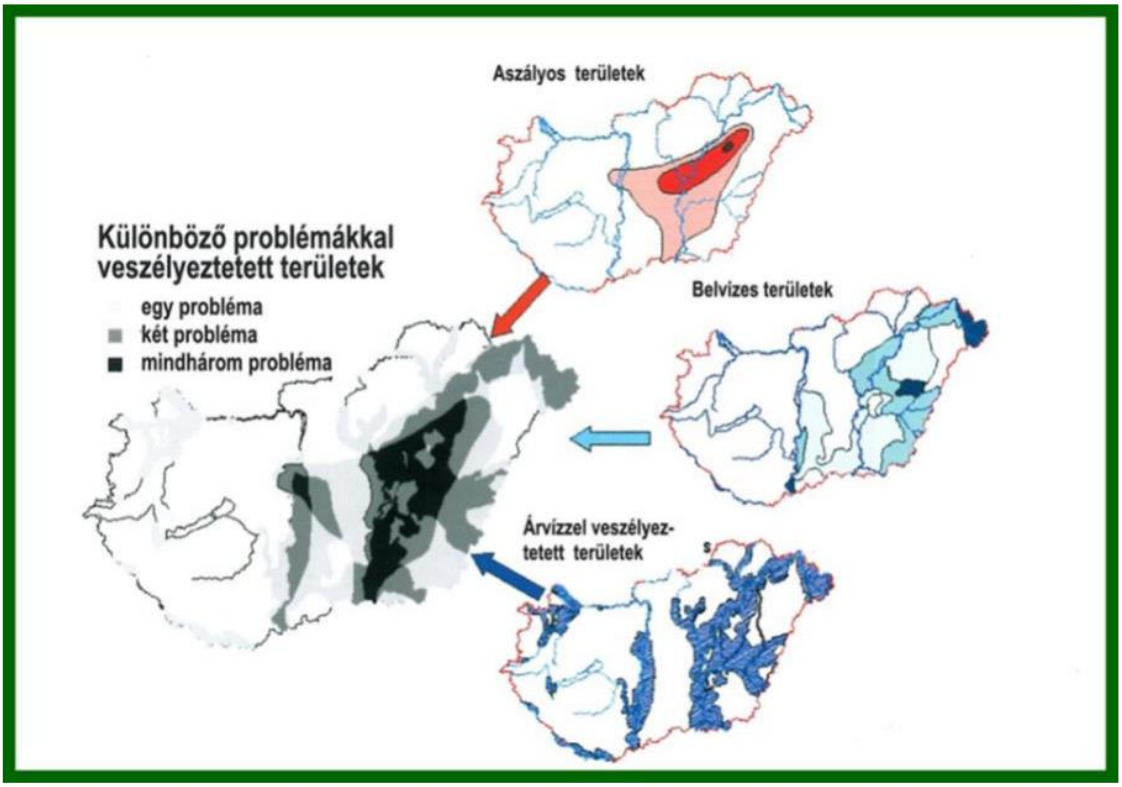
Data from the Hungarian Office for Mining and Geology[53] show that hydrocarbon production in 2017 included 0.8 million tons of petroleum and 1.9 billion cubic metres of natural gas. Research studies show that in the next 20 to 30 years there will be a quantity of hydrocarbons equivalent to 50 to 100 million tons of petroleum available for efficient and economical extraction. Between 2010 and 2017, domestic natural gas production fell significantly, by about 40% primarily due to the favourable price of import gas and the growth of the use of biomass as a substitute for natural gas. Between 2015 and 2017, there was a 20% reduction in lignite production, roughly 20% rise in petroleum production while the production of natural gas stagnated (Pálvölgyi et al, 2019). As the available quantities of energy sources in Hungary are not even sufficient to meet 50% of the domestic demand, Hungary imports large amounts of petroleum, natural gas and electricity, primarily from Russia and EU countries.

As the impacts of climate change are rising, water use is becoming an increasingly key issue in the analysis of the use of natural resources. Based on the assessment of the National Water Strategy – Kvassay Jenő Plan (2017), the per capita internal renewable surface water resource is nearly 12 000 m^3/person/year (118 km^3/10 million), which is one the highest values in Europe. However, the internal natural flow is only 600 m^3/person/year on average (the stress limit defined by experts is usually 1000 m^3/person/year). Our water network is 90 000 km long (rivers, streams, channels), which is rare

[53] https://mbfsz.gov.hu/index.php/asvanyvagyon_nyilvantartas (Download date: 15/ 07/ 2019)

compared to the needs. Three-quarters of our water resources are concentrated in the basins of the Danube and the Drava. The catchment area of the Tisza, which covers 50% of the country's territory, only holds 25% of our water resources. As 95% of the natural outflow originates in foreign countries, our vulnerability as a downstream country is very high both in terms of quantity and quality. Internal flow is only 5% (6 km^3), which is one of the lowest rates in Europe.

Figure 45: At-risk areas, 2017



Source: National Water Strategy, 2017

In the last 15 years, the rate of areas affected by droughts in Hungary has been over 50% multiple times; extremely dry years in this period included 2000, 2003, 2007, 2012 and 2015. The area most likely to experience water shortages is the catchment area of the Tisza (Pálvölgyi et al, 2019). Meanwhile, a significant portion of the areas at risk of floods are also located around the Tisza. To address this problem, there are 30 water reservoirs used fully or partly for flood control, with a total capacity of 1 050 million m^3 in the Tisza valley and 5 reservoirs with a total capacity of 386 million m^3 in the basin of the Körös rivers and the construction of one more reservoir is being planned. Overall, these facilities can help level off excesses and shortages in water.

A key indicator of the use of the water resources is the quantity of water generation per person. Based on KSH data[54], the quantity of water produced by public water works went up by 9% by 2017 compared to the 2014 minimum, likely explained by the growing demand for water from the increasing activities of producers and service providers (Pálvölgyi et al, 2019). It is important to note that the system of the pricing related to the use of public water services, adopted in 2011, fails to work in practice. Water

[54] https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_uw004.html (Download date: 16/07/ 07.16.)

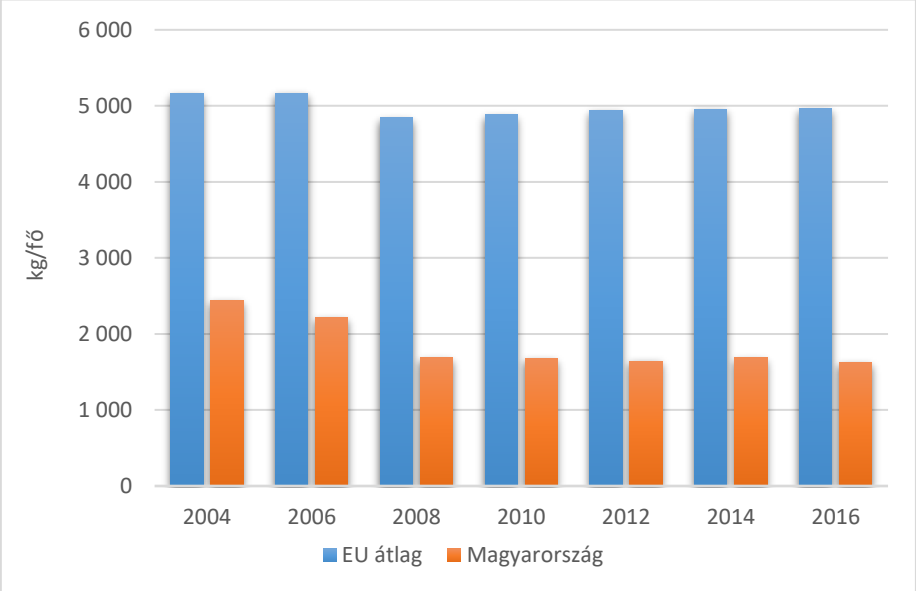
price policy is currently determined by the utility cost reduction action of the government, excluding the principles of pricing promoting cost return and the efficient use of water.

Another typical indicator of the use of water resources is the use of irrigation water. In Hungary, the size of land where actual irrigation takes place is 140 000 hectares but the area where irrigation is allowed by law is much larger, over 200 000 hectares (National Water Strategy, 2017). One of the reasons for this is that the condition of the basic infrastructure in agricultural water management such as water abstraction and pumping structures and water drainage ditches has declined, which are out of use in many places because of high energy and fuel prices. The quantity of irrigation water per hectare stagnated with smaller variations (1 311 m3 in 2017); the initial reason for the changes from year to year is that precipitation is becoming increasingly extreme (Pálvölgyi et al, 2019).

In the period of the monitoring report, there was a new water policy introduced in agriculture to promote sustainable water management. Since 2017, agricultural sectors (irrigation, fisheries) have been required by law to pay water resource contribution, however the payment criteria for this contribution were softened to promote the competitiveness of the sector in 2018. The system of agriculture water supply charges has also been revised, which means that the payment of the expenses has been gradually transferred from the government on users since 2017 and 2018.

Waste management is key for the use of natural resources and the circular economy. In Hungary, per capita waste generation is far below the EU average, having the fourth lowest amount after Croatia, Latvia and Portugal. This is mostly explained by the economic structure because the per capita municipal waste is around 300 kg/person, which is in the middle range in the EU (EU28 average 327 kg/person/year).

Figure 46: Total per capita waste generation per year between 2004 and 2016

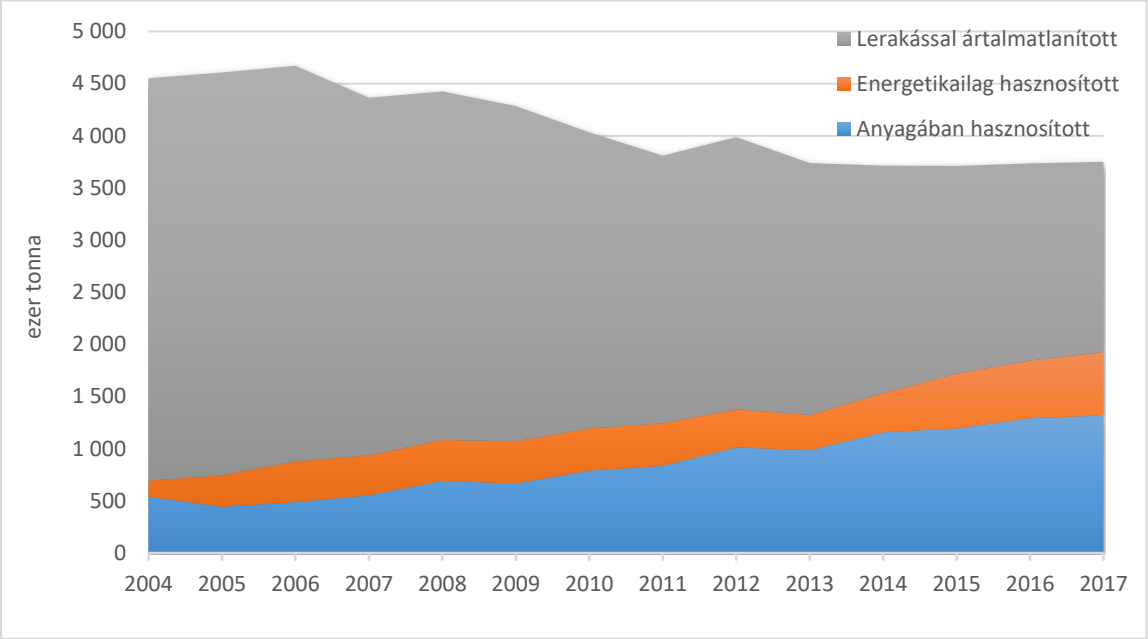


Source: Eurostat

Since the early 2000s, the quantity of municipal waste has changed in absolute value while treatment methods were also fundamentally transformed. Compared with the period of the previous report, the

amount of municipal waste stagnated in 2017 while the rate of selectively collected waste rose significantly, from 21% in 2015 to 29% and the rate of waste disposed at landfills is also lowering at a steady but slow pace. By 2020, the preparing for re-use and the recycling of waste materials such as paper, metal, plastic and glass from households should reach at least 50%. By 2030, the rate of recycled municipal waste should go up to 65%. The selective collection of glass waste directly from the households is still not available in Hungary, however the majority of the selective waste collection stations were removed. This poses a challenge for the selective collection of glass waste. The public waste management service is under constant restructuring. Due to the combination of the problems related to charges and the economic impacts of the utility cost reduction action of the government, this system becomes dysfunctional. To achieve the recycling rate of 50% set by Hungary, further efforts are necessary.

Figure 47: Municipal waste management between 2004 and 2017



Source: KSH – STADAT. Quantity of specific types of waste by treatment method

The boom in the construction industry caused the amount of construction and demolition waste to grow by 150%, which was, in most part (92%), treated as recovered waste.[55] Another challenge is the steady rise in the quantities of hazardous waste since 2015 (by 24% between 2015 and 2017), including in particular the amount of solid hazardous waste (Pálvölgyi et al, 2019).

5.3.4.3 Quality of environmental components

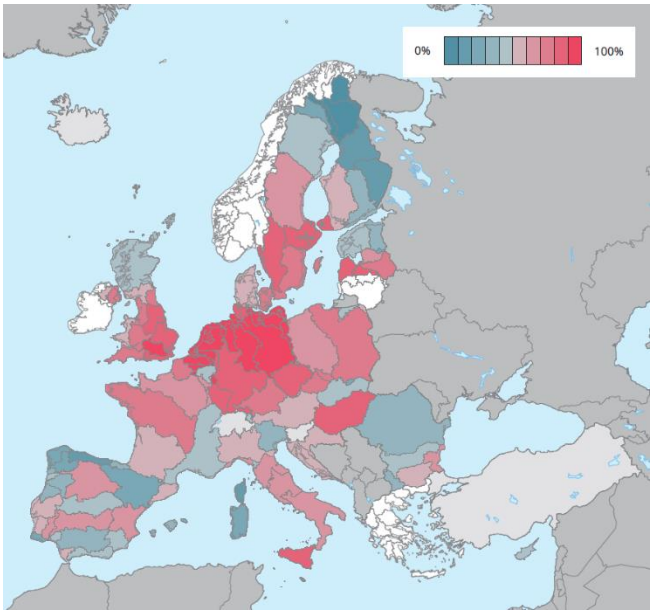
The quality of environmental components means the quality of water, soil and air. The indicators used to assess the state of sustainability are the chemical and ecological status of water bodies for water, the nitrogen and phosphorous balance for soil and the concentration of particulate matter in ambient air smaller than 10 micrometres, for air.

[55] https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_ur006.html (Download date: 17/ 07/ 2019)

Since the second monitoring report published in 2017, there has been no new important information released on the analysis of surface and underground waters. The 2000/60/EC Directive of the European Parliament and of the Council, the Water Framework Directive[56] (WFD) requires all member states to achieve "good" status both for surface and underground waters by 2015 and maintain this status in the long term. "Good status" includes not only clean water but also the near natural state of associated water-dependent habitats and the quantity of water affecting water quality. While the National Water Strategy (Kvassay Jenő Plan), adopted in 2017, defines the strategic framework of water management, no national strategic document to assess the condition of surface and underground waters and soil in a systematic manner and to determine new guidelines for their protection and improvement has been prepared since 2015 (Pálvölgyi et al, 2019).

In European comparison, Hungary has a high rate (90%) of surface waters which are not in at least "good" ecological status or potential, contrary to Nordic countries or even Romania, for example, which have a high rate of waters in "high" or "good" ecological status. In Hungary, 9% of the surface water bodies are at least in "good" ecological status, 40% in "moderate", 27% in "poor" and 10% in "bad" ecological status. Hungary requested an open timeline for almost all the categories for the improvement of the quality of surface waters, committing to achieving the good status after 2027 at the earliest.[57]

Figure 48: Percentage of water bodies in Europe not in "good" or "high" ecological status



Source: EEA, 2018[58]

[56] 2000/60/EC Directive of the European Parliament and of the Council of 23 October 2000 establishing a framework for the Community action in the field of water policy.
[57] Government resolution 1155/2016. (III.31.) on the revised River Basin Management Plan of 2015 of Hungary
[58] EEA, 2018: European waters — Assessment of status and pressures 2018, European Environment Agency, Luxembourg: Publications Office of the European Union, 2018, ISBN 978-92-9213-947-6

The largest pressures on surface waters are associated with agriculture, which, on the one hand, causes physical alterations in basins and coastal areas as well as diffuse pollution for water bodies (European Commission, 2019b).

Based on physico-chemical parameters, the water quality of the Danube is good to Budapest but it deteriorates in lower sections of the river. Key problems include eutrophication, the constant rise of the water temperature and seasonal variations in discharge. Water quality in the upper section of the Tisza is mainly influenced by pollution coming from abroad while organic substances are the main problem in sections under Lake Tisza and phosphates and petroleum products have also impaired the water quality. Nonetheless, indicators have reflected a positive trend in water quality in the last few years.[59] Out of our large lakes, the ecological and chemical status of Lake Balaton, Lake Fertő and Lake Velence is good (2015 data[60]), however there is no available data on the quality of over 50% of the lakes in Hungary (Pálvölgyi et al, 2019).

The report of the European Environment Agency (EEA, 2018), which is based on the second river basin management plans of the EU countries, shows that the rate of underground waters in good quantitative status is 50 to 75% in Hungary. While both the chemical and the quantitative status of our underground waters are better than that of the surface waters, Hungary is one of the last five countries in terms of the good quantitative status of the underground waters in Europe. This could easily pose a threat for our underground waters in the future due to their excessive use and the decline of the related surface aquatic habitats. Porous shallow and porous underground water bodies are the most vulnerable. Due to the excessive amount of groundwater withdrawals, in particular for irrigation purposes, the water balance in Homokhátság in the Danube-Tisza Interfluve has been critical for a long time (Pálvölgyi et al, 2019). For groundwater bodies the most significant pressure is abstraction or flow diversion for public water supply (78% of groundwater bodies), followed by discharges not connected to sewerage network (61%) (European Commission, 2019b).

One of the key sources of diffuse pollution affecting surface waters is agriculture as imbalanced fertilisation causes nutrient pollution in the soil. Diffuse source pollution has an impact on the majority of surface water bodies, which is one of the most significant water quality issues. In Hungary, the quantity of fertiliser use per hectare has been rising since 2009, primarily due to the reduction in the use of organic fertilisers. Furthermore, rainfall fluctuations caused by the extreme weather conditions are also important to note as they lead to more frequent uses of liquid fertilisers. Fertiliser use per hectare rose by 12% between 2015 and 2017.

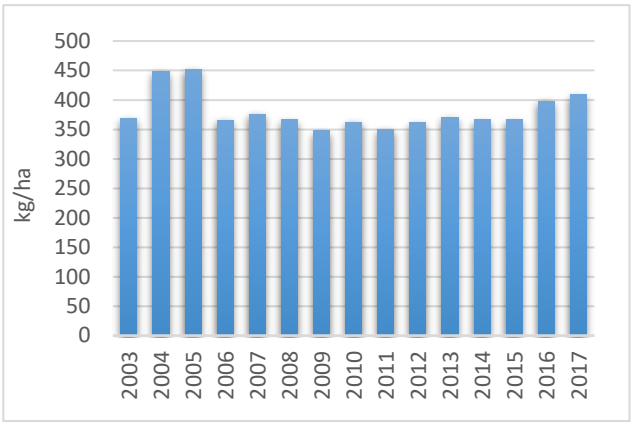
Statistical data show that there is an upward trend both in the rate of organic farming and fertiliser use, despite the fact that the growing number of organic farms should cause a reduction in fertiliser use. It is likely that the amount of fertiliser saved by organic farming is “overwritten” by the dynamically rising quantities of fertiliser used on areas under intensive agricultural production.

[59] http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_uw006b.html (Download date: 16/07/2019

[60] Government resolution 1155/2016. (III.31.) on the revised River Basin Management Plan of 2015 of Hungary

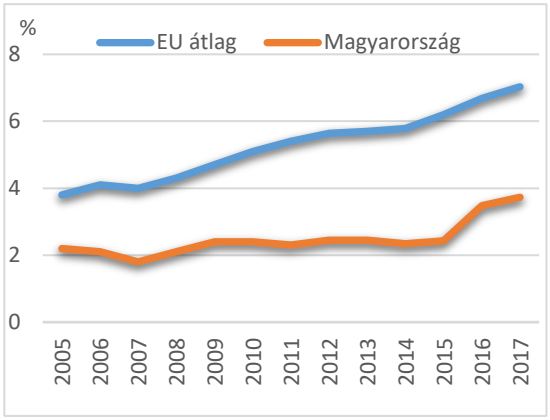
Figure 49 and 50: Fertiliser use and the share of organic farming

Quantity of fertiliser use per hectare (2003–2017)



Source: KSH-STADAT

Share of total organic area in total utilised agricultural area (2005–2017)



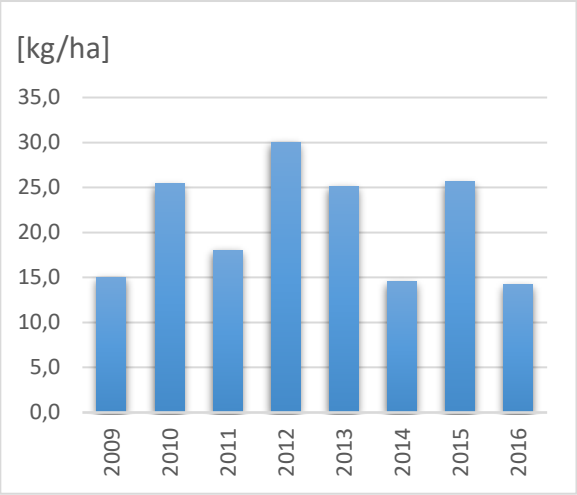
Source: Eurostat

It is essentially important to protect the quality, to maintain the functionality and to ensure the reasonable use of soil as a conditionally renewable natural resource as it represents roughly 22% of Hungary's national assets based on expert estimates (see for example: Széky (1979); Szendrei (1989); Várallyay (2000); Koós (2012)). Similarly to waters, increasingly intensive agricultural production and higher fertiliser consumption are the most significant threats for the protection of soil quality. These can cause soil acidification, the accumulation of toxic elements, the increase of nitrates, etc. The nutrient balance, which is defined as the difference between the nutrient inputs entering a farming system (fertilisers and other means) and the nutrient outputs leaving the system, reflects the changes in the nutrient condition of the soil and the turnover of minerals essential for vegetation.[61] Since the latest monitoring report, the nitrogen balance has improved while the phosphorous balance is around 0 (Pálvölgyi et al, 2019). Overall, the trends are positive but fertiliser use remains high.

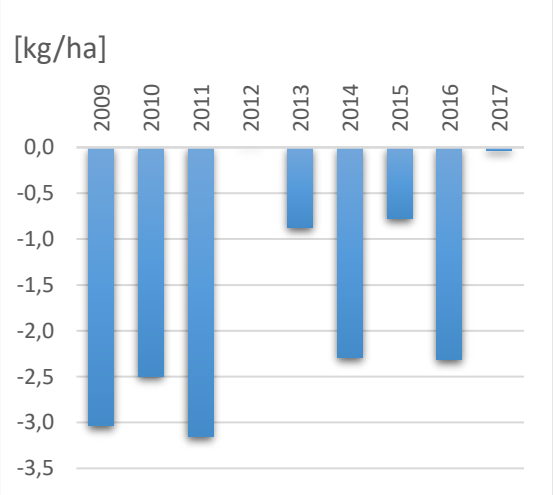
Figure 51: The nitrogen balance of soils

Figure 52: The phosphorous balance of soils

[61]In case the balance is steadily and significantly positive for a nutrient, nutrient leaching is high. A steadily negative balance reflects problems with the sustainability of the agricultural practices used.



Source: KSH-STADAT



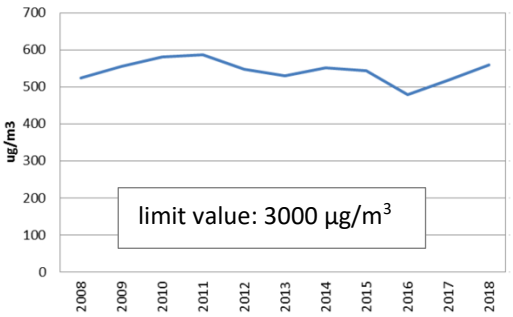
Source: KSH-STADAT

Air pollution is a major health risk factor (see section on Human resources). In general, while the annual mean concentration of air pollutants has practically stagnated in the last ten years and even lowered for sulphur dioxide, there has been growth or stagnation reported for all pollutants in the last two years.

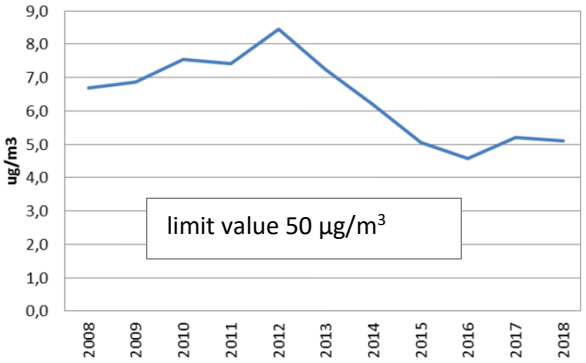
The pollution by particulate matter in ambient air is one of the biggest problems in Hungary, which mostly comes from residential heating using solid fuels and transport (ÁSZ, 2018). The European Commission referred several member states including Hungary, to the European Court of Justice for failing to respect agreed air quality limit values and to take appropriate measures. In European comparison, Hungary's average pollution by particulate matter in ambient air is bad; we are in the worst quarter among EU countries. It is also a cause for concern that as three neighbouring countries (Slovenia, Croatia and Serbia) rank even worse than Hungary, transboundary air pollution (advection) is also a serious risk for health.

Figure 53 to 57: Air quality (annual national concentration for CO, SO2, NO2, O3 and PM10)

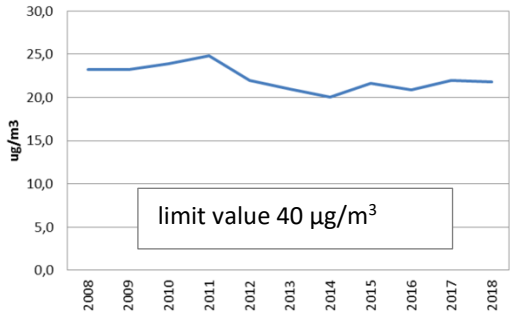
CO



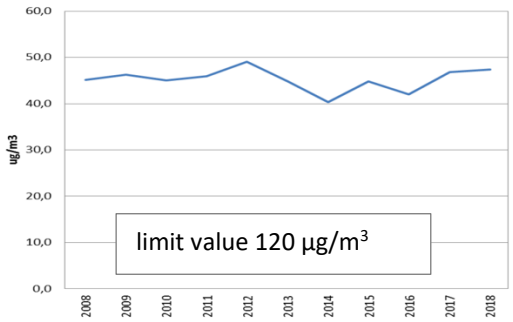
SO_2



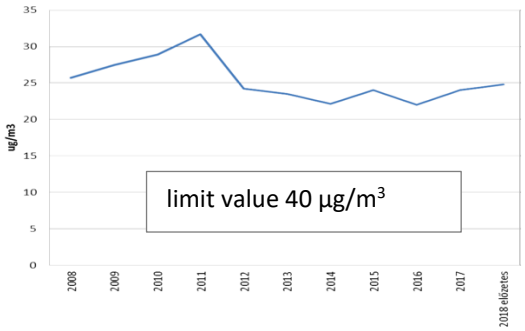
NO_2



O_3



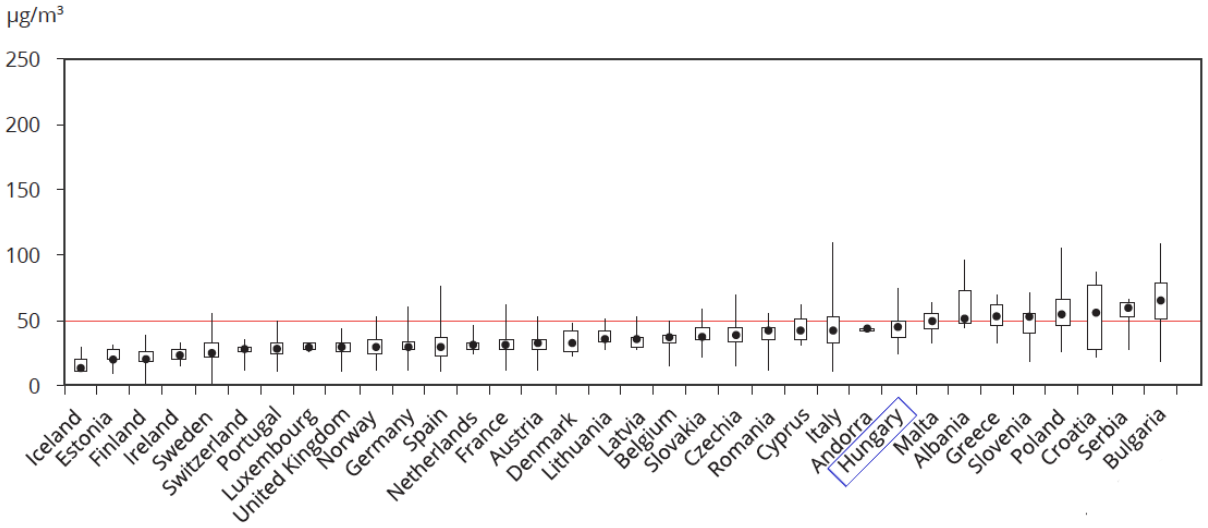
PM_{10}



Source: National Meteorological Service, 2019[62]

[62]Air quality update: Presentation by Dr. Kornélia Radics, National Meteorological Service, 2019 http://www.hermanottointezet.hu/sites/default/files/2.%20RK_20190320.pdf (Download date: 16/07/2019

Figure 58: PM10 concentration relative to yearly daily limits – European comparison, 2017



Source: EEA, 2018b

The distribution of atmospheric particulate matter pollution varies significantly from region to region and from community to community. Based on data from 2017, Budapest, Kazincbarcika, Miskolc, Nyíregyháza, Putnok, Sajószentpéter (Sajó Valley), Salgótarján, Szolnok and Vác have the highest exposure to particulate matter in ambient air (OMSZ, 2018).

The limit values for PM_{10} defined by the air quality directive of the European Union[63] became effective in 2005 (annual: 40 µg/m^3, daily: 50 µg/m^3; allowed to be exceeded up to 35 times every year). Certain monitoring stations in Hungary regularly register concentration levels exceeding the daily limit. While a report from 2016 showed exceedances for the air hygiene index registered 466 times in 33 monitoring stations, the number rose to 1132, registered in 30 monitoring stations, in 2017 (Pálvölgyi et al, 2019).

5.3.4.4 Climate change and energy use

Climate change is a highly complex issue that affects all the aspects of natural resources as well as human, social and economic resources. In this section, we will examine the changes in and the vulnerability of climate in Hungary, the use of fossil and renewable primary energy sources and the tendencies of greenhouse gas emissions.

Surveys by the National Meteorological Service (OMSZ)[64] show that the rise of the national mean temperature of 1.15°C, occurring since the beginning of the last century, exceeds the global estimate of 0.9°C. There has been intensive warming experienced in the last 30 years: its degree was the highest in the eastern and north-eastern regions of the country, exceeding 1.8°C.

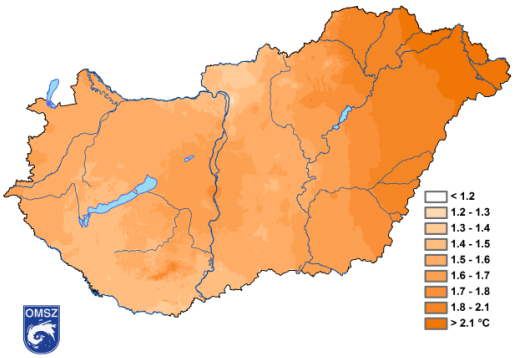
[63]Directive 2008/50/EC of the European Parliament and of the Council (21 May 2008) on ambient air quality and cleaner air for Europe

[64]Resolution of the Parliament 23/2018 (X.31.) on the second National Climate Change Strategy for the period between 2017 and 2030 including an outlook for the period until 2050

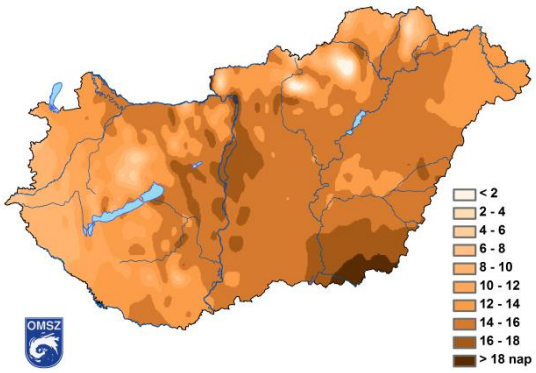
In 2017, the national mean temperature was 0.8°C higher than the multi-year average while 2018 brought record high heat to Hungary: this was the hottest year ever recorded; the mean temperature was 12.1°C, which is 1.8°C higher than the multi-year average.

Figure 59 and 60: Temperature tendencies in Hungary

Changes in annual mean temperatures (°C) (1981–2016)



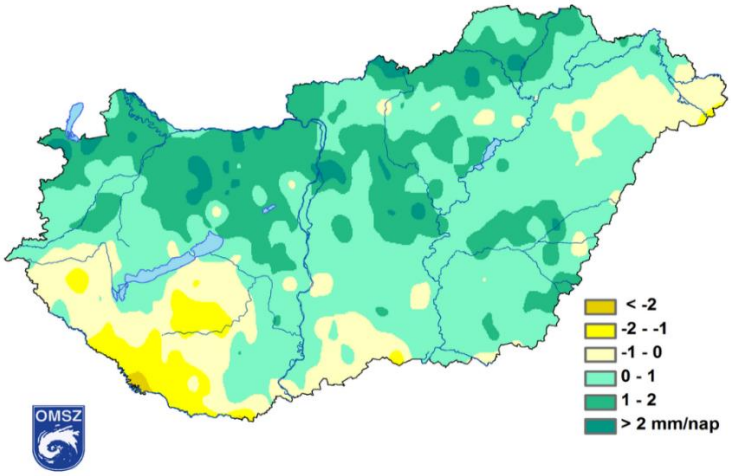
Number of days with excessively hot weather (Tmean > 25 °C) (1981–2016)



Source: National Meteorological Service[65]

Unlike temperature changes, precipitation varies significantly in time and space, which means that one direction changes caused by the climate change are more difficult to detect. Overall, the quantity of precipitation presents more extremes, floods and droughts are equally likely to happen. Since the beginning of the 20th century, the number of days with precipitation in excess of 20 mm has risen by over two days while the maximum length of dry periods has significantly increased (by nearly 5 days per year). Climate models predict that torrents, flash floods, thunderstorms and hailstorms will become more frequent in Hungary (Pálvölgyi et al, 2019).

Figure 61: Changes in the total quantity of precipitation (%) between 1961 and 2016



Source: National Meteorological Service[66]

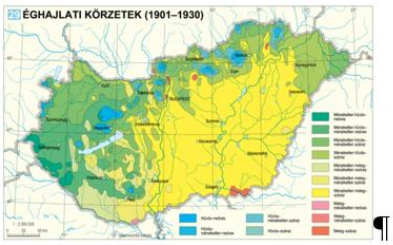
[65] URL: https://www.met.hu/eghajlat/eghajlatvaltozas/megfigyelt_valtozasok/Magyarorszag/

[66] https://www.met.hu/eghajlat/eghajlatvaltozas/megfigyelt_valtozasok/Magyarorszag/ (Download date: 17/07/2019)

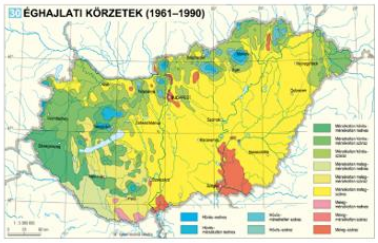
Changes first started in the last century when there was a clear and one-way shift in climate zones in Hungary. The most conspicuous is the expansion of warm-dry zones (indicated in brick red on figure 32): until the 1990s, this most extreme category only included very small areas but nowadays it covers roughly 50% of Hungary's total territory. Simultaneously, the size of moderately cool areas decreased.

Figures 62 to 64: Climate zones in Hungary

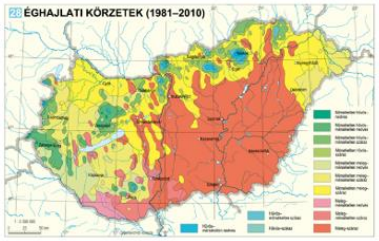
From 1901 to 1930s



From 1961 to 1990s



From 1981 to 2010s

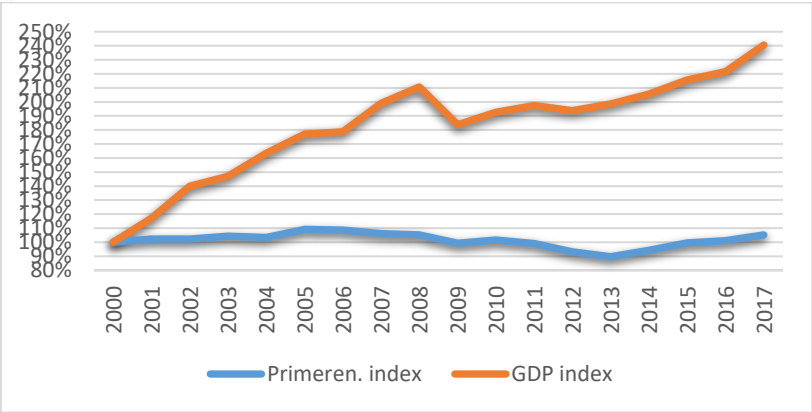


Source: Kocsis (szerk.), 2018

In order to analyse the impacts of climate change and monitor vulnerability to climate change with data, the National Adaptation Geo-information System[67] was set up in 2014. In order to reduce the climate change risks of specific investments, the Prime Minister's Office developed a Guideline on Climate Change Adaptation and Risk Assessment[68], which also supports the environmental impact assessment of laws and regulations.

In the area of energy use, Hungary's energy import dependency is rising; our aggregate energy import dependency in fossil fuels is currently nearly 80%. Primary energy consumption has been on the rise since 2015.

Figure 65: **Detachment of primary energy consumption index (2000=100%) and GDP/capita (2000=100%) between 2000 and 2017**



Source: MEKH[69]

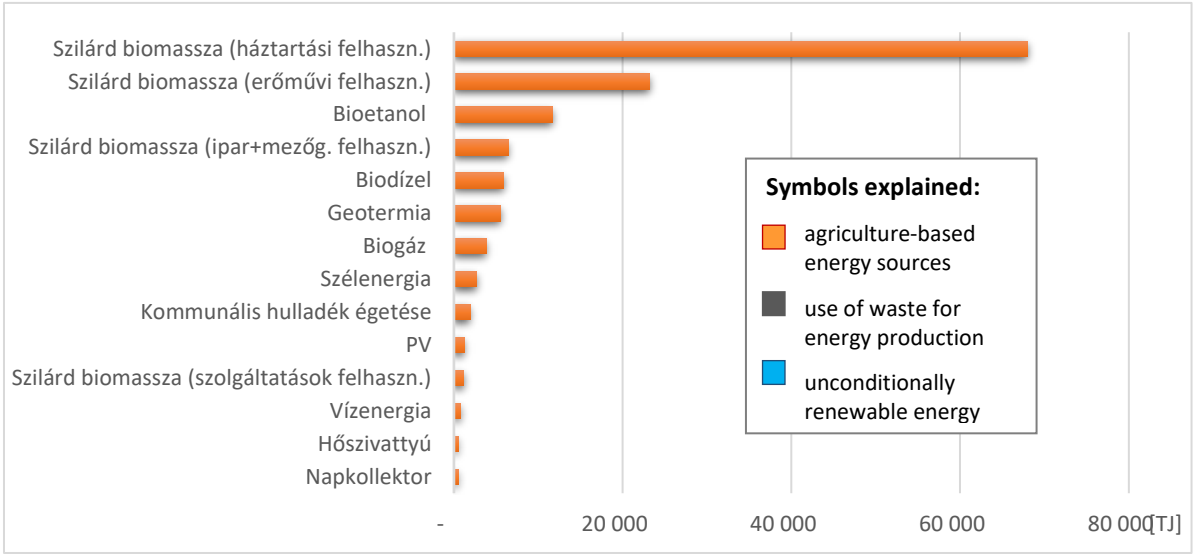
[67] https://nater.mbfsz.gov.hu/hu (Download date: 15/07/2019)
[68] https://www.palyazat.gov.hu/tmutat-projektek-klimakockzatnak-becslshez-s-cskkentshez (Download date: 17/07/2019)

[69]Hungarian Energy and public Utility Regulatory Authority (MEKH), 2019. National annual energy balance (2000–2017) http://www.mekh.hu/eves-adatok (Download date: 18/07/2019)

The use of renewable energy sources reflects a complex situation in Hungary. On the one hand, available data show that the share of their use has been decreasing since 2013, not even reaching 13.5% of the final energy consumption in 2017 while the EU2020 target for the EU as a whole is 20% and 14.65% until 2020 and 20% until 2030 for Hungary (National Energy and Climate Plan (NEKT), draft, 2018). The reason for the decline of recent years is that as the rise in final energy consumption is in excess of the growth of the use of renewable energy sources, their ratio is decreasing.

One cause for concern with relation to the transition to sustainability may be the imbalanced mix of the renewable sources of energy. Four-fifths of our renewable energy sources are produced by the agriculture and over two-thirds are used in power plants and as firewood in households. It is misleading for this indicator that the burning of waste is also included in the share of renewable energy sources. It is a positive trend that PV generation (solar power) is growing dynamically. Between 2015 and 2017, the amount of photovoltaic capacity built-in doubled every year, exceeding 1.2 PJ in 2017, however it still only accounts for 0.17% of the total final consumption.

Figure 66: Use of energy from renewable sources by sector, 2017



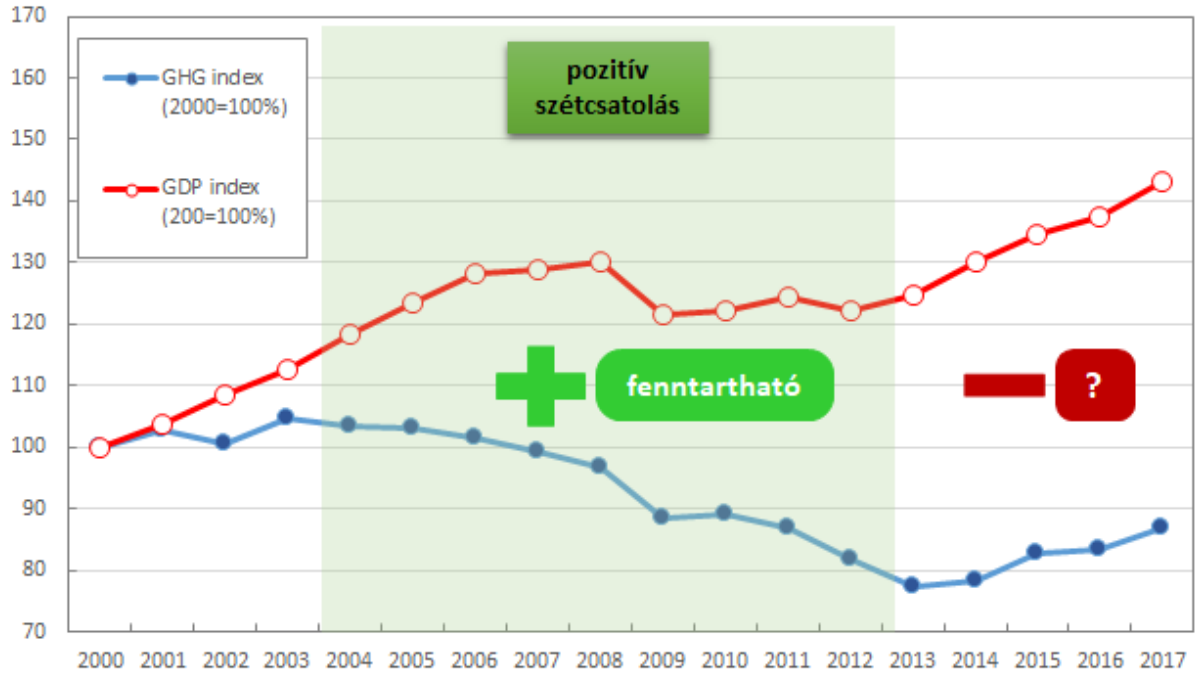
Source: created by the author based on EUROSTAT

In 2017, the use of solid biomass in total was roughly 100 PJ/year equal to 9% of the total primary energy consumption. The rising use of solid biomass in residential (household) heating is especially notable: it reached 25% in 2017. As biomass is a conditionally renewable primary energy source, the planning for its use as an energy source should consider the energy, social, ecological etc. uncertainties, objections and potential benefits that may occur in the production, transportation and use of biomass. Related issues include the virtual energy use connected to biomass (e.g. pesticides), transportation and, in particular, the maintenance/increase of biologically inactive areas associated with crop production (Pálvölgyi et al, 2019).

As regards greenhouse gas emissions, Hungary has one the lowest rates within the EU, which is primarily explained by the significant share of nuclear energy, the downsizing of the energy intensive industries and (to a smaller extent) the relative rise in energy efficiency and the use of renewable energy sources. In the meantime, it is unfavourable that Hungary went down 3 places on the EU

ranking of greenhouse gas emissions per capita between 2012 and 2017. In parallel with energy intensity, greenhouse gas emissions grew at or over the GDP growth rate between 2014 and 2017. In 2017, the highest share of emissions (72%) was generated by the energy sector, followed by the agriculture (12%), industrial processes (11%) and the waste sector (5%) (Pálvölgyi et al, 2019).

Figure 67: GHG index and GDP index



Source: GDP data: KSH-STADAT, GHG data: NIR, 2019[70]

The 2019 National Inventory Report compiled by OMSZ-NÉBIH (National Meteorological Service and the National Food Chain Safety Office)[71] shows that CO2 emission rose by over 4.5% from 2016 to 2017. The key drivers of this growth were the rise in natural gas use by households and power plants and the increase of road traffic. The effective way to address all of these drivers is the implementation of adequate decarbonisation policy measures, promoting sustainable energy management. A study by Eurofund (2019) shows that decarbonisation commitments could raise the GDP by nearly 2%, primarily due to the multiplier effect of building energy, environmentally friendly transport and renewable energy use investments.

5.3.4.5 The state of biodiversity

As life on Earth is impossible without biodiversity, clean water and air, its protection and improvement is not only one of the priorities of sustainable development but is also key for the survival of nature and wildlife. A broad range of ecosystem services depends on biodiversity: it is the foundation for the

[70] NIR, 2019: National Inventory Report for 1985-2017, Hungary. OMSZ-NÉBIH
https://unfccc.int/sites/default/files/resource/hun-2019-crf-16apr19.zip (Download date: 20/07/2019)
[71] https://unfccc.int/sites/default/files/resource/hun-2019-crf-16apr19.zip (Download date: 22/07/2019)

production of healthy food, helps create and regenerate a variety of habitats, is essential for the socio-economic operation and plays a key role in the mitigation of the impacts of climate change.

In the last two years, there has been no significant change in the number of endangered species and the number of endangered animal and plant species has hardly changed since 2012. In Hungary, 733 higher ranked plant and 1168 higher ranked animal species are protected by nature conservation laws and regulations. These include 87 plant and 186 animal species that are strictly protected.[72] Under the species conservation programme, species conservation plans for a total of 25 animal species and 20 plant species were developed until April 2019[73]; in 2018, the conservation status of roughly 65% of the species protected under the Habitats Directive[74] was unfavourable or bad while the rate of species in favourable conservation status was only 35%. Between 2013 and 2018, 4 species became extinct in Hungary. Meanwhile, the conservation status of 87% of the habitat types is unfavourable with only 13% of the habitats having a favourable conservation status. The analysis of the conservation status of the various habitats shows that farmland habitats and aquatic habitats most vulnerable to environmental impacts are in the most unfavourable state (Ministry of Agriculture, 2019).

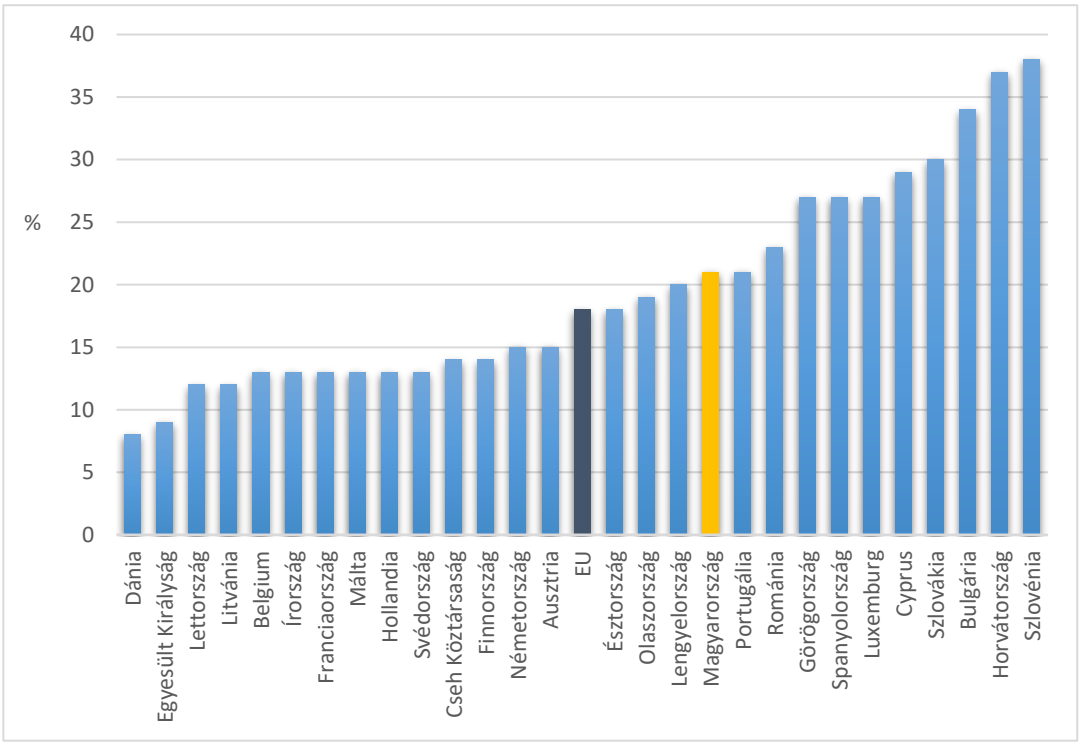
The abundance of Hungary's valuable landscapes and natural assets is reflected by the fact that 22.2% of Hungary's territory is protected by EU or Hungarian nature conservation laws and regulations. In addition to the protected natural areas of national relevance, established by special legislation, 1.2 million hectares are included in the network of Natura 2000 sites, which means that the complete size of the Natura 2000 network in Hungary is 1995 million hectares (21.4%). In the last two years, the size of the protected natural areas of national relevance has grown to a slight extent, with another 160 hectares classified as protected natural area. There was a significant rise in the number and size of Natura 2000 sites with a maintenance plan. By the end of 2017, 325 Natura 2000 sites had an approved maintenance plan (in 2013, there were only 38 sites with a developed and approved maintenance plan). The number of protected natural areas of national relevance also being designated as Natura 200 sites with a (nature conservation) management plan has also risen (the number of approved documents rose by 7 compared to 2013) (Ministry of Agriculture, 2019). In the meantime, the protection of Natura 2000 sites is challenged by changes in the legislation and the emerging application of laws which fails to maintain the restrictions for the area as a whole. Resolution 28/2017 (X. 25.) of the Constitutional Court states that the purchase of Natura 2000 sites by private persons leads to the absence of guarantees providing efficient protection for these areas.

[72] Nature conservation data as at December 31 2017, Ministry of Agriculture, 2018, http://www.termeszetvedelem.hu/_user/browser/File/Tenyek&Adatok/Termeszetvedelmi_adatok-20171231.pdf (Download date: 19/ 07/ 2019)

[73] http://www.termeszetvedelem.hu/index.php?pg=menu_1555 (Download date: 19/07/2019)

[74] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Figure 68: Share of NATURA 2000 protected areas, 2017



Source: Eurostat

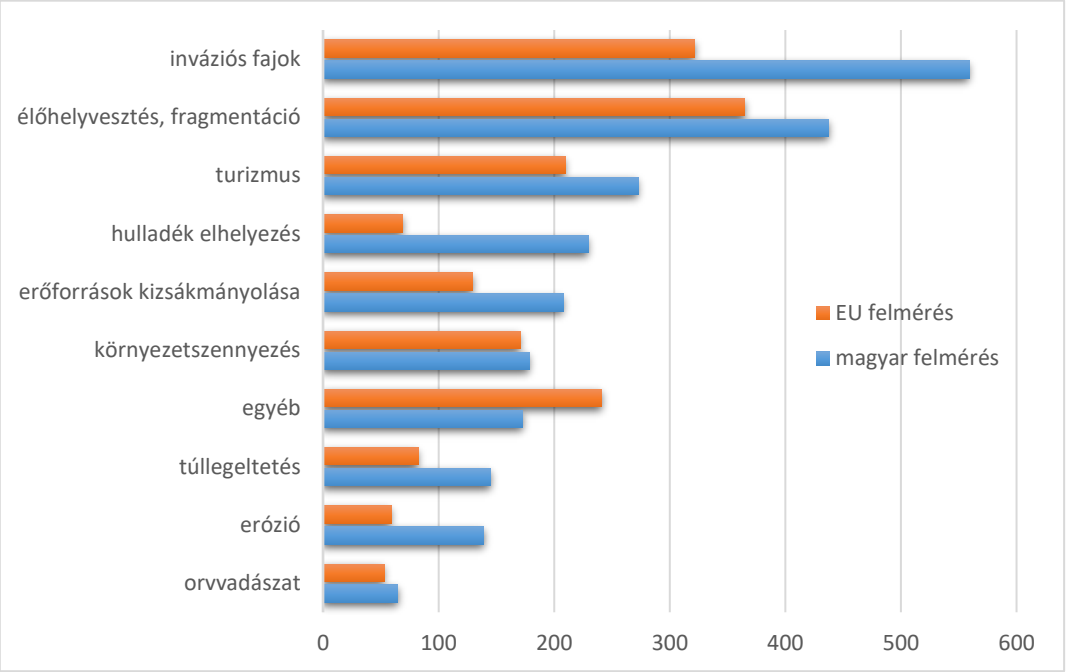
The biodiversity of farmland habitats is declining at a rate higher than that of the natural habitats. Studies mostly focus on the changes in bird populations living in those habitats. There has been no further decrease in bird populations since 2011 and in the period under review, until 2017, the Hungarian Ornithological and Nature Conservation Society registered a very slight rise and stagnation.[75] Large-scale single-crop production led a reduction in the habitats of many species: restricted access to food supply, disturbances to their nests during their breeding time and the inadequate use of pesticides are the drivers of this negative trend (Pálvölgyi et al, 2019).

Changes in Hungary's wild animal populations show a typical trend; while the populations of small game such as pheasants and rabbits are gradually lowering (including in the period under review), the number of big game, deer, wild boar and roe, is clearly rising. The main reason for the reduction in pheasants and wild rabbits is the shrinkage of their natural habitats, the removal of borderlines and hedges, which served as breeding and hiding sites for these animals. The population growth of other species is frequently the result of the expansion of significantly degraded habitats dominated by invasive alien species.

Two of the key threats identified by experts in relation with protected natural areas in Hungary are the penetration of invasive alien species and the degradation of habitats (Kézdy et al, 2018).

[75] http://mmm.mme.hu/charts/trends (Download date: 19/07/2019)

Figure 69: The most severe risk factors for Natura 2000 sites in Hungary and Europe (cumulative values based on sequencing), 2017



Source: Kézdy et al (2018)

Eight of the ten most challenging species are from North America and seven are woody plants. False acacia (Robinia pseudoacacia) is the one with currently the highest share (66%). The most severe consequences of the spreading of these invasive species are the alteration of habitats and the displacement of native species, which also leads to the alteration of landscape assets and character as a whole (Kézdy et al (2018).

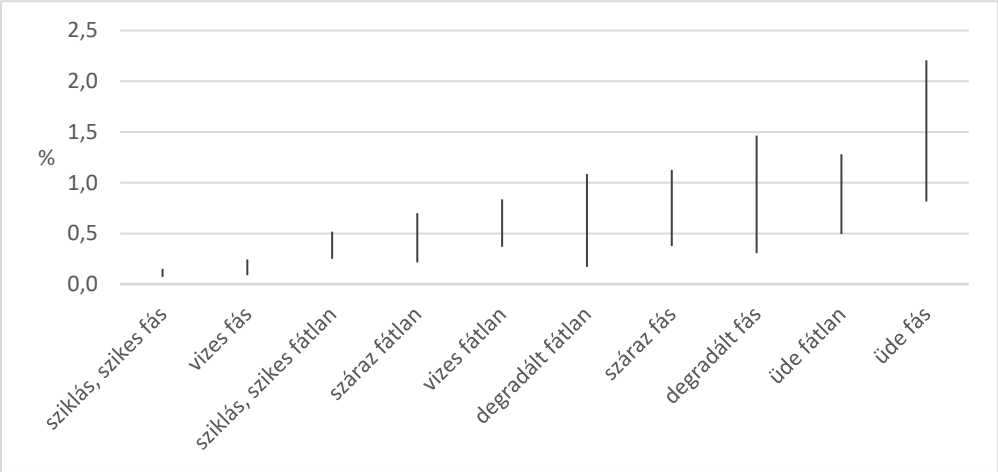
One of the methods used for the quantification of our vegetation heritage is the vegetation based natural capital index (NCI[76]). Analyses (Kocsis, 2018) show that 90 to 95% of our natural vegetation heritage have already been lost. As the most common reason for the reduction of the natural capital is the degradation of natural habitats, their protection is the most urgent task in order to mitigate the loss of biodiversity.

As forests play a key role in the preservation of the biodiversity, their examination is particularly important. In 2017, the forest area was 1 869 213 hectares, which has not changed in the past two years while the National Forest Strategy, adopted in 2017, defined a target of 26 to 27%.

While the size of forests used for logging has been decreasing since 2013, practically stagnating in 2016 and 2017, it remains one of the most significant purposes of the forest management in Hungary.

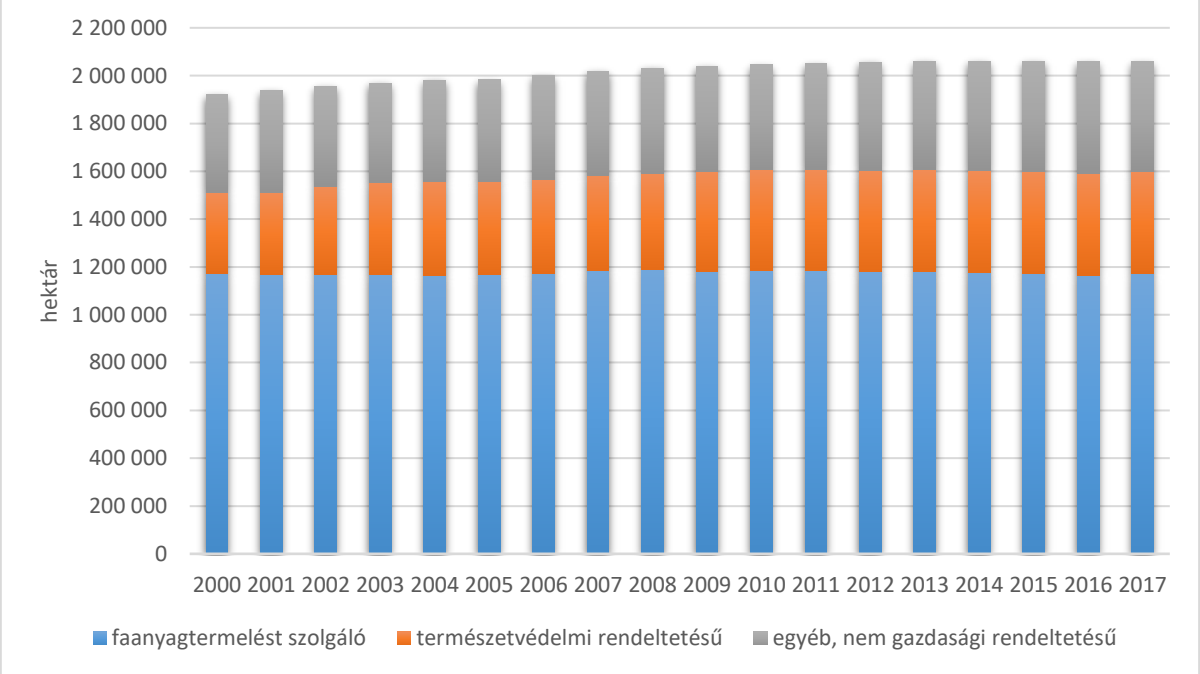
[76] Natural Capital Index

Figure 70: Vegetation based natural capital by habitat groups, 2017



Source: Kocsis, 2018

Figure 71: Forest management areas in Hungary by primary intended use between 2000 and 2017



Source: KSH-STADAT

Within Hungary's forests, the rate of indigenous species is 63.3% while non-native and naturalised tree species (acacia, northern red oak, some species of pine tree) as well as hybrid species (Populus x. Euramericana) have a share of 36.7%. Compared with the past two years, the share of forests with indigenous tree species rose by 0.3% (HOI, 2018).

Table 5: The composition of tree species in forests, 2018

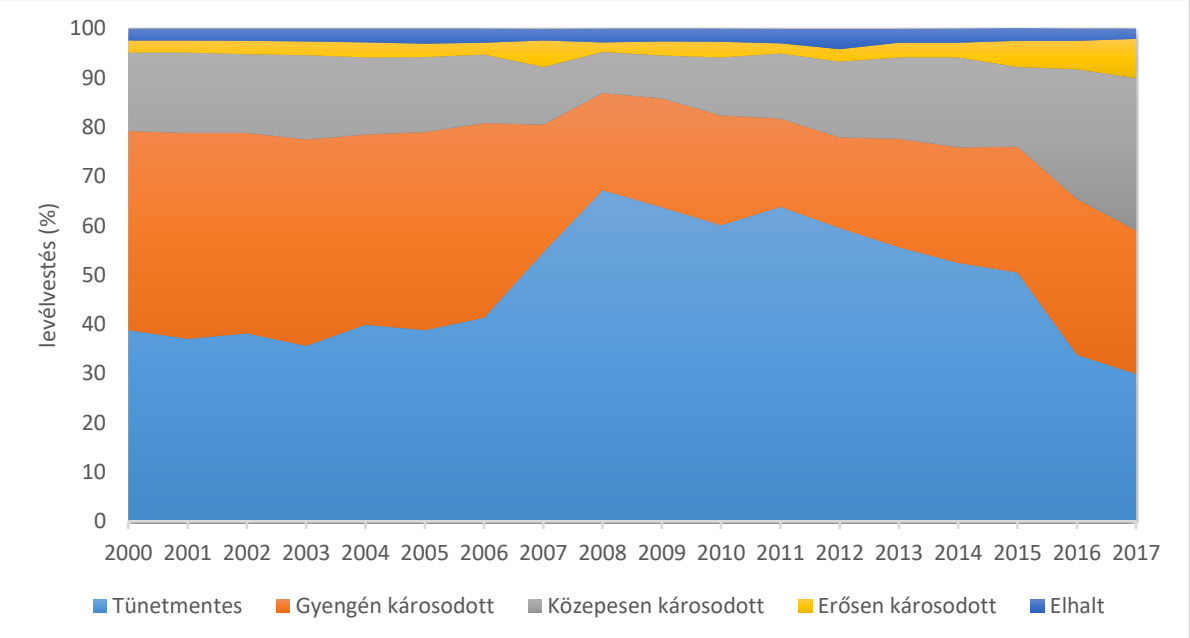
Tree species	Forest area (%)
Oak	20.8%
Turkey oaks and other deciduous hardwood trees	17.6%
Beech	6.0%
Hornbeams	5.2%
Acacia	24.4%
Poplar and other deciduous softwood trees	15.8%
Pine	10.2%
Total	**100%**

Source: KSH-STADAT

The most common tree in Hungary's forests is the false acacia (black locust) whose share has risen by over 40% in a little more than a decade (NÉBIH, 2018). While false acacia is an intensively spreading tree species, it cannot be directly classified as a harmful plant due to its economic importance (excellent firewood, superb source of honey, plays key role in retaining sand in the Great Plain).

In Hungary, there are virtually no forest areas untouched by humans. While the share of natural and semi-natural forests is only 0.01% in Hungary, 52% of our forest area is categorised as highly natural. To promote their conservation, primarily for research purposes, to better understand the natural processes affecting forests, 63 forest reserves (13 000 hectares) were established under the Forest Reserve Programme. Overall, the vulnerability of our forests is rising. One indicator that reflects forest health is the defoliation rate. This shows a significant decline in the health of our forests in 2016 and 2017. Out of our tree species, the condition of oak and beech trees is the most alarming, caused by the prolonged periods of droughts (Pálvölgyi et al, 2019).

Figure 72: Forest health based on defoliation between 2000 and 2017



Source: KSH-STADAT

In general, the natural vegetation heritage is highly endangered in Hungary. Key threats to the vegetation include changes in the type of cultivation, removal from cultivation (ploughing, mining, creation of ponds, reclassification as gardens), the methods of grassland and forest use (overuse, industrial forest management, overpopulation of wildlife, at other times, discontinuation, abandonment of traditional farming) and the human control of the groundwater balance in flat areas. Meanwhile, the spontaneous spreading of non-native, i.e. alien species (e.g. false acacia, goldenrods, silkweed, desert false indigo) has become one of the most serious risk factors in the past two to three decades. With their high population densities, they displace native species and these Asian and North American species gradually gain dominance in the biomass of vegetation while the biodiversity of native species is decreasing.

5.3.5 Government measures

In the field of natural resources, there were a number of relevant strategic documents adopted by the government in the period of the monitoring report.

- On March 3 2017, the government adopted the National Water Strategy (Kvassay Jenő Plan) (Government resolution 1110/2017. (III.7.) on the adoption of the National Water Strategy ("NVS") and the action plan supporting its implementation), which created the first government level policy in water management in Hungary. The main objectives of water management in Hungary identified by the government's priorities until 2030 include the following:
    - improvement of water retention, better use of our water bodies,
    - transition from emergency relief oriented water control to prevention centred water management,
    - gradual improvement of the condition of waters, achievement of good status, maintenance of the natural state of water flows,
    - maintenance of quality public water supply services with reasonable charges for consumers and the establishment of a system for rainwater management,
    - improvement of the relationship between people and water,
    - renewal of the water policy planning and control, and
    - renewal of the economic regulation system of water management.
- By resolution 23/2018. (X. 31.), the Parliament adopted the second National Climate Change Strategy for the period between 2018 and 2030 with an outlook until 2050. It contains the assessment of the potential impacts and the natural and socio-economic implications of climate change in Hungary as well as the vulnerability of ecosystems and sectors to climate change. Furthermore, it includes the National Decarbonisation Roadmap, which identifies the goals, priorities and action courses for the reduction of greenhouse gas emissions until 2050 as well as the National Adaptation Strategy, primarily designed to prevent risks and mitigate the damage associated with climate change and climate security. It also addresses activities focusing on education and awareness raising to promote the prevention of, preparation for and adaptation to climate change.

  The National Climate Change Strategy is completed by local and regional climate strategies, which determine location specific adaptation goals and actions.

- By resolution 1128/2017. (III. 20.), the government adopted Hungary's first National Landscape Strategy for the period between 2017 and 2026. The National Landscape Strategy defines the objectives and the tasks based on the three pillars of protection, management and planning. The strategy equally focuses on degraded, impaired/ruined landscapes, protected areas of special value and unprotected landscapes. The strategy describes the progress of Hungary's compliance with international standards, presents the most important landscape alteration processes, the drivers of such processes and the state of Hungary's landscape.
- The Sewage Sludge Treatment and Utilisation Strategy (2018-2023) was developed and adopted by Government resolution 1403/2017. (VI.28.). The priority of the various utilisation methods is agricultural use, recultivation use and burning of sludge for energy. Pursuant to Government decree 50/2001. (IV.3.) on the rules of the agricultural use and treatment of sewage water and sludge, agricultural use is subject to specific permits and the availability of a soil protection plan.
- Government resolution 1744/2017. (X. 17.) on the elaboration of the Irrigation Development Strategy defines tasks related to the preparation of actions designed partly to improve the quantity of waters. These tasks include the assessment of possibilities for the storage of irrigation water, the revision of the operation of dual function and stagnating water systems to enable protection, to retain and store water and the identification of areas suitable for the promotion of protection, leaving stagnating water in situ, retaining and storing water. Efforts to rely initially on surface water resources instead of groundwater have a positive impact on the quantitative status of groundwater resources. To this end, a number of reservoirs (e.g. Dozmat, Baranya channel, Váli valley) have been built in the last two years.
- As part of the National Forest Strategy adopted in 2016, the revised version of the forest law came into force in 2017 leading to numerous changes in the regulation of forest management. The revised version of the law imposes larger responsibility on entities involved in the management of government-owned forests in the determination of the framework of sustainable forest management, alters the regulation of district-based forest planning (introduces a framework system or transforms it into an administrative procedure), modifies the designation of non-cutting operations (selective cutting replaced by continuous forest operation, conversion operation replaced by transition operation) and partly their definition as well. The revised version of the forest law introduces the state of naturalness as a basic requirement and limits the restrictions the forest management authority may impose to promote nature conservation. (This modification triggered a strong social debate as the new law may have a direct and adverse impact on forest habitats essentially important for biodiversity. Therefore, the ombudsman for future generations submitted a draft motion to the commissioner to request the Constitutional Court to conduct a follow-up norm control of the new law.)

In addition to these strategic documents, the 2017/2018 period included a large number of action programmes and campaigns.

- To address the severe environmental and health problem caused by inadequate household heating practices, the Ministry of Agriculture launched an informative and educational national campaign called "Smart Heating"[77] importantly designed to raise public awareness

[77] http://www.futsokosankampany.hu/

about the dangers of the use of certain solid fuels, the prohibition and harmful effects of the burning of waste by individuals. This initiative used a variety of communication channels (TV, radio, billboards, leaflets, public debates) and relied on a broad cooperation to discuss this issue. The campaign also intends to allow access to all the information available on correct heating techniques and the use of proper fuels.

- The "Intersectoral Programme for the Reduction of Particulate Matter (PM10)", promulgated by Government resolution 1330/2011. (X.12.) will be renewed in 2018/2019. The new National Air Pollution Reduction Programme (OLP) has been completed, which includes other air pollutants in addition to PM_{10}. This programme covers all emission sectors (transport, industry, agriculture, households) and includes horizontal measures (e.g. transboundary air pollution modelling).
- In the 2017/2018 period, the implementation of the Drinking Water Quality Improvement Programme was completed, which reduced the number of settlements affected by non-compliance of Arsenic, boron and fluoride to 16 by the end of 2018. A comprehensive programme was launched to assess the lead content of drinking water and the rate of population exposed to the harmful effects of lead across Hungary, which will inform the development of a national lead exposure risk map by 2020.
- In 2017, the report on access to water and sanitation was prepared to fulfil Article 6, 2 (c) of the Protocol on Water and Health to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes. The United Nations defines universal access to water and sanitation as a human right, which is essential for equal opportunities. While recognising the wide availability of public waste water collection services in Hungary, it must be noted that access to water and sanitation is not limited only to the availability of these networks and access must be provided through alternative solutions where the costs of the public service are too high. The protection of human dignity must involve not only equal opportunities and the elimination of regional disparities but also individual needs based on unique circumstances, physical and mental characteristics.
- The Acts on the Central Budget for 2018 and 2019 each allocated HUF 1.5 billion to the Public Reconstruction Fund of the Public Water Supply Network. While this amount is minimal compared to the funds needed for a comprehensive network reconstruction, it is a promising start and indispensable for the preparatory work of the modernisation projects.
- The new National Spatial Plan was promulgated in Act CXXXIX of 2018, which identifies water management regions and water quality protection areas in compliance with the WFD. (However, the ombudsman for future generations reminded that the modification of the legal guarantees aimed to protect Lake Balaton poses a threat for Lake Balaton as one of Hungary's unique natural assets.)
- In 2018, the revision of the Jedlik Ányos Plan began, which, upon its adoption, will facilitate the introduction of a modern and market friendly regulatory environment promoting the development of the electromobility market.

In addition to the above, the government had significant achievements in diplomacy in the field of water management, which are described below.

- The Ministry of Foreign Affairs and Trade (KKM) joined the OECD's Water Governance Initiative (WGI) in 2016 and Hungary's active engagement continued in 2017 and 2018 as well. Hungary

also participated in the activities of the 2030 Water Resources Group, which is a unique, public, private, civil society partnership hosted by the World Bank Group.

- After almost three decades, Hungary was once again the chair of the International Hydrological Programme (IHP) working under the auspices of the United Nations Educational, Scientific and Cultural Organisation (UNESCO), between June 2016 and 2018. The IHP being the only intergovernmental body that promotes international scientific cooperation in water research, water resource management, education and capacity-building made this diplomacy success even more special.
- Partly as a recognition for the leading role played by Hungary in global water diplomacy, the president of the United Nations General Assembly appointed Hungary's ambassador to the UN – together with the representative of Tajikistan – in January 2017 to act as a moderator of dialogues focusing on the more efficient integration and coordination of water-related activities under the auspices of the UN, mandated in the resolution promulgating the international decade for action "Water for Sustainable Development". This role of co-moderator dedicated to promoting consensus and collective thinking offered a new opportunity to Hungary to more efficiently represent its interests.

5.3.6 Summary conclusions

Positive trends	Risks
Hungary pursues a carefully planned, reasonable and long term mineral resource management supported by a solid institutional system performing the related official control, record-keeping and research responsibilities. The total per capita waste generation in Hungary is below the EU average. The share of selectively collected waste rose, currently amounting to 29% of the total waste generation. The water quality of the Danube is improving together with its ecological status. Out of our large lakes, the ecological and chemical status of Lake Balaton, Lake Fertő and Lake Velence is good with an upward trend. The annual mean concentration of the main air pollutants has been steadily below the limit value and shows a stationary or slightly downward tendency over time. To protect and preserve our natural resources and to improve adaptability, the government adopted a number of strategic	Resource productivity has been deteriorating in recent years. Since 2014, energy consumption has been rising and the former positive tendency for energy intensity has been replaced by stagnation. The year-on-year growth in primary energy demand was 4.2% in 2017 exceeding the rate of GDP growth. The share of renewable energy consumption relative to final energy consumption has been lowering since 2013; not reaching 13.5% of the final energy consumption in 2017. The sources of renewable energy are imbalanced. Four-fifths of our renewable energy sources are produced by the agriculture and over two-thirds are used in power plants and as firewood in households. Since 2016, the mining of non-metallic minerals has been rising, especially for gravel, sand and cement materials. Due to the higher frequency of extreme weather events and the uneven distribution of rainfall in space and time, careful planning of water use in the agriculture will be key in the future.

documents in the period of the monitoring report. These include:

- the Kvassay Jenő Plan, the first government level policy in Hungarian water management;
- the second Climate Change Strategy;
- the first National Landscape Strategy;
- the Sewage Sludge Treatment and Utilisation Strategy;
- the Irrigation Development Strategy;
- and the new National Air Pollution Reduction Programme was elaborated.

It is a positive trend that PV generation is growing dynamically. Between 2015 and 2017, the amount of photovoltaic capacity built-in doubled every year, exceeding 1.2 PJ in 2017, however it still only accounts for 0.17% of the total final consumption.

With the addition of the white stork and the lesser white-fronted goose, the number of species with conservation plans rose from 43 to 45. Eight more new species conservation plans were developed and the revision of 11 existing species conservations plans, affecting 23 species in total, began.

The number of Natura 2000 sites with a maintenance plan has considerably risen in the last few years: while the number of properly prepared and approved maintenance plans was only 38 in 2013, it went up to 325 until the end of 2017.

The quantity of per capita water generation went up by 9% by 2017 compared to the 2014 minimum.

In Hungary, fertiliser use per hectare increased by 12% from 2015 to 2017 caused by the dynamically growing fertiliser consumption on areas under intensive agricultural production.

Hungary committed to recycling 50% of the waste generated by 2020. This will require additional resources.

In European comparison, Hungary has a high rate (90%) of water bodies which are not in at least “good” ecological status or potential.

In Hungary, data on the ecological status of lakes remain highly unavailable.

Based on the good quantitative status of underground waters, Hungary is one of the five last countries in the EU. This could easily pose a threat for our underground waters in the future due to their excessive use and the decline of the related surface aquatic habitats. Porous shallow and porous underground water bodies are the most vulnerable. Threats for the protection of underground waters include the lack of records on wells used for water withdrawal, the absence of measures to prevent the installation of illegal wells as well as actions against illegally installed, closed wells.

In Homokhátság in the Danube-Tisza Interfluve and the Nyírség, meteorological changes combined with the extraction of groundwater exceeding natural replacement while in Mátra- and Bükkalja, water extraction due to mining threaten the condition of shallow water bodies.

Between 2009 and 2017, the phosphorous content of soil in Hungary was always negative (except in 2012), which is now a strong threat to the sustainability of agricultural production.

The impacts of the global warming on the Danube are reflected by the changes in the seasonal distribution of discharge and the constant rise of the water temperature, which significantly affects plants and animals living in the river. In the summer of 2018, the Danube had record low levels of water

	and the water temperature was also in excess of the highest values ever recorded, on multiple occasions. With regard to forest vulnerability, nearly 50% of Hungary's territory is extremely and highly vulnerable land. One-fourth of the population live in areas affected by very high or high risk of heat waves. Vulnerability significantly varies from region to region and affects Hungary's disadvantaged areas to a larger extent. Between 2013 and 2017, Hungary's greenhouse gas emissions grew by over 12%, which is mainly attributable to the increase in transport and the use of natural gas in households and power plants. Factors adversely affecting air quality includes the more intensive decline in air quality caused by household heating and the lack of a complex programme addressing that issue. The penetration of invasive animal and plant species is rising, which has become one of the biggest risk factors in protected natural areas. In the past two years, the conservation status of habitats has further deteriorated: the share of habitats in unfavourable conservation status was 60% in 2016 and reached 87% by the end of 2018 while the rate of habitats in good conservation status is only 13%. Due to the climate change and air pollution, forest health has further declined. The revised version of the forest law limits the restrictions the forest management authority may impose to promote nature conservation.

5.4 Economic resources[78]

5.4.1 General overview

In the past years, the Hungarian economy has been growing at an increasingly fast rate, thanks to the fiscal policy of the government and the monetary policy of the Hungarian National Bank. Government investments rising since 2016, the advance payment of EU funds and the pay rises in the public administration sector all stimulate a faster GDP growth. The monetary stimulus was maintained through negative real interest rates and a slightly depreciating currency while the self-reinforcing dynamics of lending also added to the economic momentum.

While economic growth stimulated a dynamic increase in consumption and investments, this did not trigger any tendencies threatening prudence on the consumption side of the gross domestic product. The rapid growth has also contributed to a further reduction in the number of people affected by severe material deprivation. Meanwhile, the robust growth of investments improves the future prospects of production through the delivery of more advanced production equipment and better infrastructure.

However, economic growth varies significantly from region to region. Western and Central Transdanubia experienced the fastest growth while there was minimal growth in the worst performing Southern Transdanubia. Budapest plays a disproportionately key role in the economy[79] while the regional economic centres are weak.

Hungary's foreign debt is diminishing at a fast rate. If this trend continues at the rate of the past years, Hungary will again become a net foreign creditor in a short time, which will be a significant step toward sustainable development. The debt-to-GDP ratio is also decreasing, albeit at a slower rate, standing at 70.9% currently.

After a period of stagnation, the net financial wealth of households has massively grown in the last ten years while foreign direct investment is also rising in Hungary. The financing options of investments into human and physical capital in general improved.

There has been dynamic growth in the area of employment: the employment rate is over the EU average and is steadily approaching the EU2020 target. Meanwhile, labour productivity is declining. As a consequence of low productivity, the rate of potential growth determining the long term growth opportunities of Hungary's economy is low, it is a question whether the current high rate of economic growth can be maintained in the long term.

Research and development lack the required funds and human resources. While financing issues may be tackled through appropriate government measures, the required human resources may only be provided by first delivering a massive improvement in the efficiency of the education system.

[78]The chapter describing the state of the economic resources is based on a study by H-SOFT (2019).
[79]This is supported by the report of the Central Statistical Office for 2017 showing that the per capita GDP in Budapest is 206% of the national mean value followed by Győr-Sopron county with only 129% and there is only one more county where the per capita GDP is in excess of the national mean value: Fejér county where the rate is 103%.

5.4.2 Key indicators

Indicator	Latest value	Value known at monitoring report for 2015–2016	Assessment of the changes in NFFS's key indicators
Employment rate of people aged 20–64 (KSH)	74.4% (2018)	71.5% (2016)	The employment rate has risen since the previous monitoring report, it is already above the EU28 average (73.2%); supporting the likeliness to achieve the target of 75% by 2020.
Gross fixed capital formation (as % of GDP)	25.5 (2018)	19.6 (2016)	The rate of gross fixed capital formation has significantly grown, explained by the scheduling of the EU funds, the developments of businesses and the increase in public investments.
R&D spending (as % of GDP)	1.35 (2017)	1.39 (2015)	The indicator has not changed significantly; it remains far below the target of 1.8% defined in the Europe 2020 strategy.
Public debt as percentage of GDP (MNB, Hungary's Central Bank)	70.2% (2018)	74.1% (2016)	This indicator has continued to decrease since the previous report. Prudent fiscal policy and economic growth are collectively driving further decrease; the MNB's forecast shows that the debt-to-GDP ratio could lower 2.3 to 2.6 percentage points every year between 2019 and 2021 dropping below 65% by the end of 2022.
Old age dependency ratio	28.5% (2018)	27.2% (2016)	This indicator has risen since the previous monitoring report representing larger burden imposed on the active population. Forecasts predict further growth for the next period as well.

5.4.3 Objectives and challenges defined in NFFS

Economic resources are aimed to be increased not only preserved. In order to do so, the NFFS defines the following objectives[80]:

[80]Progress towards objectives 1 and 2 will be discussed in section 1.1.4.5: Localisation, local economic relations and international cooperation.

The topic of the strengthening of the infrastructure of trust in the economy is discussed in a divided manner: issues related to the private sector are included in the chapter on human resources while the issues related to enterprises are included in the chapter on economic resources, section 1.1.4.4.: Development of business capital, reduction of burdens on businesses.

Localisation, local economic relations and international cooperation

- 1) Balance of localisation and international cooperation: Creation of a business friendly environment – in combination with the termination of special benefits offered to foreign investors;
- 2) Strengthening of local economic relations (e.g. a town and adjacent areas);

(3) Strengthening of the infrastructure of trust in the economy)

Development of business capital, reduction of burdens on businesses

5) Increase of innovation spending

6) Increase of employment

7) Sound fiscal management

8) Gradual restoration of generational balance

5.4.4 Social and economic developments affecting the objectives

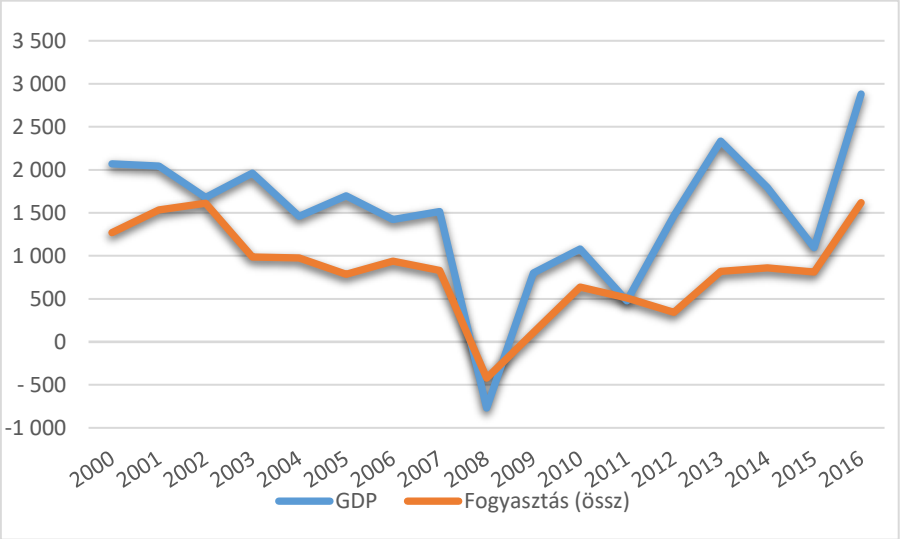
5.4.4.1 Sound fiscal management

Stringent fiscal policy is crucial for sustainable development. While Hungary has achieved one of the quickest GDP growths in the EU in the last few years, instead of the generation of government reserves, the government deficit relative to GDP has slightly increased: in 2018, it was HUF 976 billion, 2.3% of the GDP, one of the highest rates in the EU. The balance deteriorated by HUF 52 billion compared with 2017 but it improved relative to the GDP. It slightly rose compared to the data from 2016 known at the preparation of the previous monitoring report (in 2016, the government deficit was 1.6% of the GDP). While major taxbases grew faster than GDP, government spending grew even stronger, mainly due to increased public investments. The rise in government investments may be explained by the government's effort to accelerate the use of the EU funds. These are frequently designed to attract foreign direct investment and to provide the infrastructure required to retain such investment (H-SOFT, 2019; KSH-STADAT).

While stressing the importance of austerity and frugality, the Framework Strategy gives priority to savings over consumption. Real household spending has been rising in line with the GDP in the recent period, albeit slightly less dynamically: at current prices, it increased by HUF 1 618 104 million from 2016 to 2017.[81] This increase may be explained by the fact that consumers are making up for their purchases postponed because of the economic crisis, income growth, stronger consumer confidence and lending activities while family support benefits also stimulate consumption (European Commission 2019 country report).

[81]At current prices. KSH: Real household spending by source (2000–) https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_qpt008b.html (Download date: 10/08/2019)

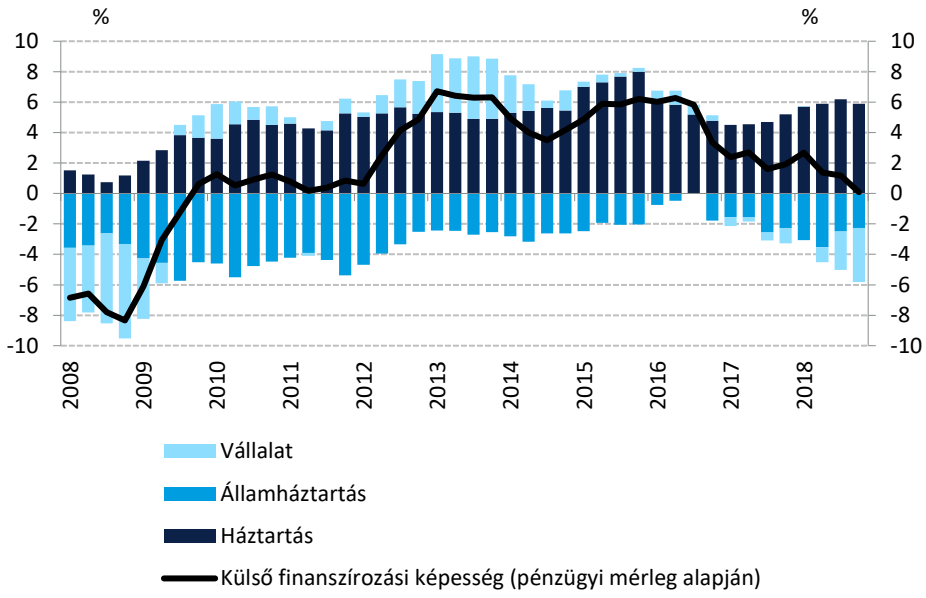
Figure 73: Year-on-year changes in GDP and total consumption (current prices, billion HUF) between 2000 and 2017



Source: KSH-STADAT (1) (2)

In addition to the growth in consumption, the financing capacity of households could also rise[82]. In the first place, this is explained by higher levels of savings due to higher wages.

Figure 74: External financing capacity by sector, as % of GDP, 2018–2018

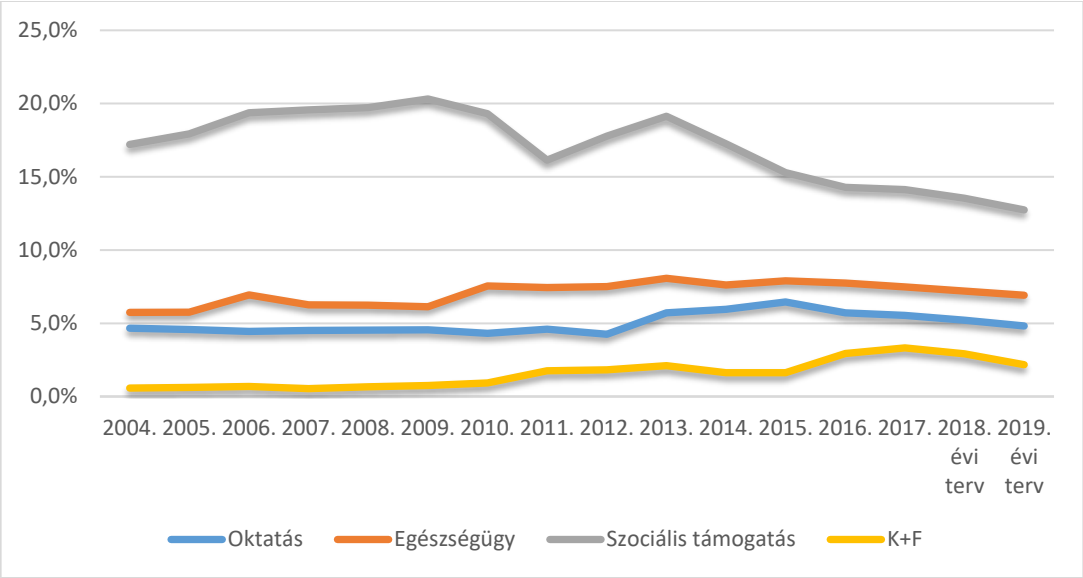


Source: MNB Inflation Report, 2019

[82]See further information in the section on household debt under the chapter Human resources.

The external financing demand of the private sector also rose, primarily due to the borrowing needs related to the growing investments. Nonetheless, the rate of private sector debt relative to GDP lowered from 77.9% in 2016 to 70.8% in 2018.[83]

Figure 75: Education, health, social and R&D spending as % of GDP between 2004 and 2018



Source: Hungarian State Treasure (MÁK), Functional balances

In addition to sound fiscal management, the National Framework Strategy on Sustainable Development identifies the reduction of public debt and the elimination of processes leading to high level of indebtedness in future generations as top priorities. The public-debt-to-GDP ratio had been rising between 2002 and 2011 followed by a steady low level decrease after 2012. As a result, the public-debt-to-GPD ratio went down from 75.5% in 2016 to 70.2% in 2018. While this is still well in excess of the Maastricht criterion of 60%, the MNB's Inflation Report forecasts a further decrease potentially causing the debt-to-GDP ratio to go down to as low as 63% by 2021. However, the gross public debt continued to increase: from HUF 27 092 billion in 2016 to HUF 29 951 billion in 2018. (MNB Inflation Report, 2019).

The 2019 country report of the European Commission on Hungary shows that the structural primary balance[84] should improve to bring the debt-to-GDP ratio below the 60% reference value. The structural deficit, which does not reflect the impacts of the economic upswing and other transitional factors, is estimated to have risen from 1.75% in 2016 to 3.75% in 2018. While the structural deficit is predicted to improve (i.e. decrease) by 0.5% in 2019, it is below the adjustment recommended by the European Council. (H-SOFT, 2019)

Since the economic crisis, the share of consumption taxes within the system of tax revenues has been steadily rising. In 2017, the rate of such taxes was 41% while the share of labour taxes was 45 to 46%.

[83] Eurostat

[84]The structural balance is a cyclically adjusted balance which excludes one-off and temporary items. This is the reason why it is not equal to the public balance (ESA), which applies a cash accounting approach to assess changes in government revenues and expenditure.

Higher employment rates did not reduce the share of the latter ones despite the fact that personal income tax went down from 16% to 15% in 2017 and the social contribution was steadily lowered by the government from 27% to 22% then to 19.5% (As of July 2019, the rate is 17.5%).[85]

5.4.4.2 Gradual restoration of generational balance

In the long term, the revenues and the expenditure of any welfare state are most importantly determined by the welfare programmes as well as demographic and labour market processes. Government actions aiming to increase the share of economically active population in the total population in the long term help enhance the balance of intergenerational resource redistribution. Labour market actions to raise the rate of employment and work productivity in the long term also contribute to sustainability.

Generational balance is expressed by the old-age dependency ratio[86], the system dependency ratio[87] and the activity rate[88]. The higher the old-age dependency ratio, the higher is the pressure imposed on the active population to support pensioners. The rate has continued to rise since the previous monitoring report: from 27.2% in 2016 to 28.5% in 2018, i.e. the burden on the active population has increased. (KSH-STADAT)

The system dependency ratio has been steadily lowering since 2010 and this trend has continued in recent years as well: the number of pensioners per one contributor went down from 8 in 2010 to six in 2017. In the same period, the retirement of the so-called "Ratkó children" caused the age dependency ratio to rise from 35% in 2008/2009 to 38% by 2017, however this was plentifully set off by the reduction of the eligibility rate and the increase of the activity rate. Due to the stricter criteria of early retirement, the rate of pensioners relative to the population of retirement age (eligibility rate) lowered from 1.48 in 2010 to 1.3 in 2015 and continued to slightly decrease by 2017 (1.26). [89]

[85] https://nav.gov.hu/nav/szolgaltatasok/adokulcsok_jarulekmertekek/szocialis_hozzajarulasi_ado/ado_merteke.html (Download date:: 04/ 08/ 2019)

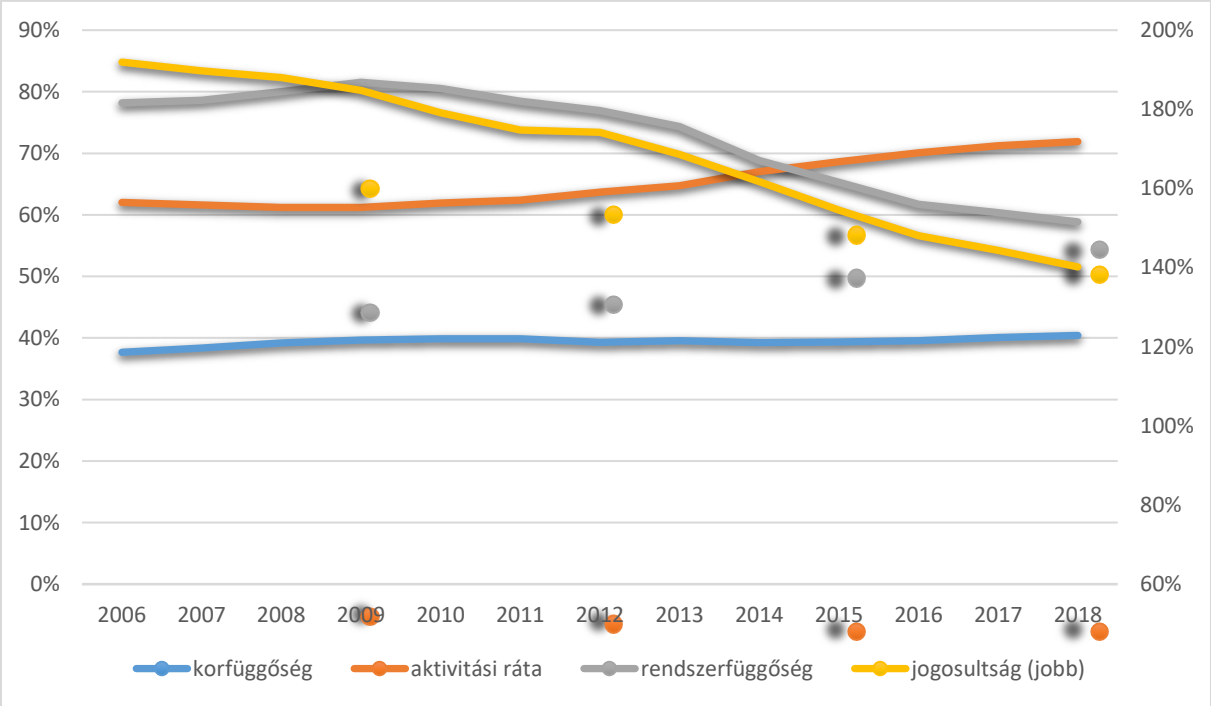
[86] The ratio between the number of persons aged 65 and over and the number of active persons aged 15–64.

[87] The system dependency ratio shows the ratio of the number of pensioners to the number of contributors; and is divided into three additional components: age dependency, coverage and activity. The age dependency ratio expresses the relationship between the population of retirement age and of working age and is consequently determined by changes in the age structure of the population and the retirement age. Coverage shows the rate of pensioners within the population of retirement age. Activity reflects the rate of working age people who actually work.

[88] For the purposes of the activity rate, the highest age of the active population is the age just below the official retirement age.

[89] Since 2013, there have only been minor adjustments in the Hungarian pension system, in some cases, previously approved reforms were implemented. As a result, mostly the impacts of former actions may be monitored in 2017 and 2018 as well.

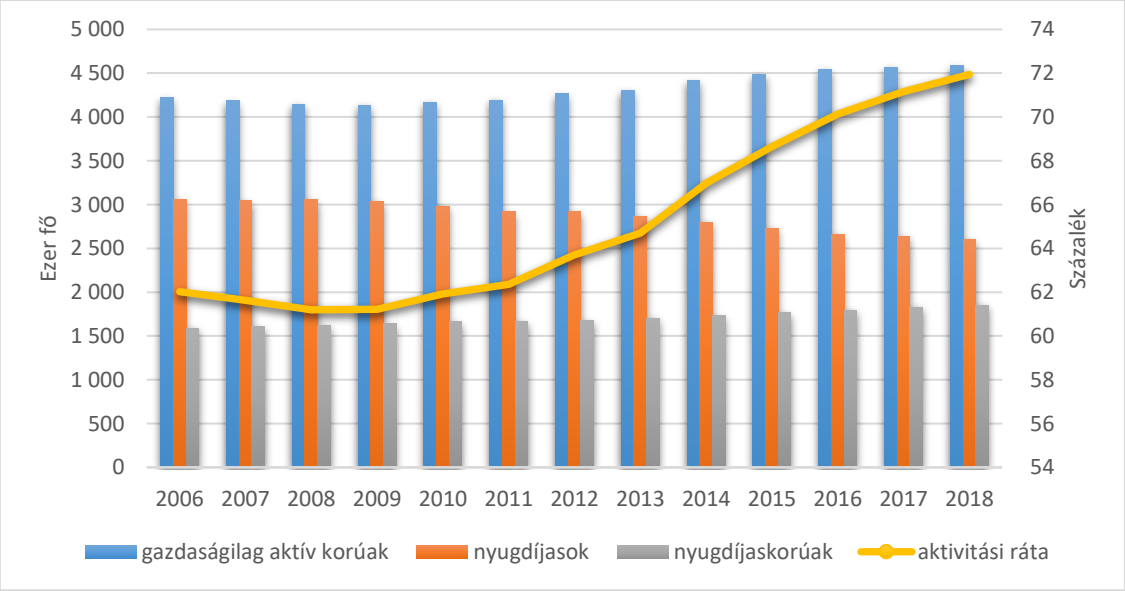
Figure 76: Changes in the system dependency ratio and its components between 2006 and 2018



Source: KSH Social Statistical Yearbook 2017, KSH-STADAT

Meanwhile, the activity rate has been steadily rising since 2010; the rate of the active population relative to the working age population went up from 70.1% in 2016 to 71.9% in 2018.

Figure 77: Changes in indicators related to generational balance between 2006 and 2018



Source: KSH-STADAT (1) (2) (3) (4)

Spending on pension as a percentage of GDP has been in general decreasing due to the systemwide reforms started in 2010. Savings generated as a result of these measures are in total in excess of 20% of the total spending on pension.

In EU comparison, the age distribution of social protection expenditure shows that the dominance of benefits provided to the elderly population relative to benefits given to the working age population has been lowering since 2012. Compared with other EU countries, the elderly population receive a lower rate of social protection benefits than the working age population.

In addition to the generational balance, the NFFS also aims to raise the activity rate of the elderly population and to stimulate the increase of wealth and income from work in an old age as well. The encouragement of activity in old age simultaneously serves multiple purposes; it benefits both the community at large and families as well:

a) building the foundation of individual well-being in older age (prevention of dependence, the maintenance of an independent life as long as possible);
b) offering real assistance to and reducing the burden on families (partly by the active involvement of grandparents in the care of grandchildren and partly by avoiding the need for support and nursing by their children, grandchildren through the maintenance of an independent life as long as possible);
c) to meet labour market needs, the older population must be engaged to a higher degree (changes in the employment rate, encouragement of working beyond retirement).

To promote the above purposes, action was taken in the period of the monitoring report, in 2017, to grant the criteria for the establishment of pensioner cooperatives.

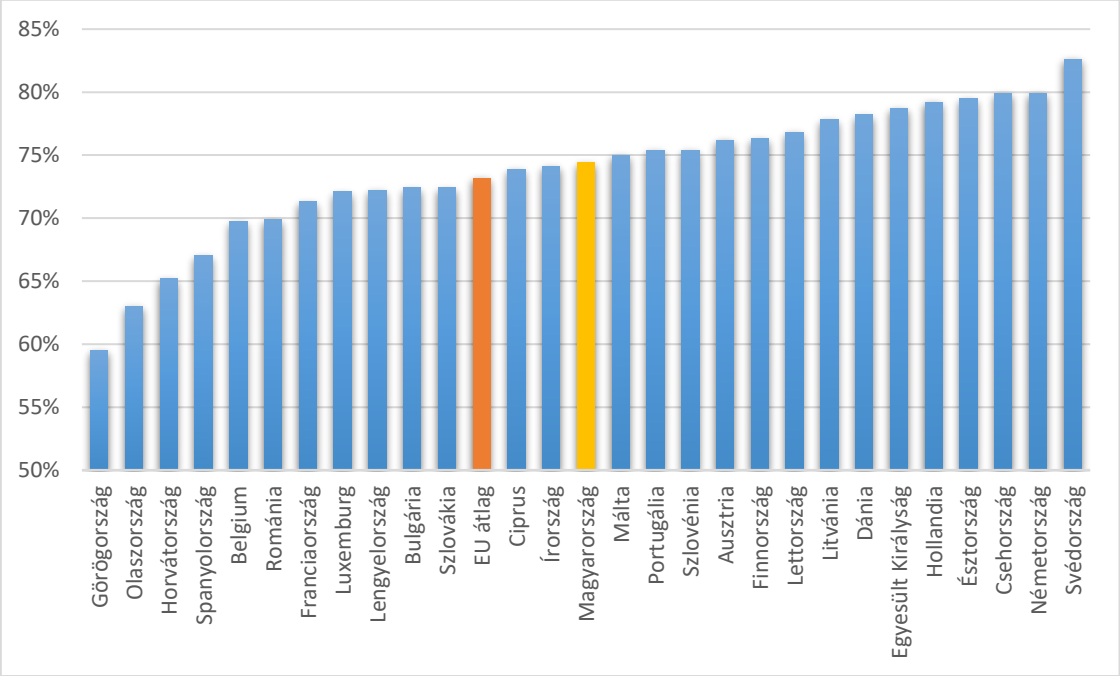
5.4.4.3 Increase of employment

The employment rate of the population aged 20–64 has been steadily rising in Hungary since 2010: it went up by 14.5 percentage points between 2010 and 2018. The rate of 74.4% from 2018, on the one hand, exceeds the EU28 average (73.2%), and on the other, it is approaching 75%, the value Hungary *committed* to under the EU2020 strategy.

A variety of factors play a role in the spectacular rise of the employment rate, including in particular, the public employment programme, which integrated a segment of the inactive population into the labour market, which had been on unemployment benefit and worked on a casual basis for years or had not had any official income reported. Since the previous monitoring report, the public employment programme has significantly shrunk: due to the reduction of the labour reserves, the decrease of the number of programme participants began in order to help these people enter the primary labour market in the shortest time possible, While, on average, 223 000 people joined the programme in 2016, the number of new participants went down by nearly 70 000 by 2018 (KSH, Labour Market Report, 2014–2018). The mean number of the participants in the public employment programme was 135 600 in 2018, which is 24.4% lower than in 2017 and 39.3% below the average number for 2016. As people who could find a job in the primary labour market and exit the public employment programme mostly include more skilled people or people living in places with better transport connections or with more job opportunities, this programme remains significant in counties (small regions) with an unfavourable labour market status (Bakó and Lakatos, 2018:30). Recent studies confirm that the public

employment programmes efficiently supported the entry of low skilled people or people living in small villages, especially women, into the labour market (Koltai et al, 2018).

Figure 78: Employment rate of the population aged 20–64 in Hungary and the EU (%)[90], 2018



Source: Eurostat [table lfsi_emp_a]

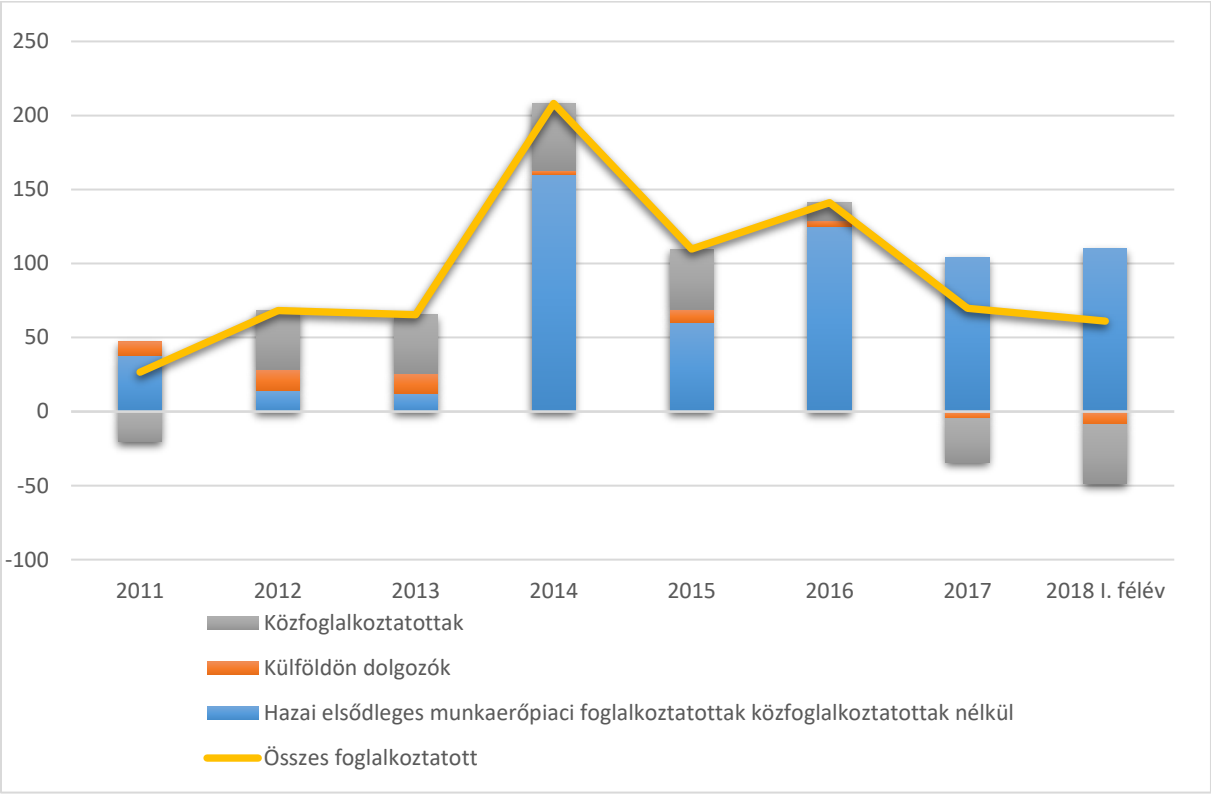
Table 6: Monitoring data of persons 180 days upon the termination of their public employment participation

End of individual support	Number of former participants of public employment programmes by their employment status, on day 180 upon the termination of their participation					Rate of former participants in employment (%)	
	On open labour market	In public employment programme	Job seeker	Unkown	Total	On open labour market	In public employment programme
2016	57,873	208,394	59,961	45,429	371,657	15.6	56.1
2017	63,814	183,612	59,367	44,850	351,643	18.1	52.2
2018 First half year	36,802	104,457	35,094	24,554	200,907	18.3	52.0

[90]The rate of persons aged 20 to 64 in employment relative to the total population of the same age group. An employed person is any individual who performed some work for wage or had a formal attachment to their job but were temporarily not at work during the reference week.

Until 2016, the outward migration of people leaving to work in a foreign country also contributed to the improvement of the employment data. The intensive phase of the international migration is appearing to come to an end in the second half of the 2010s: since 2017, the number of people working abroad has been stagnating or decreasing (KSH, Labour Market Report, 2014–2018).

Figure 79: Changes in the number of employed persons (thousand persons, year-on-year) between 2011 and 2018



Source: KSH, Labour Market Report, 2014–2018

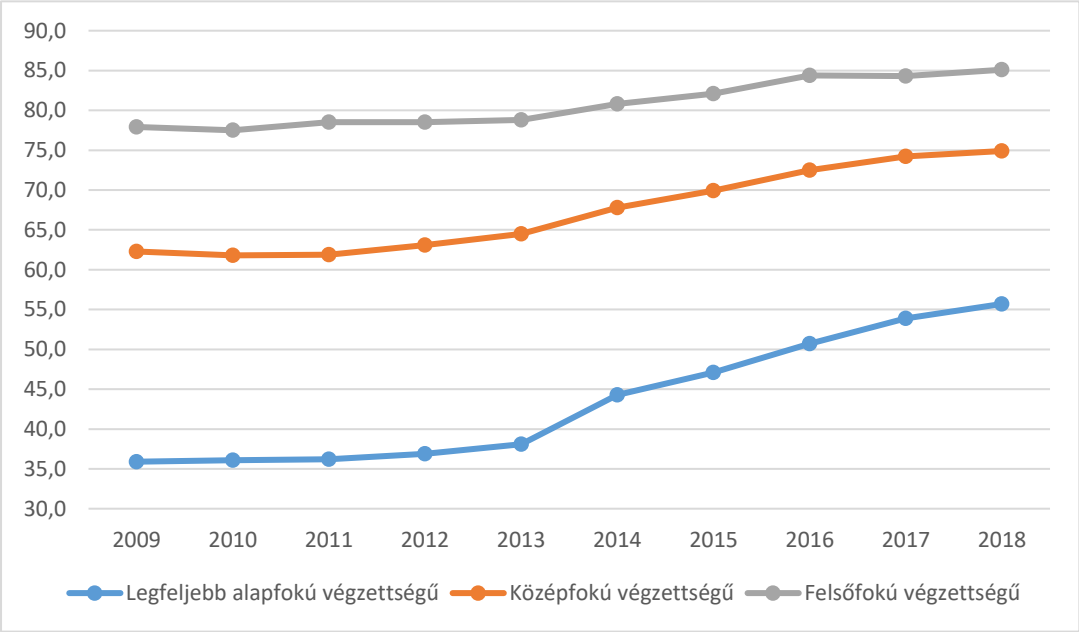
Due the increased demand for labour, the unemployment rate did not rise despite the reduction of the public employment programme. After 2017, the increase in the number of employed people exclusively took place in Hungary's primary labour market (KSH, 2019:4). This means that the economy has been growing simultaneously with the primary labour market in the past few years. Some sectors are already challenged by labour shortages. As the administrative and the service support[91] subsectors as well as the production sector have reported the largest proportions of vacancies, in contrast to the previous report, labour shortages are no longer related to only the skilled workforce (Bakó et al, 2018:2).

Employment is closely linked to the level of educational attainment: people with higher levels of

[91]This sector of the national economy includes temporary work agencies, which register received but not yet fulfilled orders as vacancies.

educational attainment find a job and learn new competences more easily helping them successfully adapt to varying labour market demands. While the employment rate of people with primary education as highest educational attainment (aged 20–64) was 55.7% (50.7% in 2016) in 2018, such rate for people with tertiary level of educational attainment was 85.1% (84.4% in 2016). As the employment rate of both of these two groups has risen since the previous monitoring report, the gap between them has further narrowed but it still remains roughly 30 percentage points. This means that the boost in the labour market in the last few years benefited all the groups of the society regardless of their educational attainment level while the opportunities of people with the lowest educational attainment level remain significantly worse (Bakó and Lakatos, 2018:27).

Figure 80: Employment rate of population aged 20–64 with primary, secondary and tertiary educational attainment level between 2009 and 2018



Source: Eurostat [table lfsi_educ_a]. Primary education includes ISCED 0–2 categories, secondary education includes ISCED 3–5 categories and tertiary education includes ISCED 5–8 categories.

https://www.ksh.hu/stadat_eves_2_1

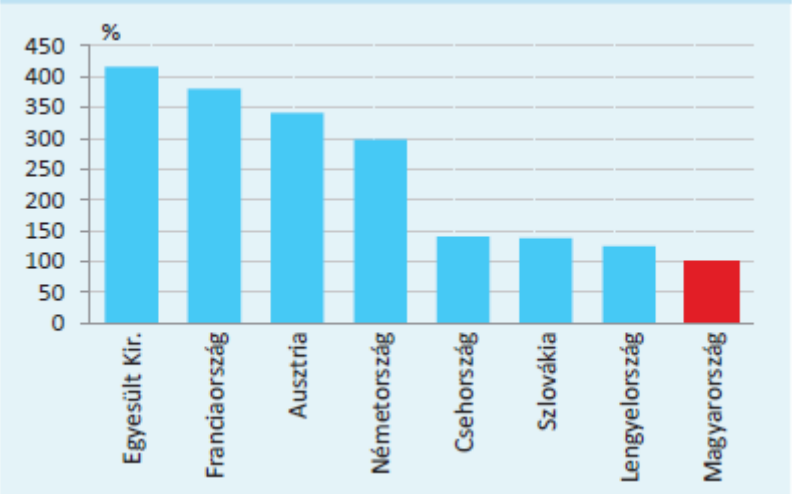
The differences related to the educational attainment level are strongly reflected in income as well: the earning advantage of people with tertiary level of educational attainment is quite high compared with people attaining secondary level of education (among the employed population aged 25–64) and the gap is the widest in Hungary across the OECD countries in Europe. While the financial return of the tertiary education is particularly high for men, women in Hungary only achieve roughly 50% of the average return obtained by men (H-SOFT, 2019).

The increase in employment opportunities taking place in Hungary in recent years has been accompanied by a substantial rise in wages. Competitive wages are a sustainability objective, especially related to the reduction of outward migration. There has been a significant progress made in this area since the previous monitoring report: the dynamic rise in the average wage may decrease outward migration and stimulate the return of Hungarians to Hungary.

While the gross average wage of full-time employees was HUF 263 171 in 2016, the average wage registered in 2018 was nearly HUF 67 000 higher, HUF 329 943 (among businesses employing five or more people, all the government institutions and non-profit organisations significant in terms of employment).[92] In addition to the gross average wage, the minimum wage also steadily rose in the period under review: the monthly wage went up by HUF 27 000 to 138 000 between 2016 and 2018.[93] In addition to government measures (minimum wage increase and pay rises in many areas within the public sector), wage growth was also significantly driven by a sharper competition for workers (KSH, Labour Market Report, 2014–2018).

Wages are affected by sizeable regional disparities. Wages paid in Budapest are outstandingly high and have a very positive impact on the national average wages. In 2018, employees of Budapest-based companies earned nearly 1.3 times the national average wage while people working in the worst performing county, Szabolcs-Szatmár-Bereg county, earned only seven-tenths of the national average wage. (The gap between the average wage in Budapest and Szabolcs-Szatmár-Bereg county is in excess of HUF 120 000.)[94] The regional disparities strongly contribute to labour migration, inside and outside Hungary as well. Within Hungary, Budapest has the highest vacuum effect; while the net wages (despite the rises) remain significantly below the wages in countries paid in Western Europe and also are relatively low among the Visegrad countries. In neighbouring Austria, for example, net wages were on average 3.5 times higher in 2017 than in Hungary[95] (MNB Growth Report, 2018).[96]

Figure 81: Net average wages compared to Hungary, 2017



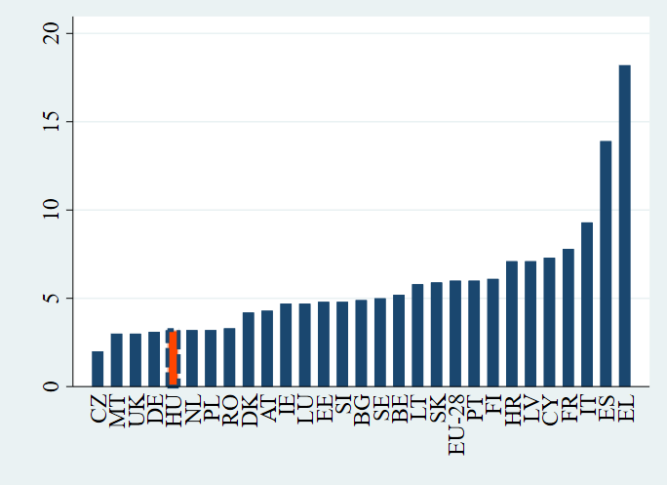
Source: MNB Growth Report, 2018

[92] KSH-STADAT
[93] KSH-STADAT

[94] KSH: Fókuszban a megyék. (Download date: 17/08/2019)
[95]Competitive wages and outward migration are discussed in more detail in the chapter on Human resources.

These positive labour market processes led not only to higher employment rate but to the reduction of the unemployed rate as well. The unemployment rate of the adult population aged 25–74 went down to 3.2% in 2018 from 4.5% in 2016; falling by nearly to the third of the value in 2013. This is far below the registered average rate of the EU28 (6%). In 2018, the unemployment rate was low for men and women alike, with no significant difference between the two sexes. While there has been no significant difference between the two sexes since 2004, the identical level of rates is also explained by the fact that both the unemployment and the employment rate of women is lower (Fazekas and Köllő [ed.], 2018: 55).

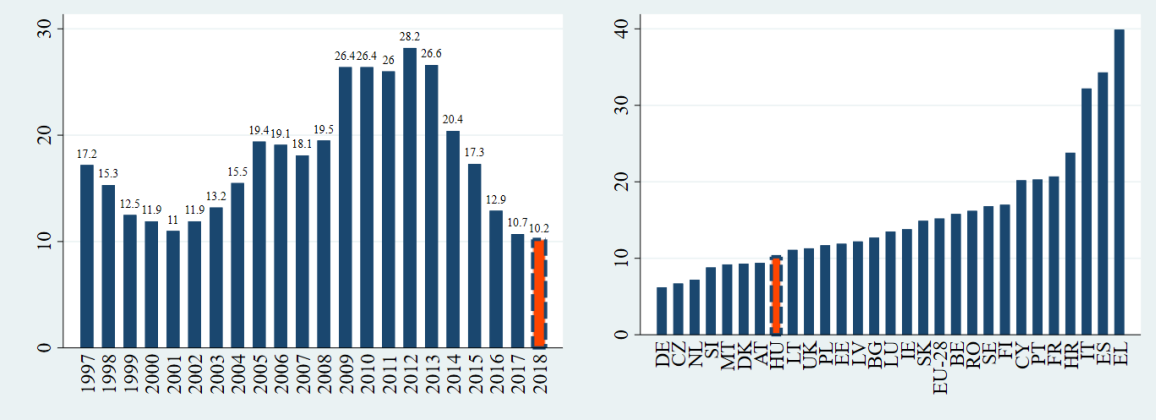
Figure 82: Unemployment rate of the population aged 25–74 in the EU28, 2018



Source: Eurostat [table tsdec460]. The unemployment rate is calculated by expressing the number of unemployed persons as a percentage of the total number of persons in the labour force, i.e. economically active (employed and unemployed) population. An unemployed person is a respondent aged 15–74 in a labour survey who did not work in the reference week and does not have a job from which he/she were temporarily absent; is actively seeking work; is available for paid employment or already has a job where he/she starts work within 30 days (ILO definition). The graph above shows the rate for the *population aged 25–74*.

The analysis of the employment and unemployment rate of the young population aged 15–24 is extremely important for sustainability as unemployment at a young age significantly lowers the probability of stable employment and impairs earning prospects (Szepesi and Luksander, 2012). In 2018, the employment rate of this age group was 29.0%, which is a growth of 0.9 percentage point compared with the value in 2016 (28.1%). In the meantime, the unemployment rate is currently 10.2%, which is 2.7 percentage points lower than the value in 2016 known in the previous monitoring report (12.9%) and is much better than the EU28 average (15.2%), however it is more than three times higher than the unemployment rate of the Hungarian adult population. This means that the employment of first-time employees shows a positive trend while their unemployment remains a significant issue.

Figures 83 and 84: Unemployment rate of the population aged 15–24 in Hungary and the EU28, 2018



Source: Eurostat [table tsdec460]. The unemployment rate is calculated by expressing the number of unemployed persons as a percentage of the total number of persons in the labour force, i.e. economically active (employed and unemployed) population. An unemployed person is a respondent aged 15–74 in a labour survey who did not work in the reference week and does not have a job from which he/she were temporarily absent; is actively seeking work; is available for paid employment or already has a job where he/she starts work within 30 days (ILO definition). The graph above shows the rate for the *population aged 15–24*.

5.4.4.4 Development of business capital, reduction of burdens on businesses

Business capital in Hungary may be promoted by stronger business culture and improved business and administration conditions. Since the previous monitoring report, the government has made sizeable progress in the stability of public finances. The robust reduction of the deficit-to-GDP ratio offered the opportunity for tax cuts, which was used by the government: in 2017, Hungary completed the highest rate of tax cuts in the EU, reducing its ratio of tax revenues relative to GDP to 38.4% from 39.3% in the previous year. In 2018, the tax cuts continued and the ratio of tax revenues relative to GDP went down to 37.6%. The corporate tax and social contribution tax payable by employers were decreased effectively compensating for the rise in expenses for businesses due to the pay rises effected. The banking tax has been reduced significantly and there has been progress made toward the simplification of the taxation system through digitalisation. In the meantime, the tax system remains excessively complex, which places serious administrative burdens on businesses (European Commission 2019 Country Report; H-SOFT, 2019).

Micro and small and medium-sized enterprises continue to dominate the structure of the Hungarian economy. While nearly 65% of all workers in Hungary are employed by micro, small and medium-sized enterprises, these businesses generate less than 50% of the total economic output of Hungary. Based on a 2018 report from DUIHK (German-Hungarian Chamber of Industry and Commerce), the business environment small and medium-sized enterprises work in is less favourable while the investment projects of large companies benefit from significant government funds. As a result of their size, smaller businesses have very limited access to strategic government contracts. In the meantime, the improving

market position of SMEs is indicated by the significant rise in the value of public procurement contracts awarded to SMEs in 2017 and 2018, accounting for 58% of all the contracts, a ratio which is outstanding not only at national but also at European level.

Another potential reason for the low productivity of the SMEs is the insufficient availability of physical assets. It is a positive tendency that the financing conditions for small and medium-sized enterprises improved in 2017, which is dominantly the result of the sharper competition of banks and the improvement of the economic prospects and liquidity (KSH, Description of Small and Medium-sized Enterprises, 2017). As a result of the above processes, the stock of loans borrowed by companies is growing dynamically, at a rate higher than their repayment, however it still fails to ensure sufficient capitalisation.

Based on the 2019 Country Report of the European Commission, insolvency procedures remain inefficient in Hungary. Evidence for their shortcomings arises in a still-high rate of non-performing loans, the assessment of the World Bank Doing Business survey and an elevated fear of failure by potential entrepreneurs (European Commission, 2018b). According to an article by Pálinkó and Tóth (2017), the insolvency procedure does not create sufficient incentives to reorganise viable businesses while the cost of resolving insolvency is high.

Based on the European Commission's 2019 Country Report on Hungary, the culture of entrepreneurship remains weak, reducing the pool of enterprises with high growth potential. Both the Global Entrepreneurship Monitor and the 2018 Global Competitiveness Report of the World Economic Forum show that the level of entrepreneurial activity is low in Hungary and the skills to start a business and the attitudes towards entrepreneurial risks are weak within the Hungarian people. (Falk et al, 2018)

The entrepreneurial ambitions of young people are important for the sustainability of the entrepreneurial sector in Hungary. A survey from 2017 by Bridge Budapest finds that the number of young people aged 20–35 who attempted to perform some kind of business or commercial activity last year, rose, particularly among men.[97] There were a number of programs and applications launched in the 2014–2020 EU planning cycle to support young people to start their own businesses, which included financial and professional support offered to first-time – dominantly young – entrepreneurs.

A measure offering comprehensive international comparison on the business environment of economies is the yearly Doing Business[98] ranking. While in 2016 Hungary was ranked 41 on the list of 190 countries, we were only ranked 53 in 2018.[99] This means we are outperformed by all the Visegrad countries and other regional peers, in a narrow sense, only surpassing Croatia among neighbouring countries. Despite our worse rank, Hungary's competitiveness score rose from 71.94 in 2017 to 72.28 in 2018. The analysis of the World Bank finds that the improvement is the result of the reduction of the social contribution tax and the corporate tax in 2017 as well as the acceleration of the construction

[97] http://hu.bridgebudapest.org/bridge-budapest-kutatas-2017 (Download date: 15/08/2019)

[98]The World Bank's Ease of Doing Business survey jointly analyses administrative burdens on businesses by aggregating ten different components (sub-rankings) of business operations. The survey gathers specific, quantitative data to evaluate the quality and the level of business regulations. In its Doing Business survey in 2016, the World Bank ranked 190 countries and regions.

[99]It is important to note that the newly published ranking is not comparable with previous rankings as the World Bank completed multiple follow-up data revisions. adEKR

procedures while progress needs to be made in several areas including the acceleration of procedures related to investments and the reduction of the administrative burdens of businesses (H-SOFT, 2019).

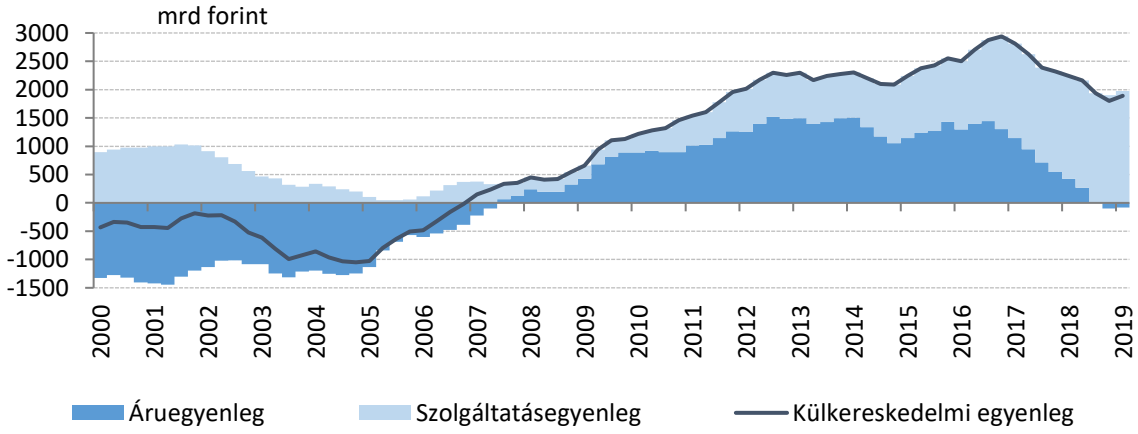
In addition to the Doing Business ranking, other competitiveness rankings issued by other international organisations and institutions are also available to assess the quality of a business environment. While Hungary was in place 69 in 2016 on the ranking of the World Economic Forum (WEF), it made a lot of progress and ranked 48 in 2018.[100] We are the last among the Visegrad countries on the WEF ranking as well (WEF, 2018).

In order to improve Hungary's competitiveness, the government decided to set up the National Competitiveness Council (NVT) in 2016, which started working in 2017. The NVT discussed, amongst others, the competitiveness programme[101] published in 2019 but the organisation, which includes the renowned representatives of the business sector, economic organisations and the science community, reviews every major intervention package (e.g. in the field of education and health) and also issues independent recommendations.

5.4.4.5 Localisation, local economic relations and international cooperation

The steady reduction of the trade surplus since 2017 is partly due to the reduced import demand of the world economy and the European Union as well as the high import demand to meet the rising domestic demand (consumption and investment). The rise in domestic demand is explained by the massive surplus of the external financing capacity, i.e. the balance of the investments of domestic economic players and the borrowing. Despite the positive trend, the trade surplus remains and is predicted to remain high in the near future. Partly this surplus and the robust growth of GDP will likely eliminate Hungary's foreign debt by 2020 and the country may again become a net foreign creditor after 50 years. (Ministry of Finance, 2018; H-SOFT, 2019)

Figure 85: Changes in foreign trade balance (based on 12-month rolling data, million EUR) between 2007 and 2018



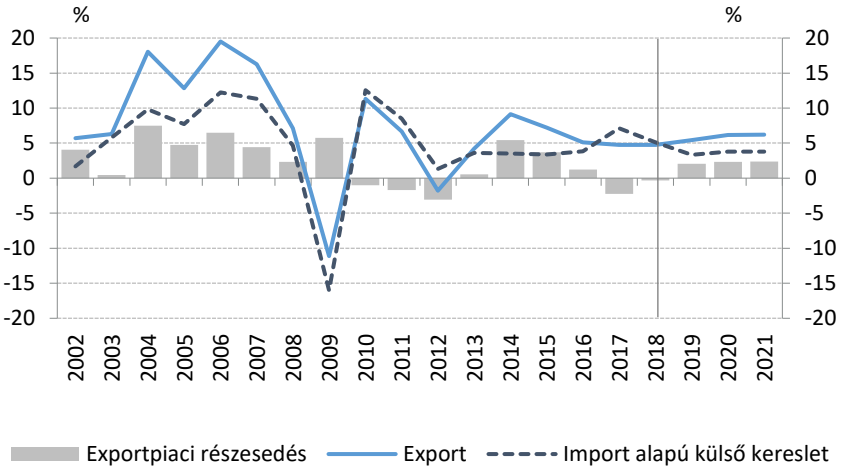
[100]However, it is important to note that there were changes in the methodology used by the WEF as well, which means that previous rankings are not fully comparable with the 2018 ranking. If we ignore the methodology adjustments, Hungary's ranking would have remained the same as in 2017 (a slight improvement from 2016).

[101] https://www.mnb.hu/letoltes/versenykepessegi-program.pdf (Download date: 27/07/2019)

Source: MNB Inflation Report, 2019

Since the previous monitoring report, export growth has continued at a slower rate. Within exports, the export of services has been able to dynamically grow in the past few years; due to the capacity increase resulting from the investments mostly in the field of the automotive, the chemical and the transport industries, Hungary's export market share[102] continues to rise. The dynamic growth of exports requires higher quantities of imported energy sources, raw materials and semi-finished products. The widespread adoption of the circular economy could enable production and export to grow while causing less environmental damage.[103]

Figure 86: Changes exports, imports and the export market share between 2002 and 2018



Source: MNB Inflation Report, 2019.

As reflected by the above graph, the export market share of the Hungarian economy is expected to start rising from 2019. The forecast for a slower growth of the imports is based on the predicted decrease of investments and the dynamics of consumption.

Fixed capital significantly contributes to Hungary's GDP and can be further increased through investments. This trend could also influence the import as its value may be lowered by the reduction in investments financed from external funds. The latest data on gross fixed capital are from 2016. The value of gross fixed capital formation rose from HUF 6.96 billion in 2016 to HUF 10.72 billion in 2018. [104] One reason for this rise is that public investments grew significantly since the previous monitoring report; the European Commission's 2019 Country Report on Hungary forecasts that they are going to exceed 6% of GDP in 2019–2020. Thanks to the economic upswing, investments rose in every production sector. Investments are boosted by households making up for their postponed, dominantly housing, investments, which is also supported by higher wages, as well as, on the government side, by the accelerated use of EU funds and the rise in public investment from own sources. The drivers of the

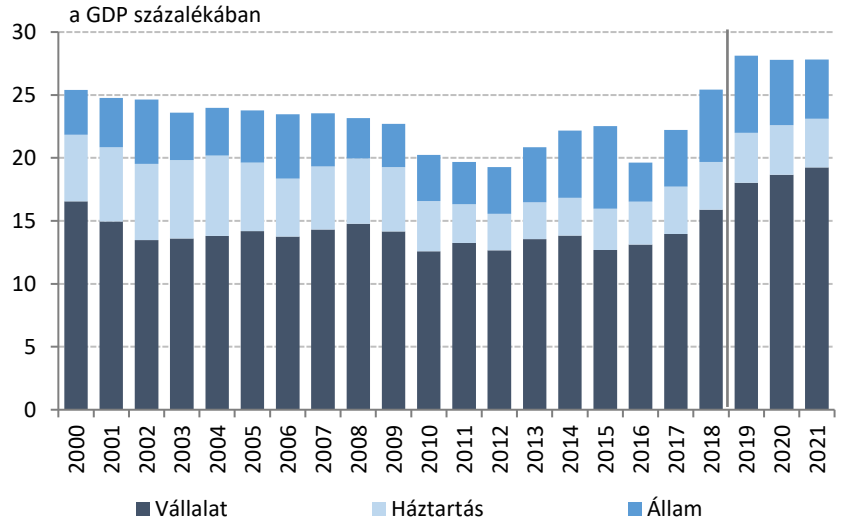
[102]Hungary's export market share is expressed as the ratio of the value of the Hungarian exports and the value of the goods and services of our import markets.
[103]Circular economy is discussed in more detail in the chapter on natural resources.
[104] Eurostato (nama_10_gdp)

rise in corporate investments include the reduction of the corporate tax rate, the massive grants given by the National Investment Agency, competitive wages and good infrastructural conditions.

It is favourable for sustainable development that investment growth is balanced: the MNB's Inflation Report from March 2019 forecasts the investment rate to stabilise at its current high rate of over 25%. It is important to add that the growth of the investment rate in Hungary exceeds both the average of the EU countries and all three Visegrad countries. This is a good base for the future acceleration of our convergence rate.

Particularly so as the massive use of EU funds is predicted to lower after 2019, likely to be followed by the reduction in public investments while the further growth in household and corporate investments is expected to set off the decrease.

Figure 87: Investment rate by sector between 2000 and 2018



Source: MNB Inflation Report, 2019

5.4.4.6 Increase of innovation spending

There has been a slight increase in research and development (R&D) spending as a percentage of GDP since the previous monitoring report: the intensity of R&D spending rose by 0.14 percentage points to 1.35% of GDP from 2016 to 2017, partly due to the accelerated advance payment of EU funds. Hungary's R&D investments are below the target of 1.8% defined in the Europe 2020 strategy; their volume is predominantly determined by the available EU funds.

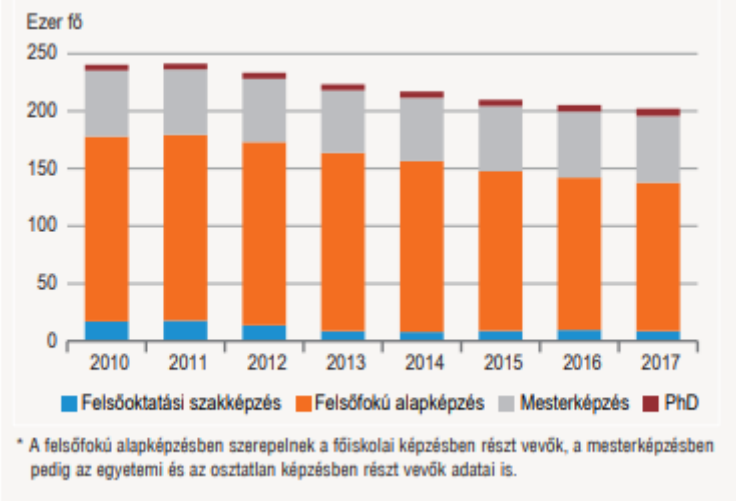
While research and development activities for business purposes, totalling 0.70% of the GDP (0.67% in 2016), continue to be pursued by a few large companies mostly with foreign owners in a concentrated manner, they received a high amount of government funding. To promote research and development, the government has recently effected several changes in the tax system and adopted measures to grant direct support to R&D activities. Public funding of private research and development is among the highest in the EU. The research and development spending of the public sector also rose moderately: it went up to 0.42% by 2017 (0.31% in 2016), however it remains below the EU average of 0.7%.

Due partly to the lack of funds, the quality of publicly financed science is declining. The shortage of financial resources is detrimental to the career opportunities of researchers in the public sector. Meanwhile, the reduction in the number of researchers and research centres that began in 2010 discontinued: both values improved in the period of the monitoring report, in 2017 and 2018. This includes an increase in the number of researchers working in the public sector (higher education) (H-SOFT, 2019).

One of the objectives set by the National Research, Development and Innovation Strategy for the 2013-2020 period is the establishment of internationally competitive research bases and workshops. To this end, a total of 19 Hungarian universities set up 16 thematic research consortia, using EU funding. These university research units are designed to promote their integration into international research networks.

Low R&D spending may not only hinder Hungary's economic convergence but can also stimulate the migration of highly qualified workers to foreign countries. The Framework Strategy reminds that there appears to be a very strong link between the number of highly qualified young people and the number of research employees. The number of students in tertiary education has lowered since the previous monitoring report: in the 2017/2018 school year, there were 202 300 full-time students in higher education institutions, which is nearly 3300 people fewer, 1.6%, than in the previous school year. The falling number poses a challenge for the improvement of Hungary's human resources. In the meantime, it is a positive development in terms of the shortage of highly qualified labour that the number of PhD students rose: in the 2017/2018 school year, there were 6300 PhD students, 10.9% more than in the previous school year (KSH, Education Data, 2017/2018).

Figure 88: Changes in the number of full-time students in tertiary education between 2010 and 2017



Source: KSH Education Data 2017/2018. Statistical Mirror.

5.4.5 Government measures

There were no relevant strategic government documents adopted in the field of economic resources in the period under review. While the National Research, Development and Innovation Strategy (2013–2020) was adopted during the period of the previous monitoring report, it revision began in 2017. This document strongly aims at supporting innovative SMEs but the country report of the European

Commission for 2017 indicates that these R&D measures have not stimulated any progress (European Commission, 2017b). The revision of the strategy focused on the following priority areas[105]:

- provision of stable financing in parallel with the reduction/transformation of EU funds;
- proper training, constant supply of human resources;
- improvement of the international channelling of research units and the development of regional cooperation;
- stimulation of knowledge transfer, connecting business demand and research units, universities;
- improvement of patent activity;
- better utilisation of domestic strengths.

Other important government measures in the area of economic resources are discussed below. The *Industry 4.0 National Technology Platform* was created in 2016 to identify the directions of the activities of research institutes and industrial research and development, based on the needs of businesses and organisations, in order to meet the innovation needs of the economy. The objectives of the Platform include the following:

- dissemination of the strategic importance of the Industry 4.0 paradigm, predominantly among SMEs, which, as the suppliers of leading international corporations, play a key role in the improvement of Hungary's competitiveness;
- dissemination of digitalisation technologies;
- improvement of the related competences and skills;
- support of expert activities;
- establishment of test lab networks;
- promotion of the adoption of the best practices from Europe, predominantly the most advanced practices from Germany;
- development of an assessment to measure the 4.0 maturity of manufacturing companies, approved in the public application system, based on an independent methodology;
- promotion of the upgrade of the complete Hungarian vocational education and training.

In 2018, 13 institutions participated in the *Higher Education Institutional Excellence Programme* ("Programme") receiving funds worth HUF 15 billion in total. The legal basis for the Programme is Government resolution 1381/2017. (VI. 16.), which defines the following objectives:

- improvement of the research conditions in higher education institutions in order to increase Hungary's research capacities;
- improvement of the research, development and innovation focus in higher education institutions;
- improvement of the conditions of the future supply, succession of academics and researchers;
- promotion of scientific productivity;
- promotion of research, technology development and innovation among higher education institutions.

[105]Investment in knowledge, investment in the future. Hungary's revised research, development and innovation strategy. 2018. Https://nkfih.gov.hu/hivatalrol/hivatal-hirei/velemenyezheto (Download date: 11/08/2019)

The fundamental goal of the *New National Excellence Programme* ("Programme", ÚNKP), launched in 2016, is to empower the next generations of scientists, to attract more people to choose a career in science, to encourage excellent teachers, researchers to pursue their career and remain in Hungary and to promote the scientific performance of universities. The Programme supports the research activity of internationally recognised, experienced researchers and innovators and their adjustment to research units in Hungary, predominantly in higher education institutions. The Programme offers grants to excellent students, teachers and researchers of Hungarian higher education institutions on a monthly basis while the institutions receive extra research and operational funds, equal to 40% of the grants. The Programme is designed to encourage higher education institutions to improve their excellence indicators in the following dimensions: promotion of research activities; increase of the number of PhD students and degrees. The Programme focuses on all the areas of science and art to promote scientific research and innovation. In the 2018/2019 school year, students, doctoral candidates and young teachers/researchers received a net monthly amount of HUF 50 000 to 300 000 (depending on the target group).

5.4.6 Summary conclusions

Positive trends	Risks
The public-debt-to-GDP ratio continued to decrease, albeit at a slower rate. The MNB forecasts further reduction: it may go below 65% by the end of 2022. **Economic growth is above the EU average.** **The rate of gross fixed capital formation has significantly grown, explained by the scheduling of the EU funds and the increase in public investments.** **The financing capacity of households has risen, explained predominantly by the increase in financial savings due to the wage growth.** **The external financing demand of the private sector also rose, primarily due to the borrowing needs related to the growing investments.** **Employment is experiencing dynamic growth: the employment rate (74.4%) exceeded the EU28 average and came close to achieve the target of 75% set for 2020.** **Since 2017, the increase in the number of employed people has exclusively taken place in Hungary's primary labour market.**	The government deficit relative to GDP has slightly risen. Economic growth shows massive regional variations. Budapest plays a disproportionately leading role in the economy while the regional economic centres are weak. As a consequence of low productivity, the rate of potential growth determining the long term growth opportunities of Hungary's economy is low, it is a question whether the current high rate of economic growth can be maintained in the long term. The old age dependency ratio has further risen putting more pressure on the working-age population. Forecasts predict further growth for the next period as well. Average wages continue to show robust territorial disparities within the country. Budapest is highly attractive for labour, a dominant rate of the skilled workforce is employed in the capital city. Hungarian wages are far below the level of the neighbouring countries. The outward migration of Hungary's workforce remains significant leading to shortages of skilled

The average wage and the minimum wage has dynamically risen, which can reduce outward migration and stimulate backward migration. **The market position of SMEs has improved: the administrative burdens on businesses have decreased and the value of public procurement contracts awarded to SMEs has significantly grown. The conditions of borrowing have improved for small and micro enterprises, which triggered a positive tendency in the stock of loans of the corporate sector.** **The integration of participants of public employment programmes in the primary labour market is improving.**	workers and stronger pressure on the health care and social care system. While the employment of first-time employees shows a positive trend, their unemployment remains a significant issue. There have been no notable changes in R&D spending; there has been a slight increase in government R&D spending but predominantly due to EU funds. Large companies remain the drivers of research, development and innovation. While the stock of loans borrowed by companies is growing dynamically, at a rate higher than their repayment, it still fails to ensure sufficient capitalisation. The regulatory system and the taxation policy remain excessively complicated and SMEs continue to face significant burdens.

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