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**Down to Earth**

# **Regional report year 1 – Gorenjska**

Environmental risks related with depopulation and ageing population  
in rural areas

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# Executive Summary

The report is presenting the results of the situation in Gorenjska region tackled by “Down to Earth” project: topic “environmental risks and the challenges posed by depopulation and ageing population”.

The first chapter of the report is dedicated to main overview of the data of Gorenjska (geography, main data: population, economy, etc.), showing the vibrant economy (e.g. automotive, ICT, followed by other industries and services) with aging but slowly growing population. Although countryside in the region with over 50 % of Natura 2000 areas and over 70 % of forests prevails, agriculture is important guarantee of the preservation of land and maintaining of biodiversity based on traditional agriculture (production of meat, milk, fruits, wheat etc.) as usual in Alpine areas.

In the next chapter the main challenges of Gorenjska have been addressed. While depopulation is not significant for the region as a whole, there are some local communities where depopulation is a threat (especially there is an important issue of young with finished education and/or faculty degree that after finishing the study usually stay in bigger cities). Such settlements are facing the pressing issue of maintaining public services (shops, bank, post, health care, care for elderly, public transport), Brain drain accompanied with aging population, bring the scarcity of skilled workers, limitations in the growth of companies and other issues connected to vitality of regional economy. is a threat to the region. Additionally, ageing is bringing severe questions of needed changes in public services, infrastructure and necessity of changed offer of public services, accompanied with strong support of volunteers and NGO-s.

There are several challenges the region has to address to better mitigate the environmental risks and assure quality of life of inhabitants in time of climate change:

- Increase of temperature
- Protection of biodiversity
- Heat waves

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- Heavy rain, floods, land slides
- Protection of forests

Last numerous events in recent years (heavy rain, storms, floods, landslides, drought, wildfires,) showed the severity of the climate change due to rise of temperature accompanied by growth of CO2 emissions. Unexpected storms with wind blowing 100 to 200 km/hour affected mainly the forests and its biodiversity followed by pests and other diseases (over 60 % of forests were consequently hit by pests and other diseases followed the storms), The floods and land slides affected severely especially last and this year the most of the county (including settlements, cities) causing big damage (estimation around 10 billion EUR and have big impact also on agriculture production (low yield of crops, low income of farmers). Due to heat waves, drought biodiversity was affected in a negative way, while also the consequences of heat waves for human health were observed (more cases of heat fever, people with chronic diseases were severely hit, also some cases of children died in heated cars were recorded, etc.)

Next topic in analysis focused on SWOT (weaknesses, strengths, opportunities, threats) are environmental risks connected to depopulation and ageing. In region Gorenjske depopulation is concentrating on hilly, mountain areas, while other parts of region are attracting population. The question of the elderly, aging population is an overall critical question of the region, affecting both countryside areas and cities as well. Therefore we addressed broadly the topics that affect the regions from side of environment, depopulation and aging.

The topics are as follows: biodiversity and Natura 2000 areas, rainfalls, flooding, heat waves, water for humans and agriculture, forestry, agriculture, land use (with less pressure on spreading of settlements, putting farming land into centre of attention (with no possibility to build on farm land), sustainable mobility, better usage of renewables, mitigating the shortage of skilled workers and elderly population, ..

The next chapter of the report include description of legal and regulatory framework. Since in Slovenia we do not have second level of administration (regional level), most of legislation is on national level, accompanied by decrees and strategies/action plans

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prepared on local level (local communities). National development strategy valid till 2030, is followed by regional level: regional development plan (RDP. RDA based on National law for regional development support and assure discussions and decision for regionally important matters on regional council of mayors , regional development council. Beside RDP also other regionally important document are prepared on regional level. The most important legislation is: National strategy for climate change, National development strategy for Republic Slovenia, National spatial plan, the regional development program of Gorenjska region, regional SECAP (region Gorenjska as region in covenant of mayors), local communities spatial plans, local communities energy plans including certain aspects of climate change, local communities mobility plans, climate resilient cities pact (City Kranj member of 100 climate resilient cities), Management plan of the Triglav national park etc.,

Next chapter is focusing on good practices of addressing the environmental risks connected to depopulation and ageing population. There are some good practices: in reduction of CO2 sustainable mobility efforts in local community Bohinj spreading in other local communities in Triglav national park (Julian Alps), fight against invasive plants (alliance of local communities including public communal services, NGO-s, inhabitants) working together to report the invasive plants spots connected to active prevention (actions to destroy plants in a safe way), voluntary services for elderly (free transport by volunteers, special volunteer support elderly for elderly, etc. inter generation centres also in countryside where young join forces with elderly generation, Triglav national park management plan, regional SECAP, etc. 100 climate resilient cities mission, EADER LAG funds etc..

The next chapter is about the possible proposals for upgrading the strategic approaches to mitigate environmental risks better and to prepare the region for foreseen bigger brain drain especially in countryside and even quicker ageing of population. The region should prepare regional and local policy documents that will address the topics of environmental risks that are coming with climate change, which will be followed by operational working plans and actions. The following topics needs to be addressed: climate mitigation,

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protection of nature, biodiversity, sustainable forest management, agriculture, heat waves mitigation, flood protection, etc.

Beside national documents there is a need to work on realistic regional and local documents that contribute to concrete implementation of climate mitigation actions.

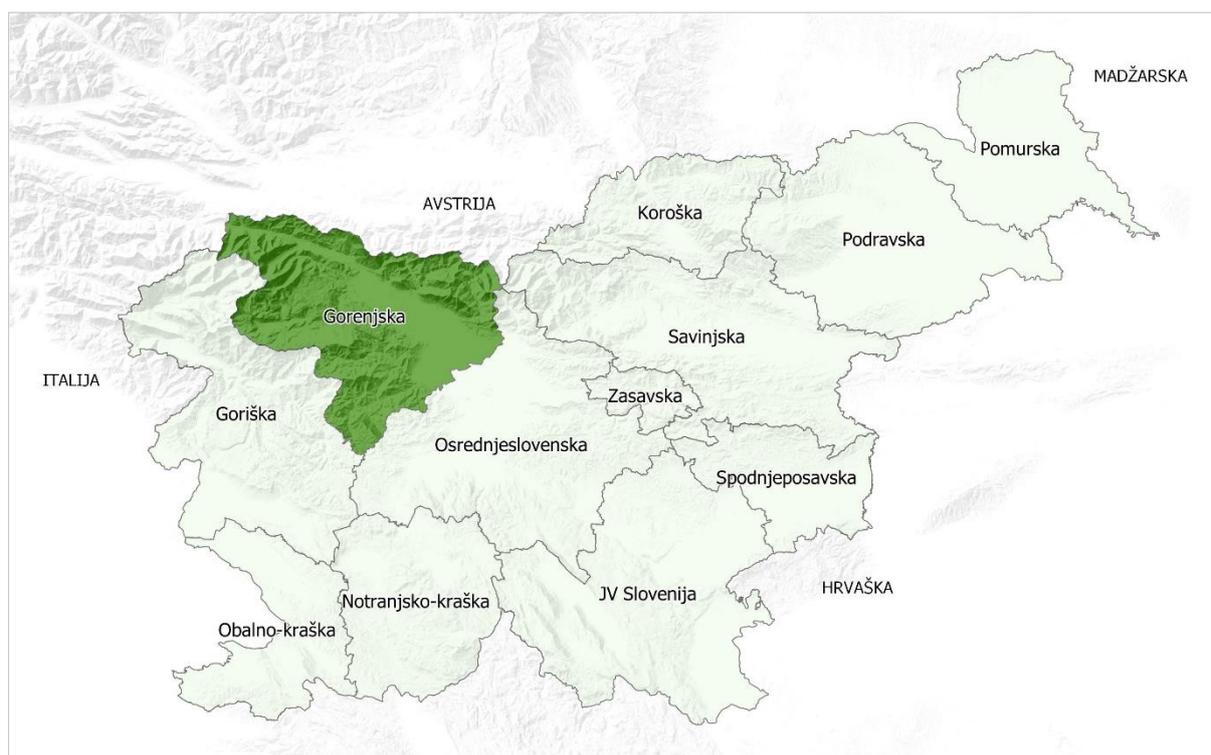
The report highlights the need of usage of innovative technologies, innovative ways of natural protection (e.g. traditional trees species, traditional crops adjusted to climate change), change in farming and forestry, change in production and services (where CO<sub>2</sub> is produced), change of sustainable mobility patterns, change in construction and usage of renewables, etc. Above all green sustainable development need to be put in focus even in more determined way as it is now. Based on local values, identity, knowledge and sustainable green usage of natural resources and innovative technology that is available, thus creating added value and sustainable green working places with high added value.

# 1 Introduction

## 1.1 Geographic Features

The region Gorenjska lies on NW of the state, bordering Austria and Italy and it is one of 12 development regions in the state. It consists of 18 local communities and has 200.000 inhabitants. The region is crossed by highway from Austria towards Mediterranean countries (Italy, Croatia, etc.). Most of the employment opportunities lies in the valleys, where industry, services are settled (mostly in smaller cities with strong industrial, service tradition (cities Jesenice, Kranj, Radovljica, Trzic, Škofja Loka). The centre of the region is in City community Kranj with 50.000 inhabitants.

**Figure 1 - Map of Gorenjska region: The region Gorenjska (source RDP 2021-2027)**

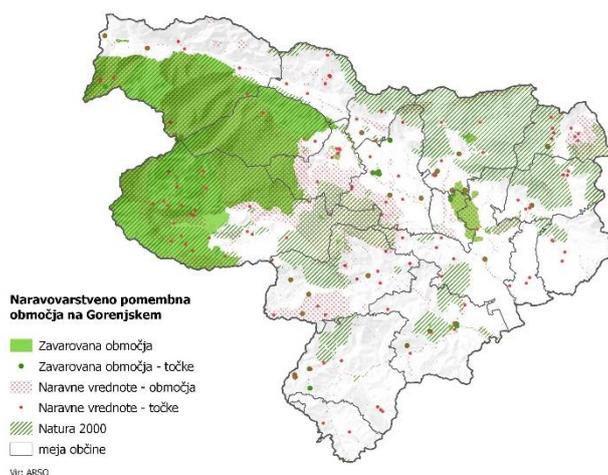


With 2,137 km<sup>2</sup> or 10.5% of the country's area, Gorenjska is the sixth largest statistical region in Slovenia and the fourth most populous with 204,670 inhabitants (SURs, 2019). It is made up of 18 local municipalities: Bled, Bohinj, Cerklje na Gorenjskem, Gorenja vas - Poljane, Gorje, Jesenice, Jezersko, Kranj, Kranjska Gora, Naklo, Predvor, Radovljica, Šenčur, Škofja Loka, Trzič, Železniki, Žiri and Žirovnica. There is one municipality among

them - the Municipality of Kranj, which is one of the larger municipalities in Slovenia in terms of population. The centre of the municipality is Kranj, which is the administrative, economic and cultural centre of the Gorenjska region and the fourth largest city in Slovenia in terms of population after the capital Ljubljana and the Styrian capital Maribor and Celje (SURS, 2019).

The region is characterised by mostly hilly, mountain areas with narrow valleys. It is predominantly rural region with small villages and settlements with low population density, while bigger density is in 5 bigger cities. Agriculture production, except in valleys, the conditions for the agriculture production is rather limited. Main agriculture production lies, due to characteristics (typical Alpine landscape) in production of meat and milk in some favourable areas fruit. Production of vegetables and wheat is rather limited. Region has over 50 % of Natura 2000, over 70 % is covered with forests.

**Figure 2 - Map of Natura 2000 areas in Gorenjska (source RDP 2021-2027)**



Region has only National Park in the state (Triglav National Park). Region is characterised by mountain ranges Julian Alps, Karavanke, Kamniško Savinjske Alpe, while in the centre of the region lies also Škofjeloško pogorje mountain range. Region has strong potentials for sustainable tourism, in some parts of the region overcrowding and over visiting is becoming important challenge, while due to overvisiting biodiversity can be endangered.

**Table 1 - Data about the region (source RDP 2021-2027)**

Area	2.137 km <sup>2</sup>
Number of Municipalities	18
Universities	None (2 faculties)
Number of inhabitants with age over 15 with higher and high education (including faculty degree)	23,19 % (2018)

## 1.2 Population

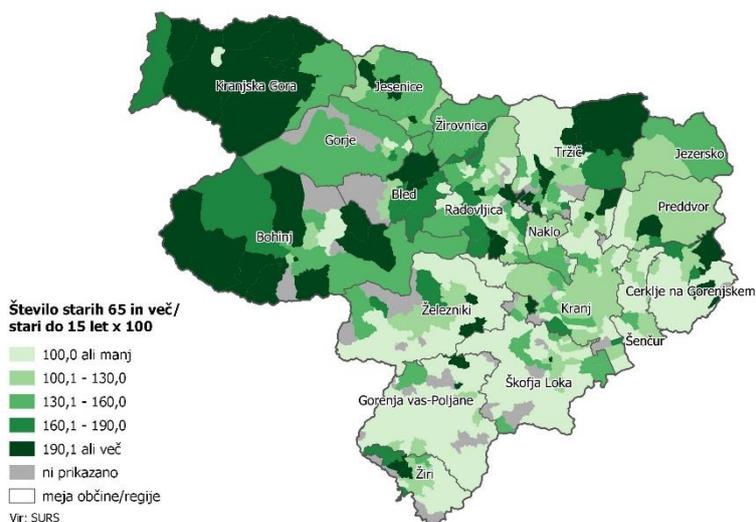
According to SURS (national statistic office) region Gorenjska has 204.670 inhabitants, yearly growth of inhabitants is 0,3 %. The population density is 95,77 persons/km<sup>2</sup>. The life expectancy based on latest data is rather high 79,03 for males and 83,77 years for females.

**Table 2 - Data on Population in the Gorenjska region Source: RDP 2021-2027**

Inhabitants	204.670 (2020)
Annual Population Growth Rate	0,3 % (2020)
Population Density	95,77 Persons/km <sup>2</sup> (2020)

Important is also aging index, showing the viability in separate local communities. While most vibrant are bigger cities: e.g. Kranj, Škofja Loka etc. The local communities and settlements at the border with Austria are rather affected by aging.

Figure 3 - number of elderly over 65 years of age (source RDP 2021-2027)



Gorenjska is characterised by a deterioration in the ratio of active to dependent population. The age dependency ratio, which shows the number of age-dependent inhabitants (aged 15 and over 65) per 100 working-age inhabitants (aged 15-64), has been steadily increasing since 2005, from 44.0 in 2005 to 56.2 in 2019. The Gorenjska municipalities with the highest age dependency ratios are Kranjska Gora (66.1), Bled (61.4), Žirovnica (60.5), Bohinj (60.3), and Preddvor (60.1) (SURS, 2019).

### 1.3 Economic Sector

Region Gorenjska has strong industrial and service tradition. Industry thorough history was based on materials: iron, wood, leather, wheat etc. And craft/industrial skills, which lead to production of iron, textile, shoes, furniture and other wood products etc. Development of economy brought automotive industry, ICT industry, production of machinery, wooden houses, boats, specific textile materials and products, etc. Based on the natural beauties also sustainable green tourism has a strong part in income of the region. Also, other specific services are viable part of economy. Now already services are prevailing\_ with over 60 % of the regional economy. Most of the companies in the region are SME-s that are mostly working on EU market and other markets. We have 16.200 SME-s, GDP/capita is 18.507 EUR.

Region is strongly connected to Capital city of Ljubljana and region “Osrednja Slovenija”, where the biggest economic vibe can be seen. Education system is rather strong: beside strong and very good secondary, higher and high schools we have the interschool companies centres connected to mechanical engineering, mechatronics, wood, tourism, biotechnology, construction we also have rather limited range of Faculties (e.g. for organisational science and EU and state matters). In Gorenjska employers are looking for quality high educated working force. Region has rather low unemployment 5,4 %. Gorenjska has 167.000 employees, mostly working in industry and services.

**Table 3 - Data RDP 2021-2027**

Indicator	Numbers
Number of Businesses	16.200 (2020)
Net added value in 000/EUR	1.963,415 EUR (2020)
Regional GDP/capita	18.507 Euro (2020)
Regional GDP in EUR	3.769 Mio. Euro (2020)
Number of employees (77.543 from region, 90.220 coming from other regions)	167.763 (20120)
Unemployment rate	5,40 % (2020)
Number of tourists/yearly	3.413.905 (2020)

## 1.4 Agriculture

According to data from 2016 (last national review of agriculture) 83,813 hectares of land are owned by agricultural holdings in Gorenjska, of which 60% is forest (50,558 hectares), 38% is agricultural land (32,145 hectares, of which 1. In 2016, there were 4,398 agricultural holdings in Gorenjska, owning 31,391 hectares of agricultural land in use and 49,631 heads of livestock. This represented 6.3% of all Slovenian agricultural holdings, 6.6% of all agricultural land in use and 9.0% of all livestock in Slovenia. Of the agricultural land in use, 72.5% was permanent grassland and pastures, 23.8% was arable land and 1.3% was permanent crops - orchards. Arable land was dominated by fodder crops, cereals (wheat,

spelt, barley) and potatoes. The livestock were mostly cattle (49 631), with 2 450 pigs, 1 605 horses and 14 009 small livestock. A large increase was recorded in poultry, where the number has grown since 2010 (37,961) to 92,739 animals in 2016. 135 agricultural holdings were involved in the production of vegetable crops, seedlings, strawberries and herbs, accounting for 8.7% of the total in Slovenia (SURS, 2020). In 2016, 2,343 agricultural holdings in Gorenjska owned less than 5 hectares of agricultural land in use, 1,113 agricultural holdings were larger than 10 hectares and only 18 were larger than 50 hectares. 7.3% or 171 agricultural holdings were organic, which is 9.2% of the total in Slovenia (SURS, 2020).

**Table 4 - data agriculture (RDP 2021-2027)**

Indicator	Numbers
Number of Farms / Agricultural Enterprises	4.398 (2016)
Agricultural Area	31.391 ha (2016)
Average size of farm	5 ha
Heads of livestock	49.631

## 2 Environmental risks in Gorenjska linked with depopulation and ageing population

Depopulation is important issue especially in some border local communities with the strong tendency of brain drain of young to bigger cities and aging population, where the public services are also becoming rather scarce. Overall, the population in region is growing, especially in bigger cities (overall growth of population 0,3% yearly). Region is facing also with shortage of skilled workers and brain drain of educated people with specific skills to capital city or other more attractive working places in near by regions in Slovenia, Austria, Italy and elsewhere in EU.

Aging is important obstacle for viable future development in the region. The average age in 2021 in 48 years.

**Table 5 - age of population (RDP 2021-2027)**

Indicator	Numbers
Average Age of the Population	48 (2020)
Population < 18 years	15.8 %
Population ≥ 65 years	25.6 %
Life expectancy male in years	79,03 (2020)
Life expectancy female in years	83,77 (2020)

There are important environmental risks that are characterised by different important topics. Main message is that earth is warming up, the climate is changing. In recent years negative consequences of increased CO2 level significantly influenced the quicker climate changes.

There are several important environment risks that were identified in Gorenjska region. In recent years ½ of local communities were affected by heavy unforeseen rain causing floods followed also by landslides. The whole region is affected by the longer periods without rain (droughts). In recent years region is facing also increasing numbers of unpredictable strong winds that are destroying forests (big areas of forests cut down in heavy strong winds blowing from 100 to 200 km/hour and cause damage in settlements (damaging the houses, roofs, etc.).

## 2.1 Increase of temperature, heat waves and loss of snow in mountains, surface water temperature

Each of last four decades was constantly warmer than previous decades after 1850<sup>1</sup>. Global warming was the quickest from beginning of 1970, while in 21 century (since 2020) 19 of 20 the warmest years in history of measures (since 1880)<sup>2</sup>.

In the period 1961–2011 the average increase of temperature of air in Slovenia was approximately 0,36 °C per each decade). We can see very rapid increase of temperature in mid 1980. See picture below. Between 1961 and 2019 average temperature in the state grew for around 2 °C. In the same period the temperature of the surface water grew 0,2 °C per decade<sup>3</sup>.

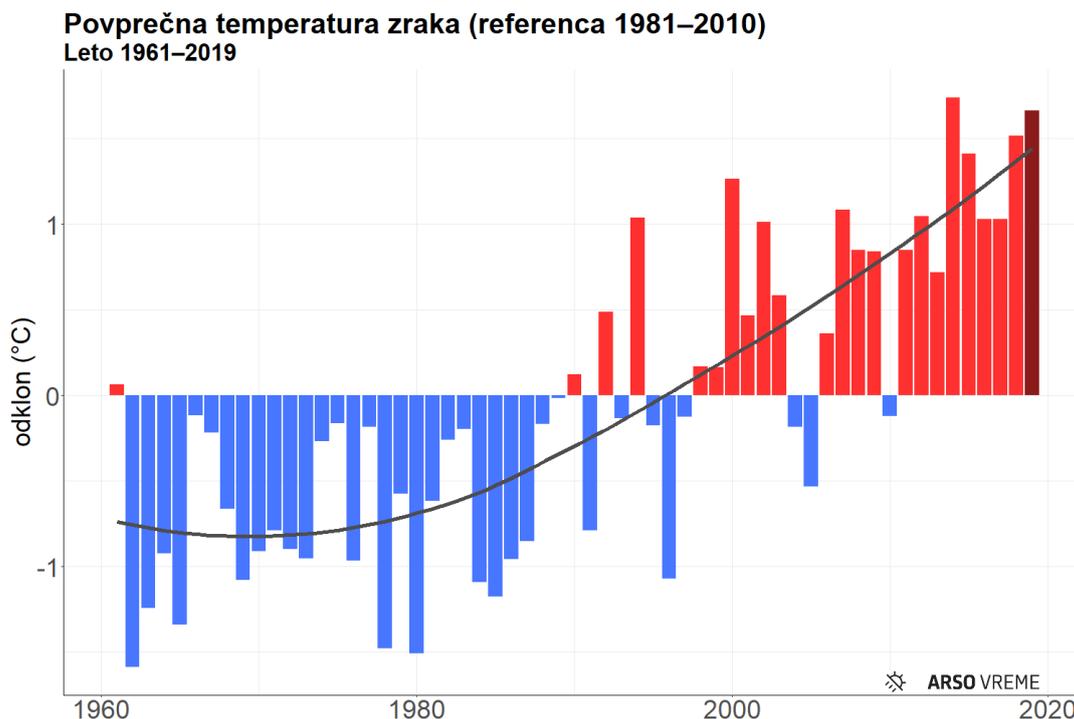
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<sup>1</sup> Ministry for environment and spatial development; agency of RS for environment (2021); Climate change 2021; Physical basic in conditions in Slovenia : available at web page: [www.meteo.si](http://www.meteo.si)

<sup>2</sup> NASA, Global Temperature: <https://climate.nasa.gov/vital-signs/global-temperature/>

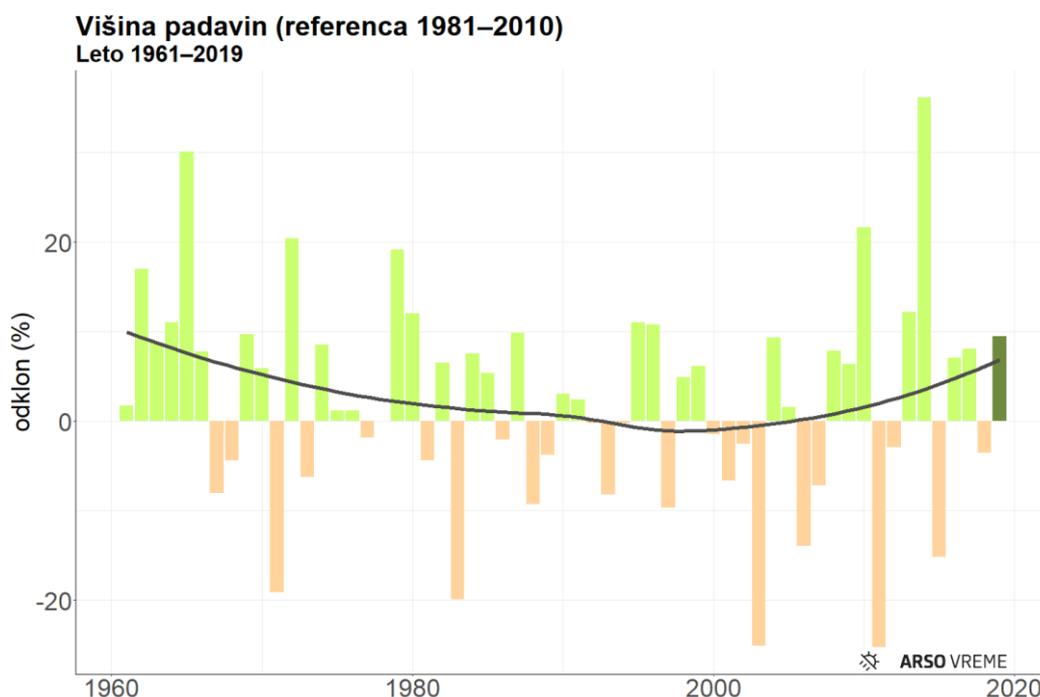
<sup>3</sup> Ministry for environment and spatial development; agency of RS for environment (2021); Climate change 2021; Physical basic in conditions in Slovenia : available at web page: [www.meteo.si](http://www.meteo.si)

Figure 4 - average temperature of the air (reference 1981-2020) Year 1961-2019



There are significant evidence of the loss of snow in mountains, which was decreased for ½ in last 60 years. Evaporation of water was increased especially in spring and summer months (measurements done by reference evapotranspiration (This represents all the water that evaporates through the reference vegetation cover (grass) if the water supply in the top soil is sufficient at all times.)), in years 1961-2011 linear trend is 3 to 6 % per decade.

**Figure 5 - amount of precipitation (reference 1981-2020) Year 1961-2019**

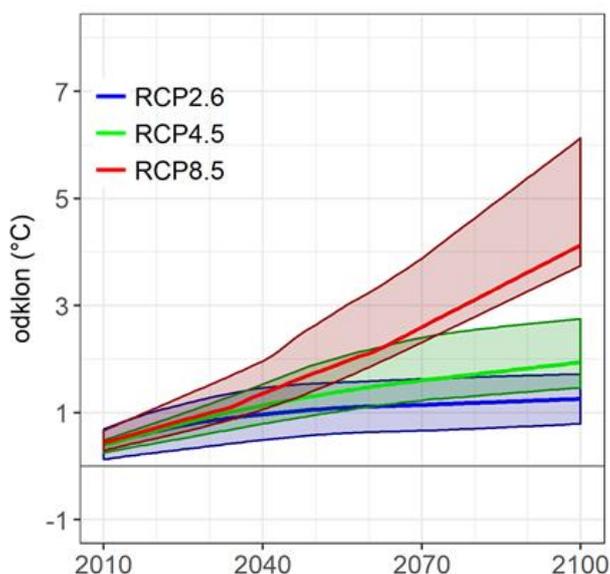


The brown bars indicate years with a negative and the green bars indicate years with a positive average deviation from the 30-year average 1981-2010. The black curve shows the smoothed average deviation (source: AR-SO)

The changes in climate that we have seen in measurements over the past six decades will continue in the decades to come. The magnitude of future changes also depends on the success of policies to limit GHG emissions.

In any case, the increase in air temperature will continue in Slovenia until the end of the century. In the optimistic emissions scenario (RCP2.6), temperatures will rise by an additional 1.3 °C on average by the end of the century compared to 1981-2010, by an additional 2 °C in the medium optimistic emissions scenario (RCP4.5) and by an additional 4.1 °C in the most pessimistic emissions scenario (RCP8.5) (Picture 3), based on the already measured temperature increases in the period up to 2010.

**Figure 6 - Temperature evolutions**



The temperature increase will significantly increase the heat load, especially in summer. The number, intensity and duration of heat waves will increase. The surface layer of the ground will warm in line with the rise in temperature. This will affect the phenological development of plants, which will be earlier, and the length of the growing season, which will be longer. The frequency of spring frosts will remain at a similar level to today's climate.

Surface water temperatures will also rise in line with air temperatures. Compared to the period 1981-2010, by the end of the century, surface water temperatures will rise by about 0.5 °C under the optimistic scenario (RCP2.6), by about 1 °C under the medium optimistic emissions scenario (RCP4.5) and by about 2 °C under the most pessimistic emissions scenario (RCP8.5).

Although measurements show a decline in annual precipitation (Figure 5), all scenario models show a reversal of the trend in the coming decades. For all emissions scenarios, average annual precipitation will increase by up to 20% at the end of the century compared to the 1981-2010 period. Most of this increase will be due to an increase in winter precipitation, which will be greater in the east of the country. Already by mid-century, winter precipitation will increase by up to 40% in eastern Slovenia and up to 15% nationally, and by the end of the century, under the pessimistic emissions scenario

(RCP8.5), precipitation will increase by up to 60% in the east and up to 40% nationally (Figure 4). In other seasons, all changes will be within the range of natural variability of precipitation. The extreme precipitation indicators show that both the intensity and frequency of extreme precipitation events will increase, with the increase being most pronounced under the pessimistic RCP8.5 emissions scenario. Increased precipitation intensity is also increasing the risk of flash floods and avalanches, among other things.

## 2.2 Heat load, droughts

Drought and heat waves are affecting the agriculture land, as well it affects the overall resilience of plants, trees and contribute to its sensitivity to pests and diseases.

Over the last 50 years (1963-2013), drought has caused agricultural problems in the following years: 1967, 1971, 1976, 1983, 1984, 1988, 1992, 1993, 1994, 2000, 2001, 2003, 2006, 2007, 2010, 2011, 2012 and 2013. In these years, the average cumulative water deficit was (negative water balance) for agricultural crops in the summer period from June to the end of August in the affected regions was greater than 100 mm. One of the most acute droughts was in 2022, when more than 60% of Slovenia's territory (including region Gorenjska) was affected by the extremely severe drought. Gorenjska traditionally was not seen as a region that could be affected by heat load, droughts but the situation changed significantly especially in 2022.

For example, in 2022 drought minimise the crops especially in lowlands in the region, while in 2023 due to heavy rain almost no fruit was produced. Due to unforeseen changes in climate also the decisions of farmers what to grow has to be changed; especially due to the fact that there is no watering of plants in place, nor the insurance can cover the damage caused by lost of crops.

As seen in previous pictures, there are fluctuations in the precipitation, while recently also mountain areas are affected by fluctuations in precipitation, also snow coverage is getting lower. See photo of glacier in Triglav National Park (diminishing from year to year)

## 2.3 Storms, Heavy rain, floods, avalanches

Especially in recent years (this year catastrophe during summer) in 14 days in August (1. storm with heavy rain, the floods, avalanches (see more under forests damage) that affected most of the region.

In August heavy rain, followed by floods and avalanches significantly affected region. Especially several local communities e.g. Škofja Loka, Tržič, Jezersko, Cerklje na Gorenjskem were affected by floods (see some photos).

**Figure 7 - city of Škofja Loka (floods, landslide)**





Figure 8 - Floods in local community Cerklje na Gorenjskem



Avalanches; some of them are dangerous: see avalanche that put in danger the village.

Koroška Bela near Jesenice (see photo)

**Figure 9 - Koroška Bela near Jesenice Avalanche**



Although extreme weather events are difficult to predict and cannot be assigned in all cases to climatic changes, the increase in their intensity and frequency is well documented. According to the DWD, extreme weather events are expected to become more frequent and more severe because of the worldwide trend of global warming.

## 2.4 Forest Damage

Forests are due to climate change heavily affected. In region 70% is covered by forests, there are also protected forests especially in Natura 2000 areas, which are mainly in hilly and mountain areas of the region and in Triglav National Park. In Triglav National Park.

Tree species in Triglav national park: beech and fir-beech, herring followed by spruce black hornbeam, pine and larch communities, noble leaf, grey willow. In valleys spruce nad beech prevails while alo other tree species can be found.

In recent years storms with heavy rain mostly affected separate valley and mountain areas, where forests were cut down by heavy storm (wind blowing from 100 to 200 km/hour). See photo from the air case of consequences: Krma valley, Triglav national park) in Julian Alps in July 2023. Damage is getting even more castastrophic due to horseshoe affecting spruce and other pests affecting the forest in the region (over 70 % of the region

is covered by forests). Due to great damage in forests the landscape is changing and there is increasing threat of losing certain tree species (spruce, etc.), landslides, etc. while owners (the smaller owners of forests prevail) are hit severely also by low prices of logs (especially those damaged by pests) and therefore also the inactivity on the part of private owners to carry out care and protection work in forests.

**Figure 10 - Photos**



**Figure 11 - Photos**



In years with little rain there is increasing threat of forest fires (case in year 2022). See photo local community Preddvor:

**Figure 12 - local community Preddvor**



## 2.5 Loss of Biodiversity

Climate change has a profound negative impact on biodiversity and thus on the stability of ecosystems, which also affects human health and well-being.

Slovenia has the largest share of the EU's territory with almost 38% of the total area. Gorenjska region itself has over 50 % of Natura 2000. Biodiversity in Slovenia is declining, despite the implementation of measures to conserve it (Environment in the Republic of Slovenia Report 2017).

The status of species and habitat types of particular European importance, whose habitat is agricultural landscapes, is deteriorating in lowland areas due to the acceleration of agriculture, and in hilly and remote areas due to land abandonment.

The status of species and habitat types of particular European importance that rely on agricultural landscapes for their habitat is declining in lowland areas due to the intensification of agriculture, and in upland and remote areas due to land abandonment. Many water-related habitat types, including wetlands, are also poorly conserved.

The condition of forests is relatively good, including some of the characteristic species that live there (e.g. wolf, bear). The State of the Environment Report 2017 shows that built-up areas with urbanisation and industrialisation, transport and agricultural intensification are among the most prominent recorded pressures and threats to species and habitat types of European importance in Slovenia. Climate change and the spread of invasive non-native species are further exacerbating the situation. Very similar findings also emerge from the Report on the Conservation Status of Species and Habitat Types under Article 17 of the Habitats Directive 2013-2018 (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, OJ L 206, 22.5.1992, p. 1).

Among other things, climate change is having a negative impact on pollinators, with major implications for biodiversity and food security

# 3 SWOT Analysis

Based on individual discussions on phone with regional stakeholders: Triglav national park, LAGS in the region, Office for protection of nature, local communities in the region (specifically focus on rural local communities), etc. we put focus on environmental risks that are connected to the ageing of population and growing risk of depopulation in some local communities in the region.

## Summary of SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• high awareness of the policy level, experts and population about climate change challenges</li><li>• consensus of policy level, experts and population about the importance of protection of nature, biodiversity and Natura 2000 areas</li><li>• consensus of policy level, experts, population about the importance of support programs for maintaining population at the countryside</li><li>• tourism areas fostering green sustainable tourism</li><li>• consensus of importance of maintaining the alive farms</li><li>• consensus of usage of renewable energy potentials</li></ul>	<ul style="list-style-type: none"><li>• very little climate change adaptation measures put in practice</li><li>• almost no comprehensive climate change adaptation policy on regional/local level</li><li>• rural depopulation; elderly population; young seeking opportunities in cities</li><li>• some important signs of young not interested in farming production (even at the bigger farms)</li></ul>

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<ul style="list-style-type: none"> <li>• very good rescue prevention public service that work hand in hand with local communities and volunteers (eg. Fire brigades, rescue services for accidents in mountains, etc.)</li> </ul>	
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• further development of green sustainable tourism and green practices (in cooperation with farmers and other stakeholders)</li> <li>• climate change as an imperative for economic green entrepreneurial endeavours</li> <li>• renewable energy; transition from non-renewable to renewable energy (e.g. solar, etc.)</li> <li>• climate change adaptation of the economic players: green transformation of production/services</li> <li>• policy change in supporting the green transition</li> </ul>	<ul style="list-style-type: none"> <li>• climate change numerous disasters – hindering the prosperity of society</li> <li>• economy sector heavily hit by climate change- need to move the production/services</li> <li>• tourism sector; too slow adaptation to green transition – less visitors</li> <li>• Farmers: losing crops and land due to climate change (obscuring of the farming)</li> <li>• young – leaving the countryside - depopulation</li> <li>• policy measures – not in place – due to budgetary limitations</li> </ul>

### 3.1 Biodiversity and Natura 2000 areas

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Gorenjska has over 50 % of Natura 2000 and also over 70 % of forests (green lungs of the region)</li> </ul>	<ul style="list-style-type: none"> <li>• No management plans for Natura 2000 outside Triglav National Park (although national management of Natura 2000 are assuring preservation of the biodiversity)</li> </ul>

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<ul style="list-style-type: none"> <li>• the biodiversity in protected areas is rather well preserved (flora, fauna)</li> <li>• the effective management of Triglav national park assure daily monitoring of the changes in the biodiversity and work on preservation of quiet areas in the park</li> <li>• the strong identity and commitment of local inhabitants to preserve the nature and foster sustainable green development</li> </ul>	<ul style="list-style-type: none"> <li>• Too little support to local communities with brain drain and elderly population</li> <li>• No specific local measures in place to contribute to minimising the climate change for specific local areas which are specifically endangered by climate change</li> </ul>
<p><b>Opportunities</b></p>	<p><b>Threats</b></p>
<ul style="list-style-type: none"> <li>• Management plans for Natura 2000 outside Triglav National Park</li> <li>• Specific measure for endangered flora/fauna</li> </ul>	<ul style="list-style-type: none"> <li>• Certain biodiversity is already endangered (e.g. mountain lakes biodiversity due to higher temperatures, some protected plants, etc.)</li> <li>• Overcrowding of guests/tourist additionally putting the flora and fauna in danger</li> <li>• Invasive plants, species are already in the radar and some of them (especially plants are already important threat)</li> <li>• Abandonment of the active farming (due to depopulation and climate changes) loss of cultural landscape</li> </ul>

### 3.2 Rainfalls, floods

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Very well organised professionals and volunteer fire brigades and other rescue services</li> <li>• Plans for rescue and cooperation (civil defence) are in place</li> <li>• Locals – knowing the area and potential areas of risks (self organisation of population)</li> </ul>	<ul style="list-style-type: none"> <li>• No hazard maps for land slides prepared – in place</li> <li>• No hazard maps of heavy rain, flads for certain streams (only for bigger rivers)</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Hazard maps to be prepared (land slides, heavy rain for smaller streams)</li> </ul>	<ul style="list-style-type: none"> <li>• Further yearly heavy rains and floods (especially in hilly and mountain areas) with high speed of water bearing also logs and other heavy materials) destroying infrastructure and settlements)where so far such event didn't take place</li> <li>• Further deterioration of the land and settlements with floods and land slides</li> </ul>

### 3.3 Water supply (human, irrigation)

Strengths	Weaknesses
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<ul style="list-style-type: none"> <li>• Very good organised water supply with regular monitoring of public utility service (for human usage)</li> </ul>	<ul style="list-style-type: none"> <li>• So far, no plans for possibility not to have sufficient water supply to human usage</li> <li>• No plans existing for the mitigation of water – for agriculture purposes</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Plans for mitigation of shortage of water (upgraded within public utility plans)</li> <li>• Plans and actions in the field of mitigation of water – for agriculture purposes</li> </ul>	<ul style="list-style-type: none"> <li>• Further droughts and future possibilities to have scarcity of water supply</li> <li>• Further loss of ground water (no possibility for watering of the crops) due to low ground water</li> </ul>

### 3.4 Heat waves

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Growing understanding of importance of heat waves and its consequences</li> <li>• Very good professional organisation of civil defence, fire brigade rescue teams and other supporting organisations for prevention of fires</li> </ul>	<ul style="list-style-type: none"> <li>• So far, no plans for heat waves prepared</li> <li>• No actions done to mitigate heat waves (except in some local communities in urban areas (some restoration of the green areas) has been done</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Plans for heat waves with concrete actions</li> <li>• Special prevention health programs for population</li> </ul>	<ul style="list-style-type: none"> <li>• Further increase of heat waves</li> <li>• No solutions prepared – in place for heat waves in settlements</li> </ul>

	<ul style="list-style-type: none"> <li>• further increasing the</li> <li>• Increased danger for health of population (especially elderly)</li> </ul>
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### 3.5 Forests

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Good national support forestry service</li> <li>• Knowledge of owners about the forest (its maintenance) and knowledge about sustainable management</li> <li>• Good national and area plans for forestry managements</li> <li>• Special support to forestry (via national operational program for agriculture and forestry)</li> <li>• Special support for wood production companies (via national support measures for wood industry)</li> <li>• Growing support of national and local policy level for usage of local wood species for wood products</li> </ul>	<ul style="list-style-type: none"> <li>• So far forestry plans do not predict/plan change of the tree biodiversity in forests (new tree species need to be added)</li> <li>• In many parcels the low maintenance of the forests (logs lying idle, no reforestation after cut down of storms (since lack of working force in families, scarcity of traditional tree plants, no free plants are available etc.)</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Plans for management of forests will include operational plans how and in which way new tree species can be added and how traditional ones can be better exploited</li> </ul>	<ul style="list-style-type: none"> <li>• Growing numbers of the unforeseen weather events (e.g. storms)</li> <li>• Growing number of pests, diseases in forests (already 60 % of forests are affected by pests, diseases in the region).</li> </ul>

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<ul style="list-style-type: none"> <li>Plans for preservation not only of forestry but also wood industry should be upgraded with additional support for innovative products, services</li> </ul>	<ul style="list-style-type: none"> <li>Change of biodiversity in forests (tree species) affecting also other plants, animal biodiversity</li> <li>Climate change will bring huge damages in forests, there fore owners in a long run will not have interest to maintain, renew forests or roads in forests; low income will bring also lower possibility for usage of modern technology in forests)</li> <li>Ageing owners of forests, small parcels of land (almost no big real estates)</li> </ul>
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### 3.6 Agriculture

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>Good national support agriculture service (Chamber)</li> <li>Knowledge of owners about agriculture crops, cattle etc., maintenance of land and knowledge about sustainable usage of land</li> <li>Good national and area plans for agriculture</li> <li>Special support to agriculture (via national operational program for agriculture and forestry)</li> <li>Special support for agriculture companies (via smaller funds at local communities)</li> </ul>	<ul style="list-style-type: none"> <li>So far new possible crops due to climate change can be seen only in rare research studies/tests</li> <li>Farms have no employess (support only within family members),low interest of young to stay on farms (mostly they are looking for better income outside farming), big sums of funds are needed to modernise the production</li> </ul>

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<ul style="list-style-type: none"> <li>• Smaller trademarks supported by local communities to foster production and supplementary activities on farms</li> <li>• Growing support of national and local policy level to ecological farming and innovative practices (e.g. carbon farming, etc.)</li> <li>• Good quality support to innovation also at national research organisations (University, Institute)</li> </ul>	
<p><b>Opportunities</b></p>	<p><b>Threats</b></p>
<ul style="list-style-type: none"> <li>• Operational program for agriculture and forestry support innovative practices (from research to farmers), support young farmers and innovation</li> <li>• Innovative young farmers in strategic partnerships already working together develop innovative solutions and attract other young farmers to ecological farming and other innovation on farms</li> <li>• Trade marks supported by local communities are supporting the innovative solutions connected also to climate change (new products, etc.).</li> <li>• Climate change and longer vegetation can bring opportunities for new crops and new market niches like chili, new kind of fruit (asimina, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Growing numbers of the unforeseen weather events (e.g. heavy rain, drought, storms, etc.)</li> <li>• Growing number of pests, diseases in crops (especially in droughts, after heavy rain etc.)</li> <li>• Change of biodiversity of arable land and meadows (low biodiversity due to monoculture etc.)</li> <li>• Climate change will bring huge damages in arable land and its crops, in meadows, therefore owners in a long run will not have interest to maintain, renew production; low income will bring also lower possibility for usage of modern technology in agriculture land</li> <li>• Ageing owners of farms (over 55 years old), small parcels of land (almost no big real estates)</li> </ul>

### 3.7 Land Use

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Good national spatial plans/local spatial plans</li> <li>• Good legislation to protect agriculture land, forests</li> <li>• Special support to traditional usage of land orchards, meadows, usage of traditional animals, traditional crops (via national operational program for agriculture and forestry)</li> <li>• Growing dispute and support of NGO- s and inhabitants to preservation of green areas (arable land, meadows) and strong civil coalition in some cases of attempt of additional urbanisation</li> <li>• Good quality support to sustainable spatial planning also at national research organisations (University, Institute)</li> </ul>	<ul style="list-style-type: none"> <li>• So far no regional spatial plan prepared</li> <li>• Preassure for urbanisation of agriculture land (especially for shops, production, public services ) in semi urban areas and in countryside</li> <li>• Still civil society does not have enough power to have bigger success in mitigation between capital and preservation of land (in favour of preservation of land)</li> <li>• Fertile land cannot be replaced (due to scarcity of arable land) available mostly only in valleys</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Regional spatial plan</li> <li>• Change in national legislation to prevent further spreading of the urban sprawls on farm land (as eperiences shows in EU (allowing buildings within existing limits of the city, settlement).</li> </ul>	<ul style="list-style-type: none"> <li>• Growing numbers of the urbanisation preasure (on farm land)</li> <li>• Climate change will bring Change of biodiversity of arable land and meadows (further change of categorisaton of land); consequence of lower categorisation: quicker way to urbanisation</li> <li>• Further abandoment of land usage of owners in a long run – change of traditional landscape patterns (loss of biodiversity)</li> </ul>

	<ul style="list-style-type: none"> <li>• Ageing owners of farms (over 55 years old), small parcels of land (almost no big real estates) (further lowering of interest in farming)</li> </ul>
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### 3.8 Sustainable mobility and support services in countryside

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Local sustainable mobility plans</li> <li>• Support to innovative solutions in sustainable mobility</li> <li>• Growing number of bicycle paths</li> <li>• Growing interest of inhabitants for cycling, walking</li> <li>• Reduction of CO2 via first electrical buses and electric cars in ownership of public sector, SME-s and inhabitants</li> <li>• Improvement of railway infrastructure</li> <li>• Support to elderly via free public transport and volunteer support (via cars owned by local communities)</li> <li>• Support to young (public busses from home to school)</li> <li>• Support via National cohesion operational program for innovative mobility infrastructure, services</li> <li>• Growing number of shuttle transport (but now mostly for tourists in season)</li> </ul>	<ul style="list-style-type: none"> <li>• So far no regional sustainable mobility plan prepared</li> <li>• So far no regional plan for replacement of public services /how to mitigate the loss of viability of certain countryside settlements was prepared</li> <li>• Low interest of policy to tackle the challenges of separate settlements (due to growth in other settlements and cities)</li> </ul>

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<ul style="list-style-type: none"> <li>Public services are available also in countryside (sometimes with merging the separate services) or assuring at least partly service (like doctor once a week, etc.)</li> <li>Special support from national funds for bordering local communities that are in many cases affected by brain drain and ageing</li> </ul>	
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>Regional sustainable mobility plan with concrete actions to improve sustainable mobility with special emphasis on settlements with brain drain/elderly</li> <li>Special development approaches to maintain public services with actions to better address the brain drain and ageing</li> <li>LEADER groups/fund specifically addressing brain drain, ageing</li> <li>Specific programs for young – for empowerment, entrepreneurship</li> <li>Voluntary support to elderly</li> </ul>	<ul style="list-style-type: none"> <li>Further loss of viability of certain countryside settlement and therefore even less public transport available and less public services available</li> <li>Further ageing and further loss of young generation in some settlements;there fore slow dying of the settlements and abandonment of the farming and settlements</li> </ul>

### 3.9 Renewable Energies

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>Local energy plans</li> </ul>	<ul style="list-style-type: none"> <li>So far no regional plan for renewables</li> </ul>

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<ul style="list-style-type: none"> <li>• National energy plans</li> <li>• New legislation for renewables (solar, etc. ) in place</li> <li>• Support to innovative solutions in renewables(public, private sector)</li> <li>• Climate fund on national level supporting the renewable energies</li> <li>• Growing interest for renewables (not only at public sector)</li> <li>• Growing interest for ideas of energy communities</li> </ul>	<ul style="list-style-type: none"> <li>• So far no study for energy communities on regional level prepared</li> <li>• Sensitivity of landscape – over 50 % of Natura; no bigger plants might be confirmed (due to decision of experts and/or civil groups movements).</li> <li>• Region suitable only for solar plants,</li> <li>• water plants already in place</li> <li>• no wind mills possibility</li> <li>• Long wait for approval for installation (not enough powerful infrastructure) in some places</li> </ul>
<p><b>Opportunities</b></p>	<p><b>Threats</b></p>
<ul style="list-style-type: none"> <li>• Preparation of regional plan for renewables</li> <li>• Preparation of study for energy communities on regional level prepared</li> </ul>	<ul style="list-style-type: none"> <li>• Non availability of support via climate fund for renewables due to big flood damage this year (over 80 % of local communities in the state were affected)</li> <li>• Lack of interest from private sector, inhabitants due to high costs to install renewables</li> </ul>

### 3.10 Demographic change, brain drain and skilled workers

<p><b>Strengths</b></p>	<p><b>Weaknesses</b></p>
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<ul style="list-style-type: none"> <li>• Good structure of schools (including higher, high schools) and 2 public faculties (organisational science, health) and private (EU law, etc.)</li> <li>• Good conditions for quality work (including quality of life)</li> <li>• Innovative labs and support mechanisms for entrepreneurship available</li> <li>• Rather favourable working conditions and accesibility of schools, sport facilities, nature, etc.</li> <li>• Already organised empyloment fairs in some countries outside EU</li> <li>• Some companies supporting green transition</li> </ul>	<ul style="list-style-type: none"> <li>• So far no special plans for attractiveness of young skilled workers /no specific support mechanisms</li> <li>• In some environments- especially in countryside is even more difficult to get qualified workers from other regions (a little bit easier in cities)</li> <li>• Rather Long wait for approval of foreign workers (like knowledge of language, notification of diplomas, etc.)</li> <li>• So far now specific measures for companies that might be affected by climate change (e.g. need to move production due to landslides, floods, etc.)</li> </ul>
<p><b>Opportunities</b></p>	<p><b>Threats</b></p>
<ul style="list-style-type: none"> <li>• special plans for attractiveness of young skilled workers / specific support mechanisms</li> <li>• organised employment fairs in some countries in EU, outside EU</li> <li>• special attractive programs for young in countryside where cooperation between university students – inhabitants is fostered</li> <li>• companies keen to green industry/services</li> </ul>	<ul style="list-style-type: none"> <li>• Crisis in EU -lover viability of economy</li> <li>• Loss of markets in EU and other markets</li> <li>• Further ageing – not being able to attract young workers from other regions/states</li> <li>• Loss of viability of companies -due to shortage of workers</li> <li>• Loss of viability of companies -low possibility to adjust to climate change (leaving the area)</li> </ul>

# 4 Legal Framework

## 4.1 National level, regional and local level

The **national government prepared national development strategy** (present valid till 2030), which is followed by **regional development plans** prepared for development regions (one of them is Gorenjska region) The Regional Plan 2021-2027 define strategic outlines, priorities, measures and represents the foundation for the further sustainable development of the region. It is prepared in working groups put together by local communities, institutions, chambers, schools, private sector, NGO-s, inhabitants, experts. When prepared with consensus of content it is confirmed by regional development council and regional council of mayors. **The regional development plan mention the green sustainable development and measures connected to the climate change and environment** (including greening, sustainable farming, reduction of CO<sub>2</sub>, usage of renewables) while specific measure to broadly support climate change is not envisaged. Due to recent big natural disasters (e.g. floods, landslides, etc.) the regional development plan need to be amended to better include climate change.

Local communities prepare **local development plans** (in local communities).Based on national spatial planning law, national planning strategy, next level plan needs to be prepared (local planning document).National spatial regulation – law define the primary functions of the planning, spatial development categories like settlement development, infrastructure development, agriculture land, etc.. And define replacement of land. Local spatial plans are also in place, while so far regional spatial plan is not in place yet.

State prepared the **national strategic framework for climate change adaptation**:where four main measures were envisaged: **mainstreaming** with effective coordination of spatial planning and risk prevention and strengthening of the use of environmental impact assessment instruments, **broader cooperation** with interministerial cooperation, proactive participation in EU and other activities, integration between regional and local levels and private sector, looking for areas of common ground with other policies and actors, **research and knowledge transfer** with providing climate

service (long term climate scenarios and regular updating and upgrading of the climate groundwork), upgrading and linking databases and processes to support the decision making, establishing regular cooperation between researchers and decision makers), **education and training, awareness raising, etc.** with analysis of situation, establishing the wide monitoring and evaluation regarding the adopted guidelines, other curriculum documents, good practices identification, dissemination, planning and implementation of communication campaigns and working with the media,

The National Ministry of Environment and Spatial Planning **started to prepare the draft for a law on climate change in 2022.** The aim is to create a legal framework in Slovenia for implementing climate policy and reporting on all its aspects. The proposal will be developed in accordance with the Long-term Strategy of the Republic of Slovenia until 2050, the ministry said. The document sets the path for the country to achieve carbon neutrality by the middle of the century. The draft Climate Change Act is envisaged to provide solutions for meeting the goals of international treaties like the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement, the ministry said. Legislators from areas like education, healthcare, spatial planning, building construction, agriculture, and transportation are involved in drafting the bill, due to the horizontal and cross-sectoral nature of climate change. The draft includes also provisions related to the operation of the climate change fund.

Due to heavy national disaster (floods, landslides, etc.) happened in summer 2023 with 80 % of affected territory the national government is preparing **the Law for recovery after floods:**

It addresses the key challenges for comprehensive assistance to the affected areas cut across different spheres of society. The draft law provides for a comprehensive approach to development and reconstruction in a number of areas. Among other things, it will administratively speed up construction, spatial planning and other procedures related to reconstruction and development in the affected areas, it will regulate the replacement and substitution construction of buildings and it will provide assistance to the population, the economy and the agricultural sector.

In areas not under threat, the possibility of replacement construction on the same site is provided for, while a derogation from the Town and Country Planning Act is envisaged if the structure only needs to be slightly relocated. In the case of a structure that is built on a different site from the original one, it is a replacement structure replacing one that is designated for permanent removal under the August 2023 Act on Intervention Measures to Eliminate the Consequences of Floods and Landslides. The proposal also provides that in the case of replacement construction and a replacement structure, no municipal contribution is payable to the extent of the replaced structure for new and existing municipal services. Costs of connecting the replacement and substitution facilities to the municipal utilities. However, the costs of connecting the replacement and substitution facilities to the public utility infrastructure, which include the design and construction of the connection, will be financed from the natural disaster funds. It will help companies with a guarantee scheme for loans with a subsidy on the contractual interest rate. This financial product, which is a combination of a guarantee and an interest rate subsidy, is attractive to both banks and borrowers. The proposed solution brings us closer to the users of the guarantee scheme, companies, sole traders and agricultural operators, as commercial banks have a network covering the whole country. The State covers part of the business risk for the banks and subsidises 30 % of the interest for the borrowers. A quota of €500 million is foreseen for guarantees. The law also provides for a measure to stimulate investment in the economy. Beneficiaries are companies that have suffered direct damage in floods and landslides, and applications for co-financing can be submitted until 31 December 2024 at the latest. The funds will be allocated according to the procedure laid down in the Investment Promotion Act, namely by direct application. These are therefore investments of outstanding importance for the development of the Slovenian economy. It is also possible for the recipient of the incentive to carry out part of the activity in an additional facility built by the recipient (investment), without the need to replace the land in the municipality.

The guarantee scheme will also help natural persons. It will be used to restore damaged buildings and to finance the construction of replacement buildings. A quota of €200 million is foreseen for the guarantees. The guarantee is for 100% of the principal amount of the loan, capped at €100,000. Interest will be fully subsidised.

The bill also addresses the free transfer of municipal real estate to the Housing Fund of the Republic of Slovenia. The measure is aimed at providing additional real estate to the Housing Fund for the construction and renovation of non-profit rental housing.

In the field of agriculture, environmental protection and water infrastructure, the reconstruction of destroyed forest roads, the construction of retention basins for irrigation of agricultural land, the construction of replacement agricultural buildings and farms, the reconstruction and construction of water infrastructure, the priority treatment of applications from affected residents to the EcoFund, and access to data from the AJDA system for the purpose of determining and deciding on the amount of damage are foreseen. For agriculture, there is also a State guarantee for advances under the Rural Development Programme 2014-2020.

Investors will be able to apply for an extension of up to two years of the validity of the building permit for investments in the affected areas, while municipalities will have more time to adopt the municipal detailed spatial plan for the renovation.

The bill also provides for additional co-financing of mental health and psychosocial support programmes, and a centre for the management of contaminated soils will be set up. The Bill also provides for individual exemptions, such as the discontinuation of the vehicle de-registration levy if a vehicle has been washed away or buried in floods and landslides. In the field of public procurement, the threshold for the application of the provisions of the Public Procurement Act is increased to €1,000,000 for excluded lots of public works contracts intended for reconstruction and development in the affected

areas. The Law also provides for the priority treatment of audit requests concerning public procurement contracts for reconstruction and development in the affected areas by the National Audit Commission.

A budgetary fund is established to finance projects and measures related to floods and landslides, which is to be held in a special account separate from other budgetary resources. The following sources of revenue are identified for the Budgetary Reconstruction Fund: a tax on the balance sheet total of banks and savings banks of 0,2 %, an increase in the corporate income tax rate by three percentage points and the use of the net and balance sheet profits of the Slovenian State Holding Company. These are temporary resources.

In order to provide additional financial resources for the financing of the reconstruction, the Bill also addresses the taxation of investors of natural persons in securities issued by the Republic of Slovenia and issued in 2024, 2025 or 2026.

The Bill also affects the area of development (e.g. the northern part of the third development axis as a development and priority road infrastructure project, provide funds to co-finance the construction of public communications networks and related infrastructure, co-finance the construction of high-capacity 5G mobile networks).

**The Environmental Protection Act from 2020** regulates matters related to climate change with adaptation more specifically mentioned only in connection with the provision of finances from the Climate Change Fund to adaptation measures. The purpose of environmental protection is to promote and guide social development in such a way as to ensure long-term conditions for human health, well-being and quality of life and the conservation of biodiversity. The objectives of environmental protection is: the prevention and reduction of environmental pollution; preserving and improving the quality of the environment; reducing greenhouse gas emissions and moving towards climate neutrality; ensuring resilience to climate change; protecting and sustainably using natural

resources; and conserving biodiversity, the natural balance and natural values, remedying the effects of environmental pollution, improving the disturbed natural balance and restoring its regenerative capacity.

In order to achieve the objectives, the following priority measures need to take place: the reduction of consumption and the production of sustainable products shall be promoted, taking into account the principles of the circular economy;

increasing the material and energy efficiency of production and consumption shall be promoted; the phasing-out and substitution of the use of hazardous substances shall be promoted; promote the development and use of technologies that prevent, eliminate or reduce environmental pollution; pay for pollution and the use of natural resources; and promote a climate-neutral society.

**The Resolution on the National Environment Protection Programme** with programmes of measures until 2030, adopted by the Parliament in March 2020, foresees the latest set of measures in the area of planning and steering of activities for achieving goals concerning climate change adaptation. Act define that environment is the value of the society. The main measures are in the **field of protection of national natural capital** with preservation of biodiversity, improved quality of land, reduction of neto land for settlements, improved quality of air, better chemical and ecologic situation of waters (ground and underground waters), preserved sea environment. In the **field of transfer of CO2** society with effective usage of garbage and reduction of emission of CO2, reuse of sources, better material and energy efficiency. In the field of **the protection of inhabitants in the framework of environmental hazards**: measures to improve the areas with overpollution, protection from noise, preserved safe usage of biotechnology and its products. Reduction of chemicals in the environment, reduction of electromagnetic influences and light pollution, reduction of the exposure to the climate change.

**The European agriculture policy supported by National Eu agriculture and forestry plan** support the sustainable farming practices, ecological farming, specific farming practices in NATURA 2000, protected areas and also natural areas where the specific

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endangerous species and plants need to be protected. Additionally it fosters cooperation between research and practical change in farming and its adaptation to climate change (change of crops, change of farming practices, etc.).

So far **regional climate adaptation plan** was prepared in form of SECAP (as upgrading the SEAP), when region became member of covenant of mayors. City community Kranj is member of the 100 climate resilient cities mission, which prepared specific plan for climate adaptation, while other local communities so far do not have special climate adaptation plans yet.

# 5 Good Practices and Other Experiences

## 5.1 Sustainable mobility in local community Bohinj:

Over 20 years local community Bohinj (lying in the heart of Triglav national park) in close cooperation with Triglav national park and tourism Bohinj works step by step in reduction of CO<sub>2</sub> -especially via sustainable mobility efforts in local community Bohinj. Firstly with preparation of the local sustainable mobility plan, working on closure of Alpine valleys, promoting shuttle transport, leaving the car outside of the area, promoting public transport via bus, train, supporting development of bicycle trails and byking/walking, promoting quiet areas within national park- vlak only on designated areas, promoting wild flowers, promoting the sustainability also in other ways (promoting local trade mark with traditional production of crops, traditional animals, products from traditional resources, etc.). The sustainable mobility and other sustainable green tourism actions are becoming part also of Julian Alps area (including 10 local communities).

## 5.2 Management plan of Triglav National Park

Management plan is the key document assuring the quality management of the national park, having in mind economic, social, natural treasures of the park, and at the same time fostering the quality of life of inhabitants within National park with supporting traditional, climate friendly agriculture and forestry practices and preservation of identity, culture with fostering of sustainable green tourism too. Climate change is in the heart of endeavour of national park via mitigation of change of biodiversity. Triglav national park area is also Unesco Mab area.

### 5.3 Regional SECAP

Gorenjska prepared regional SECAP, which was foundation for entering Gorenjska into covenant of mayors as a region with 18 local communities. Since its preparation few years ago the plan is regularly monitored (by gathering different data (CO2 emissions, renewables, etc.)

### 5.4 100 climate resilient cities mission

City community Kranj is member of the 100 climate resilient cities. It has prepared a plan for climate resilient local community in areas affected by climate change: that include also agriculture, circularity, reduction of CO2, renewables, etc. And is also trying to apply innovative solutions in mitigation of climate change ( in th field of sustainable mobility, usage of water, etc.)

### 5.5 Initiative for prevention of invasive plants

Natura 2000 areas and other areas in the region is facing strong presentation of invasive plants. Several years ago joint initiative of local communities , public communal companies, Office for protection of nature, NGO-s, development agencies, inhabitants, epxerts was put together to jointly address the question of invasive plants spreading in Natura 2000 and other areas in the region. They work together to report the invasive plants spots connected to active prevention (actions to destroy plants in a safe way), other actions of empowerment, usage of invasive plants, etc.

### 5.6 Initiative programs of voluntary service for elderly

Voluntary services for elderly Prostofer (free transport by volunteers), special volunteer support elderly for elderly, inter generation centres also in countryside where young join forces with elderly generation.

### 5.7 LEADER LAG Gorenjska košarica

LEADER LAG Gorenjska košarica has a possibility to use EU agriculture fund, ERDF funds so far. Several projects assuring preservation of biodiversity, green

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infrastructure, production of local seeds, support to elderly, young in countryside with diversity of programs, trainings etc. Was a starting point in addressing the climate change, which is one of important goals for programming period 2021-2027.

## 6 Proposals for Improvement

The region needs to prepare regional and local policy documents that will address the topics of environmental risks that are coming with climate change, that will be followed by operational working plans and actions. Especially in the field of the climate mitigation and protection of nature, biodiversity, sustainable forest management, agriculture, heat waves mitigation, flood protection, renewables etc. Beside national documents there is a need to work on realistic regional and local documents that contribute to concrete implementation of climate mitigation actions. Especially elderly and young need to be put under consideration with specific support and innovative measures. Especially specific measures need to be put together to attract young to stay/return to countryside. Spatial planning need to be put back in the service of society (closure of practices of building on agriculture land; buildings permits only within limits of settlements, cities where many abandoned, deprived areas can be found left idle). Climate change should become essential part of the spatial plans with clear determination of dangerous areas (possibility to be affected by climate change (environmental risks))

There is a need to highlight the usage of innovative technologies, innovative ways of natural protection (e.g. traditional trees species, traditional crops adjusted to climate change), change in farming and forestry, change in production and services (where CO<sub>2</sub> is produced), change of sustainable mobility patterns, change in construction and usage of renewables, etc. Especially cooperation with research need to be tackled and improved, so innovative solutions can be checked and tested in practice quicker (environmental risks (as part of climate change) does not allow a lot of time to be left idle), concrete actions and comprehensive knowledge is needed.

Above all green sustainable development need to be put in focus even in more determined way as it is now. Based on local values, identity, knowledge and sustainable green usage of natural resources and innovative technology that is available, thus creating added value and sustainable green working places with high added value.

The most important proposed tasks to **address the environmental risks** are as follows:

- Bigger usage of eco agriculture approaches – sustainable usage of land, based on traditional practices and traditional crops/traditional animals
- Via small parcels of land – use different crops/different animals in different smaller plots of land
- Use as much as possible natural manure (from ecologically raised animals, or from ecological plants)
- Use practices of carbon farming and use other measure to protect soil
- Preservation of typical landscape; orchards, meadows, trees and bushes between arable land
- Preservation of typical biodiversity in agriculture land and forests: assure additional measures to maintain wild animal and wild plant biodiversity
- Preservation of natural streams, rivers with natural biodiversity and clean water
- Assure watering of crops (where possible – due to change in ground water- assure close monitoring if watering is possible).
- Preserve biodiversity in forests with sustainable management of forests and its monitoring and contribute with knowledge to assure additional tree species (now not traditional) in the case of need of quick climate change
- Assure close monitoring of nature (to prevent fire)
- Flood protection measures, cleaning of rivers benches, streams, etc.
- Upgrading the sustainable management of protected NATURA 2000 and other protected areas (especially in light of environment risks )climate change
- Assuring the protection of flora /fauna in protected areas
- Assuring green infrastructure also in settlements, cities as an empowering element of respect to nature and its biodiversity
- Upgrading the cooperation between research and other actors in the field to better mitigate environment risks (climate change)

**Environment risks needs to be addressed via:**

- Implementation of the measures proposed by national Climate strategy
- Preparation of the upgraded climate strategy on the regional level

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- Development of specific floods, heat maps
- Upgrading the Triglav national park management plan with climate change measures
- Upgrading the regional development plan with climate change (environmental risks) measures
- Forming the regional working group specialise in specific topics of climate change

### **Positive demographic change that can support sustainable green development needs to be addressed via:**

#### Measures:

- Supporting the overall quality of life in countryside (including public services)
- Assuring the good possibilities for young to empower them for employment, selfemployment (also via support programs of state/local communities)
- Assuring the support for local value chains in rural areas
- Supporting the sustainable green mobility (if no public transport exists then call on demand transport)
- Assuring conditions for development of sustainable green companies based on natural, cultural resources and natural materials available in countryside (for example tourism, ICT, etc.)
- Assure cross sectoral, cross local communities' cooperation to jointly support the development of areas facing the brain drain
- Assure possibilities for young to move from cities to villages (local community support)

#### Strategies:

- Implementation of the measures of the Regional development plan of Gorenjska region

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- Implementation of measures of management plan of Triglav national park that can be transferred also to other mountain, hilly areas in the region
- Usage of plan for border local communities (national support).

## 7 Conclusions

The region Gorenjska having typical alpine climate has rather high quality of life, some attractive professions and appealing working places, although in some hilly and mountain areas is facing brain drain, while ageing is a challenge of the whole region. It has good road connections and working places are in vicinity. With sustainable mobility measures by cycling and walking and usage of shuttles has been growing, although CO<sub>2</sub> emissions are still rather high therefore also public transport need to have sustainable vehicle (electricity etc..) and need to address the need of the users better. In some cases, we can see the good cases of voluntary services (prostofer) for elderly etc. Environment risks can be mitigated also by bigger usage of renewables (now not the case): regional action plan need to be prepared for usage of renewables. Especially the solar energy, since water is utilised already, for wind – no options.

In recent years region was heavily affected by climate change not fore seen for Alpine area with strong storms, heavy rain, floods, droughts, heat waves, wildfires, etc. .Both rural areas and urban areas need to tackle the climate change (environment risks) now. Especially in countryside agriculture and forestry practices need to be changes, new knowledge needs to be obtained, usage of reliable traditional crops and traditional animals with eco farming needs to be fostered and traditional landscape need to be protected (orchards, pastures, etc.). Additionally research knowledge need to use by farmers and support organisations and variety of food products need to be addressed to assure good quality of crops in changing climate conditions. Over 60 % of forests have been damaged by pests and other diseases, therefore CO<sub>2</sub> storage in endangerous, also some forests were affected recently by wildfire (since forests need at least 20-30 years to restore (where there are bigger areas of cut down forests). So far regional spatial plan was not prepared, on local level there are many conflicts for usage of land (agriculture land is used for build up areas), suburban and rural typical landscape has been lost in many areas near the bigger cities. Therefore national policy needs to be upgraded to stop the urbanisation of agriculture land.

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The rural areas, specifically border local communities are facing brain drain and it is hard to assure quality working force, while overall population in the region is ageing.

The overall needs based on environment risks (climate change) needs to be address via preparation and upgrading the strategic regional documents:

- Regional development plan 2021-2027 (upgrade)
- Triglav national park management plan (upgrade)
- Local energy plans for energy efficiency, renewables (upgrade)
- **Regional Sustainable Energy and Climate Action Plan (SECAP) (upgrade)**