Strategic Environmental Assessment of the Cooperation Programme Austria-Czechia 2021-2027

Environmental Report

November 2021

Aus urheberrechtlichen Gründen wurden Bilder und Karten entfernt – das Originaldokument kann auf Anfrage übermittelt werden

Commissioned by:
Office of the Government of Lower Austria

Project team: Erich Dallhammer (ÖIR)
Roland Gaugitsch (ÖIR)
Clemens Meier (ÖIR)
Michal Musil (Integra Consulting)
Ondrej Bušek (Integra Consulting)
Martin Smutný (Integra Consulting)

ÖIR GmbH (100% subsidiary of the association Österreichisches Institut für Raumplanung/
Austrian Institute for Regional Studies)
A-1010 Vienna, Franz-Josefs-Kai 27 | Telephone +43 1 533 87 47-0, Fax -66 | www.oir.at

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Introduction

In parallel to the preparation of the ETC Austria – Czechia for the programming period 2021-2027, a Strategic Environmental Assessment (SEA) is being conducted. The SEA aims to contribute to the integration of environmental considerations and ensure a high level of environmental protection in the preparation and adoption of the programme. The legal basis for such an assessment are the Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment ("SEA Directive") and Act No. 100/2001 Coll in the Czech Republic.

This document represents the environmental report which is the core output of the SEA procedure. The report is based on the 5th draft of the IP from May 2021, which includes all relevant provisions. Changes made to ensuing versions of the IP are minor and do not influence the assessments. The following information is presented in the subsequent chapters:

- Non-technical summary of the report
- Description of the methodological approach
- Brief description of the programme and its main objectives and supported actions as well as the relation to other programmes and plans
- Outline of the relevant environmental objectives
- Description of the current state of the environment and its development without the programme intervention as well as main environmental challenges
- Assessment of the foreseeable impacts on the environment for each specific objective as well as assessed alternatives and measures to reduce, prevent or offset significant negative environmental impacts
- Description of encountered difficulties
- Description of planned monitoring measures

Time limitations

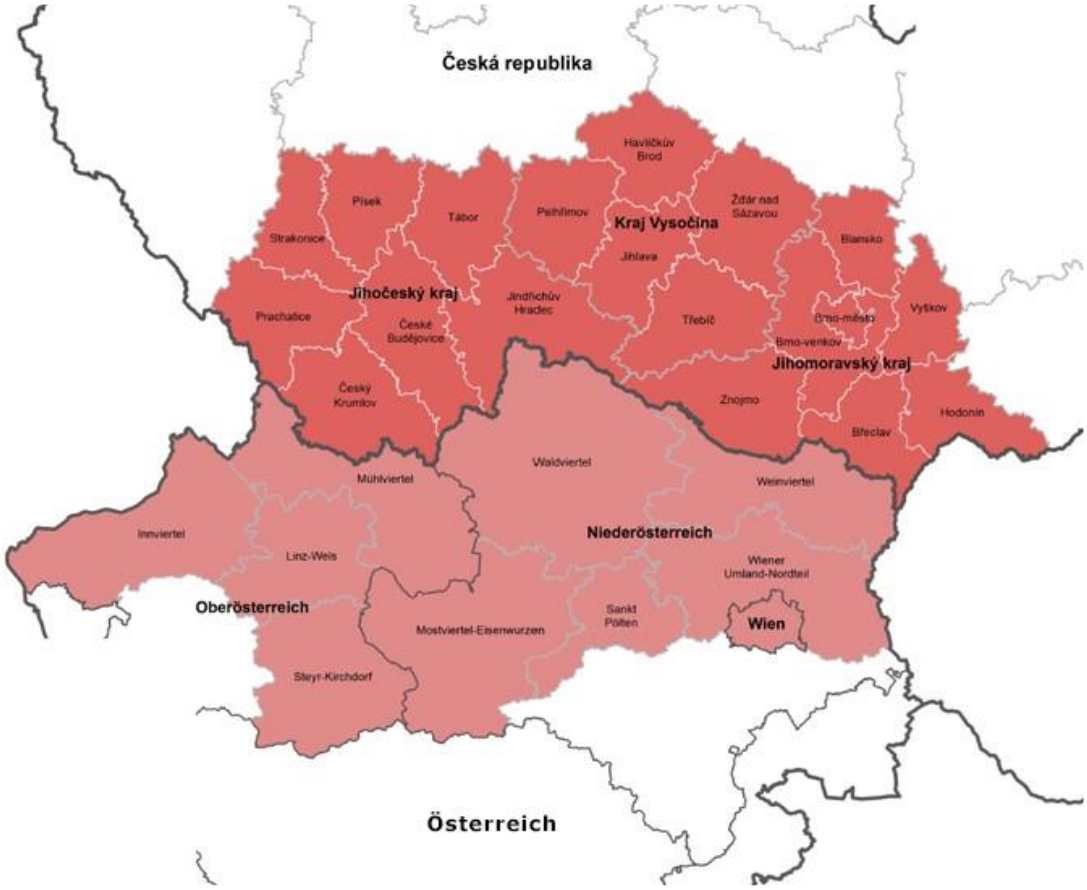
The time frame of the SEA is determined by the period of validity of the programme under evaluation. This is primarily the duration of the programming period from 2021-2027 but includes the subsequent period until 2029 as well. Based on the Commission's proposed regulations on the rules for the ESI funds, the ERDF and INTERREG, programme-based payments are still possible for this time. Thus, at the current point in time, 31.12.2029 or, if different, the formal programme closure is to be regarded as the end date of possible financing. To assess the status quo and possible future developments, the latest available data is used as the basis for this SEA.

Spatial limitations

In spatial terms, the area of expected environmental impacts of the assessed IP is determined by the area of its validity. Therefore, the primary investigation area is the territory of the cross-border area of Austria and the Czech Republic. Most of the expected environmental impacts are likely to

be limited to this primary study area, as the majority of the measures have a strong regional focus. However, some individual measures, especially climate- or air/water-related (which cannot always be strictly spatially delineated), are assessed beyond the primary study area. Of particular relevance here are significant transboundary environmental impacts (effecting other countries than Austria or the Czech Republic), the occurrence of which, according to Article 7 of the SEA Directive, requires the possibility for the affected state to be involved in a consultation process.

Figure 1: Programme area Austria-Czechia 2021-2027



Source: IP Austria-Czechia 2021-2027

Content limitations and depth of the assessment

The subject of this SEA is the cooperation programme Austria-Czechia 2021-27, for which the expected environmental effects of particular measures of the programme are assessed. The target framework is assessed at an international, EU, national and regional level. The delineation of the included objectives or the corresponding environmental aspects (see Chapter 4) is determined by the SEA directive. These conditions determine the depth of the assessment, which is directly linked to the actions defined by the programme. However, due to the nature of the IP, these actions do not represent concrete projects but define solely the framework of possible projects. Thus, the way concrete projects are designed in the implementation phase depends on the particular level of detail of the activities presented in the IP. This rather abstract nature of the programme influences the assessment of potential environmental impacts and results in a primarily qualitative evaluation.

Relation to other programmes and plans

Complementarity and potential synergies of European, national, regional strategies and programmes with the Interreg Programme Austria-Czechia 2021-2027 have been taken into account in the programming process. Several high-level strategies and plans are of relevance, such as the European Green Deal, the EU Biodiversity Strategy. Those are however general strategies with which the programme should seek complementarity, but which do not create specific obligations for the programme.

Other EU Funding programmes, in particular ESIF programmes are furthermore of relevance. Parts of the programme area overlap with other Interreg cross-border programmes (both in Austria and in the Czech Republic) and transnational programmes. These programmes oftentimes pursue similar objectives and thus can create synergies between them. Programmes with a different focus that are targeting the same areas are e.g. the ERDF or the EAFRD, both of which address topics such as innovation or climate change as well.

Macro-regional strategies are of relevance for the programme area as well, the programme itself in particular contributes to the EU Strategy for the Danube Regions (EUSDR) in the fields of social and cultural activities.

Non-technical summary

The Interreg Programme (IP) Austria-Czechia 2021-2027 is a programme in the framework of the European Territorial Cooperation (ETC) and funded by the European Regional Development Fund (ERDF). The purpose of such Cross-Border programmes is to support Member States to implement joint projects, address joint challenges and overcome border obstacles.

The programme development was accompanied by a Strategic Environmental Assessment (SEA) which aims at identifying potential negative impacts on the environment at an early stage. The process included consultation with the relevant environmental authorities in both countries, namely. According to the legal framework (various national legislation and guidelines under the umbrella of the SEA directive (2001/42/EC)), the assessment methodology and process was designed and agreed upon with the authorities.

The original assessment is based on the 5th draft version of the IP from April 2021 which is an advanced state of programme development where no major changes to the submitted final version of the programme have been made. The Regions of Waldviertel (AT124), Weinviertel (AT125), Mostviertel-Eisenwurzen (AT121), St. Pölten (AT123), Wiener Umland – Nordteil (AT126), Wien (AT130), Mühlviertel (AT313), Innviertel (AT311), Linz-Wels (AT312), Steyr-Kirchdorf (AT314) in Austria and Jihočeský kraj (CZ031), Kraj Vysočina (CZ063), Jihomoravský kraj (CZ064) in the Czech Republic are included in the programme area which covers about 6,5 mio inhabitants. The time period for implementation of the programme stretches from 2021 to 2027 (+2 years for finalisation of projects).

The programme is based on the Policy Objective 1: *a smarter Europe by promoting innovative and smart economic transformation*, Policy Objective 2: *a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management*, Policy Objective 4: *A more social Europe implementing the European Pillar of Social Rights* and Interreg Specific Objective 1: *a better cooperation governance*. The programme implements them in 7 Specific Objectives (short names as utilised by the programme) structured by 4 Priorities:

- Priority 1 – Research and innovation
  - Specific objective i) Research and innovation
- Priority 2 – Climate & Environment
  - Specific objective iv) Climate change adaptation
  - Specific objective vii) Nature protection and biodiversity
- Priority 3 – Education, culture & tourism
  - Specific Objective ERDF ii) Education and training
  - Specific Objective v) Culture and tourism
- Priority 4 – Cross-border Governance
  - Interreg specific objective ii) Legal and institutional cooperation
  - Interreg specific objective iii) People-to-people action for increased trust

Under those Priorities and Specific Objectives, the programme outlines different types of actions, thematic focus points and examples of what kinds of projects are intended to be funded. The focus of projects is mostly laid on cooperation, exchange, joint strategies and management plans and similar activities. Investments in physical assets and construction activities are possible under some of the Specific Objectives, especially in relation to research and to tourism, but due to the overall budget of the programme are usually of rather small scale.

The baseline analysis of the programme area revealed that the overall state of the environment is not bad, however the development in both countries is quite heterogenous depending on the individual aspects of the environment and also differing between countries. Monitoring reveals most negative tendences in relation to:

- Nature- and biodiversity protection, where many species and habitats are endangered or show a large share of non-favourable states, where even some deterioration can be seen as well. Neophytes are another issue contributing to the unfavourable conservation status of species.
- land use and soil sealing, where even though some improvements could be made, both countries clearly miss their targets for sustainable land consumption. The negative trend is decelerating but still ongoing.
- Water, where both countries are below set targets for many water bodies. The situation in the Czech Republic however is improving, while in Austria low to no improvements are recorded

Against those trends, the potential impacts of the programme for each specific objective and each environmental aspect, were identified. The basis for those assessments were descriptions of actions within the programme itself as well as further documentation and information from the programme authorities. All results were reflected with the programme authorities as well as the relevant regional and federal environmental authorities. The results were presented in impact matrices accompanied by textual explanations.

The main results are:

- Two of the Specific Objectives (ISO ii) Legal and institutional cooperation and ISO iii) People-to-people action for increased trust) lead to no concrete environmental impacts, neither negative nor positive.
- Three of the Specific Objectives (SO iv) Climate change adaptation, SO vii) Nature protection and biodiversity and SO ERDF ii) Education and training) create only positive environmental impacts
- Two of the Specific Objectives (SO i) Research and innovation and SO v) Culture and tourism) create various positive and negative environmental impacts.

No Specific Objective creates significant negative environmental impacts on programme level. However multiple effects strongly depend on the actual location of projects and actual measures within those projects, both of which are not known at the current stage. It is therefore possible, especially in the case of construction activities, that depending on the type of project implemented and its location, further assessments are necessary. In particular tourism related activities have a higher potential for such location-based impacts The mitigation measures suggested by the SEA

would contribute to a proactive early identification of such projects and allow for the necessary measures.

In terms of potential impacts on environmental aspects, positive impacts are appearing for all environmental aspects. Some examples are:

- *Human health and well-being,* where improved flood risk management and flood protection reduces the amount of people affected
- *Water*, addressed by knowledge exchange and pilot actions for joint water management, improving the situation for surface- and groundwater alike
- *Climate and energy*, being explicitly addressed by concrete climate change risk mitigation and also reduction strategies in the context of one SO
- *Material assets, raw material, resources* linked to the explicit focus of research activities on circular economy and resource efficiency

Negative impacts in the context of the programme are expected to be minor, however are linked to some concrete environmental aspects and actions mostly:

- *Flora, fauna including biodiversity, conservation of habitats* where increased construction activities and in particular tourism infrastructure can negatively influence species, habitats and migration corridors
- *Soil, land use*, where construction projects are likely to lead to soil sealing. In the wider context, spillover effects of new necessary infrastructure not financed by the programme in the context of tourism development are possible as well.
- *Landscape*, where impacts through construction projects and increased tourism pressure are possible

Tab. 2 shows an overview of the assessment results for each environmental aspect and each SO. Concrete descriptions of those assessments are included in the main Environmental Report.

Overall impacts of the IP on the environment will likely be minor and non-significant. As no significant negative impacts have been identified, no mitigation measures or additional alternatives need to be prescribed by the SEA. Nevertheless, some measures to reduce even the minor negative impacts or to improve the potential positive impacts have been formulated. These (recommendations) are namely the following:

- In order to prevent the occurrence of significant negative environmental impacts, it is necessary, when approving projects, to ensure that the newly planned tourist infrastructure structures do not encroach on specially protected areas and Natura 2000 sites.
- It is also necessary to avoid the construction of structures that could negatively affect the landscape character in areas of landscape value, and it is also necessary to avoid placing linear structures in important wildlife migration corridors in order to avoid restricting the migratory permeability of the landscape.
- In the case of tourism projects, it is recommended that the allocation of support be conditional on prior consultation of the project proposal with the relevant nature conservation authorities (e.g. the administration of a protected landscape area or national park).

Nicht-technische Zusammenfassung

Das Interreg Programm (IP) Österreich-Tschechien 2021-2027 ist ein Programm im Rahmen der Europäischen Territorialen Kooperation (ETZ) finanziert vom Europäischen Fonds für Regionalentwicklung (EFRE). Das Ziel solcher grenzüberschreitender Kooperationsprogramme ist es, gemeinsame Projekte zu implementieren, gemeinsame Herausforderungen in Grenzregionen zu adressieren und die Barrierewirkung der Grenze im Allgemeinen zu reduzieren.

Die Erstellung des Programms wird begleitet von einer Strategischen Umweltprüfung (SUP), mit dem Ziel mögliche negativen Umweltwirkungen in einer frühen Phase der Programmerstellung zu identifizieren und zu adressieren. In der Erstellung der SUP wurden die relevanten Umweltbehörden beider Länder beteiligt. Die Methodik und der Ablauf der SUP wurden ebenfalls im Einklang mit dem rechtlichen Rahmen (jeweilige nationale Gesetzgebung aufbauend auf der SUP Richtlinie (2001/42/EC)) entwickelt und mit den Behörden abgestimmt.

Die Analysen des Umweltberichts basieren auf dem 5. Programmentwurf vom April 2021, welcher sich bereits in einem fortgeschrittenen Stadium befindet in dem keine deutlichen Änderungen an der Programmstruktur mehr zu erwarten sind. Die Regionen Waldviertel (AT124), Weinviertel (AT125), Mostviertel-Eisenwurzen (AT121), St. Pölten (AT123), Wiener Umland – Nordteil (AT126), Wien (AT130), Mühlviertel (AT313), Innviertel (AT311), Linz-Wels (AT312), Steyr-Kirchdorf (AT314) in Österreich und Jihočeský kraj (CZ031), Kraj Vysočina (CZ063), Jihomoravský kraj (CZ064) in Tschechien mit zusammen rund 6,5mio Einwohnern bilden die Programmregion. Der Zeitrahmen für die Implementierung von Projekten im Rahmen des IP erstreckt sich von 2021-2027 (+2 Jahre für die Fertigstellung der Projekte).

Das Programm baut auf vier übergeordneten Zielen auf: Politisches Ziel 1: *ein intelligenteres Europa durch die Förderung eines innovativen und intelligenten wirtschaftlichen Wandels*, Politisches Ziel 2: *ein grüneres, CO2-armes Europa durch Förderung von sauberen Energien und einer fairen Energiewende, von grünen und blauen Investitionen, der Kreislaufwirtschaft, der Anpassung an den Klimawandel, der Risikoprävention und des Risikomanagements*, Politisches Ziel 4: *ein sozialeres Europa, in dem die europäische Säule sozialer Rechte umgesetzt wird* und Interreg Spezifisches Ziel 1: *Bessere Interreg-Governance*. Diese übergeordneten Zielsetzungen werden in 7 spezifischen Zielen in 4 Prioritäten umgesetzt (Kurzbezeichnungen wie vom Programm angewendet):

- Priorität 1 – Forschung und Entwicklung
  - Spezifisches Ziel i) Forschung und Entwicklung
- Priorität 2 – Klima & Umwelt
  - Spezifisches Ziel iv) Klimawandelanpassung
  - Spezifisches Ziel vii) Naturschutz und Biodiversität
- Priorität 3 – Bildung, Kultur und Tourismus
  - Spezifisches Ziel EFRE ii) Bildung und Ausbildung
  - Spezifisches Ziel v) Kultur und Tourismus
- Priorität 4 – Cross-border Governance
  - Interreg spezifisches Ziel ii) Kooperation auf den Gebieten Recht und Verwaltung
  - Interreg spezifisches Ziel iii) People-to-people Aktivitäten zum Vertrauensaufbau

Innerhalb dieser Prioritäten und Spezifischen Ziele definiert das Programm mögliche Vorhaben, thematische Fokussierung und Beispiele welche Arten von Projekten gefördert werden sollen. In den meisten Fällen liegt der Programmfokus auf Kooperation, Erfahrungsaustausch, Entwicklung gemeinsamer Strategien und Managementpläne und vergleichbaren Aktivitäten. Investive Maßnahmen inklusive Baumaßnahmen sind in einzelnen Spezifischen Zielen möglich, insbesondere im Zusammenhang mit Forschung und Tourismus. Diese halten sich aufgrund der geringen finanziellen Größe des Programms in der Regel auch im kleinen Rahmen.

Die Analyse des derzeitigen Umweltzustandes zeigt einen allgemein akzeptablen Zustand, allerdings sehr heterogen abhängig vom jeweiligen Land und vom jeweiligen Umweltaspekt. Negative Tendenzen zeigen sich insbesondere in:

- Naturschutz und Schutz der Biodiversität, mit einer Vielzahl an Arten und Habitaten in schlechtem Entwicklungszustand und teilweise negative Entwicklung des Zustandes. Invasive Neophyten tragen zusätzlich zu dieser negative Tendenz bei.
- Landnutzung und Bodenversiegelung, wo trotz Verbesserungen in den vergangenen Jahren beide Länder deutlich ihre Ziele für sparsamen Bodenverbrauch verfehlen. Der Abwärtstrend wurde in diesem Zusammenhang zwar reduziert, aber nicht aufgehalten.
- Wasser, wo die gesetzten Ziele zum chemischen, physikalischen und ökologischen Status von beiden Ländern verfehlt werden. In Tschechien ist in diesem Zusammenhang eine Verbesserung zu identifizieren, während in Österreich keine Verbesserung absehbar ist.

Diese Trends wurden den möglichen Wirkungen des Programms in jedem Spezifischen Ziel gegenüber gestellt. Die Wirkungsanalysen basieren auf den Beschreibungen der Vorhaben des Programms sowie weiterführenden Dokumenten und Informationen von den Programmbehörden. Die Ergebnisse der Wirkungsanalyse wurden mit den Programmbehörden und Umweltbehörden auf Landes- und Bundesebene reflektiert. Die Ergebnisse sind in Wirkungsmatrizen begleitet von textlichen Beschreibungen dargestellt.

Zusammenfassend zeigt sich:

- Zwei der Spezifischen Ziele (ISO ii) Kooperation auf den Gebieten Recht und Verwaltung und ISO iii) People-to-people Aktivitäten zum Vertrauensaufbau) führen zu keinen konkreten positiven oder negativen Umweltwirkungen
- Drei der Spezifischen Ziele (SO iv) Klimawandelanpassung, SO vii) Naturschutz und Biodiversität and SO ERDF ii) Bildung und Ausbildung) haben voraussichtlich ausschließlich positive Umweltwirkungen
- Zwei der Spezifischen Ziele (SO i) Forschung und Innovation and SO v) Kultur und Tourismus) haben voraussichtlich sowohl positive als auch negative Umweltwirkungen

Kein Spezifisches Ziel führt jedoch zu erheblichen negativen Umweltwirkungen auf Programmebene. Einige der Wirkungen sind allerdings stark vom konkreten Projekt und dessen konkreten Standort abhängig, welche im Rahmen der Programmerstellung noch nicht bekannt sind. Insbesondere im Zusammenhang mit Bautätigkeiten sind daher gegebenenfalls weitere Analysen im Einklang mit der jeweiligen nationalen Gesetzgebung notwendig. Tourismusprojekte haben ein höheres Potential für standortbasierte Wirkungen. Die Minderungsmaßnahmen die in der SUP für

solche potentiellen Wirkungen vorgeschlagen werden können proaktiv dazu beitragen, derartige Projekte möglichst früh zu identifizieren und die notwendigen Maßnahmen zu ergreifen.

Positive Umweltwirkungen zeigen sich in allen analysierten Aspekten abhängig vom Spezifischen Ziel. Beispiele dafür sind:

- *Gesundheit und Wohlbefinden des Menschen,* durch verbessertes Hochwasserrisikomanagement und Hochwasserschutz und eine damit verbundene Reduktion der potentiell Betroffenen
- *Wasser,* durch Erfahrungsaustausch und die Implementierung von Pilotprojekten für gemeinsames Wassermanagement, was zu einer Verbesserung des Status von Oberflächen- und Grundwasser führen kann
- *Klima und Energie,* durch die Implementierung von Klimawandelanpassungsstrategien und -risikovermeidungsstrategien
- *Sachwerte, Rohstoffe und Ressourcen,* adressiert durch die explizite Fokussierung von Forschungsaktivitäten auf Kreislaufwirtschaft und Ressourceneffizienz.

Negative Umweltwirkungen des Programms sind voraussichtlich gering. Konkret betroffene Umweltaspekte sind:

- *Flora, Fauna inklusive Biodiversität und Schutz der Habitate,* durch Bautätigkeiten, insbesondere im Zusammenhang mit Infrastruktur für Tourismus
- *Boden, Landnutzung,* durch Bodenversiegelung im Zusammenhang mit Bautätigkeiten. Das inkludiert ggf. auch Infrastruktur die im Zusammenhang mit Tourismusprojekten errichtet wird aber nicht direkt durch das Programm finanziert ist.
- *Landschaft,* die durch Bauvorhaben und erhöhten Tourismusdruck negative beeinflusst wird.

Tab. 2 zeigt die möglichen Wirkungen für jeden Umweltaspekt und jedes Spezifische Ziel. Konkretere Beschreibungen der Wirkungen sind im Umweltbericht enthalten.

Generell sind die Programmwirkungen geringfügig und nicht erheblich. Ohne absehbare erhebliche negative Umweltwirkungen müssen aus der SUP keine Minderungsmaßnahmen oder Monitoringvorgaben erteilt werden. Nichts desto trotz wurden Empfehlungen zur Reduktion auch der geringfügig negativen Wirkungen oder zur Verbesserung der positiven Wirkungen formuliert. Diese Empfehlungen inkludieren:

- Um negative Umweltwirkungen zu vermeiden ist im Rahmen der Projektauswahl sicherzustellen, dass neu errichtete Tourismusinfrastruktur keine negative Auswirkungen auf geschützte Gebiete, insbesondere Natura 2000 Gebiete verursacht
- Im Rahmen der Projektauswahl sind ebenso negative Wirkungen auf das Landschaftsbild und die Wirkungen auf die ökologische Durchlässigkeit der Landschaft (insbesondere in Migrationskorridoren) zu berücksichtigen.
- Für Tourismusprojekte wird empfohlen, die Konsultation mit den relevanten Naturschutzbehörden (z.B. Verwaltung eines Schutzgebietes) die potentiell vom Projekt betroffen sein könnten als Förderbedingung zu definieren.

Netechnické shrnutí

Program Interreg (IP) Rakousko-Česká republika 2021-2027 je programem v rámci Evropské územní spolupráce (EÚS) a je financován z Evropského fondu pro regionální rozvoj (EFRR). Účelem těchto přeshraničních programů je podporovat členské státy při realizaci společných projektů, řešení společných výzev a překonávání překážek na hranicích.

Příprava programu byla doprovázena strategickým posouzením vlivů na životní prostředí (SEA), jehož cílem je identifikovat potenciální negativní dopady na životní prostředí již v rané fázi. Tento proces zahrnoval konzultace s příslušnými orgány pro ochranu životního prostředí v obou zemích. V souladu s právním rámcem (vnitrostátní právní předpisy a normy související se směrnicí SEA (2001/42/ES)) byla navržena metodika a proces posuzování, které byly dohodnuty s příslušnými orgány.

Posouzení vychází z 5. pracovní verze IP z dubna 2021, což je pokročilý stav vývoje programu, kdy se již neočekávají žádné zásadní změny. Regiony Waldviertel (AT124), Weinviertel (AT125), Mostviertel-Eisenwurzen (AT121), St. Pölten (AT123), Wiener Umland – Nordteil (AT126), Wien (AT130), Mühlviertel (AT313), Innviertel (AT311), Linz-Wels (AT312), Steyr-Kirchdorf (AT314) v Rakousku a Jihočeský kraj (CZ031), Kraj Vysočina (CZ063), Jihomoravský kraj (CZ064) v České republice jsou zahrnuty do programového území, které zahrnuje přibližně 6,5 mil. obyvatel. Časové období realizace programu se rozprostírá od roku 2021 do roku 2027 (+2 roky na dokončení projektů).

Program vychází z Cíle politiky 1: *Chytřejší Evropa díky podpoře inovativní a inteligentní ekonomické transformace*, Cíle politiky 2: *Zelenější, nízkouhlíková Evropa díky podpoře čisté a spravedlivé energetické transformace, zelených a modrých investic, oběhového hospodářství, přizpůsobení se změně klimatu a prevenci a řízení rizik*, Cíle politiky 4: *Sociálnější Evropa provádějící Evropský pilíř sociálních práv* a Specifického cíle 1 Interreg: *Lepší řízení spolupráce*. Program tyto cíle realizuje prostřednictvím 7 specifických cílů strukturovaných do 4 priorit:

- Priorita 1 – Výzkum a inovace
  - Specifický cíl i) Výzkum a inovace
- Priorita 2 – Klima a životní prostředí
  - Specifický cíl iv) Přizpůsobení se změně klimatu
  - Specifický cíl vii) Ochrana přírody a biologická rozmanitost
- Priorita 3 – Vzdělávání, kultura a cestovní ruch
  - Specifický cíl EFRR ii) Vzdělávání a odborná příprava
  - Specifický cíl v) Kultura a cestovní ruch
- Priorita 4 – Přeshraniční správa
  - Specifický cíl Interreg ii) Právní a institucionální spolupráce
  - Specifický cíl Interreg iii) Spolupráce mezi občany pro zvýšení důvěry

V rámci těchto priorit a specifických cílů jsou v programu uvedeny různé typy akcí, tematická zaměření a příklady projektů, které mají být financovány. Projekty se většinou zaměřují na spolupráci, výměnu, společné strategie a plány řízení a podobné činnosti. Investice do hmotného

majetku, respektive výstavby fyzické infrastruktury jsou možné v rámci některých specifických cílů, zejména v souvislosti s výzkumem a cestovním ruchem, ale vzhledem k celkovému rozpočtu programu jsou obvykle velmi malého rozsahu.

Analýza programového území ukázala, že celkový stav životního prostředí je relativně příznivý, avšak vývoj je poměrně různorodý v závislosti na jednotlivých aspektech životního prostředí a liší se i mezi oběma zeměmi. Dostupné údaje naznačují negativní tendence a problémy zejména v souvislosti s následujícími tématy:

- Ochrana přírody a biologické rozmanitosti, kde je mnoho druhů a stanovišť ohroženo nebo vykazuje velký podíl nepříznivých stavů, nebo kde lze pozorovat určité zhoršení. Dalším problémem je šíření nepůvodních druhů.
- Využívání půdy a zábor půdy, kde i přesto, že by mohlo dojít k určitému zlepšení, obě země zjevně nedosahují svých cílů v oblasti udržitelného využívání půdy. Negativní trend se zpomaluje, ale stále pokračuje.
- Voda, kde obě země nedosahují stanovených cílů pro mnoho vodních útvarů. Situace v České republice se nicméně v dlouhodobé perspektivě relativně zlepšila, zatímco v Rakousku jsou zaznamenána toliko malá až žádná zlepšení.

Na základě analýzy hlavních trendů byly identifikovány potenciální dopady programu pro každý specifický cíl a hlavní složky životního prostředí. Podkladem pro tato hodnocení byly popisy opatření v rámci samotného programu a další dokumentace a informace od řídích orgánů programu. Všechny výsledky hodnocení byly diskutovány s orgány programu i příslušnými regionálními a spolkovými, respektive národními orgány ochrany životního prostředí. Výsledky vyhodnocení jsou prezentovány v maticích dopadů doplněných textovými vysvětlivkami.

Hlavní závěry vyhodnocení jsou následující:

- Dva ze specifických cílů (ISO ii) Právní a institucionální spolupráce a ISO iii) Spolupráce mezi občany pro zvýšení důvěry nevedou k žádným konkrétním dopadům na životní prostředí, ani negativním, ani pozitivním.
- Tři ze specifických cílů (SO iv) Přizpůsobení se změně klimatu, SO vii) Ochrana přírody a biologické rozmanitosti a SO EFRR ii) Vzdělávání a odborná příprava) mají pouze pozitivní dopady na životní prostředí.
- Dva ze specifických cílů (SO i) Výzkum a inovace a SO v) Kultura a cestovní ruch) mohou mít různé pozitivní i negativní dopady na životní prostředí.

Žádný specifický cíl nebude mít na úrovni programu významné negativní dopady na životní prostředí. Reálné vlivy budou nicméně záviset zejména na umístění projektů a skutečné povaze aktivit v rámci těchto projektů, přičemž obojí není v současné fázi známo. Je proto možné, zejména v případě projektů zahrnujících stavební činnost, že v závislosti na typu realizovaného projektu a jeho umístění bude nutné provést další posouzení vlivů na životní prostředí na úrovni projektové přípravy. To se týká zejména podpory aktivit souvisejících s cestovním ruchem, které mají (v závislosti na lokalitě) vyšší potenciál takovýchto vlivů. Mezi zmírňujícími opatřeními navrženými v rámci SEA je proto akcentována nutnost proaktivní včasné identifikace takovýchto projektů, která by umožnila přijmout konkrétní nezbytná opatření k vyloučení potenciálních negativních vlivů.

Pokud jde o potenciální dopady na životní prostředí, pozitivní vlivy implementace programu se předpokládají u všech složek životního prostředí, zejména u témat:

- *Lidské zdraví a pohoda*, kdy lepší řízení povodňových rizik a ochrana před povodněmi snižuje počet postižených osob.
- *Voda*, která je řešena výměnou znalostí a pilotními akcemi pro společné hospodaření s vodou, což zlepšuje situaci jak v oblasti povrchových, tak podzemních vod.
- *Klima a energie*, které jsou výslovně řešeny konkrétními strategiemi zmírňování a snižování rizik změny klimatu v rámci samostatného specifického cíle
- *Materiální aktiva, suroviny, zdroje* spojené s explicitním zaměřením výzkumných aktivit na oběhové hospodářství a efektivní využívání zdrojů

Negativní vlivy se v kontextu implementace programu očekávají v minimální míře, přičemž rizika jsou většinou spojena s některými konkrétními opatřeními a složkami životního prostředí:

- *Flóra, fauna včetně biologické rozmanitosti, ochrana stanovišť,* kde zvýšená stavební činnost a zejména případná nová infrastruktura cestovního ruchu mohou negativně ovlivnit druhy, stanoviště a migrační koridory
- *Půda, využití půdy,* kde stavební projekty pravděpodobně povedou k záboru půdy. V širším kontextu jsou možné i dodatečně vyvolané vlivy nové navazující infrastruktury, která sice není financována z Programu, nicméně může být potřebná v souvislosti s rozvojem cestovního ruchu.
- *Krajina,* kde jsou možné dopady prostřednictvím stavebních projektů a zvýšeného tlaku cestovního ruchu.

V Tab. 2 je uveden přehled výsledků hodnocení pro jednotlivé složky životního prostředí a jednotlivé specifické cíle. Konkrétní popisy těchto hodnocení jsou uvedeny v hlavní části dokumentace vyhodnocení vlivů (SEA dokumentace).

Celkové dopady IP Rakousko – ČR 2021-2027 na životní prostředí budou pravděpodobně malé až nevýznamné. Jelikož nebyly zjištěny žádné významné negativní vlivy, není třeba v rámci posouzení SEA předepisovat žádná zmírňující opatření ani další programové alternativy. V rámci vyhodnocení byla nicméně formulována některá dílčí doporučení, která mají snížit jakékoliv potenciální negativní dopady a zlepšit potenciální pozitivní vlivy implementace IP na životní prostředí. Jde zejména o následující:

- Pro předcházení vzniku významných negativních vlivů na životní prostředí je nutné při schvalování projektů dbát na to, aby nově zamýšlené stavby turistické infrastruktury nezasahovaly do zvláště chráněných území a do lokalit soustavy Natura 2000.
- Dále je třeba se vyhnout realizaci staveb, které by mohly negativně ovlivnit krajinný ráz, v krajinářsky hodnotných územích a je také nutné zamezit umisťování liniových staveb do významných migračních biokoridorů, aby nedocházelo k omezování migrační prostupnosti krajiny.
- U projektů v oblasti cestovního ruchu doporučujeme podmínit přidělení podpory předběžnou konzultací návrhu projektu s příslušnými orgány ochrany přírody (např. Správa Chráněné krajinné oblasti či Národního parku).

Tab. 1: Qualitative assessment system | Qualitative Wirkungsbewertung | Kvalitativní hodnotící stupnice

Symbol	Trend
+✓	Substantial improvement of the environmental situation in comparison to the zero alternative
	Erhebliche Verbesserung des Umweltzustandes im Vergleich zur Nullvariante
	Podstatné zlepšení stavu životního prostředí ve srovnání s nulovou alternativou
+	Slight improvement of the environmental situation in comparison to the zero alternative
	Geringfügige Verbesserung des Umweltzustandes im Vergleich zur Nullvariante
	Mírné zlepšení stavu životního prostředí ve srovnání s nulovou variantou
0	No meaningful change of the environmental situation in comparison to the zero alternative
	Keine Veränderung des Umweltzustandes im Vergleich zur Nullvariante
	Žádná významná změna stavu životního prostředí ve srovnání s nulovou alternativou
–	Slight deterioration of the environmental situation in comparison to the zero alternative
	Geringfügige Verschlechterung des Umweltzustandes im Vergleich zur Nullvariante
	Mírné zhoršení stavu životního prostředí v porovnání s nulovou variantou
-✓	Substantial deterioration of the environmental situation in comparison to the zero alternative
	Erhebliche Verschlechterung des Umweltzustandes im Vergleich zur Nullvariante
	Podstatné zhoršení stavu životního prostředí ve srovnání s nulovou alternativou
x	Assessment not possible | Bewertung nicht möglich | Hodnocení není možné

Tab. 2: Overview on potential environmental impacts of the programme | Potentielle Umweltwirkungen des Programms | Přehled možných dopadů programu na životní prostředí

Environmental aspect | Schutzgut | Složky životního prostředí	Main environmental objectives | Hauptziele | Hlavní cíle ochrany životního prostředí	ZA|NV|NA	P 1 S i	P 2 S iv	P 2 S vii	P 3 S ii	P 3 S v	P 4 IS ii	P 4 IS iii
Human health & well-being Gesundheit und Wohlbefinden des Menschen Lidské zdraví a pohoda	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0	0	0	0	0	0	0
	Verringerung der von Lärmverschmutzung betroffenen Bevölkerung								
	Snížit podíl obyvatel vystavených nadměrnému hluku								
	Reduce the population share exposed to excessive light pollution	←↘	0	0	0	0	0/-	0	0
	Verringerung der von Lichtverschmutzung betroffenen Bevölkerung								
	Snížit podíl obyvatelstva vystaveného nadměrnému světelnému znečištění								
	Improved flood risk management	←→	0	+	0	0	0	0	0
	Verbessertes Hochwasserrisikomanagement								
	Zlepšení řízení povodňových rizik								
Fauna, flora including biodiversity, conservation of habitats Fauna, Flora inklusive Biodiversität und Schutz der Habitate Fauna, flora biodiversita, ochrana stanovišt	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	0/-	0	+	0/+	+/-	0	0
	Erhalt der Biodiversität von Fauna und Flora und Erhalt der Qualität von geschützten Gebieten								
	Ochrana biologické rozmanitosti rostlin a živočichů a zachování kvality chráněných území								
	Protection of the ecosystems from invasive species and neophytes	↘	0	0	+	0/+	0	0	0
	Schutz der Ökosysteme vor invasiven Arten und Neophyten								
	Ochrana ekosystémů před invazními druhy a nepůvodními druhy								
	Protection of wildlife migration corridors and biotope networks	←→	0	0	+	0/+	–	0	0
	Schutz von Wildwanderungskorridoren und Biotopnetzwerken								
	Ochrana migračních koridorů volně žijících živočichů a prevence fragmentace biotopů								
Soil, land use Boden, Landnutzung Půda, využití území	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0/-	+	0	0	0/-	0	0
	Nachhaltige Landnutzung, Reduktion des Bodenverbrauchs								
	Hospodárné využívání půdy, snížení záborů půdy								
	Protection of soil functions	←↗ (AT) ←→ (CZ)	–	+	0	0	0/-	0	0
	Schutz der Bodenfunktionen								
	Ochrana půdy a jejích funkcí								

Environmental aspect | Schutz-gut | Složky životního prostředí	Main environmental objectives | Hauptziele | Hlavní cíle ochrany životního prostředí	ZA|NV|NA	P 1 S i	P 2 S iv	P 2 S vii	P 3 S ii	P 3 S v	P 4 IS ii	P 4 IS iii
Cultural heritage, landscape Kulturelles Erbe, Landschaft Kulturní dědictví, krajina	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	↙↗ (AT) ↙→ (CZ)	0	0	0	0/+	+/-	0	0
	Guter Zustand des Kulturerbes (Areale und Einzelobjekte) durch aktiven Schutz und Bewusstseinsbildung								
	Příznivé podmínky pro kulturní dědictví (objekty i území) prostřednictvím ochrany, zachování a zvyšování povědomí o něm								
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ↙↘ (CZ)	0/-	+	+	0/+	+/-	0	0
	Guter Zustand von geschützten Natur- und Kulturarealen (Naturparks, Kulturlandschaft) durch verbessertes Management								
	Příznivý stav chráněných přírodních a kulturních oblastí (přírodní parky, kulturní krajina) prostřednictvím jejich managementu								
Water (ground and surface water) Wasser (Grund- und Oberflächenwasser) Voda (povrchová I podzemní)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	↙↘ (AT) ↙↗ (CZ)	0	0	+	0	0	0	0
	Schutz der Grundwässer vor Verschmutzung, Sicherstellung eines hohen chemischen und quantitativen Status								
	Ochrana podzemních vod před znečištěním a škodlivými látkami, zajištění dobrého chemického a kvantitativního stavu								
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0	0	+	0	0	0	0
	Schutz der Oberflächengewässer vor Verschmutzung, Sicherstellung eines hohen chemischen und ökologischen Status								
	Ochrana povrchových vod před znečištěním a škodlivými látkami, zajištění dobrého ekologického a chemického stavu								
Air | Luft | Ovzduší	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ↙↗ (CZ)	0	+	0	0	0	0	0
	Reduktion der Schadstofflevels im Zusammenhang mit den entsprechenden Limits								
	Snížení úrovně emisí s ohledem na příslušné emisní limity								

Environmental aspect | Schutz-gut | Složky životního prostředí	Main environmental objectives | Hauptziele | Hlavní cíle ochrany životního prostředí		ZA|NV|NA	P 1 S i	P 2 S iv	P 2 S vii	P 3 S ii	P 3 S v	P 4 IS ii	P 4 IS iii
Climate and energy Klima und Energie Klima a energie	Reduction of GHG emissions by	36% in 2030 compared to 2005 for Austria 30% in 2030 compared to 2005 in the Czech Republic	←↗	0	+	0	0	0/-	0	0
	Reduktion GHG Emissionen	36% in 2030 im Vergleich zu 2005 für Österreich 30% in 2030 im Vergleich zu 2005 für Tschechien								
	Snížení emisí skleníkových plynů	36% v roce 2030 ve srovnání s rokem 2005 pro Rakousko 30% v roce 2030 ve srovnání s rokem 2005 v České republice								
	Prevention and reduction of heat islands		←→	0	+	0	0	0	0	0
	Vermeidung und Reduktion von Hitzeinseln									
	Prevence a snižování rozsahu tepelných ostrovů									
	Fostering of renewable energy sources and increase of energy efficiency		←→ (AT) ←↗ (CZ)	0	+	0	0	0	0	0
	Förderung erneuerbarer Energien, Erhöhung der Energieeffizienz									
	Podpora obnovitelných zdrojů energie a zvýšení energetické účinnosti									
Material assets, raw material, resources Sachgüter, Rohstoffe und Ressourcen Materiální hodnoty, suroviny a zdroje	Reduction and efficient recycling of waste		←→	+	0	0	0	0	0	0
	Verringerung des Abfallaufkommens, Erhöhung des Recyclinganteils									
	Snižování a účinná recyklace odpadů									
	Promotion of recycling and the circular economy		←↗	+	0	0	0	0	0	0
	Förderung von Recycling und Kreislaufwirtschaft									
	Podpora recyklace a oběhového hospodářství									

ZA | NV | NA: Zero Alternative | Nullvariante | Nulová alternativa

P 1 Priority Axis | Priorität | Prioritní osa 1: Research and Innovation | Forschung und Innovation | Výzkum a inovace
S i Specific objective | Spezifisches Ziel | Specifický cíl i: Research and innovation | Forschung und Innovation | Výzkum a inovace

P 2 Priority Axis | Priorität | Prioritní osa 2: Climate and Environment | Klima und Umwelt | Klima a životní prostředí
S iv Specific objective | Spezifisches Ziel | Specifický cíl iv: Climate change adaption | Klimawandelanpassung | Přizpůsobení se změně klimatu
S vii Specific objective | Spezifisches Ziel | Specifický cíl vii: Nature protection and biodiversity | Naturschutz und Biodiversität | Ochrana přírody a biologická rozmanitost

P 3 Priority Axis | Priorität | Prioritní osa 3: Education, culture & tourism | Bildung, Kultur und Tourismus | Vzdělávání, kultura a cestovní ruch
S ii Specific objective | Spezifisches Ziel | Specifický cíl ii: Education and training | Bildung und Ausbildung | Vzdělávání a odborná příprava
S v Specific objective | Spezifisches Ziel | Specifický cíl v: Culture and tourism | Kultur und Tourismus | Kultura a cestovní ruch

P 4 Priority Axis | Priorität | Prioritní osa 4: Cross-border Governance | Cross-border Governance | Přeshraniční správa
IS ii Interreg specific objective | Interreg Spezifisches Ziel | Interreg Specifický cíl ii: Legal and institutional cooperation | Kooperation auf den Gebieten Recht und Verwaltung | Právní a institucionální spolupráce
IS iii Interreg specific objective | Interreg Spezifisches Ziel | Interreg Specifický cíl iii: People-to-people action for increased trust | People-to-people Aktivitäten zum Vertrauensaufbau | Spolupráce mezi občany pro zvýšení důvěry

1. Overview of draft Programme

1.1 Programme strategy

At the current moment, a draft of the structure of the cooperation programme Austria-Czechia 2021-2027 has been made available to the SEA team. It contains the foreseen priorities and specific objectives and outlines both indicative actions as well as a description of expected contribution of the actions to the specific objectives. In total there are 8 Specific objectives selected which are structured along 4 priorities corresponding to the POs 1, 2 and 4 as well as the ISO 1:

- Priority 1 "Research and innovation" (correspondent PO1)
  - SO i) "Research and innovation"
- Priority 2 "Climate & Environment" (correspondent PO2)
  - SO iv) "Climate change adaption"
  - SO vii) "Nature protection and biodiversity"
- Priority 3 "Education, culture & tourism" (correspondent PO4)
  - SO ii) "Education and training"
  - SO v) "Culture and tourism
- Priority 4 "Cross-border Governance" (correspondent ISO1)
  - ISO ii) "Legal and institutional cooperation"
  - ISO iii) "People-to-people action for increased trust"

A first overview of the content of each PA is given below.

Priority 1: "Research and innovation"

While the border region is considered to be in a good state regarding the availability of research and development facilities, the programme is seen as a means of fostering their full potential by enhancing cooperation and mobility across borders between those facilities. Complementary to increasing the R&D output actions that enable the access of SMEs to innovations are supported as well. A particular focus is laid on parts of the territory which are not urban centres, aiming at the diffusion of innovation to those more peripheral regions. Foreseen actions focus on fields of common interest for the cross-border area and in particular eco-innovation. Apart from general support of research activities, the modernisation and extension of facilities in particular those for joint use is foreseen as well.

Priority 2: "Climate & Environment"

Both for climate and environmental issues regions on both sides of the border are facing similar challenges. Climate actions focus in particular on climate change adaption and risk management through common training, integrated risk management systems and awareness raising.

Furthermore, actions to reduce negative impacts on the climate such as fostering circular economy, reduction of waste, reduction of land consumption and agriculture- and forestry related measures are foreseen as well.

Nature protection actions address two main points, namely joint ecological water management and joint biodiversity management. For water management, joint and integrated management approaches will be supported covering fields like irrigation, water retention, re-naturalisation and ecologisation of rivers or floodplain restoration. Actions for biodiversity management include joint management plans for protected areas, joint management of landscape, wildlife migration corridors and biotope networks, joint monitoring approaches and data collection, actions for the control of neophytes and awareness raising activities.

Priority 3: "Education, culture & tourism"

The Czech side of the border is facing stronger challenges in relation to education, such as a lack of adult participation in further education and a mismatch between skills available and labour market requirements, in particular in rural areas. Education and overcoming the language barrier is thus a main goal of the programme. Actions supported thus include joint education schemes in topics relevant for the cross-border area, harmonisation of vocational education in line with the labour market requirements, development of bilingual school concepts and general harmonisation in education systems.

Tourism is one of the main economic factors for the cross-border area which shares a common cultural heritage and contains a high amount of important cultural sites and objects. Actions supported consequently focus on exploring the added value of cross-border cooperation in exploiting the touristic potential of the area. This includes joint promotion activities and destination management, joint strategies, investment in tourism sites and tourism infrastructure (in particular cycling paths) and joint monitoring of tourism streams. Complementing those touristic activities some actions focus in the cultural sector in particular, ranging from cooperation between large and small museums, development of bilingual museum concepts to common cultural, religious, artistic and architectural heritage and folklore.

Priority 4: "Cross-border governance"

While cooperation between actors in the cross-border area is already taking place, a potential for further development and deepening of institutional cooperation has been identified. The main challenge are the different administrative structures and legal competences on both sides of the border. Actions foreseen include joint strategy developments, cooperation to reduce legal and administrative obstacles, cooperation between supporting organisations and networks (such as chambers of commerce), as well as cooperation in fields of particular importance for the cross-border area (e.g. health, disaster control, waste management, transport etc.)

1.2 Relationship to other plans and programmes

The IP Austria-Czechia 2021-2027 is not part of a programme hierarchy, thus neither subordinate to an umbrella programme nor superordinate to other programmes. It is based on the EU legal framework for Interreg programmes and it sets the frame for selecting projects, neither of which constitutes another plan or programme. It has however multiple overlaps, both thematic as well as geographically, with other programmes. The relations between those are informal and coordination efforts are made, especially as synergies are possible between the different programmes actions.

The IP relates to the European, national and regional strategies in a multitude of topics. On transnational level, the two macro-regional strategies are addressed directly be the programme which contributes to their target achievement. The programme contributes to both of those strategies extensively as outlined below.

EUSDR (EU strategy for the danube region)

Under Priority 1 the programme contributes by strengthening cooperation among universities, research organisations and SMEs in the Danube Region and increase awareness and visibility of science and innovation in the Danube Region.

Under Priority 2 the programme contributes by providing support for development and execution of risk management plans for different hazards, strengthening disaster prevention and preparedness among governmental and non-governmental organizations and anticipating regional and local impacts of climate change. Furthermore it contributes by promoting best management practices, to the implementation of the DRBMP and its Joint Programme of Measures, to preventing and reducing water pollution from point and diffuse sources in the Danube Region, to protecting water resources and safeguarding drinking water supply as well as to enhance the capacities, extend the coverage of basin-wide or regional forecasting and warning systems, and develop rapid response procedures. Finally it contributes to improving management of Natura 2000 sites and other protected areas, in strengthening the efforts to halt the deterioration in the status of species and habitats, in reducing the introductions and spread of Invasive Alien Species (IAS) in the Danube Region, in maintaining and restoring Green Infrastructure elements through integrated spatial development and conservation planning, in improving and/or maintaining the soil quality in the Danube Region or in decreasing air pollution in the Danube Region.

Under Priority 3 the programme should contribute by providing support for actions that contribute to improved educational outcomes, skills and competences, increased quality and efficiency of education, training and labour market systems as well as promote civic competences and lifelong learning opportunities for all in the border region. Furthermore it should contribute to the development of sustainable forms of tourism (like green tourist products and sustainable mobility solutions) and ensuring the sustainable preservation, conservation, socialization and contemporary interpretation of cultural heritage and natural values and to valorising, promoting and protecting the cultural heritage of the border region.

Under Priority 4 the programme should contribute by establishing law enforcement cooperation to ensure information security and counter hybrid threats, align the regulatory framework and improve governance in the energy sector, support better cooperation governance and more

effective cooperation between administrations, by providing support for actions that contribute to the strengthening the institutional capacities to improve decision-making and administrative performance in the border region in the specified topics and increasing the involvement of civil society and local actors for a more effective policy-making and implementation at regional level in the programme area as well as by supporting local initiatives related to social and cultural activities.

EUSALP EU (EU strategy for the alpine region)

Under Priority 1 the programme contributes by to enhanced capacity building of research institutions, networks and infrastructure with an Al-pine Region dimension and to taking into consideration existing international research / innovation coordination activities of EUSALP

Under Priority 2 the programme contributes to improve risk management and to better manage climate change, including major natural risks prevention by stocktaking of relevant actors and interests, mapping and enhancing governance structures and processes in the policy fields of risk/hazard management and climate change adaptation, improving risk and adaptation governance mechanisms in the EUSALP region by enhancing, valorizing and leveraging the existing cooperation structures, identification of good practice solutions in tackling challenges in natural hazard and climate change adaptation policy. Furthermore it contributes to preserve and valorise natural resources, including water and cultural resources by Spatial development and soil conservation, future oriented farming and forestry, integrated and sustainable water management.

Under Priority 3 the programme contributes to improve the adequacy of labour market, education and training in strategic sectors by cooperation embracing a variety of economic activities, in the domains of agriculture, industry, commerce, tourism and other services.

Under priority 4 the programme should contribute to the general improvement of cooperation and the coordination of action in the Alpine Region.

Interlinks with other Interreg Programmes are in particular:

- Interreg Central Europe geographically as well as thematically on the topics of tourism and education
- Overlaps with the programmes Bavaria-Czechia, Austria-Bavaria, Austria-Slovakia, Czechia-Slovakia geographically as well as on the topics of Research and innovation, Climate Change, Biodiversity, Tourism, Education, Cultural heritage and Governance and Interinstitutional Cooperation

Interlinks with further EU Programmes are in particular:

- ESF+ Austria and the relevant ESF operational programmes of Czechia (in particular related to education) where actions under Priority 3 have the potential to contribute and create synergies
- ERDF Austria and the relevant ERDF operational programmes in Czechia where synergies with SME support in innovation fields, knowledge transfer between research and SMEs,

biodiversity, disaster prevention and management of climate change related risks, touristic infrastructure and education activities are possible.

- EAFRD, Horizon and LIFE all of which projects are encouraged to create synergies with and consider in their project development. Based on the focus of the programmes, EAFRD is particularly relevant for tourism and rural development (Priority 3), LIFE is particularly relevant for projects in relation to biodiversity climate change etc. (Priority 2) and Horizon is particularly relevant for research and innovation projects (Priority 1)

Further programmes and plans linked to the IP are:

- RIS3 strategies on national level in Austria and on national as well as regional level in Czechia, with complementarity on research and innovation activities. Projects are engaged to consider those strategies in project development
- The EU Adaptation Strategy (2021), the Austrian Strategy on Climate Change Adaptation (2017) and the Czech Climate change strategy are to be considered by the projects when developing their project proposal
- The EU Water Framework Directive (2000), the EU Floods Directive (2007), Adaptation strategies to climate change for Austria's water management (2011) or the National Water Strategy of the Czech Republic have to be followed and particularly considered by projects in their project proposal
- In relation to Priority 2 the projects are encouraged to consider the European Green Deal (2019), the Farm to Fork strategy and Circular Economy Action Plan, Biodiversity Strategy 2030, as well as the Biodiversity Strategy Austria 2020+ and the Czech biodiversity strategy 2016-2025
- The Austrian Lifelong Learning Strategy, the Czech Lifelong Learning Strategy are to be considered by projects under Priority 3
- Tourism projects in particular are encouraged to consider the Masterplan on Tourism and the Master plan for rural areas in Austria and the National Tourism Development Strategy 2030 and the Czech National Tourism Development Strategy

2. Environmental objectives and available data

The relevant environmental objectives set the frame for multiple aspects of the SEA:

- The description of the current state of the environment
- The assessment of potential impacts of the Interreg Programme Austria-Czechia 2021-2027
- The definition of suitable alternatives or measures for reducing adverse impacts of the programme as well as potential monitoring measures

The following tables set out the main environmental objectives in relation to the relevant Environmental aspects for the possible programme contents. Based on the analysis of relevant legal matters and strategy documents at international, European, national and regional level similar environmental goals have been and aggregated to the main environmental objectives of the SEA. For each environmental goal, main relevant issues which are likely affected have been identified as well. The selection was determined by the potential actions supported by the 2021-2027 programme, the SEA of the 2014-2020 programme was considered as input as well as some goals and actions are similar between periods. The project team analysed the potential actions supported and made a first assessment of likely impacts linked to those actions based on knowledge from other SEAs of similar programmes in the past. For the different impacts, the EU-level, national and where relevant regional legal framework was screened, as well as the most relevant strategies linked to environmental aspects. The goals set out by those strategies, and ideally also the indicators set out to measure those goals were added to the respective tables for each environmental aspect.

The main environmental objectives can be adapted and updated if the programme evolves and requires the SEA to cover different thematic fields. In this case a revised version of the following tables is included in the environmental report.

According to the SEA directive, the SEA will analyse the effects of the program on the following Environmental aspects:

- Human health and well-being
- Flora, fauna including biodiversity, conservation of habitats
- Soil, land use
- Cultural heritage, landscape
- Water
- Air
- Climate and energy
- Material assets, raw materials, and resources

The strict assignment or separation of objectives to groups of Environmental aspects is not always possible. For example, protection objectives for groundwater and surface water are primarily formulated in relation to “water” as an environmental good, but they are equally relevant to human

health or to species with water as their natural habitat. An analysis of these concrete interactions regarding the impacts of the CP is carried out in the environmental report.

The following table links the main environmental objectives with the issues guiding the assessment of effects. As a program sets the frame for potential projects to be supported, and as the number, size and location of the project is not known at the stage of the program development, the main issues listed set the frame for a qualitative ex-ante assessment focusing on the direction of the development in relation to one particular main objective.

Table 3: Environmental aspects and main environmental objectives

Environmental aspects	Main environmental objectives
Human health and well-being	– Reduce the population share exposed to excessive noise levels – Reduce the population share exposed to excessive light pollution – Improve flood risk management including water retention in the landscape
Flora, fauna including biodiversity, conservation of habitats	– Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas – Protection of the ecosystems from invasive species and neophytes – Protection of wildlife migration corridors and biotope networks
Soil, land use	– Economical land use, reduction of land consumption – Protection of soil functions
Cultural heritage, landscape	– Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising – Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management
Water	– Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status – Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status
Air	– Reduction of emission levels in consideration of respective emission limits

Climate and energy	– Reduction of GHG emissions by
	  – 36% in 2030 compared to 2005 for Austria
	  – 30% in 2030 compared to 2005 in the Czech Republic
	– Prevention and reduction of heat islands
	– Fostering of renewable energy sources and increase of energy efficiency

Material assets, raw materials, and resources	– Reduction and efficient recycling of waste – Promotion of recycling and the circular economy

Table 4: Human health and well-being

Main environmental objectives	Sources for objectives	Issues
Reduce the population share exposed to excessive noise levels	– (EU) EU-Directive 2002/49/EC (Environmental Noise Directive) – (Int.) WHO, 2018, Environmental Noise Guidelines for the European Regions – (AT) Federal Environmental Noise Protection Act Austria – (AT) Austrian Strategy for Sustainable Development of the Federal Government and Federal Provinces (ÖSTRAT) – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) Strategic framework the Czech Republic 2030 – (CZ) Health 2020: National strategy for health protection and support and prevention of diseases 2014-2020	Population share exposed to excessive noise levels
Reduce the population share exposed to excessive light pollution	– (AT) Joint guidance by the 9 state governmental departments for the environment on reducing light pollution ("Österreichischer Leitfaden Außenbeleuchtung", 2018 – (CZ) Information for the Government of the Czech Republic on Light Pollution and Addressing Light Pollution (2017)., and Addressing Light Pollution (2018)	Population share exposed to light pollution
Improve flood risk management including water retention in the landscape	– (EU) EU-Directive 2007/60/EC (Floods Directive) – (AT) Austrian Water Act (BGBl. Nr. 215/1959) – (AT) National Flood Risk Management Plan of the Federal Ministry of Agriculture, Forestry, Environment and Water Management – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) Act no. 254/2001 Coll., on Waters and Amendments to some acts (the Water Act) – (CZ) National river basin management plans for Elbe and Dunaj river basins – (CZ) Flood risk management plans for Elbe and Dunaj river basins – (CZ) National strategy on flood protection – (CZ) National strategy on protection against adverse impacts of floods and erosion through nature-based measures – (CZ) National concept on flood protection using technical and nature-based measures	Number of people/ areas affected by flood risk (HQ100)

Table 5: Flora, fauna including biodiversity, conservation of habitats

Main environmental objectives	Sources for objectives	Issues
Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	– (EU) EU-Directive 92/43/ECC (Habitats Directive) – (EU) EU-Directive 2009/147/EC (Birds Directive) – (Int.) Agenda 2030 – (EU) EU Biodiversity Strategy for 2030 – (Int.) UNESCO Man and the Biosphere Programme – (AT) 8th Environment Action Programme – (AT) Biodiversity Strategy Austria 2020+ – (AT) Upper Austria Nature and Landscape Conservation Act (LGBl. 129/2001) – (AT) Lower Austria Nature Conservation Act 2000 (LGBl. 5500-11) – (AT) Vienna Nature Conservation Act (LGBl. 45/1998) – (CZ) Act No. 114/1992 Coll., on nature and landscape protection – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) State programme on nature and landscape protection for the period 2020-2025 – (CZ) Summaries of recommended measures of Natura 2000 sites in the area of interest – (CZ) National Biodiversity Strategy of the Czech Republic 2016–2025 – (CZ) Management plan of Sumava National Park – (CZ) Management plan of Podyji National Park	Development of nature protection areas (by categories) Occurrence of the species listed in appendix II of the FFH directive and appendix I of the bird protection directive Development of favourable condition of Natura 2000 network (incl. status of bio-corridors)
Protection of the ecosystems from invasive species and neophytes	– (EU) EU Biodiversity Strategy for 2030 – (EU) Regulation (EU) No 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species – (EU) List of Invasive Alien Species of Union Concern – (EU) 8th Environment Action Programme – (AT) Biodiversity Strategy Austria 2020+ – (AT) Lower Austria Nature Conservation Act 2000 (LGBl. 5500-11) – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) State programme on nature and landscape protection for the period 2020-2025 – (CZ) National Biodiversity Strategy of the Czech Republic 2016–2025 – (CZ) Strategy on Adaptation to the Climate Change in the Czech Republic – (CZ) Black, Grey and watch lists of alien species in the Czech Republic based on environmental impacts and management strategy	Occurrence of black- and grey list species
Protection of wildlife migration corridors and biotope networks	– (EU) EU Biodiversity Strategy for 2030 – (EU) 8th Environment Action Programme – (AT) Upper Austria Nature and Landscape Conservation Act (LGBl. 129/2001) – (AT) Lower Austria Nature Conservation Act 2000 (LGBl. 5500-11)	Status of habitat fragmentation, status of regional and trans-regional wildlife migration corridors

Main environmental objectives	Sources for objectives	Issues
	– (AT) Vienna Nature Conservation Act (LGBl. 45/1998) – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) State programme on nature and landscape protection for the period 2020-2025 – (CZ) National Biodiversity Strategy of the Czech Republic 2016–2025	

Table 6: Soil, land use

Main environmental objectives	Sources for objectives	Issues
Economical land use, reduction of land consumption	– (EU) 8th Environment Action Programme – (Int.) Alpine Convention – (AT) Austrian Spatial Development Concept (ÖREK 2011) – (AT) Upper Austria Spatial Planning Act 1994 (LGBl. 114/1993) – (AT) Lower Austria Spatial Planning Act 2014 (LGBl. 3/2015) – (AT) Vienna Building Code (LGBl. 61/2020) – (CZ) Act No. 334/1992 Coll., on agriculture land protection – (CZ) Act No. 183/2006 Coll., on spatial planning and building code – (CZ) Strategic framework Czech Republic 2030 and its implementation plan – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) Regional development strategy of the Czech Republic 2021+ – (CZ) National territorial development policy	Land take (km^2/year) Percentage of soil sealing Risk of agricultural land abandonment
Protection of soil functions	– (EU) EU Soil Thematic Strategy – (Int.) Agenda for Sustainable Development – (Int.) Alpine Convention – (AT) Austrian Spatial Development Concept (ÖREK 2011) – (AT) Upper Austria Soil Protection Act 1991 (LGBl. 63/1997) – (AT) Lower Austria Soil Protection Act (LGBl. 6160-0) – (CZ) Act No. 334/1992 Coll., on agriculture land protection – (CZ) Act No. 183/2006 Coll., on spatial planning and building code – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) State programme on nature and landscape protection for the period 2020-2025	soil pollution: Estimated number of contaminated sites

Table 7: Cultural heritage, landscape

Main environmental objectives	Sources for objectives	Issues
Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	– (Int.) UNESCO World Heritage Convention – (EU) European Cultural Heritage Strategy for the 21st Century – (EU) European Framework for Action on Cultural Heritage – (AT) Austrian Heritage Protection Law (BGBl. Nr. 533/1923) – (CZ) Act No. 20/1987 Coll., on the state cultural heritage management – (CZ) Act No. 114/1992 Coll., on nature and landscape protection – (CZ) Concept of cultural heritage management in the Czech Republic for the period 2017-2020	Number of properties inscribed on List of World Heritage in Danger Change in the number of units of cultural heritage Occurrence of intangible cultural heritage
Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	– (EU) European Landscape Convention, Austrian Federal Act for the Protection of Nature (LGBl. Nr. 22/1997) – (AT) Upper Austria Spatial Planning Act 1994 (LGBl. 114/1993) – (AT) Lower Austria Spatial Planning Act 2014 (LGBl. 3/2015) – (CZ) Act No. 114/1992 Coll., on nature and landscape protection – (CZ) Act No. 183/2006 Coll., on spatial planning and building code – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) State programme on nature and landscape protection for the period 2020-2025 – (CZ) National Biodiversity Strategy of the Czech Republic 2016–2025	Extent (number and size of areas/sites) of protected landscapes (cultural or natural) Landscape fragmentation change

Table 8: Water

Main environmental objectives	Sources for objectives	Issues
Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	– (EU) EU-Directive 200/60/EC (Water Framework Directive) – (Int.) UNECE Convention on the Protection and Use of Transboundary Watercourses – (Int.) Alpine Convention – (EU) Agenda 2030 – (AT) Austrian Water Act (BGBl. Nr. 215/1959) – (AT) Austrian Water Management Plan – (CZ) Act no. 254/2001 Coll., on Waters and Amendments to some acts (the Water Act) – (CZ) Plan for development of water pipelines and sewage of the Czech Republic – (CZ) National river basin management plans for Elbe and Dunaj river basins – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) State programme on nature and landscape protection for the period 2020-2025 – (CZ) National Biodiversity Strategy of the Czech Republic 2016–2025	Chemical and quantitative status of groundwater bodies
Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		Ecological and chemical status of surface bodies

Table 9: Air

Main environmental objectives	Sources for objectives	Issues
Reduction of emission levels in consideration of respective emission limits	– (EU) EU 2030 Climate- and Energy Framework – (EU) EU Directive 2008/50/EC (Air Quality Directive) – (EU) EU Directive 2008/1/EC (Environmental Directive) – (EU) EU Directive 2001/81/EC (Directive on national emission ceiling for certain atmospheric pollutants) – (EU) EU Directive 2004/107/EC (Directive on arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air) – (EU) EU Directive 2016/2284/EU (Directive on the reduction of national emissions of certain atmospheric pollutants) – (AT) Air Pollution Control Act Austria (BGBl. I Nr. 115/1997) – (AT) Mission 2030 – Austrian climate- and energy strategy – (AT) National Climate- and Energy Action Plan Austria – (CZ) Act No. 201/2012 Coll., on air protection – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) National programme on reducing the air emissions – (CZ) Mid-term strategy on improving the air quality in the Czech Republic – (CZ) Programmes on reducing air emissions for zones South-West, South-East, Brno, and Middle Moravia	Average emission levels of the main air pollutants (NO_x, PM_{10}+ $PM_{2,5}$, Ozone, SO_2, benzo(a)pyrene)

Table 10: Climate and energy

Main environmental objectives	Sources for objectives	Issues
Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	– (Int.) Paris agreement – (EU) EU 2030 Climate- and Energy Framework – (AT) Integrated National Energy and Climate Plan for Austria Agenda 2030 – (CZ) Development Strategy 2030 – (CZ) Act No. 383/2012 Coll., on the conditions for GHG emission trading – (CZ) Act No. 201/2012 Coll., on air protection – (CZ) The Climate Protection Policy of the Czech Republic – (CZ) Strategic framework Czech Republic 2030 and its implementation plan – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) National clean mobility action plan – (CZ) National Energy and Climate Plan of the Czech Republic (2020)	Annual GHG emission levels (CO_2 eq.)
Prevention and reduction of heat islands	– (EU) Agenda 2030 – (AT) Urban Heat Island Strategy – City of Vienna – (AT) Mission 2030 – Austrian climate- and energy strategy – (AT) Long-term Strategy 2050 – Austria – (CZ) Strategy on Adaptation to Climate Change in the Czech Republic and its Action Plan – (CZ) Principles for the development of climate change adaptation in Brno: using ecosystem-based approaches (2016)	Days over 30°C

Main environmental objectives	Sources for objectives	Issues
Fostering of renewable energy sources and increase of energy efficiency	– (EU) EU Renewable Energy Directive II – (EU) EU-Directive Energy 2012/27/EU (Energy Efficiency Directive) – (AT) National Climate- and Energy Action Plan Austria – (AT) Mission 2030 – Austrian Climate- and Energy Strategy – (AT) National Climate- and Energy Action Plan Austria – (AT) Mission 2030 – Austrian climate- and energy strategy – (CZ) Act No. 458/2000 Coll., on the conditions for entrepreneurship and performance of the public services in energy sectors – (CZ) Act No. 165/2012 Coll., on Supported Energy resources – (CZ) State programme on support to energy savings 2017-2021 – (CZ) State Energy Policy of the Czech Republic – (CZ) Climate Protection Policy of the Czech Republic – (CZ) Strategy on Adaptation to Climate Change of the Czech Republic – (CZ) National Energy and Climate Plan of the Czech Republic (2020) – (CZ) Strategic framework Czech Republic 2030 and its implementation plan – (CZ) State Environmental Policy of the Czech Republic until 2030 – (CZ) National clean mobility action plan	Share of renewable energy in energy production Final energy consumption

Table 11: Material assets, raw materials, and resources

Main environmental objectives	Sources for objectives	Issues
Reduction and efficient recycling of waste	– (EU) EU Directive 2008/98/EC (Waste Framework Directive) – (AT) Federals Waste Management Act Austria – (AT) Federal Waste Management Plan Austria – (AT) Austrian Action Plan on Resource Efficiency – (CZ) Act No. 541/2020 Coll., on waste – (CZ) Waste management plan of the Czech Republic – (CZ) State Environmental Policy of the Czech Republic until 2030	Resource consumption per capita
Promotion of recycling and the circular economy		Generated and deposited waste per capita

3. Current state of the environment and the zero alternative

The following chapters present the characteristics of the environment that are relevant for the assessment of possible environmental impacts of the program as well as the current state of the environment, including significant environmental problems. This description is required by the SEA Directive (Annex 1 (b)) and includes its expected development in the event of non-implementation of the Operational Programme (= zero alternative). According to Annex 1 paragraph c of the SEA Directive and point 3 of Annex No. 9 to Act No. 100/2001 Coll,, the focus lies on those areas that are likely to be significantly affected.

To define the zero alternative, a qualitative trend estimation for the program period until 2030 is carried out, based on the Objectives and other sources described in the previous sections. If detailed regional environmental data is not available for the individual federal states, national data will be used instead to describe the current status of the environment and to estimate probable trends. The assessment of the zero alternative is based on the previous trend description. It is carried out separately for each indicator.

3.1 Human health and well-being

3.1.1 Noise, light pollution

The EU Environmental Noise Directive (Directive 2002/49/EC) came into force in 2002, providing an instrument for uniform noise abatement throughout the EU. With its implementation in the new Austrian Environmental Noise Protection Act and the legal transpositions of the federal provinces, it marks an important step towards a uniform assessment of noise pollution in Austria and improved protection against environmental noise.

To determine the extent to which the population is affected by noise, the exceedances of the noise indices of the Directive 2002/49/EC are used. This is measured by two partial indicators:

- Number of people affected by noise pollution > 65 dB [= L_{den} (day-evening-night noise index[1])]
- Number of people affected by noise pollution > 55 dB [= L_{night} (night noise index[2])]

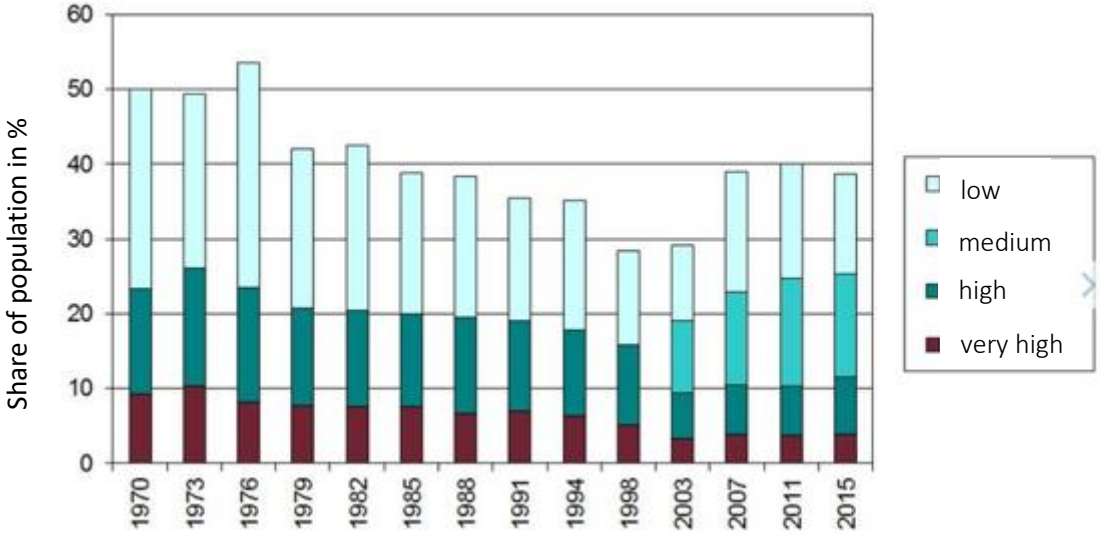
Continuous exposure to noise increases the health risk of cardiovascular diseases, high blood pressure and many other diseases. Thereby, noise pollution does not necessarily have to be consciously perceived by those affected (e.g. while sleeping) in order to develop negative effects on human health.

1 The L_{den} is used to determine the average noise level over the entire year and describes the exposure over 24 hours (Day-Evening-Night). The L_{den} is therefore used to evaluate the general noise pollution.
2 The L_{night} describes the environmental noise pollution in the annual average at night (exposure from 22.00 – 6.00).

Noise pollution

Current status in Austria

Figure 2: Development of the proportion of the Austrian population affected by noise disturbance by day and night



Source: BMNT s.a.

Figure 2 shows the time course of the proportion of the Austrian population affected by noise disturbance during day and night from 1970 to 2015. All in all, a fluctuating course can be observed. In the last survey in 2015, the proportion of people affected was slightly below 40%, which is well below the peak value in 1976 with approx. 55%, but also significantly above the lowest value of 1998 with approx. 28%.

A more detailed examination in Table 12 shows the number of people affected by noise disturbance in Austria depending on the noise source (road, railroad, airport, etc.). This includes all persons who are exposed to a continuous noise level of 55 dB or more during the day and more than 45 dB at night. This is lower than the previously described legal thresholds, however it is advisable to aim for a permanent noise level that is significantly lower in order to avoid the negative health effects mentioned above.

Figure 3 on the following page shows the environmental noise mapping of 2018 in Austria. As can be seen in the figure, especially the more northern regions of Austria (the metropolitan areas of Vienna and Linz and the axe in between), which are also the programme region, are the regions most affected by noise pollution.

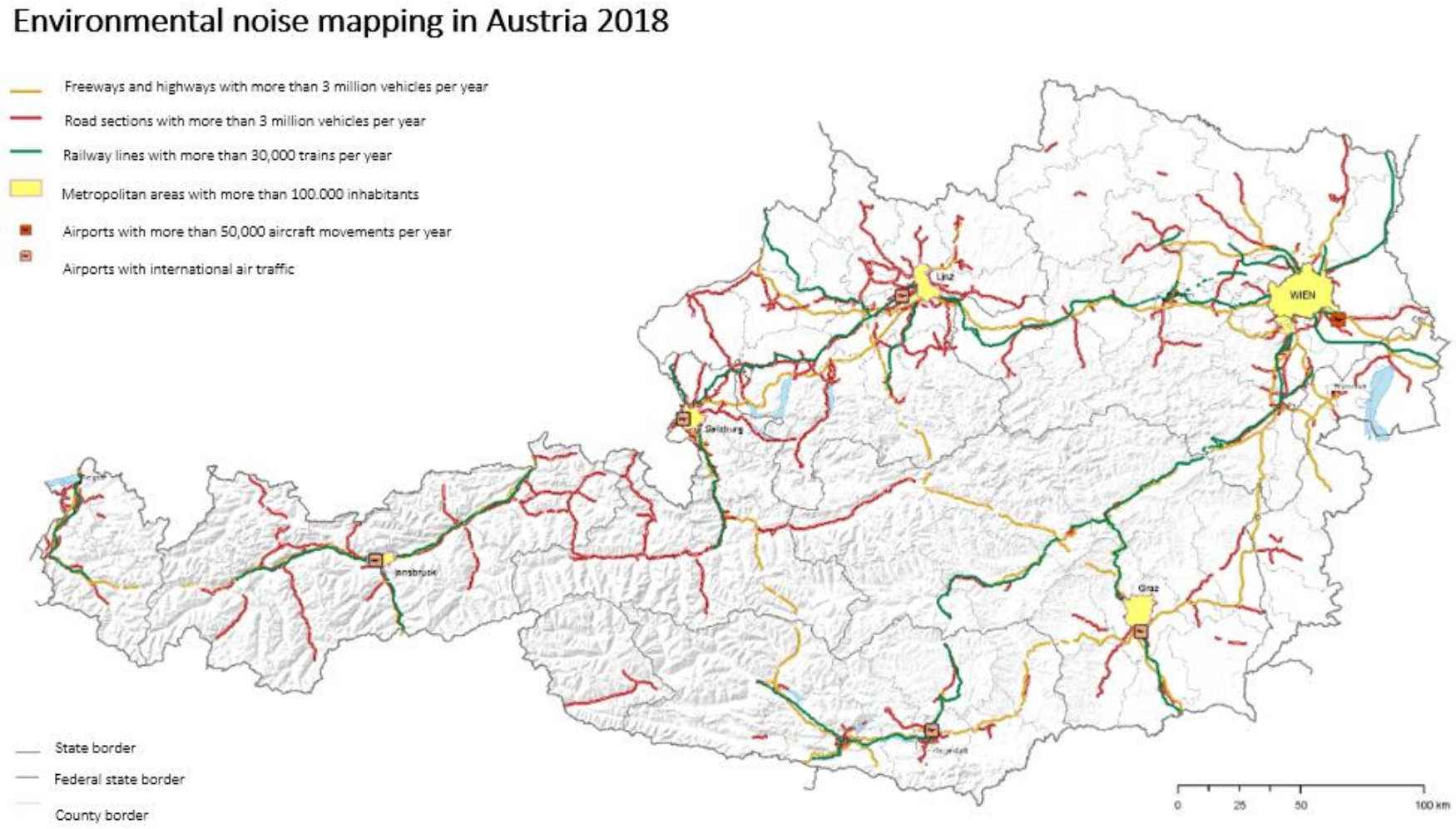
Table 12: People affected by noise disturbance in Austria in 2018, broken down to different noise sources

	People affected by noise pollution, during daytime	People affected by noise pollution, during night time
Freeways and expressways; without metropolitan regions	392,900	503,500
Roads without freeways and expressways; without metropolitan regions	327,500	376,600
All types of roads in metropolitan regions	2,122,600	2,219,600
Railroads, without metropolitan areas	502,000	397,000
Railroads, all metropolitan areas	277,800	219,900
Tramways, all metropolitan areas	302,200	221,000
Airports; without metropolitan areas	22,200	13,300
Airports; all metropolitan areas	12,000	6,000
IPPC plants[3]; metropolitan areas	5,300	0
In total	3,964,500	3,956,900

Source: BMNT 2018, 19ff

[3] IPPC plants are industrial plants that exceed a certain size or capacity – this type of plant requires a so-called "integrated plant permit", i.e. a permit that covers possible environmental impacts (on air, water, waste, soil and energy)

Figure 3: Environmental noise mapping in Austria 2018

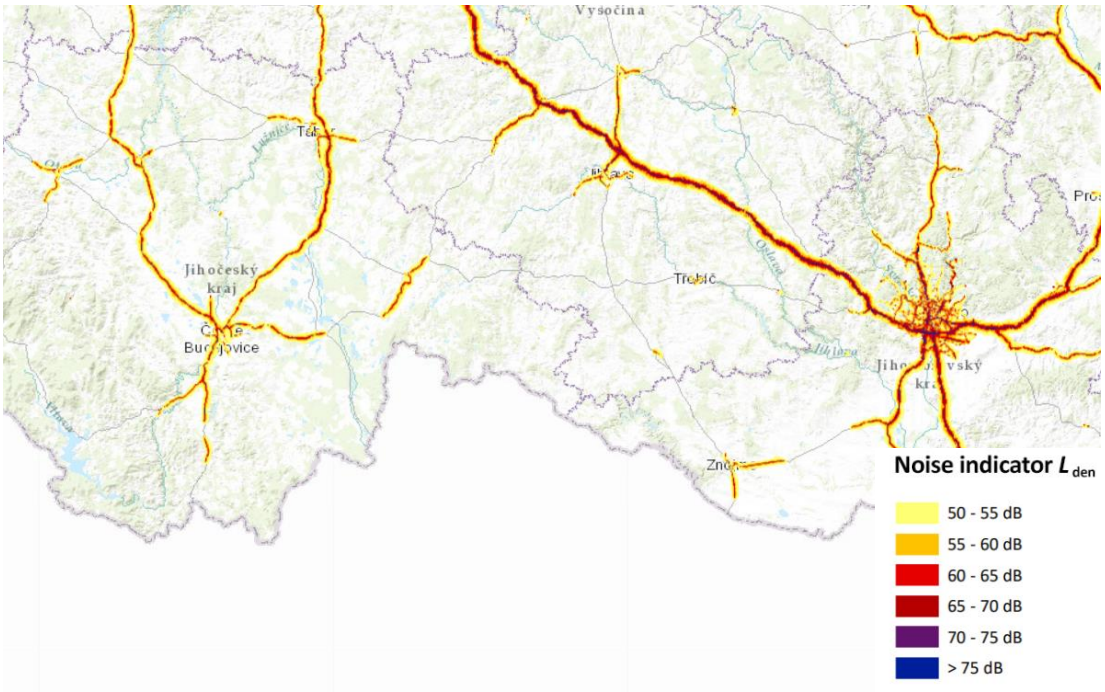


Source: BMNT 2018, 18

Current status in the Czech Republic

In the Czech Republic, roughly 3% of the population is affected by outdoor noise exceeding the legal limits. In urban regions, this can be as much as 10% of the population. About 90% of load is caused by the road traffic noise, which is the main source of outdoor noise. According to the results of the 2017 Strategic Noise Mapping (Strategické hlukové mapování SHP), the noise pollution of the population in the Programme area is somewhat lower compared to other areas of the Czech Republic. In Jihočeský kraj 57.3 thousand inhabitants (about 8.9% of all inhabitants of the region) were exposed to all-day (i.e. 24-hour) noise pollution from traffic on main roads exceeding 55 dB. In the Vysočina Region, this is about 33.8 thousand inhabitants. In the South Moravian Region, the Brno agglomeration has a significant traffic noise burden. A high level of noise nuisance with potential health effects was identified in 45.6 thousand inhabitants. However, in all the regions mentioned, there was a significant decrease in the number of people exposed to excessive noise pollution (by tens of %) compared to the previous round of noise mapping (in 2012). This decrease is due to the modernisation of some problematic sections of transport infrastructure, construction of noise barriers and other measures.

Figure 4: Noise pollution in the Czech part of the Programming area



Source: Ministry of Health of the Czech Republic, Noise maps 2017

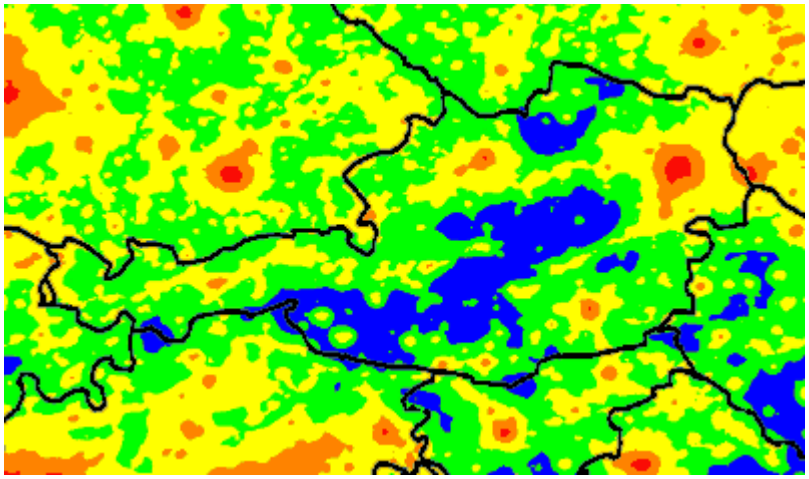
Light pollution

Current status in Austria

In Austria light pollution is not regulated by law at the moment. Although many initiatives by experts suggest introducing a law to do so. Standards like the ÖNORM O 1052 “Lichtimmissionen – Messung und Beurteilung” state limits and ways on how to produce expedient light but are not legally binding. The environmental departments of all state governments have issued joint

recommendations on how to avoid light pollution, however this as well is only a guiding document and not legally binding. Figure 3 shows that the programme area is affected the most by light pollution which also can be traced back to being the largest metropolitan area in Austria.

Figure 5: Light pollution in Austria

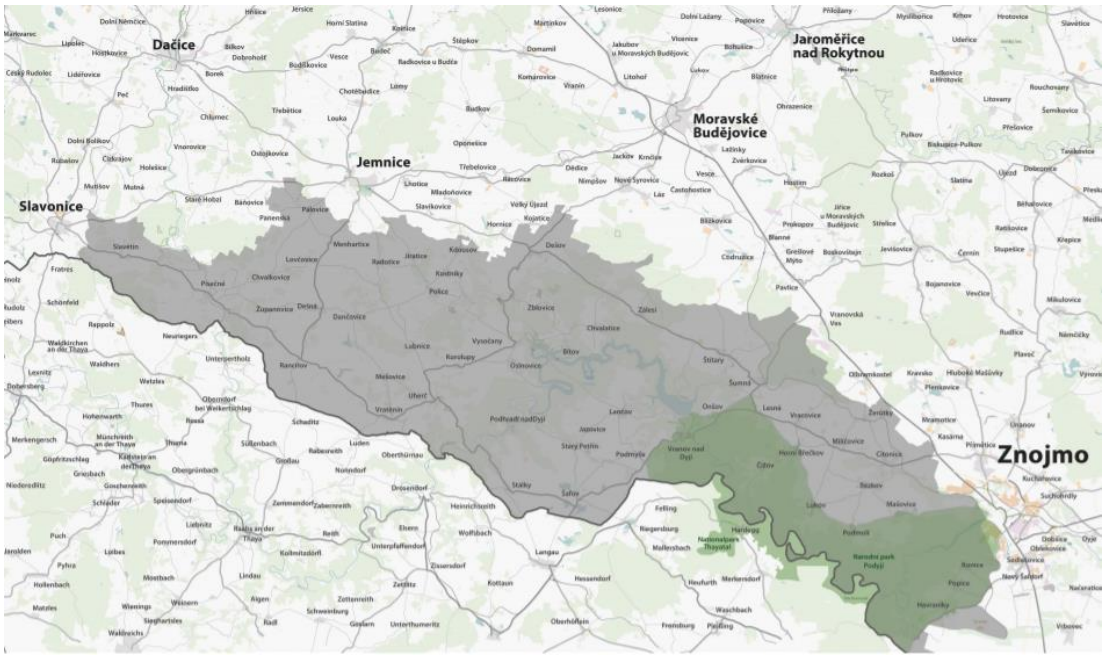


Source: Royal Astronomical Society

Current status in the Czech Republic

Currently, light pollution is not legally regulated in the Czech Republic, no legal regulation specifies which administrative body protects this public interest or what the limit values for light pollution are.

Figure 6: Podyjí Dark-Sky Park



Source: Podyjská oblast tmavé oblohy: Memorandum. 2016.

The possibility of introducing an appropriate form of regulation is currently being addressed at expert level within an inter-ministerial working group established by the Ministry of the Environment[4]. The issue is being also addressed by various initiatives at the level of municipalities or protected areas. In the Czech part of the Programme area, there is the so-called Podyjí Dark-Sky Park (Podyjská oblast temné oblohy), established[5] in 2016 by a memorandum of representatives of six municipalities, the Podyjí National Park Administration and other partners with the aim of preserving the natural night sky in the area without the disturbing effects of light pollution.

3.1.2 Flood risk

Current status in Austria

Due to its location in the Alpine arc and the general climatic conditions, Austria is at a considerable risk from natural disasters. Floods and mudslides threaten the mountain regions with great destructive power, long-lasting large-scale floods affect the living and economic areas in the flat and hilly areas. Outside of intensive zones the focus is on measures for flood retention and the construction of retention basins. The National Flood Risk Management Plan tries to help understand the threat of flood risks and avoiding them by achieving following goals:

- Avoidance of new risks before a flood event
- Reduction of existing risks before a flood event
- Reduction of adverse consequences during and after a flood event
- Increasing awareness of risks and dangers

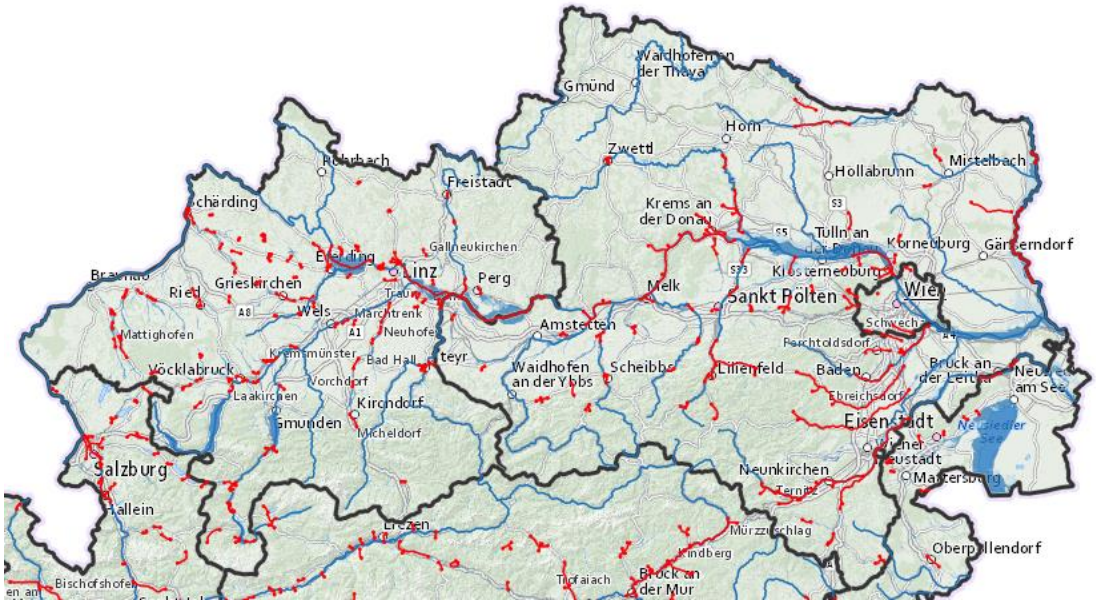
Austria has been a victim of many devastating floods being characterised by steep mountainous regions exposed to the continuous hazards of heavy rain-falls, avalanches and mudflows. Especially the years 2002, 2005 and 2013 have brought very devastating floods to Austria amassing nearly 4 billion Euros in estimated economic damage.

The programme region is particularly shaped by the Danube and its offshoots, as well as by the rivers Thaya, Enns or Traun, which all could possibly be a threat to the region's population. As proposed in the Austrian Flood Risk Management Plan protection structures should be built to protect settlements and important industrial and commercial areas. Although hydrological extremes of local intensive rainfall events currently still match the historical variation it becomes ever more likely that they are a consequence of global climate change and are likely to become more often in the near future.

[4] Information for the Government of the Czech Republic on Light Pollution and Addressing Light Pollution (2018). https://www.mzp.cz/cz/problematika_svetelneho_znecisteni_informace

[5] However, the Podyjí Dark Sky Region has not yet been officially declared and has no legal basis in the laws of the Czech Republic. See Memorandum of the Podyjí Dark Sky Region, 2016. https://www.nppodyji.cz/poto?highlightWords=tmav%C3%A9+sky

Figure 7: Hazard map – Floodplains



Source: Wasserinformationssystem 2021

Current status in the Czech Republic

The Czech part of the programme area covers several main river basins. The Upper Vltava basin (most of the South Bohemia Region), the Lower Vltava basin (part of the Vysočina Region) belonging to the North Sea basin. The Dyje river basin (part of the Vysočina region and most of the South Moravian region) belongs to the Black Sea basin. In all river basins there are sections of watercourses with significant flood risk. In the South Bohemian Region, the main water course of the sub-basin is Vltava, with the Malše, Lužnice and Otava being its most important tributaries. Streams originating in the Novohradské hory (e.g. the Malše) and in the foothills of the Šumava (e.g. the Blanice) are characterised by a summer flood regime. The Vltava and Otava are characterised by a winter to mixed regime on their upper reaches and a summer regime on the lower reaches in the catchment area. The Lužnice and its tributaries have a more winter flood regime. A characteristic feature of this sub-basin is the large number of lakes and ponds.

The river Thaya (Dyje) has two branches – Austrian Thaya (Deutsche Thaya) and Moravian Thaya with somewhat smaller discharge volume. In the Czech territory, its important tributaries are the Svratka and Jihlava, and the flow conditions are also influenced by the existence of waterworks such as the Vranov reservoir, the Nové Mlýny reservoir system, the Dalešice and Mohelno reservoirs, and the Mostiště, Vír I and Brno reservoirs. A winter flood regime prevails on the Dyje and its tributaries, which is mainly caused by snowmelt in the Bohemian-Moravian Highlands and in part of the Dyje catchment area in Austria (see spring flood 2006). The summer flood in August 2002 and the flood from torrential rainfall in June 2006 can be considered as less frequent events. The Vranov and Nové Mlýny reservoirs contribute significantly to the transformation of flood waves on Dyje.

The most devastating flood of the 20th century in the Czech part of the Programming area of was probably the flood of July 1997. The catastrophic flood in August 2002 affected the entire area of the Upper Vltava sub-basin, and the winter and spring floods of 2006 affected virtually the entire

Programming area, as did the floods of summer 2010. Localised torrential rainfall and flooding occur almost annually in some places, even in the dry years 2015-2019.

Flood defences are adequate across most of the area of interest. There are a few dozen sites with inadequate flood protection, however, these are mostly smaller areas and parts of villages, where in individual cases there are tens or at most hundreds of inhabitants at risk (for flood risk at the Q100 level). The exceptions are some municipalities in the Svratka river basin, where in the Brno agglomeration area about 25,000 inhabitants are potentially affected by the Q100 scenario, and the area of Breclav, where over 3,000 inhabitants are potentially affected by Dyje flooding. Similar to Austria, the flood protection is systematically dealt with as a part of complex water planning according to the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC) and related national legislation. The number of inhabitants and the area at risk of flooding are therefore decreasing in the long term.

Figure 8: Flood risks in the Czech part of the Programming area

Source: Ministry of the Environment of the Czech Republic, Flood hazard and flood risk maps of the Czech Republic, 2019, https://cds.mzp.cz/

Assessment of the development according to the zero alternative

Environmental aspects	Objective	Trend estimation until 2030	ZA
Human health & well-being	Reduce the population share exposed to excessive noise levels	Since the 1970s, a fluctuating course of noise pollution has been observed in Austria. The current level is significantly lower than in the 1970s, however, since 1998 an increasing noise pollution is being registered. In the Czech Republic, the number of people exposed to noise decreased between 2012 and 2017. The exception is road traffic noise, which has shown a slow increase over the last 10 years and has persisted. Traffic intensity is increasing in all road categories, which is currently compensated to some extent by technical improvements and other measures (e.g. noise barriers).	←↘ (AT) ←↗ (CZ)
	Reduce the population share exposed to excessive light pollution	The metropolitan areas around Linz and Vienna, as well as the regions between those two cities are the main light polluters in Austria. Due to the nature of big cities and the ever-evolving areas around these, light pollution will rise. The exact trend is difficult to establish, but the continuation of expansion of urban areas and infrastructure will likely bring about further increase of areas affected by the light pollution. Increasing accessibility and affordability of highly efficient lights (e.g. LED) will likely contribute to the negative trend.	←↘

Environ-mental aspects	Objective	Trend estimation until 2030	ZA
	Improved flood risk management	The National Flood Risk Management Plan tries to minimize the flood risk in Austria but due to its topography and the climate change it will possibly be a very hard goal to reach. In the Czech Republic, the continuing development of flood protection measures steadily decreasing numbers of objects and inhabitants vulnerable to the flood risks from rivers, however the climate-change related increase in the frequency of heavy rains and local flash-floods may offset this progress in the future.	←→ (AT) ←→ (CZ)
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.2 Fauna, flora including biodiversity, conservation of habitats

Biological diversity or biodiversity describes the variability of living organisms. The preservation of biodiversity is extremely important because if the loss of habitat and species continues, nature will become increasingly impoverished which also threatens the basis of human life. The ongoing loss of biodiversity is a complex problem and cannot be solved by isolated conservation activities but will require global cooperation. The causes of threats to biological diversity worldwide include land use changes, resource extraction, climate change, pollution with harmful substances and non-indigenous species.

3.2.1 Species protection and biodiversity

Current status in Austria

With about 67,000 different native species, including about 45,000 animal species, Austria is one of the most biodiverse countries in Europe. Nationally, only slight differences in the conservation status of the species native to the alpine regions and to the continental regions can be observed: In the former, about 80% and in the latter, about 85% of the species show an unfavourable conservation status.

According to the Red Lists, 27% of mammals, 27% of birds and 60% of reptiles and amphibians are endangered in Austria (BMLRT 2019). A more detailed description for selected species can be found below. However, it should be noted that the Red List data in Austria are partly relatively outdated and may no longer correctly reflect the current state at risk.

- More than 50% of amphibians and reptiles and almost half of all fish species are considered endangered.
- A study from Germany showed a decrease in the population of flying insects by 75% since 1990. First studies from Austria also point in this direction, however, more precise, quantifiable data is yet to be collected. Insects are particularly important for various ecosystem services and often form the basis of the food chain.
- Of the total of 242 recorded native bird species on the Red List, only slightly more than a third have a “safe” population status, the rest of the population is endangered in varying

degrees – about a fifth are either "threatened with extinction" or already "regionally extinct". Despite these alarming numbers it must also be noted that more than half of the native breeding birds showed a stable population trend in the period 2008 to 2012. In grasslands the population development was more negative than in arable land

- Nearly 1,800 plant species native in Austria are "potentially endangered" or more severely threatened. In the best researched group of plants, the ferns and flowering plants, over 60% of the species appear in the Red Lists.

However, the intensified efforts for the protection of species show first signs of success in Austria: For some formerly extinct or strongly endangered animal species, such as the wolf or the lynx, increasing population levels can be registered over the last couple of years.

The Austrian Biodiversity Strategy 2020 includes actions to e.g. strengthen biotope connectivity, consideration of functional connectivity and the habitat network when establishing compensating areas, increase of grasslands in urban areas, the provision of features that promote biodiversity in newly established green areas, and the preservation of un-fragmented areas and migration corridors. Most activities are executed at the local or federal province level.

Current status in the Czech Republic

A significant part of the Czech programming area is characterized by high quality and heterogeneity of the natural environment, which results in a relatively high level of biological diversity in this region.

In the Czech Republic, from the long-term perspective, it is possible to observe the population decline of many plant and animal species, including those specially protected. More than half of the monitored plant and animal species are endangered or declining. Negative population trends are mostly the result of an inappropriate land use. This applies in particular to the fragmentation of natural habitats, drainage of the landscape, agriculture intensification, overuse of chemicals, abandonment of some traditional farming methods or the degradation of agricultural and forest land, causing significant loss of natural habitats.

In the Czech Republic occur 46 bird species listed in appendix I of the Birds Directive, 76 animal species listed in appendix II of the Habitats Directive and 40 plant species listed in appendix II of the Habitats Directive. Nevertheless, 60.3% of animal species of European interest and 75.4% of plant species of European interest have insufficient or unfavourable conservation status.

The overall state of biodiversity in the Czech Republic is well reflected by the indicator of the abundance of common bird species. Its value has been declining for a long time since the beginning of monitoring in 1982. Populations of farmland birds decreased by 42.3% by 2019, populations of forest species by 13.4%.

An increasingly important factor in the Czech Republic is the spread of geographically non-native or invasive species of plants and animals. Their further spread is probably also supported by ongoing climate change. As of 2019, 1,454 non-native plant species were registered in the Czech Republic, of which 61 were invasive and 278 non-native animal species, of which 113 were invasive. On the other hand, the natural return of many species of plants and animals to Czech nature must be considered as a positive trend, and this process is especially noticeable for large carnivores.

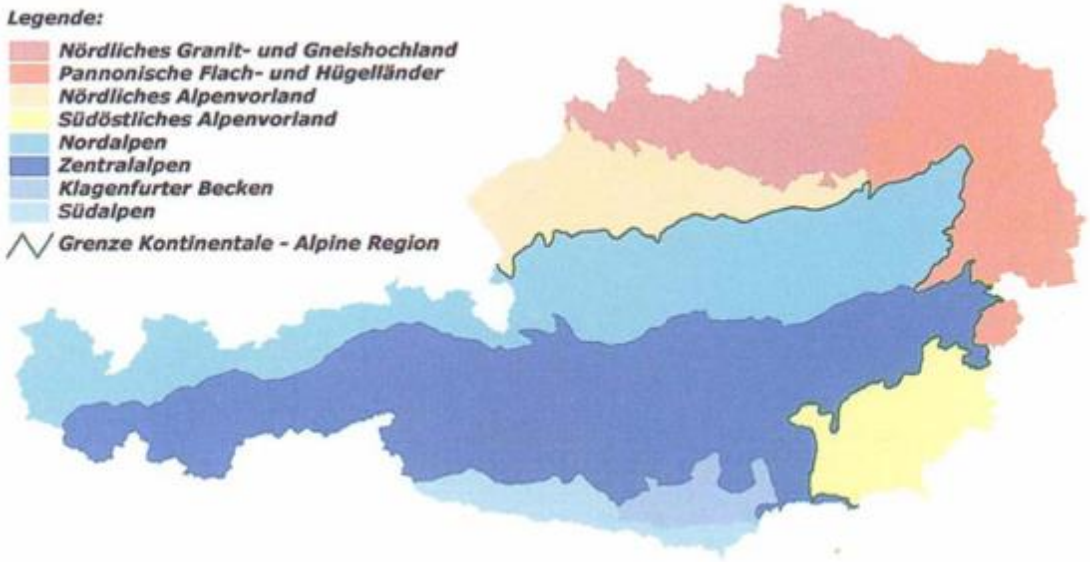
3.2.2 Habitats and protected areas

Current status in Austria

Figure 9 shows the different national landscape classification areas in Austria. The black line (referred to as “Grenze Kontinentale – Alpine Region” in the map legend) marks the border between the so-called “continental region” (red and yellow areas) and the alpine region” (areas with different shades of blue). This border runs right through the programme area and divides it into two larger landscape regions.

The status analysis from 2007 to 2012 of a total of 23 habitat types (13 located in alpine regions and 10 in continental regions), such as forests, grasslands and bogs, showed a total of six deteriorations of habitat types located in the alpine region and four deteriorations in the continental region compared to 2001-2006. Not a single genuine improvement has been observed. Ecosystems of the continental region (90% have a negative conservation status) are in a significantly worse overall conservation status than those of the alpine region (69%).

Figure 9: Natural landscape classification of Austria with biogeographical regions according to the FFH directive and the ecoregions



Source: Österreichischer Alpenverein 2005, 11

However, it must be pointed out that a direct comparison of the evaluation results is not possible, since some changes occurred not due to actual changes in the natural habitats, but to an improved data basis or a different methodological approach. Regardless, the data still indicate an overall deterioration of both habitats located in the continental as well as the alpine region rather than an improvement.

In total 74 habitat types as well as 209 species listed in the habitats directive are occurring in Austria. The latest national assessment lists 18% of habitat types as well as 14% of species in a favourable state, while 35% respectively 48% are in poor or bad state according to the classification. In total over 200 Natura 2000 areas are protected by law in Austria. Figure 10 shows the spatial

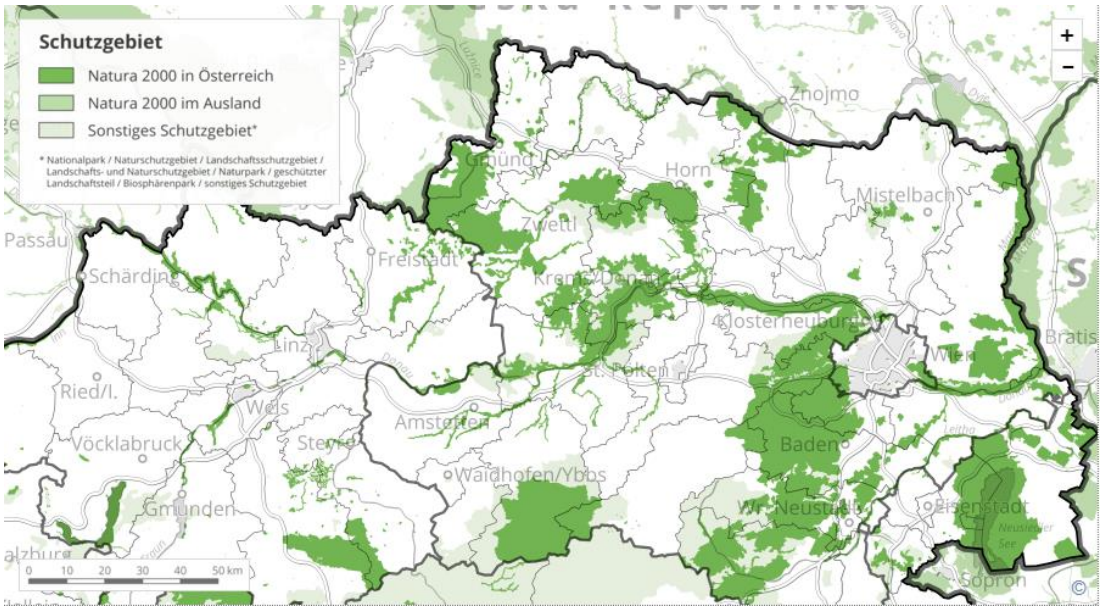
extent. Furthermore a wide range of other categories of protection based on federal or state-law are present in Austria which are presented in Table 13.

Table 13: Protected areas in Austria

Type	Number		Area (km²)		% of total area	
	2016	2018	2016	2018	2016	2018
National Parks	6	6	2.373	2.376	2,8	2,8
Natura-2000-Areas	199	250	12.259	12.868	14,6	15,3
Nature protection areas	454	473	3.024	3.026	3,3	3,6
Landscape protection areas	248	258	12.327	12.323	14,7	14,7
Nature and landscape protection areas	4	4	506	506	0,6	0,6
Nature parks	50	50	4.139	4.139	4,9	4,9
Biosphere parks	4	4	1.887	1.887	2,3	2,3
others	42	61	1.483	1.567	1,8	1,9

Source: Umweltbundesamt 2019, 44

Figure 10: Natura 2000 areas in the programme regions



Source: ÖROK Atlas

Current status in the Czech Republic

In the Czech part of the programming area there area Natura 2000 sites – Special Protection Areas (SPA) and Special Areas of Conservation (SAC) in accordance with the Birds Directive and the Habitats Directive. At the same time, there is a number of Specially Protected Areas (Large-scale and Small-scale) established according to the national legislation. Together, the Natura 2000 sites and the national protected areas form the cornerstone of biodiversity conservation in the Czech Republic.

There are a total of 380 SAC and 17 SPA in the three regions concerned (South Bohemian Region, Vysočina Region and South Moravian Region). In total, these areas occupy an area of 430,453 ha,

i.e. about 18% of the Czech part of the programming area. In the Czech part of the programming area there are also 11 Large-scale Specially Protected Areas and 876 Small-scale Specially Protected Areas. These areas occupy an area of 335,322 ha, i.e. about 14% of the Czech part of the programming area.

There are 111 Natura 2000 sites in the South Bohemian Region. 9 SPA (Třeboňsko, Údolí Otavy a Vltavy, Řežabinec, Hlubocké obory, Českobudějovické rybníky, Dehtář, Novohradské hory, Boletice, Šumava) with a total area of 155,400 ha and 102 SAC with a total area of 164,500 ha. Furthermore, there are 4 Large-scale Specially Protected Areas with a total area of 198,100 ha. These are the Šumava National Park (34,000 ha) and the Protected Landscape Areas Blanský les, Šumava and Třeboňsko. In addition, there are 333 Small-scale Specially Protected Areas in the Region with a total area of 16,500 ha. These include 11 National Nature Reserves, 16 National Nature Monuments, 113 Nature Reserves and 193 Nature Monuments.

In the Vysočina Region there are 85 Natura 2000 sites (only SAC) with a total area of 6,400 ha. Furthermore, there are 2 Large-scale Specially Protected Areas with a total area of 60,800 ha. These are the Protected Landscape Areas Žďárské vrchy and Železné hory. In addition, there are 203 Small-scale Specially Protected Areas in the Vysočina Region with a total area of 6,000 ha. These include 7 National Nature Reserves, 4 National Nature Monuments, 76 Nature Reserves and 116 Nature Monuments.

There are 211 Natura 2000 sites in the South Moravian Region. 8 SPA (Bzenecká Doubrava – Strážnické Pomoraví, Hovoransko – Čejkovicko, Soutok – Tvrdonicko, Lednické rybníky, Pálava, Střední nádrž vodního díla Nové Mlýny, Jaroslavické rybníky, Podyjí) with a total area of 41,000 ha and 203 SAC with a total area of 65,200 ha. Furthermore, there are 4 Large-scale Specially Protected Areas with a total area of 42,300 ha. These are the Podyjí National Park (6,300 ha) and the Protected Landscape Areas Bílé Karpaty, Moravský kras a Pálava. In addition, there are 343 Small-scale Specially Protected Areas in the Region with a total area of 11,500 ha. These include 17 National Nature Reserves, 16 National Nature Monuments, 91 Nature Reserves and 219 Nature Monuments.

The location of Natura 2000 sites and Specially Protected Areas in the Czech part of the programming area is shown in the following figures.

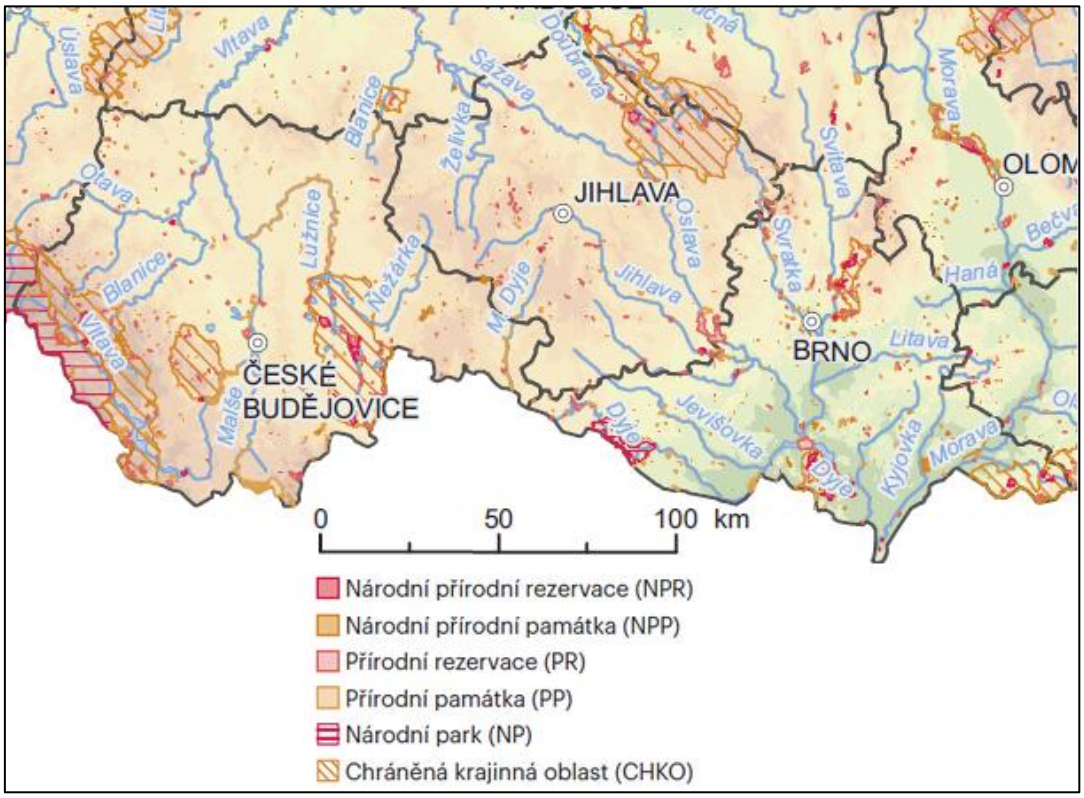
Despite the long-term positive trend, 79.6% of habitats of European interest in the Czech Republic have insufficient or unfavourable conservation status.

The construction of transport infrastructure and the growth of urban agglomerations affect connectivity and cause fragmentation of the landscape, leading to a loss of habitat qualities and their interconnection important for animal migration. With 39.4% of fragmented area, the Czech Republic is one of the most fragmented countries in Europe. A territorial system of ecological stability (ecological networks) has been established in the Czech Republic by law to protect migration corridors and the overall connectivity of the landscape. However, despite the considerable potential of this legislative instrument, its real impact is limited. An important step in the protection of migration corridors was the mapping of the habitat of selected specially protected species of large mammals (wolf, lynx, brown bear and elk). Both the core areas of occurrence and the migration corridors between them were mapped (see the figure below). The ConnectGREEN and TRANSGREEN projects, which in the Czech Republic focused mainly on the Western Carpathians, also made a significant contribution to the study and protection of migration corridors in the Czech Republic.

Figure 11: Map of Natura 2000 sites in the Czech part of the programming area

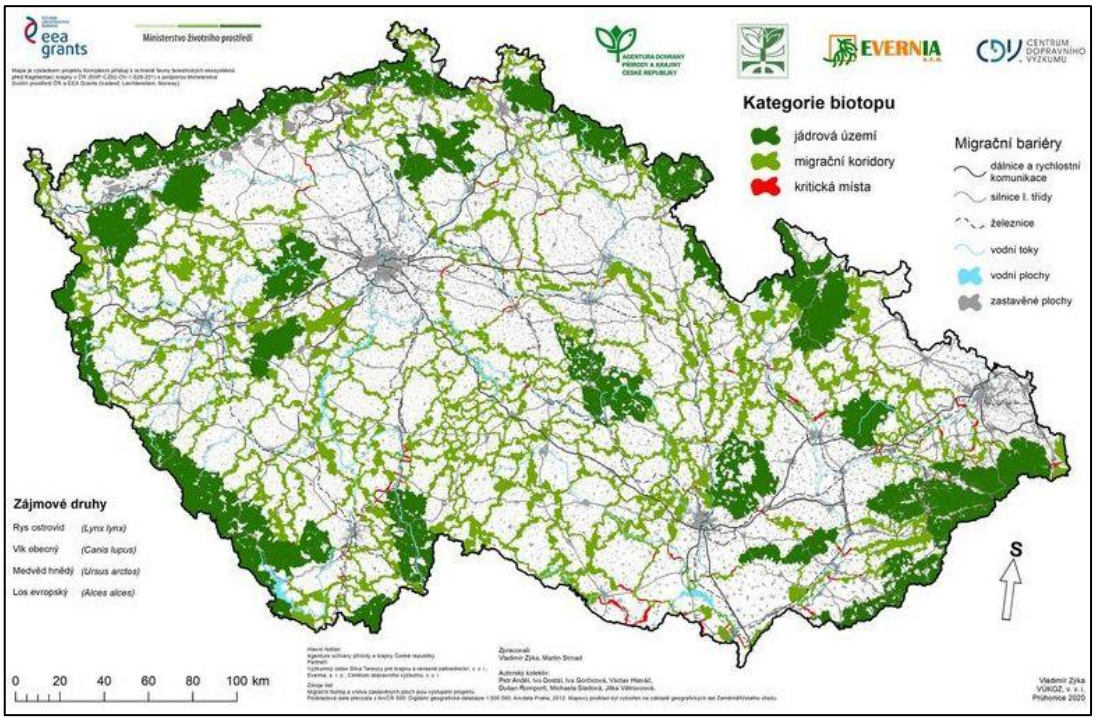
Source: CENIA, MŽP (2021): Souhrnná zpráva o životním prostředí v krajích ČR.

Figure 12: Map of Specially Protected Areas in the Czech part of the programming area



Source: CENIA, MŽP (2021): Souhrnná zpráva o životním prostředí v krajích ČR.

Figure 13: Habitat of selected specially protected species of large mammals in the Czech Republic, 2020



Source: VÚKOZ v.v.i. (2020)

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	In Austria for animals, some improvements have been observed but also deterioration in others. Amphibians and reptiles are still largely endangered. For Plants, the situation is very critical, e.g. 60% of all fern and flowering plants are endangered. The Czech Republic faces a long-term negative trend of biodiversity and unsatisfactory ecological status of the landscape. Although the area of specially protected areas in the Czech Republic has been growing for a long time, while specially protected areas in the landscape serve as important refuges for endangered species of plants and animals, they cannot fully compensate this negative trend.	←↘
	Protection of the ecosystems from invasive species and neophytes	The spread of invasive species and neophytes is one of the most important features of the current biodiversity crisis in both countries. However, it is practically impossible to stop it.	↘
	Protection of wildlife migration corridors and biotope networks	Agricultural intensification and land abandonment are major threats to biodiversity and corridors. There are actions in place to counteract these, as well as specialised protection measures. Despite the growing efforts to study and protect wildlife migration corridors and biotope networks, the migration permeability of the landscape in the Czech Republic is still considerably limited.	←→
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.3 Soil, land use

Soils have developed over thousands of years and provide multiple important environmental benefits such as regulating the water balance, serving as sinks for greenhouse gases, offering habitats for plants and animals and many more. Therefore, they should be kept as fertile and unsealed as possible. Soils are subjected to numerous stress factors and strains every day. These range from the input of pollutants and nutrients to the sealing of surfaces and the loss of soil through erosion. These events can usually be tracked back to anthropogenic causes and have negative consequences for the soil

3.3.1 Land use and soil sealing

Current status in Austria

In Austria, a total of 5,729 km² of land was consumed until 2019. This corresponds to 7% of the country's surface area and 18% of the area of permanent settlement.

The land consumption in Austria averages 11.8 ha per day over the last three years, of which 41.2% are sealed. A decrease of the land use can be registered over the last couple of years, however, the national target of a maximum of 2.5 ha per day is currently clearly missed. Furthermore, areas for railroad facilities are decreasing, while road traffic areas and parking spaces continue to increase. This development also reflects the steady increase in motorized individual traffic in Austria.

The following Table 14 shows the annual land consumption by the federal provinces of Lower Austria, Upper Austria and Vienna and the whole of Austria in ha in 2019 as well as the average from 2010-2019.

Table 14: Land consumption in ha/day in 2019 and average from 2010-2019 in Lower Austria, Upper Austria and Vienna and Austria in total

Federal State	Land consumption in ha/day (2019)	Land consumption in ha/day (average from 2010-2019)
Lower Austria	1.9	3.5
Upper Austria	2.1	3.9
Vienna	0.3	0.1
Austria	13.2	16.4

Source: Umweltbundesamt Österreich 2020a

Being the smallest and also the most populated federal state in Austria, Vienna registers the lowest value of sealed area per capita of all federal states with 58 m². Lower Austria ranks second with 406 m² and Upper Austria coming in fifth with 297 m².

Current status in the Czech Republic

Most of the territory of the Czech Republic consists of, in terms of the typology of land use, for Central Europe typical forestry and agricultural landscape. The Czech Republic is a country with a high share of arable land in the total area of the state (37.4% of the area of the Czech Republic).

Of all the regions in the Czech part of the programming area, the largest relative area of arable land is in the South Moravian Region 48.6%, followed by the Vysočina Region with 46.3% and finally the South Bohemian Region with 30.4%.

In the last ten years, the Czech part of the programming area has shown similar trends as in the whole of the Czech Republic in terms of the land management. There is a steady decline of agricultural land area, and arable land in particular. This is in favour of grasslands and forests, which can be considered a positive trend in terms of landscape stability. We can observe this process especially in areas with lower land productivity. However, agricultural land abandonment and subsequent overgrowing of the landscape have also a negative effect on flora and fauna, as it leads to the loss of open landscape species.

In line with national trends, there was also an increase in built-up areas in most of the Czech part of the programming area. This was mainly due to an increase in the area of warehouses and logistics centres and an increase in residential areas – also in connection with the trend of suburbanization. In 2019, the built-up areas in the Czech part of the programming area were 222,498 ha. However, the growth rate of built-up areas varies significantly between regions. While in the Vysočina Region there has been an increase of only 0.3% since 2005, in the South Bohemian Region the share of these areas has increased by 5.8% and in the South Moravian Region even by 14%.

A significant negative consequence of the increase in built-up areas is the reduction of water retention capacity in the landscape. In the Czech Republic, 39.2% of the land has a low (< 100 mm) to medium (100–200 mm) retention water capacity.

3.3.2 Soil quality and soil pollution

Soil plays a central role in coping with climate change and adapting to it, due to its function as an important store of carbon, water and nutrients. It binds pollutants, purifies drinking water and is the basis for the production of food, feed and biomass. To ensure that these services are not lost in the long term, soil must be maintained in a sufficient quality and quantity. However, there are no concrete, measurable targets for soil quality at UN, EU or national level in Austria. Nevertheless, the need to protect the soil is obvious.

The preservation of soil functions is often threatened by the input of different pollutants. Pollution may occur over larger areas, e.g. through air or precipitation and through production-related inputs in agriculture (e.g. through pesticides and fertilizers) or locally through the improper handling of hazardous substances or accidents. This may result in a direct hazard to soil organisms and plants. Indirectly, humans and animals are also endangered, since the quality of feed and food as well as drinking water can deteriorate.

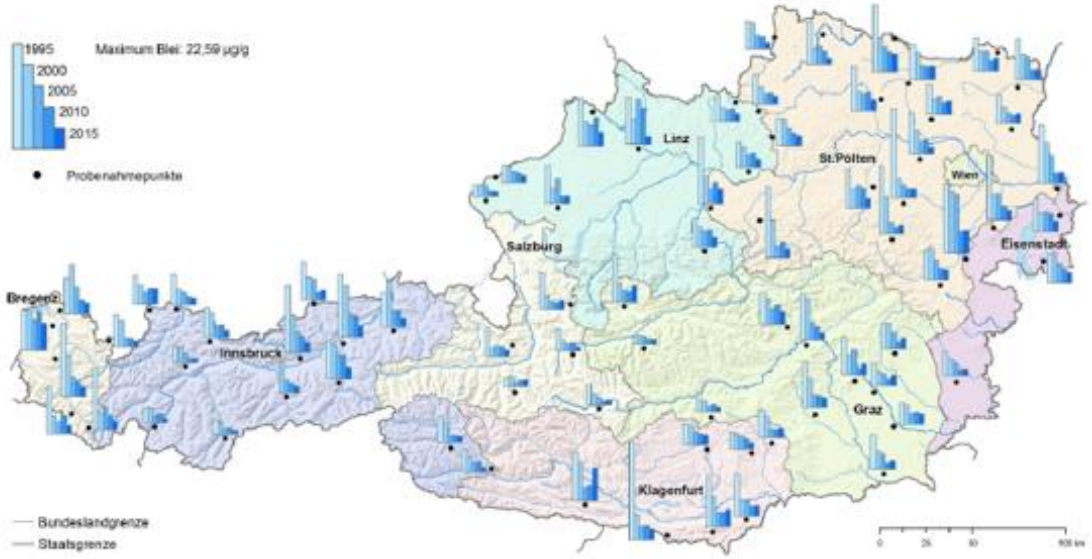
Current status in Austria

At the national level, the soil protection laws of the federal states contain objectives for maintaining soil quality, especially with regard to agricultural production. From the programme region, only Upper Austria regularly publishes soil protection reports, the most recent one published in 2020. For Lower Austria and Vienna, however, no more detailed regional data is available.

The input of heavy metals (such as cadmium, lead and mercury) into the soil poses a particular threat. These accumulate in soils, can be absorbed by plants and get into feed and food, thus impairing health. Statements on heavy metal inputs in Austria can be made by monitoring mosses. The contents of iron and aluminium have increased slightly in the whole of Austria since 2010.

Up until now, only regional individual studies on the pollution situation with organic pollutants in Austria are available. In 2020, a nationally coordinated monitoring system, the so-called "Austro-POPs", is to be established in order to create the basis for an Austria-wide assessment. This will provide data, evaluations and a concept for national monitoring, including harmonization of methods, as a basis for national guideline and limit values.

Figure 14: Lead content in mosses from 1995-2015



Source: Umweltbundesamt Österreich 2019, 86

Current status in the Czech Republic

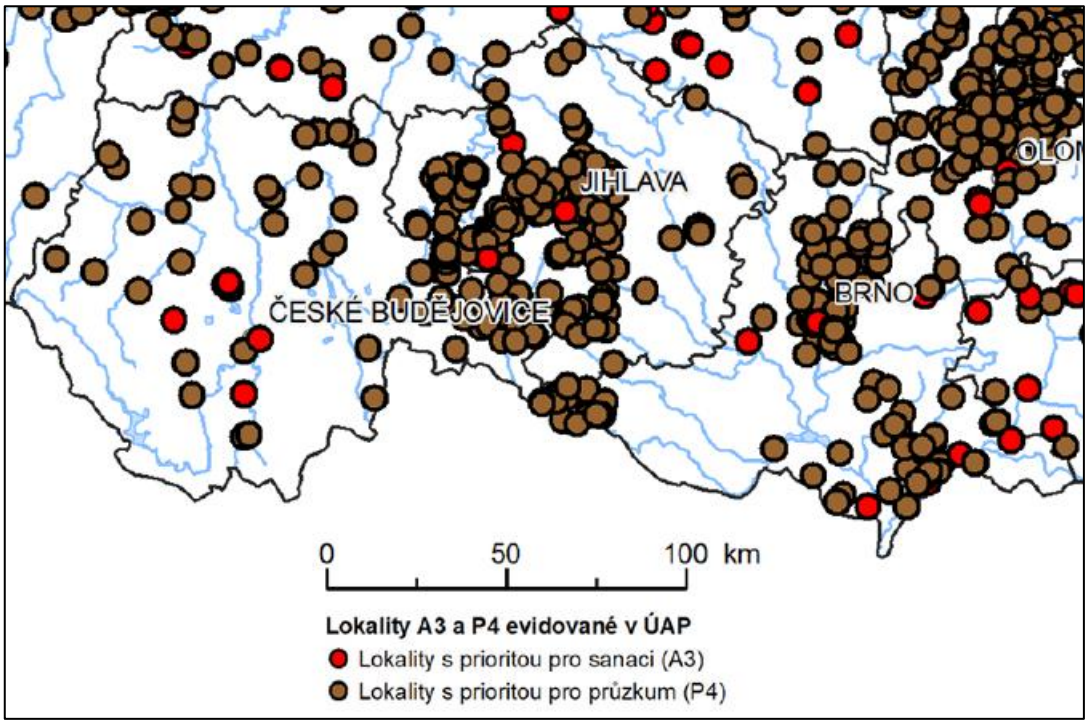
The quality of agricultural land is influenced mainly by the way of agricultural management. Improper management leads to soil degradation, such as soil compaction, erosion, loss of nutrients, loss of organic matter and accumulation of harmful substances (from agricultural and industrial activities). The quality of agricultural land is determined by a number of properties (e.g. soil structure, soil reaction (pH), sorption capacity, organic matter content, presence of soil organisms and microorganisms etc.). The content of hazardous substances, which enter the soil and sediments by anthropogenic activities, also has a negative effect on the quality of agricultural land. As part of the monitoring of the content of hazardous substances in the soil, both inorganic elements and persistent organic pollutants are monitored.

Consumption of mineral fertilizers in the Czech Republic has increased by 53.9% since 2000. In 2019, the consumption of mineral fertilizers was 116,8 $kg.ha^{-1}$ of pure nutrients, a decrease of 4.9% compared to 2018. Compared to 2018, a decrease was recorded in the consumption of nitrogen fertilizers, namely by 5.6% to 94,2 $kg.ha^{-1}$ of pure nutrients, and in the consumption of potassium fertilizers by 27.8% to 6,1 $kg.ha^{-1}$ of pure nutrients. In terms of the composition of

mineral fertilizer consumption, nitrogen fertilizers predominate, with a share of 80.7% of total consumption. Although the consumption of mineral industrial fertilizers has been declining in recent years, their consumption still significantly outweighs the consumption of organic fertilizers, which are beneficial for the soil in terms of improving its sorption capacity, structure and increasing the occurrence of soil organisms.

The negative consequence of economic activity are old ecological burdens. There are currently 2,526 contaminated sites registered in the Czech part of the programming area. These are continuously mapped and inventoried, mainly because of their subsequent reclamation, which can reduce their possible risks to ecosystems and human health.

Figure 15: Map of old ecological burdens in the Czech part of the programming area, 2018



Source: CENIA, MŽP (2021): Statistická ročenka životního prostředí České republiky.

In the Czech Republic, more than 51.7% of agricultural land is endangered by water erosion, while 15.7% is extremely endangered. 22.9% of agricultural land is potentially endangered by wind erosion, of which 2.8% is in the most endangered category. Regarding the water and wind erosion, the most endangered region in the Czech part of the programming area is the South Moravian Region.

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Soil, land use	Economical land use, reduction of land consumption	Overall, the yearly additional land consumption has decreased in the programme region. Due to legal restrictions and various efforts to reduce it further the positive trend will continuous, nonetheless it is far from the set goal at national level. In line with national trends, there was an increase in built-up areas in most of the Czech part of the programming area. This was mainly due to an increase in the area of warehouses and logistics centres and an increase in residential areas – also in connection with the trend of suburbanization. On the other hand, there is a steady decline of agricultural land area, respectively, arable land. This is in favour of grasslands and forests. It cannot be assumed that the gradual land consumption will be stopped or significantly slowed down.	←↗ (AT) ←↘ (CZ)
	Protection of soil functions	For almost all investigated elements a decrease of the loads since 1995 has been observed. Arsenic and chromium loads have particularly elevated in the northeast of Austria. The contents of iron and aluminium have increased slightly in the whole of Austria since 2010. Overall, the positive trend of decreasing soil contamination and thus protection of soil functions prevails. In recent years, the consumption of nitrogen fertilizers has been declining, however, their consumption still significantly outweighs more suitable organic fertilizers. A significant share of agricultural land in the Czech Republic is also threatened by water and wind erosion. There is still a huge number of contaminated sites in the Czech part of the programming area. Given the above, no significant change can be expected.	←↗ (AT) ←→ (CZ)
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.4 Cultural heritage, landscape

3.4.1 Cultural heritage

Cultural assets are objects from various epochs of human civilization with a special cultural and historical significance. These can be archaeological findings, (ground) monuments, excavation sites, archives and others. Cultural assets are considered the “sensitive memory” of a region or a state and can also present an important income source.

Current status in Austria

The protection of historical monuments in Austria is regulated by the Monument Protection Act of 2000, with the underlying goal to protect cultural assets from alteration or even destruction and illegal exports abroad. In total, the Austrian register of the number of protected monuments shows 38,146 objects in 2017. By 2020, the number has increased to 38,519 for the whole of Austria with each federal state recording a slight growth. The total stock of objects worthy of protection is

probably even higher and is estimated by the Federal Monuments Office at approx. 60,000. Lower Austria registers 10,616, Upper Austria 5,912 and Vienna 3,354 protected monuments.

A detailed explanation of possible threats to national cultural assets cannot be provided at this point and does not appear to be useful, since the environmental hazards (such as flooding) cannot be generalized and may vary greatly from region to region. Qualified statements about the general condition or the hazard potential of a cultural object or property are only possible if in individual cases the available information about the object is used or, if necessary, further investigations are carried out to gather more information.

Current status in the Czech Republic

Matters of cultural heritage protection are legally regulated in the Czech Republic by Act No. 20/1987 Coll., on state Landmark Conservation, as amended.

The Czech part of the programme area is particularly rich in cultural monuments and examples of valuable cultural landscapes. Among the most important are the UNESCO-listed monuments: the town of Krumlov and the village complex of Holašovice, the historic core of the town of Telč, the hermitage church of St. John of Nepomuk on Zelená hora in Žďár and Sázavou, the Basilica of St. Procopius together with the neighbouring Jewish quarter in Třebíč, Villa Tugendhat in Brno and the Lednice-Valtice area on the border with Lower Austria.

The condition of immovable cultural monuments (especially small or less attractive tourist monuments) is often characterised by a lack of financial resources for their maintenance and the difficulty of finding a use that would be consistent with the need to protect their cultural and historical value.

3.4.2 Landscape conservation areas

Current status in Austria

In recent years (from 2016 to 2018), the number (+98 to a total of 1,441) as well as the area (+0.3%) of the areas prescribed by nature conservation law increased. 28% of the total national territory of Austria is designated to protection areas of different types (see Table 15).

The number of individual types of protected areas, the area totally covered and their development since 1998 is shown in Table 15. It should be noted, however, that the protected areas may overlap partially or completely and that the individual values can therefore not be added up to a total area/number. For some areas prescribed by nature conservation law no values could be collected for the year 1998.

Table 15: Number and covered land (in m²) of nature conservation areas in Austria

Type of area	Number			area (in km²)			% of national territory		
	1998	2016	2018	1998	2016	2018	1998	2016	2018
National parks	6	6	6	2,343	2,373	2,376	2.8	2.8	2.8
Natura-2000-areas	94	199	250	8,514	12,259	12,868	10.2	14.6	15.3
Wilderness areas	-	1	1	-	34	34	-	0.04	0.04
Nature conservation areas	356	454	473	2,810	3,024	3,026	3.4	3.6	3.6
World heritage site	-	0	2	-	0	71	-	0	0.1
Landscape conservation areas	247	248	258	14,322	12,327	12,323	17.0	14.7	14.7
Nature &landscape conservation areas	-	4	4	-	506	506	-	0.6	0.6
Wildlife parks	31	50	50	1,425	4,139	4,139	1.7	4.9	4.9
Protected landscape elements	337	335	332	541	84	86	0.6	0.1	0.1
Biosphere park	0	4	4	0	1,887	1,887	0	2.3	2.3
Other protected areas (excluding natural monuments)	-	42	61	-	1,483	1,567	-	1.8	1.9

Source: Umweltbundesamt Österreich 2019, 44 and Umweltbundesamt Österreich 1998, 48ff

Current status in the Czech Republic

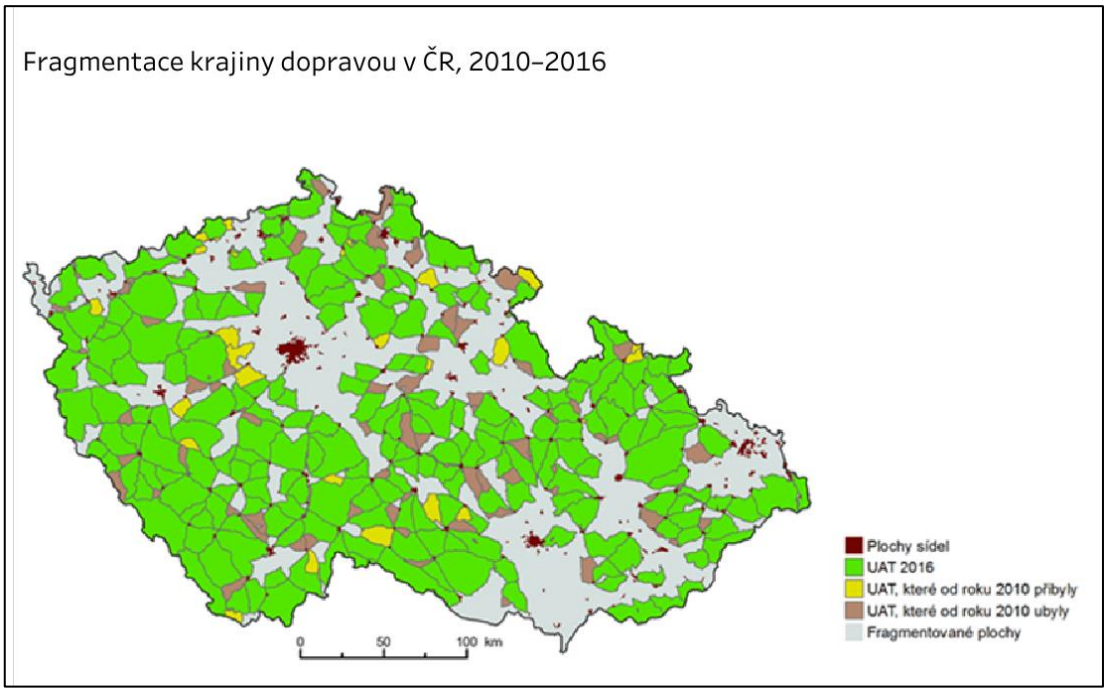
In the Czech part of the Programme area, the following protected landscape areas (Chráněné krajinné oblasti CHKO) are located:

- Šumava
- Blanský les
- Třeboňsko (v Třeboňské pánvi) s tradičním rybníkářstvím
- Žďárské vrchy
- Železné hory
- Podyjí
- Pálava
- Bílé Karpaty
- Moravský kras

In addition, the regions of Šumava, Třeboňsko, Bílé Karpaty and Pálava (or Dolní Morava) are recognised as special cultural landscapes and model regions of international importance on the UNESCO list of biosphere reserves. In the “Men and Biosphere” reserves, UNESCO seeks to explore the question of how people and nature can live in harmony.

In the Czech Republic, too, continued fragmentation, both through the growth of settlements and the expansion of linear infrastructure, especially traffic-intensive roads, poses a threat to the cultural and natural values of the landscape. Although parts of the area along the Czech-Austrian border are one of the least fragmented areas in the Czech Republic, the number of unfragmented landscape units is gradually decreasing, as shown in the following figure.

Figure 16: Area fragmented by traffic in the Czech Republic



Source: Cenia, Evernia, https://issar.cenia.cz/cr/priroda-a-krajina/fragmentace-krajiny/

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	From 2017 to 2020, the total number of protected natural monuments recorded in the Federal Monuments Agency's inventory increased slightly in all federal states and now stands at 38,519. Cultural and material assets and immovable monuments are adequately protected by law. However, the effectivity of the protection is often limited by the lack of financial resources for the maintenance of (less-prominent or less-popular) monuments.	←↗ (AT) ←→ (CZ)
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	Increase from 2016 to 2018 both in number (+98) and area (+0.3%) to approximately 38,000 km² in total in Austria. On the Czech side, a large part of the area belongs to the category of protection that contributes to the preservation of its cultural and natural values. The western part of the programme area is one of the less fragmented areas of the Czech Republic, but even here the development of settlement expansion and transport infrastructure into the open countryside has a negative impact.	↗ (AT) ←↘ (CZ)
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.5 Water (ground and surface water)

3.5.1 Ground water

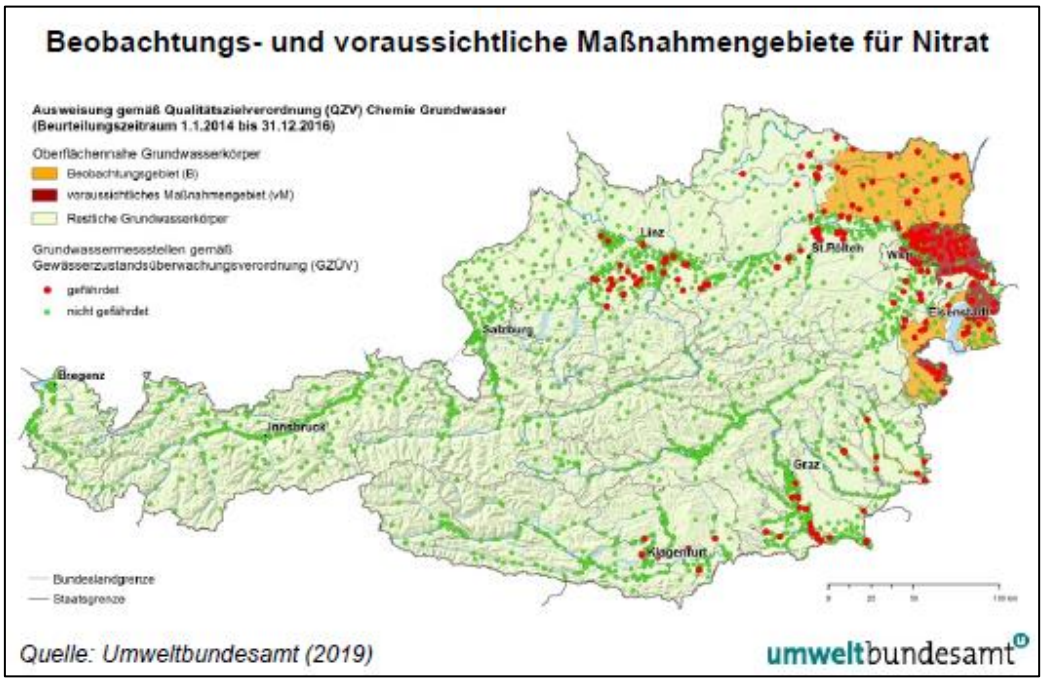
Current status in Austria

In Austria, 138 groundwater bodies are designated. From 2014 to 2016 these had been tested up to twelve times a year with a total of 1,974 groundwater measuring points. The results show that the threshold values specified in the Quality Target Ordinance were sometimes significantly undercut for many chemical and physical-chemical test parameters (197 in total).

Nitrate can be regarded as the most important groundwater pollutant. The development of threshold exceedances of nitrate from 1997 to 2016 shows fluctuations of a few percentage points since 1997 and an overall decrease (1997: at 16.4% of all nitrate monitoring stations, exceedances have been measured; in 2016: 9.8%). Increased nitrate loads occur mainly in regions with low precipitation in the east of Austria.

The highest nitrogen surpluses occur in regions with high livestock numbers e.g. in Styria, in the central region of Upper Austria and in some valleys in Tyrol and Salzburg. It is expected that this trend will continue in the future.

Figure 17: Monitoring areas and action areas for nitrate



Source: Umweltbundesamt Österreich 2019, 56

The pollution of groundwater bodies with pesticides and their degradation products can be related mainly to substances that are no longer legally approved. In 2016, for example, the limit value for atrazine and its degradation product desethylatrazine was exceeded at only about 1.0% of all monitoring stations. This means a significant decrease from 14.4% in 1997. With the renewal of the

groundwater reserves these pollutant concentrations will only slowly decrease. The designated monitoring and action areas for increased pesticide contamination in Austria are all located outside the programme region.

For metals, the annual mean values in 2016 were above the threshold value for arsenic at 42, for nickel at eight and a for cadmium at two of 1,938 monitoring sites. For all other metals investigated, no exceedances of the corresponding threshold values were recorded on an annual average. With regard to highly volatile halogenated hydrocarbons (LHKW), two of the 1,934 measuring points examined in 2016 showed that the annual average threshold values were exceeded.

Quantitative status of groundwater bodies

The evaluation of a quantitative change in groundwater levels over the last 30 years showed a decrease for the monitoring stations in Carinthia, southern Styria and Burgenland. Mainly due to the presumably small increase in precipitation and the expected rise in temperature, it is possible that the groundwater levels in the east of Austria (Burgenland) will decrease in the future. Furthermore, a decrease in groundwater recharge is expected in the south of Austria (Carinthia, Styria), while in the northern and western party of the country, groundwater recharge could increase.

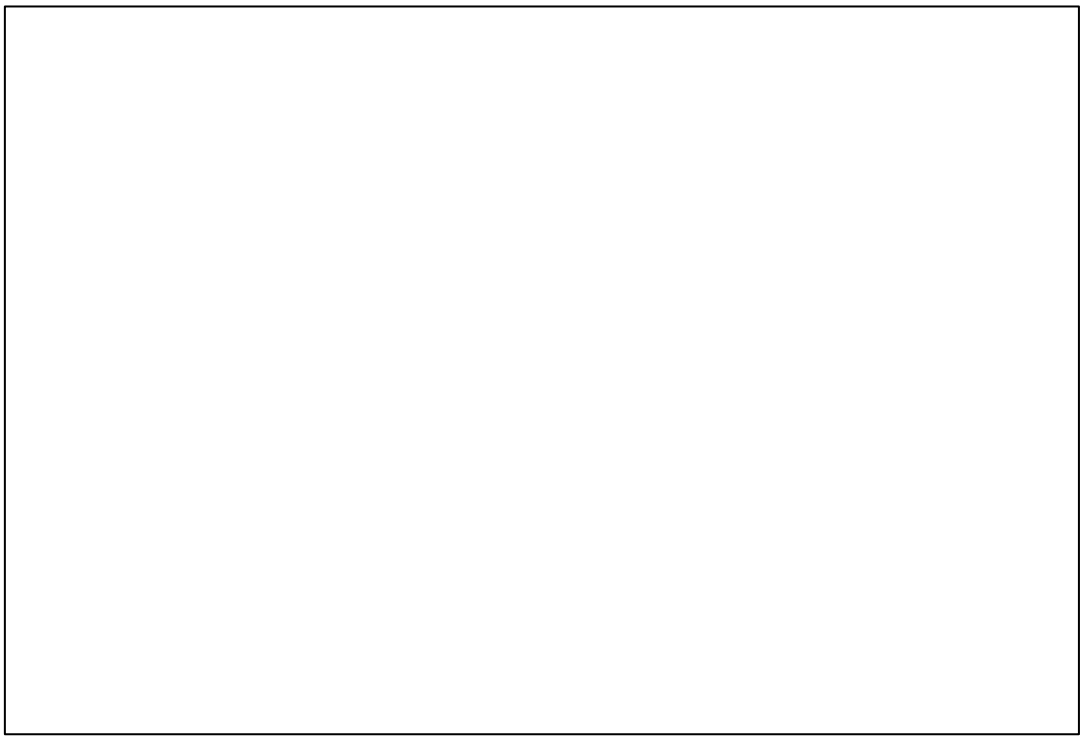
Current status in the Czech Republic

In the Czech Republic, the chemical status of groundwater bodies is monitored and evaluated annually. Indicators of groundwater pollution in 2019 were ammonium ions (12.7% of above-limit samples in the Czech Republic), nitrates (9.8% of above-limit samples in the Czech Republic) and pesticides. For the indicator of the amount of pesticides, 26.6% of samples were above the limit (0,5 $\mu g.l^{-1}$). The problem with pesticides is that they persist in the ecosystem for a long time, so the indicator values do not change much year-on-year.

Areas which, due to their natural characteristics, create conditions for significant natural water accumulation, are declared by the Government of the Czech Republic as a Protected Areas of Natural Water Accumulation (PANWA). In these areas, to the extent specified by a government decree, it is prohibited for example to reduce forest land, drain forest and agricultural land, extract peat, extract minerals or perform other earthworks that would lead to uncovering groundwater levels.

There are five PANWAs in the Czech part of the programming area. The largest PANWA in the programming area is PANWA Šumava with an area of 1,681 km^2. There are also PANWA Novohradské hory, PANWA Třeboňská pánev, PANWA Žďárské vrchy and PANWA Kvartér řeky Moravy.

Figure 18: Concentration of nitrogenous substances in groundwater bodies in the Czech part of the programming area in 2019



Source: CENIA, MŽP (2021): Statistická ročenka životního prostředí České republiky.

3.5.2 Surface water

Current status in Austria

In Austria, a total of 8,065 surface water bodies have been identified, just over 90% (7,348) of which are natural, the remainder being designated as either “artificial” (90) or “heavily modified” (627).

The expansion of wastewater treatment in Austria has made it possible to reduce the nutrient input from point sources (mainly organic matter and phosphorus) into surface waters. Today, the highest connection rates to the sewage system (with >95% to 100%) are found in the eastern provinces of Austria such as Vienna, Burgenland and eastern Lower Austria.

Lakes

There are 62 large lakes (of which 43 can be called “natural” and 19 “artificial”) with a surface area of more than 50 ha, whose total area is approx. 1,034 km^2 (BMLFUW 2017, 22). The majority of them are in a “very good” (16%) or “good” ecological status (32%). 40% are at least in a “good” ecological potential, 10% of the lakes show a “moderate”, 2% an “unsatisfactory” ecological status (BMNT 2018).

For the seven lakes that are in an unsatisfactory condition due to organic pollution and/or hydromorphological modifications, an action plan for the gradual achievement of a "good ecological status" was drawn up. In the provinces of the programme region, these concern the "Mondsee" and "Traunsee" in Upper Austria.

Flowing waters

The Austrian reporting network on water conditions includes all flowing waters whose catchment area exceeds 10 km². In total, these are 2,164 water bodies with a total length of 5,367 km. These can also be regarded as representative for the multitude of small water bodies that do not appear in the reporting water network (BMLFUW 2017, 22).

At least a "good" chemical status can be determined for almost all flowing waters in Austria (Rechnungshof 2019, 8). Of the natural watercourses, only 15% are in a "very good" and 23% in a "good" ecological condition. However, the status of almost one third of the watercourses (31.5%) can be described as "moderate", 13% are in an "unsatisfactory" ecological status and 4% in a "bad" one. No assessment is available for about 1% (BMLFUW 2017, 143). However, there are major geographical differences: in Styria, for example, only 34% of all water bodies have at least good ecological status, whereas in Salzburg the figure is at 59% (Rechnungshof Österreich 2019, 8). Of the artificial or heavily modified watercourses, about 2% have an ecological potential of "good" or better and about 10% of "moderate" or worse. The assessment of the ecological status of flowing waters is therefore much worse than that of standing waters.

In order to reduce the hydromorphological pollution of watercourses in the future and to ensure that the "good status of all waters" is achieved by 2027, it will be necessary to expand the rehabilitation area from large rivers also to smaller watercourses.

Current status in the Czech Republic

The trend of concentrations of monitored water pollution indicators since the 1990s mainly reflects the development of the amount of pollution produced from point sources, wastewater treatment (share of treated wastewater, efficiency of wastewater treatment) and socio-economic and political development in the Czech Republic (industrial restructuring, raising living standards, entry into the EU). The climatic conditions of a given year (precipitation amount, temperature) also play an important role in the year-on-year fluctuations of the values of the monitored indicators of water pollution.

In the long term, the quality of surface water bodies in the Czech Republic is constantly improving. Since the beginning of the 1990s, the number of profiles with the worst quality water has significantly decreased. However, despite the improvements achieved, the current state cannot be considered entirely satisfactory. There are still problematic watercourses with high concentrations of pollution sources. Eutrophication is also a problem in both running and, in particular, stagnant waters, which is caused by the increased amount of nutrients that enter the water by flushing from the soil and discharging of wastewater.

The water quality in the South Moravian Region in the period 2018–2019 was classified most often III.-V. quality class (polluted to very heavily polluted water). Very heavily polluted water was, as in

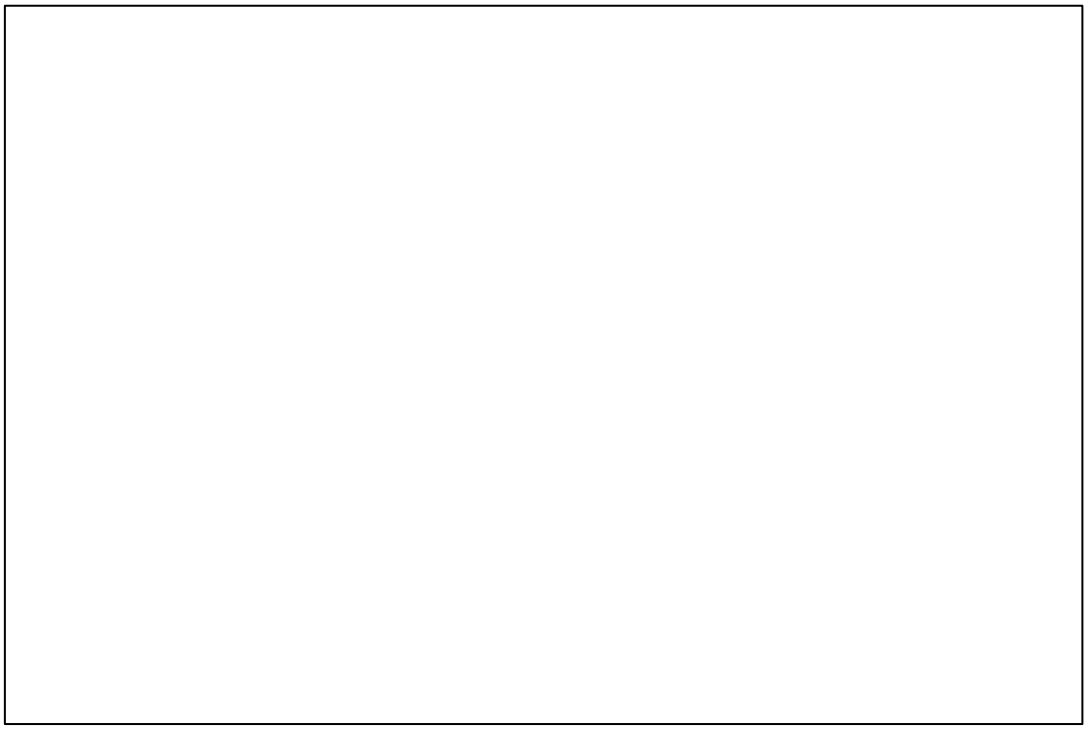
the previous evaluated period, in the watercourses Trkmanka, Kyjovka, Litava, Bobrava, Haná and Jevišovka. Compared to the previous period, the water quality in Svitavka improved (from V. quality class to IV. class). Water quality in the South Moravian Region has long been affected by surface pollution from intensive agricultural management. In some streams, water quality is also affected by industrial pollution, such as from the textile or engineering industries.

The water quality in the Vysočina Region in the period 2018–2019 was classified most often IV. and V. quality class (heavily polluted to very heavily polluted water). Very heavily polluted water was in the watercourses Jevišovka, Moravská Dyje, Kamenice, Žirovnice, Rokytná, Sázava and Olšava. The quality of water is mainly influenced by municipal pollution due to the lack of or unsatisfactory water management infrastructure in small municipalities and surface pollution from agriculture, as well as the metalworking industry.

The water quality in the South Bohemian Region is mainly affected by pollution from agriculture and insufficient wastewater treatment in smaller municipalities. Other sources of pollution include fisheries, energetics, food and engineering industry. Very heavily polluted water was in the watercourses Lomnice, Lužnice, Nežárka, Blanice and Moravská Dyje.

Surface and groundwater abstractions mainly reflect the state of the economy and the hydrometeorological conditions of a given year. The total amount of surface and groundwater abstracted in the Czech Republic has decreased by 16.5% since 2000. In 2019, total water abstractions amounted to 1,506.3 million m^3, while abstractions decreased by 5.3% year-on-year. The majority of abstractions are made from surface waters (76.1% of the abstractions in 2019), a smaller part from groundwater (23.9%). The highest consumption was made for public use (40.9% of total consumption) and for energetics (37.4%).

Figure 19: Surface water quality in the Czech part of the programming area, 2018–2019



Source: CENIA, MŽP (2021): Zpráva o životním prostředí České republiky.

In recent years, the Czech part of the programming area has shown a clear trend of increasing the share of treated wastewater. The share of households connected to the sewerage system is constantly increasing. However, the share of households connected to the sewerage system varies considerably from region to region.

The average efficiency of wastewater treatment is very high in the Czech Republic. In the case of undissolved substances, up to 98% of the pollution is removed. As far as phosphorus is concerned, the removal efficiency is about 82%. In the case of nitrogenous substances is removal efficiency about 72%. These values are related to the completed reconstruction of large wastewater treatment plants and the stabilized trend of pollution produced in agglomerations.

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	Almost all of the flowing waters are at least in good chemical, but only 38% are in at least good ecological condition. Only seven of more than 60 larger lakes are in an unsatisfactory condition (one is located in the programme region). The assessment of the ecological status of running waters is therefore much worse than that of standing waters. A total of 60% of all water bodies must be restored. The EU targets for 2027 will probably not be reached in Austria. The development of the level of groundwater pollution has not changed significantly over the last ten years. The same situation can be expected in the future.	←↘ (AT) ←↗ (CZ)
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status	In the long term, the ecological and chemical status of surface water bodies in the Czech Republic is constantly improving. However, despite the improvements made, the current situation cannot be considered completely satisfactory. There are still problematic watercourses with a high accumulation of pollution sources. In addition, the improvement of the ecological and chemical status of surface water bodies is very slow. Above that, eutrophication of watercourses and reservoirs is a deepening problem in many areas.	
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.6 Air

3.6.1 Air pollution

National and international legislation defines limit and guideline values for particular air pollutants in order to protect people and nature from the negative external effects of air pollution. Therefore, “primary air pollutants” (emitted directly into the atmosphere) and “secondary air pollutants” (produced by chemical reactions in the atmosphere with precursor substances) are to be distinguished. The most important air pollutants include carbon monoxide (CO), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), nitrogen oxides (NO_x) and non-methane volatile organic compounds (NMVOC).

Current status in Austria

In Austria, the European directives on air pollution control are implemented in the Air Pollution Control Act (IG-L) and the Ozone Act. Exceedances of the air pollutant limit values specified in the legislation are registered for NO_2 (in particular the annual mean value), PM_{10} (daily mean value), SO_2 (half-hourly mean value), benzo(a)pyrene, dust precipitation and lead in the dust precipitation. Mainly affected by limit value exceedances according to IG-L are areas with high traffic volume – the city of Vienna, Graz, Salzburg, Innsbruck, Hallein, Lienz and Feldkirch being highlighted in the 2019 report on air quality by the Austrian Environment Agency. However, in principle, it can be assumed that the limit values are also exceeded at other traffic-loaded locations in larger cities and on freeways where there are currently no measuring points located.

- For **NO_2,** exceedances were registered at twelve of 144 IG-L measuring points in 2018. The limit value of 30 µg/m³ as "annual mean value" was exceeded at 21 measuring points. Only one of the Top-5 stations with the highest annual mean values registered is located in the programme region ("Graz Don Bosco"). From 1990 to 2015, NO_x emissions had been reduced by almost 20% overall.
- **PM_{10} and $PM_{2.5}$** emissions have shown a slight overall decreasing trend in recent years and have also fallen almost continuously since 1990. The limit value for PM_{10} according to IG-L was exceeded at three measuring point in the program area in 2018 – all of them are located in Graz.
- The only exceedance of **SO_2** limit values in 2018 has been registered at the measuring point Straßengel in Styria and occurred due to local industrial emissions.
- The limit value for **benzo(a)pyrene** was exceeded in 2018 at one measuring point in Ebenthal Zell in Carinthia. The data shows that increased benzo(a)pyrene pollution occurs mainly south of the main alpine ridge in regions with unfavourable dispersion conditions. The main pollution source are manually operated small combustion plants for space heating.
- The limit value for **dust precipitation** was exceeded in 2018 at six measuring points in Styria (in the cities of Leoben and Kapfenberg). Exceedances of the limit value for **lead in dust precipitation** were recorded at one measuring point outside the programme region. All exceedances are due to local industrial emissions and the swirling of dumped dust.

Ozon

The highest ground-level ozone pollution in Austria was measured between 2016 and 2018 on the edge of alpine regions and non-alpine regions of eastern Austria and in the low and high mountain ranges (Umweltbundesamt Österreich 2019a, 75)

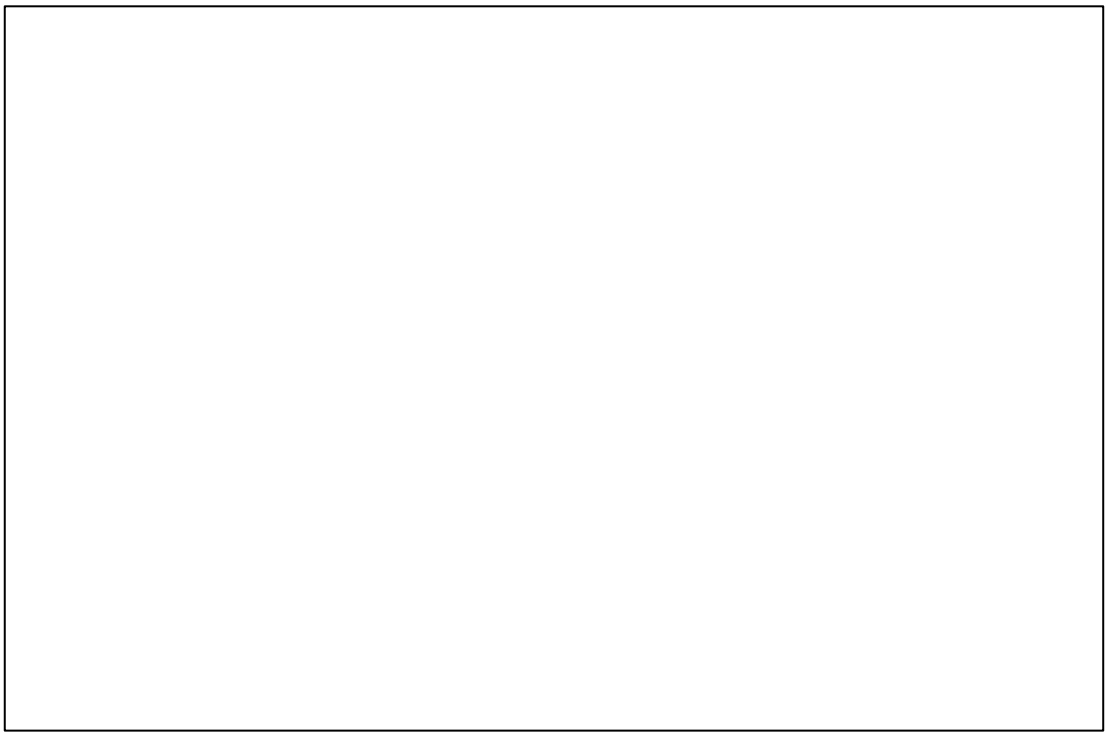
- **Information threshold:** Exceeded at a total of five measuring points on two days in 2018
- **Target value for the protection of human health:** Exceeded at 44 ozone measuring stations (41%) in 2016-2018. The highest levels of pollution occurred in the Bregenzerwald (Vorarlberg), the Mühlviertel (Upper Austria) and the generally in the low and high mountain ranges, therefore also in the programme region. Approximately 2.23 million people live in the areas affected by ozone target value exceedances (reference period is 2016-2018) of about 46,000 km².

- Target value for the protection of vegetation: In the period between 2014-2018, exceedances at 45 measuring points (42%) have been registered with the highest values in the Bregenzerwald, in the lowlands of eastern Austria, in the hilly areas of south-eastern Austria and in the low and high mountains (the last two regions are both located within the programme region).
- Target value for forest protection: Exceeded in almost all of Austria in (at 93% of all measuring points) in 2018.

Current status in the Czech Republic

Pollutant emissions in the Czech part of the Programme area between 2005 and 2019 fluctuated, but overall emissions trends are decreasing. The largest decrease (in tens of %) is registered mainly for SO_2, and to a lesser extent also for NOx, which is mainly related to the modernisation of large industrial and energy plants. In most of the concerned territory the air quality is determined mainly by its agricultural character and the low presence of industry. Thus, air pollution is mainly caused by individual heating installations in residential houses and locally also by transport.

Figure 20: Comparison of areas with exceedances of air pollution limits for health protection without ground-level ozone in 2019 and on a 5-year average 2014-2018 (CZ)



Source: ČHMÚ: Znečištění ovzduší na území České republiky v roce 2019

While border areas (significant parts of which are sparsely populated and often belong to large nature protected areas) tend to have specific emissions of all the main pollutants well below national average. The situation is different in the larger cities, especially in the Brno agglomeration, where air pollution is higher, especially for dust and nitrogen oxides. Also the construction activity is reported to contribute as a source of polluting emissions in addition to transport, industrial sources and domestic heating. In general, the emissions from transport and from the individual

heating boilers in residential houses (mainly NOx, dust [PM10] and polyaromatic hydrocarbons [PAHs], especially benzo-α-pyrene) are a persistent problem in large portions of the Czech territory. In a large part of the South Moravian Region, dust emissions from the agricultural land also contribute to air pollution.

However, in the context of the Czech Republic, the area of interest is relatively unaffected by high levels of air pollution. Exceedances of limit values set for the protection of human health occur only in a small part of the area. An exception is tropospheric ozone (O_3), which has exceeded the limits in most parts of the Czech Republic in recent years.

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Air	Reduction of emission levels in consideration of respective emission limits	Most of the air pollutants investigated in Austria show a (significant) decrease over recent years. At most of the monitoring stations, only few exceedances of limit values have been observed. However, the only exceedances for PM_{10} and $PM_{2.5}$, SO_2 and benzo(a)pyrene have been registered in the programme region. In the Czech Republic, emissions from large stationary sources have been significantly reduced as a result of the modernisation of electricity and heat production. Emissions from transport tend to stagnate: the increase in the intensity of car transport is offset by a reduction in specific emissions through the gradual renewal of the vehicle fleet. The combustion of low-quality solid fuels in local (domestic) heating systems in rural areas contributes significantly to pollution by NOx, PM10 dust and other pollutants (benzo-α-pyrene). The replacement of these small sources is slow.	↗ (AT) ←↗ (CZ)
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.7 Climate and energy

In Austria, the average annual temperature increased from 1880 to 2018 about 2°C, which is twice as high as the global trend. This rise causes irreversible damage to nature on one hand, on the other, severe negative impacts on the economy are also increasing, for example in agriculture due to natural hazards such as hail, drought, frost, floods and storms.

3.7.1 GHG-Emissions

A key objective of climate protection is to combat the causes of climate change and to take measures to prevent or mitigate anthropogenically induced global warming. The basic prerequisite for this is to reduce the emission of greenhouse gases (GHGs) caused by humans. The most significant greenhouse gas in terms of volume is CO_2. Other important GHGs are for example CH_4, N_2O and Chlorofluorocarbons CFCs.

Current status in Austria

Austria's total GHG emissions in 2018 amounted to about 79 million tons of CO_2-eq, which is slightly above the 1990 level (78.5 million tons). Since the peak in 2005 (approx. 93.5 million tons) a strong reduction has been be achieved, since 2015 the emission levels are largely constant with some slight fluctuations.

The shares of the federal states in total greenhouse gas emissions in Austria in 2014 were 29% for Upper Austria, 23% for Lower Austria, 16% for Styria, 10% for Vienna, 7% for Tyrol, 6% for Carinthia Salzburg 5%, for Vorarlberg 2% and for Burgenland 2%.

In the three highest emitting countries, which are large both in terms of area and population, there are important industrial sites (e.g. Linz steel works) and they also contain important facilities for national energy supply, such as B. the refinery in Schwechat or large caloric power plants. As a major city, the most populous federal state of Vienna has a fundamentally different structure than the other federal states. Road traffic, buildings and agriculture dominate the greenhouse gas emissions in the federal states of Burgenland, Carinthia, Salzburg, Tyrol and Vorarlberg.

Regarding the programme area the total GHG-emissions have only decreased in Vienna since 2005 (-6%). Upper Austria (+4%) and Lower Austria (+6%) increased in total emissions.

Current status in the Czech Republic

The trend for the greenhouse gas emissions in the Czech Republic has tended to stagnate over the last ten years. The country has not achieved the EU's common climate and energy package target nor the national environmental policy objective for the period 2012-2020 for emissions from installations covered by the EU ETS. Over the period 2005-2018, emissions decreased by 18.9%, while the target was a 21% decrease by 2020.

Compared to other EU countries, the Czech Republic has above average per capita GHG emissions (approximately 46.0% above the EU average) and a high emissions intensity of the economy, which was 66.5% higher than the EU average (2016). This is mainly due to the GDP structure with a high share of industry and the export orientation of the economy. Emissions from combustion processes in the energy sector have been stagnating in recent years. The downward trend in fugitive fuel emissions, driven by the slowdown in coal mining (down 43.4% since 2000) and emissions from the industrial energy sector (combustion processes in manufacturing and construction), continues in the context of energy intensity reduction. The GHG emissions from transport is increasing, within the period 2000-2016 by 54.6%. Regional emissions depend mainly on the regional economic structure (share of energy and manufacturing industries) and the Czech part of the Programme area is in this respect diverse, including large rural areas but also municipalities with presence of manufacturing and other GHG emitting facilities. However, the relative lack of heavy industry and big energy generation facilities means that the concerned territory is only a modest contributor to the Czech national GHG emission load.

3.7.2 Heat islands

Current status in Austria

In the Austrian part of the Programming area, the main concerned regions are the cities Vienna, Linz, Wels and St. Pölten. For the city of Vienna, concrete projections of the development regarding urban heat islands have been calculated in 2013. They show an increase in the average annual number of summer days in the coming decades. For the period 2012-2050, a moderate annual increase in the range of 0 to 25 summer days (Tmax ≥ 25°C) is expected, compared to the reference simulation (1971-2000). A possible increase of around 20 to 50 additional summer days per year is projected for 2071-2100.

Current status in the Czech Republic

In the Czech part of the Programming area the urban heat island effect is most pronounced in Brno, by far the largest city within the concerned territory. According to the analyses conducted within the project UrbanAdapt, the regional climate models indicate the city of Brno will be likely experience an increase in average annual temperatures for both low (RCP4.5)[6] and high (RCP8.5) CO2 emissions scenarios. A significant increase in the average number of tropical days (Tmax. > 30 °C) is indicated, which may increase up to 42.3 days/year in the period 2081-2100 (for scenario RCP8. 5) compared to 12.3 days/year for the reference period of 1981-2010 (i.e. increase by 244%). It is also predicted to be accompanied with a significant increase in the number of tropical nights (Tmin. > 20 °C) and an increase in the number of heat waves (defined as 3 and more subsequent days with Tmax. > 30 °C). The Brno city centre and the industrial areas in the South (Modřice, around the motorway) will be particularly affected by this problem.[7]

3.7.3 Renewable energy

Current status in Austria

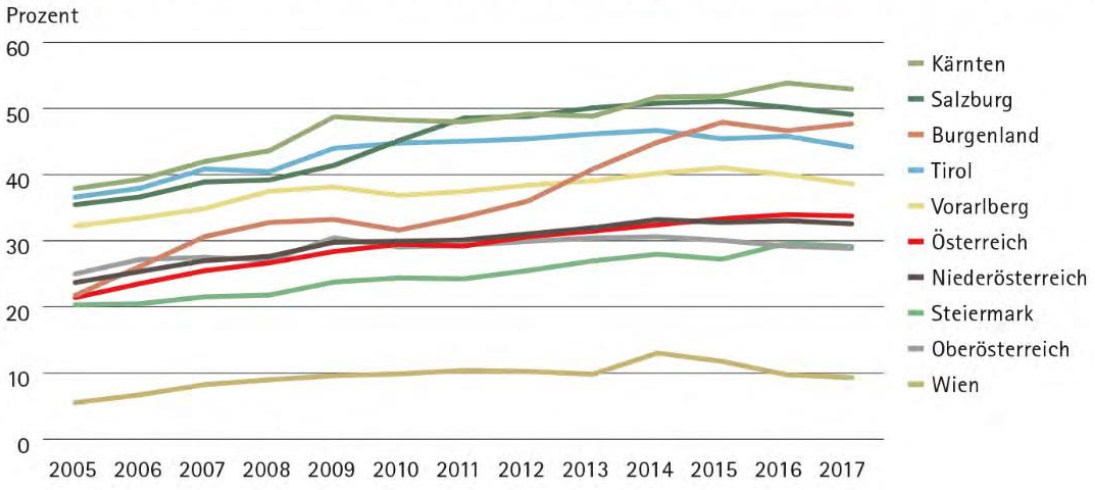
The share of renewable energy sources in gross final energy consumption throughout Austria did not change significantly over the last couple of years and amounts to 32.6%.

The most important renewable energy source on a national level is hydropower with 35.3%, followed by solid biomass (28.1%) and district heating (10.6%). Further contributions come from energetically used lyes (8%) and biofuels (5.3%). The solar thermal energy, wind power, photovoltaic power, geo-thermal power, biogas and environmental heating sectors play a rather minor role, with respective contributions adding up to 12.7%.

[6] RCP – Representative Concentration Pathways (Van Vuuren et al. 2011)

[7] Principles for the development of climate change adaptation in Brno: using ecosystem-based approaches, 2016 (Zásady pro rozvoj adaptací na změnu klimatu ve městě Brně: s využitím ekosystémově založených přístupů, výstup projektu UrbanA-dapt, 2016)

Figure 21: Development of the shares of renewable energy sources in accordance with EU Directive 2009/28/EC in Austrian provinces



Source: Österreichischer Biomasse-Verband s.a., 4

Current status in the Czech Republic

The Czech Republic is currently moving towards meeting indicative targets for renewable energy sources. The State Environmental Policy of the Czech Republic has adopted the target set by the EU Directive, i.e. a 13% share of renewable energy in gross final energy consumption by 2020. This indicative target was already achieved in 2013. The second target resulting from the updated State Energy Policy is to achieve a share of renewable energy in electricity generation in the range of 18-25% by 2040. In 2019, this share was 11.6%. These targets are currently being revised in the context of the development of national plans to meet the EU 2030 climate and energy framework. The Czech Republic's National Energy and Climate Plan, approved by the government on 13 January 2020 and currently under negotiation with the European Commission, sets a target of 22% for renewable energy use by 2030, an increase of 9 percentage points from the Czech Republic's national target of 13% for 2020.

The production of heat from renewable sources in the Czech Republic increased significantly during the monitoring period. In 2017, 9,666 TJ were produced, which is an increase of 8.8% compared to the previous year, and the production of heat from renewable energies increased 2.5 times in the period 2010-2017. Biomass clearly dominates this category, accounting for 74.1% in 2017. Local heating of households by burning wood accounts for the largest share. Other heat sources are waste (17.6%), biogas (7.4%) and heat pumps (0.9%).

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	Due to its important industrial and energy supply facilities the emission of GHG are overall slightly increasing in the programme area. The reduction of emissions in general will continue according to the strategy set out in the National Energy and Climate Plans of both countries.	←↗ (AT) ←↗ (CZ)
	Prevention and reduction of heat islands	Due to the ever-increasing urban development, inner-city densification, loss of permeable open greenspaces and the climate change summer days, as well as heat days, will increase in the foreseeable future. Although a strategy for the city of Vienna has been published, adaption actions need to be applied at a larger scale to achieve any significant reduction. The climate-change scenarios indicate intensification of urban heat island effect and that is not likely to be effectively mitigated. Adaptation strategy for the city of Brno (the most potentially affected territory in the Czech part of the Programming area) has been developed to facilitate a sound management of the problem in the future.	←→
	Fostering of renewable energy sources and increase of energy efficiency	The share of renewable energy did not really change from 2015 to 2017 and is below the targeted value of 34%. The final energy consumption was 1,130 PJ and has increased slightly compared to previous years in Austria. The positive trends will continue according to the strategy set out in the National Energy and Climate Plan of the Czech Republic.	←→ (AT) ←↗ (CZ)
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.8 Material assets, raw material resources

Material assets are social objects that have a high functional significance, including technical infrastructure such as roads, railroads, buildings, etc. Due to their increased importance for society, they are also particularly worthy of protection. However, material assets in the broader sense can also include all resources, such as raw materials (ores, wood, oil and gas, sands and gravel etc.) but also materials for further processing and use. Against the background of the finite nature of (non-renewable) resources, a resource-saving economic system and lifestyle and a reduction in the consumption of resources is to be strived for in accordance with the principle of the circular economy.

Current status in Austria

The total waste volume in Austria in 2017 was around 64.2 million tons and increased by 4.4 million tons compared to 2015. This results in a waste volume per capita of 7.3 tons per year respectively around 20 kg per day.

Excavated material accounts for the largest share with 54.9% of the waste volume generated. These recorded strong growth from 2009 to 2017, with an increase of more than 50%. An even

greater increase was recorded in the same period for waste from the construction industry (+70%; share of total waste volume: 18.2%). This can be attributed to improved statistical data collection on the one hand, on the other hand to larger construction projects in the recent past, such as the construction of the Brenner base tunnel (in Tyrol) or the construction of the Koralm railroad between Carinthia and Styria.

Municipal waste from households and similar establishments represents an important share (approx. 7%) of the waste volume with a total of 4.3 million tons, recording a significant increase by 11% from 2009 to 2017. In relation to the average population, this corresponds to a municipal waste volume of 488 kg per capita in 2016.

Recycling and Circular Economy

In 2019, around 52%, more than half of the 4.5 million t of municipal waste from households and similar facilities were recycled. Around 43% were treated thermally and less than 5% were treated mechanically-biologically.

Although Austria has a progressive waste management thanks to a high recycling rate of household waste, increases in the recycling od packaging waste, old cars and electrical appliances will be necessary in the next few years. More efforts are also needed in the sustainable recycling of phosphorus from sewage sludge and animal meal.

However, it is not possible to recycle all waste stream repeatedly. In order to use their resource potential nonetheless, one relies on waste incineration. Many Austrian industrial companies are already using processed waste materials to a considerable extent as a fuel substitute. In addition to the ecological advantages of this approach, such as the destruction of organic pollutants and the reduction of climate-damaging emissions, costs are saved and Austria's dependence on imports of primary sources is reduced.

Regardless of this, the Ministry of Sustainability calls the landfilling of waste an indispensable part of waste management, especially when the output of a waste treatment plant is not suitable for being returned to the product cycle. The possibility of recycling is limited, for example in the case of wood, if the material has been treated with wood preservatives. In the case of plastic, its composition from a wide range of substances usually makes high-quality recycling difficult, which of course has purity of type as a decisive criterion. When processing plastic waste, there is often a trade-off between conserving resources and avoiding the spread of pollutants. The heterogeneity of plastics and their different, sometimes harmful additives and aggregates often speak against recycling, which is why only around a quarter of plastic waste is recycled.

Current status in the Czech Republic

Domestic material consumption (DMC) in the Czech Republic increased slightly year-on-year by 0.4% (0.7 million tons) to 170.3 million tons in 2019. After 2000, the development of DMC fluctuates without a significant trend, according to the development of the economy and the share of materially demanding sectors in GDP. In the period 2013–2019, the development of DMC was influenced by economic growth and the associated growth of industrial and construction production; DMC in this period increased by 9.8%. At the beginning of the 1990s, DMC decreased significantly

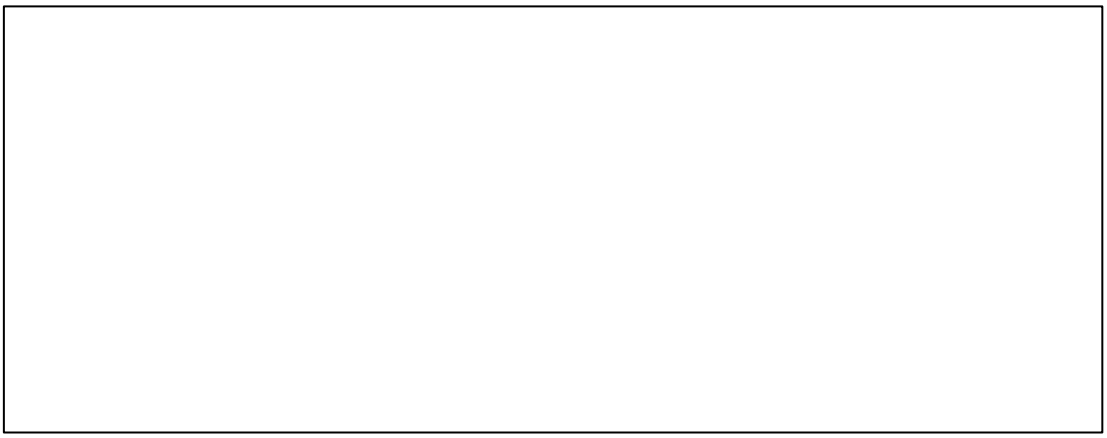
in connection with the restructuring of the economy, in 2019 it accounted for 57.2% of the value from 1990, which is a positive trend from an environmental point of view.

The total production of waste per capita in the South Bohemian Region decreased between 2009 and 2019 by 10.2% and between 2018–2019 by 8.5% to 3,046.5 kg per capita. A substantial part of this production was represented by the total production of other waste per capita, which decreased by 8.1% since 2009 to 2,919.1 kg per capita in 2019. In the long term, the total production of other waste in this region is affected by construction activities, in particular the construction of the D3 motorway and related roads.

The total production of waste per capita in the Vysočina Region in 2019, after a previous steady growth, decreased significantly for the first time by 8.5% to 2,996.9 kg per capita. However, despite this decrease, in the period 2009–2019 the total increase in total waste production per capita was 107.5%. The reason for this trend is the simultaneous trend of the total production of other waste per capita (other waste represents the largest part of the total waste production), which increased by 112.7% to 2,871.6 kg per capita over the same period. It is the impact of the production of construction and demolition waste.

The total production of waste per capita in the South Moravian Region increased by 73.6% between 2009 and 2019 to 4,229.7 kg per capita, i.e. to the highest value in the Czech Republic, despite a year-on-year decrease (2018–2019) of 4.7%. This development is related to the total production of other waste per capita, which has a parallel trend with the total production of waste per capita. The total production of other waste per capita since 2009 has increased by 75.3% to 4,080.7 kg per capita in 2019. The value of this indicator is also the highest in the Czech Republic. The increase is mainly due to an increase in the production of construction and demolition waste.

Figure 22: Total production of waste, total production of other and hazardous waste in the Czech part of the programming area, 2019



Source: CENIA, MŽP (2021): Statistická ročenka životního prostředí České republiky.

Between 2009 and 2019, the share of materially used waste increased from 72.5% to 84.8% and the share of energy-used waste from 2.2% to 3.5%. The share of waste deposited in landfills is decreasing (in 2019 it reached 9.7%).

The rate of recycled packaging waste has increased to 71.2% in 2019 since 2009. The overall recovery rate for packaging waste in 2019 was 75.5%.

Assessment of the development according to the zero alternative

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Material assets, raw material, resources	Reduction and efficient recycling of waste	The total production of waste in both countries has been increasing for a long time, but at the same time the share of recycled waste is growing. No significant changes in this trend can be expected in the future.	←→
	Promotion of recycling and the circular economy	The principles of recycling and circular economy are already being applied in Austria and is going to be more and more applied in the future. The principles of recycling and circular economy are gradually being applied in waste management in the Czech Republic. This trend will continue in the future and is likely to accelerate.	←↗
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

3.9 Development of the state of the environment (Zero Alternative)

Table 16: Expected development of the state of the environment

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Human health & well-being	Reduce the population share exposed to excessive noise levels	Since the 1970s, a fluctuating course of noise pollution has been observed in Austria. The current level is significantly lower than in the 1970s, however, since 1998 an increasing noise pollution is being registered. In the Czech Republic, the number of people exposed to noise decreased between 2012 and 2017. The exception is road traffic noise, which has shown a slow increase over the last 10 years and has persisted. Traffic intensity is increasing in all road categories, which is currently compensated to some extent by technical improvements and other measures (e.g. noise barriers).	←↘ (AT) ←↗ (CZ)
	Reduce the population share exposed to excessive light pollution	The metropolitan areas around Linz and Vienna, as well as the regions between those two cities are the main light polluters in Austria. Due to the nature of big cities and the ever-evolving areas around these, light pollution will rise. The exact trend is difficult to establish, but the continuation of expansion of urban areas and infrastructure will likely bring about further increase of areas affected by the light pollution. Increasing accessibility and affordability of highly efficient lights (e.g. LED) will likely contribute to the negative trend.	←↘
	Improved flood risk management	The National Flood Risk Management Plan tries to minimize the flood risk in Austria but due to its topography and the climate change it will possibly be a very hard goal to reach. In the Czech Republic, the continuing development of flood protection measures steadily decreasing numbers of objects and inhabitants vulnerable to the flood risks from rivers, however the climate-change related increase in the frequency of heavy rains and local flash-floods may offset this progress in the future.	←→ (AT) ←→ (CZ)

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	In Austria for animals, some improvements have been observed but also deterioration in others. Amphibians and reptiles are still largely endangered. For Plants, the situation is very critical, e.g. 60% of all fern and flowering plants are endangered. The Czech Republic faces a long-term negative trend of biodiversity and unsatisfactory ecological status of the landscape. Although the area of specially protected areas in the Czech Republic has been growing for a long time, while specially protected areas in the landscape serve as important refuges for endangered species of plants and animals, they cannot fully compensate this negative trend.	←↘
	Protection of the ecosystems from invasive species and neophytes	The spread of invasive species and neophytes is one of the most important features of the current biodiversity crisis in both countries. However, it is practically impossible to stop it.	↘
	Protection of wildlife migration corridors and biotope networks	Agricultural intensification and land abandonment are major threats to biodiversity and corridors. There are actions in place to counteract these, as well as specialised protection measures. Despite the growing efforts to study and protect wildlife migration corridors and biotope networks, the migration permeability of the landscape in the Czech Republic is still considerably limited.	←→
Soil, land use	Economical land use, reduction of land consumption	Overall, the yearly additional land consumption has decreased in the programme region. Due to legal restrictions and various efforts to reduce it further the positive trend will continuous, nonetheless it is far from the set goal at national level. In line with national trends, there was an increase in built-up areas in most of the Czech part of the programming area. This was mainly due to an increase in the area of warehouses and logistics centres and an increase in residential areas – also in connection with the trend of suburbanization. On the other hand, there is a steady decline of agricultural land area, respectively, arable land. This is in favour of grasslands and forests. It cannot be assumed that the gradual land consumption will be stopped or significantly slowed down.	←↗ (AT) ←↘ (CZ)
	Protection of soil functions	For almost all investigated elements a decrease of the loads since 1995 has been observed. Arsenic and chromium loads have particularly elevated in the northeast of Austria. The contents of iron and aluminium have increased slightly in the whole of Austria since 2010. Overall, the positive trend of decreasing soil contamination and thus protection of soil functions prevails. In recent years, the consumption of nitrogen fertilizers has been declining, however, their consumption still significantly outweighs more suitable organic fertilizers. A significant share of agricultural land in the Czech Republic is also threatened by water and wind erosion. There is still a huge number of contaminated sites in the Czech part of the programming area. Given the above, no significant change can be expected.	←↗ (AT) ←→ (CZ)

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	From 2017 to 2020, the total number of protected natural monuments recorded in the Federal Monuments Agency's inventory increased slightly in all federal states and now stands at 38,519. Cultural and material assets and immovable monuments are adequately protected by law. However, the effectivity of the protection is often limited by the lack of financial resources for the maintenance of (less-prominent or less-popular) monuments.	←↗ (AT) ←→ (CZ)
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	Increase from 2016 to 2018 both in number (+98) and area (+0.3%) to approximately 38,000 km² in total in Austria. On the Czech side, a large part of the area belongs to the category of protection that contributes to the preservation of its cultural and natural values. The western part of the programme area is one of the less fragmented areas of the Czech Republic, but even here the development of settlement expansion and transport infrastructure into the open countryside has a negative impact.	↗ (AT) ←↘ (CZ)
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	Almost all of the flowing waters are at least in good chemical, but only 38% are in at least good ecological condition. Only seven of more than 60 larger lakes are in an unsatisfactory condition (one is located in the programme region). The assessment of the ecological status of running waters is therefore much worse than that of standing waters. A total of 60% of all water bodies must be restored. The EU targets for 2027 will probably not be reached in Austria. The development of the level of groundwater pollution has not changed significantly over the last ten years. The same situation can be expected in the future. In the long term, the ecological and chemical status of surface water bodies in the Czech Republic is constantly improving. However, despite the improvements made, the current situation cannot be considered completely satisfactory. There are still problematic watercourses with a high accumulation of pollution sources. In addition, the improvement of the ecological and chemical status of surface water bodies is very slow. Above that, eutrophication of watercourses and reservoirs is a deepening problem in many areas.	←↘ (AT) ←↗ (CZ)
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		
Air	Reduction of emission levels in consideration of respective emission limits	Most of the air pollutants investigated in Austria show a (significant) decrease over recent years. At most of the monitoring stations, only few exceedances of limit values have been observed. However, the only exceedances for PM_{10} and $PM_{2.5}$, SO_2 and benzo(a)pyrene have been registered in the programme region. In the Czech Republic, emissions from large stationary sources have been significantly reduced as a result of the modernisation of electricity and heat production. Emissions from transport tend to stagnate: the increase in the intensity of car transport is offset by a reduction in specific emissions through the gradual renewal of the vehicle fleet. The combustion of low-quality solid fuels in local (domestic) heating systems in rural areas contributes significantly to pollution by NOx, PM10 dust and other pollutants (benzo-α-pyrene). The replacement of these small sources is slow.	↗ (AT) ←↗ (CZ)

Environmental aspects	Main environmental objectives	Trend estimation until 2030	ZA
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	Due to its important industrial and energy supply facilities the emission of GHG are overall slightly increasing in the programme area. The reduction of emissions in general will continue according to the strategy set out in the National Energy and Climate Plans of both countries.	←↗ (AT) ←↗ (CZ)
	Prevention and reduction of heat islands	Due to the ever-increasing urban development, inner-city densification, loss of permeable open greenspaces and the climate change summer days, as well as heat days, will increase in the foreseeable future. Although a strategy for the city of Vienna has been published, adaption actions need to be applied at a larger scale to achieve any significant reduction. The climate-change scenarios indicate intensification of urban heat island effect and that is not likely to be effectively mitigated. Adaptation strategy for the city of Brno (the most potentially affected territory in the Czech part of the Programming area) has been developed to facilitate a sound management of the problem in the future.	←→
	Fostering of renewable energy sources and increase of energy efficiency	The share of renewable energy did not really change from 2015 to 2017 and is below the targeted value of 34%. The final energy consumption was 1,130 PJ and has increased slightly compared to previous years in Austria. The positive trends will continue according to the strategy set out in the National Energy and Climate Plan of the Czech Republic.	←→ (AT) ←↗ (CZ)
Material assets, raw material, resources	Reduction and efficient recycling of waste	The total production of waste in both countries has been increasing for a long time, but at the same time the share of recycled waste is growing. No significant changes in this trend can be expected in the future.	←→
	Promotion of recycling and the circular economy	The principles of recycling and circular economy are already being applied in Austria and is going to be more and more applied in the future. The principles of recycling and circular economy are gradually being applied in waste management in the Czech Republic. This trend will continue in the future and is likely to accelerate.	←↗
↗ Improvement ←↗ Partial improvement ←→ No change ←↘ Partial deterioration ↘ Deterioration			

4. Potential significant impacts on the environment, measures to prevent or reduce negative impacts, alternatives

4.1 Methodological approach

4.1.1 Assessment methodology

As required by the SEA Directive, the assessment includes as main steps a description of the current state of the environment and its likely development, an assessment of the potential impacts of the programme and the assessment of alternatives and definition of measures for mitigating negative and enhancing positive effects on the environment.

The relevant frame for assessments is set up by the environmental aspects outlined in the SEA directive and the subsequently identified relevant environmental objectives which are potentially impacted by the programme.

The current state of the environment (SEA-Directive, Annex I, b-d)

The SEA Directive (Annex I, b) requires a description of the current state of the environment, including its likely development in the event of non-implementation of the IP (= zero alternative). To define the zero alternative, a qualitative trend estimation is being performed, based on concrete data and empirical values.

Table 17: Qualitative trend assessment (zero alternative)

Symbol	Trend
↗	Improvement: general improvement of the current state of the environment
←↗	Partial improvement: improvement of the current state of the environment in parts only
←→	No change: no significant change in the current state of the environment
←↘	Partial deterioration: deterioration of the current state of the environment in parts only
↘	Deterioration: general deterioration of the current state of the environment

Source: ÖIR

This description of the current environmental situation in the potentially impacted cross-border-regions of Austria and the Czech Republic is based on a review of already existing data sources. Primary data collection is not foreseen within the framework of the SEA but is also not necessary, due to the relatively abstract strategic nature of the programme. However, such data collection could be necessary for the implementation of concrete projects (e.g. in the context of approval procedures).

Assessment of the expected significant environmental impacts of the IP (SEA Directive, Annex I, f)

For the programme priorities and the measures and instruments of the IP assigned to them, assessments of possible effects on the environment are made, based on the environmental indicators examined. Both direct and indirect effects are examined:

- Direct effects are those which are directly linked to the implementation of a measure. This includes e.g. noise pollution during a construction project.
- Indirect effects refer to those which are a direct or indirect consequence of subsidized measures. This includes e.g. emissions from the operation of production facilities whose construction was supported by the programme.

Considering the already abstract nature of the funding programme itself, indirect effects, in particular, are often difficult to assess. This can mean a reduction in the concreteness of assessments, however, it must be weighed against the loss of information if the corresponding effects are not included. In most cases, the qualitative methodology applied allows for an assessment of the direction of impact and relevance of indirect effects.

The assessment of the significance of the impacts is qualitative. In those areas where concrete quantitative information is available, numerical information is also provided. The assessment scale covers both positive and negative impacts on the environment.

The environmental impact of the programme is assessed by comparing the potential environmental impact of the CP with the zero alternative. This allows statements to be made on the extent to which the environmental situation changes as a result of the implementation of the planned measures in the CP (= "variant CP") compared with a situation without the measures planned therein (= "zero alternative").

To ensure the comparability of the qualitative and quantitative assessments of potential changes in the selected indicators, a judgement on a five-grade ordinal scale is provided for all environmental indicators. Impact matrices are used for the presentation of foreseeable effects. The zero alternative serves as a basis for comparison to assess the environmental impacts of the IP and the alternatives. The following evaluation scale is proposed:

Table 18: Qualitative assessment system

Symbol	Trend
++	Substantial improvement of the environmental situation in comparison to the zero alternative
+	Slight improvement of the environmental situation in comparison to the zero alternative
0	No meaningful change of the environmental situation in comparison to the zero alternative
-	Slight deterioration of the environmental situation in comparison to the zero alternative
--	Substantial deterioration of the environmental situation in comparison to the zero alternative
x	Assessment not possible

In cases where environmental impacts of individual activities cannot be assessed due to e.g., vague formulations or the broadness of the descriptions in the IP, no judgement on potential impacts is made which is indicated in the impact matrices by an "X".

4.1.2 Assessment of alternatives

Assessment of alternatives in the context of a funding programme is linked to considerable difficulties. While for other types of plans a number of alternative options might be available (e.g. different sites for locating buildings, different routes for a planned road or rail connection …), this is usually not the case in the development of a funding programme which is an iterative, stakeholder driven process with one end result. It is not suitable to create a hypothetical alternative programme from the SEA perspective, therefore alternatives are assessed at the level of types of actions. The SEA team will assess how different formulation of actions, e.g. by placing a different emphasis on specific topics, would influence the potential environmental impacts. This will also allow to formulate concrete suggestions on how to reformulate actions in order to mitigate potential negative impacts as well as foster potential positive impacts. The assessed alternatives will be outlined for each SO.

4.1.3 Relevant subsequent levels for environmental assessments

The assessment of the CP revealed no potential significant negative impacts of the programme on the environment. As at the current stage no concrete projects but only the operational framework in the form of the CP is known, concrete projects can potentially have environmental impacts which cannot be foreseen in their entirety or concreteness at the current stage. E.g. depending on the concrete site and the location in relation to protected areas, a construction project can have different impacts on protection of areas or habitats. These might require additional assessments on project level at a later stage.

4.2 Assessment of potential significant environmental impacts in Priority Axis 1 – Research and Innovation

4.2.1 Specific objective i: Research and innovation

While the overall innovation infrastructure in the border region is considered well developed, the links between facilities/institutions across borders are still underdeveloped. This issue will be addressed by the funding programme in three main aspects with the related types of actions:

- Strengthening of cooperation among researchers and between researchers and SMEs, especially in circular economy, bioeconomy, biotechnology, ICT, environmental branches, life sciences, creative industries, medicine, building and construction as well as eco-innovation
- Improvement of shared research and innovation infrastructure and services
- increase access to research results to the to the relevant target groups like SMEs or researchers and to enhance the exchange between individual researchers

The implemented types of actions are:

- Type of action 1.1 cross border research and know how exchange
  - cooperation in research and innovation in fields of common interest
  - research and innovation driven by demand from local businesses with specific focus on sectors of relevance in the border area.
- Type of action 1.2 joint pilot actions and joint solutions in shared research facilities and research application
  - investments in new jointly used/shared R&I facilities, based on relevant research strategies and with high thematic focus to the programme area;
  - adding services to core offerings of industries by "servitization" to make industries more innovative and competitive;
  - extension and modernisation of technology facilities and research capacities of cross-border interest; Sharing of high-quality R&I facilities;
  - better linking research institutions with SMEs and increase access of SMEs to R&I results, application of research and innovation results with the aim to reach the market;
  - joint set-up of innovation hubs.
- Type of action 1.3: communication and mobility of researchers
  - supporting the cross-border mobility of researchers;
  - science communication (informing, educating, raising awareness of science-related topics).

Potential impacts on the environment

The main focus of the SO lies on exchange and cooperation activities, however some construction can be possible under action 1.2. The general thematic fields of focus are defined quite broadly. Consequently positive impacts are mainly related to some specific fields of thematic focus as well as negative ones to construction activities.

The implementation of the specific objective may generate the following positive environmental impacts:

- Human health and well-being: No positive impacts are expected.
- Fauna, flora, biodiversity, habitat protection: No positive impacts are expected.
- Soil, land use: No positive impacts are expected.
- Cultural heritage, landscape: No positive impacts are expected.
- Water (groundwater and surface water): No positive impacts expected.
- Air: No positive impacts are expected.
- Climate and energy: No positive impacts are expected.
- Material assets, raw material, resources: Explicit focus on circular economy in research activities can contribute to improved recycling and reduction in material use.

The implementation of the specific objective may generate the following negative environmental impacts:

- Human health and well-being: No negative impacts are expected.
- Fauna, flora, biodiversity, habitat protection: Depending on project locations, detrimental effects on protected habitats are possible. Construction within or close to protected habitats can influence through noise and air pollution during construction, but also permanently through impact on mobility patterns ("stepping stones") and barrier effects.
- Soil, land use: construction activities in relation to shared innovation facilities creation or expansion can contribute to soil sealing. It is expected that due to the limited amount of funding, land will be used as efficient as possible.
- Cultural heritage, landscape: Depending on project locations, detrimental effects on landscape quality are possible, i.e. reducing the attractiveness of the landscape due to additional buildings. Impacts of construction activities adjacent to existing built up areas might be negligible however.
- Water (groundwater and surface water): No negative impacts expected.
- Air: No negative impacts are expected.
- Climate and energy: No negative impacts expected.
- Material assets, raw material, resources: No negative impacts expected.

Significance of the potential impacts on the environment

Potential impacts are identified on land use and soil sealing for construction projects, as well as potentially on landscape quality and protected habitats are possible. Positive impacts can be expected for multiple environmental aspects as an indirect result of the research activities which should be focused on several environmental topics. Only one topic is specifically reflected in both the programmes focus as well as the environmental objectives, which is resource efficiency and material consumption in relation to circular economy.

The overall potential impact of the SO is mixed, with impacts strongly depending on the location and size of construction activities. Neither of those projects is likely though to create significant negative impacts, as the overall funding size and average expected project size does not allow for large scale construction activities. Compared to the expected effects caused by other developments as predicted by the zero alternative, the additional effects caused by construction nudged by the INTERREG program will be minor.

Activitites related to cooperation between researchers and SMEs or among researchers will not create significant environmental impacts neither in a positive nor in a negative way.

However, it must be stressed that without knowledge of the specific projects, their implementation locations or technical solutions, it is not possible to make a full analysis of the significance of their environmental impacts at this stage, especially when focusing at local effects. In this respect, it will be necessary to thoroughly assess any future investment projects related to construction in the relevant stages. Precautionary measures at the level of the Programme implementation are set out below.

Table 19: Potential impacts related to specific objective "Research and innovation"

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0
	Improved flood risk management	←→	0
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	0/-
	Protection of the ecosystems from invasive species and neophytes	↘	0
	Protection of wildlife migration corridors and biotope networks	←→	0
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0/-
	Protection of soil functions	←↗ (AT) ←→ (CZ)	0/-
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	0
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	0/-
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	0
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	0
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	0
	Prevention and reduction of heat islands	←→	0
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	0
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	+
	Promotion of recycling and the circular economy	←↗	+
Zero Alternative (ZA) foreseen development: ↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration Assessment of the Interreg Programme (IP) in Comparison to the ZA: + improvement 0 no relevant change – negative effect x no assessment possible at this stage Significance: ✓ potentially significant impact			

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

In order to prevent the occurrence of significant negative environmental impacts, it is necessary, when approving projects, to ensure that the newly planned infrastructures do not negatively impact specially protected areas and Natura 2000 sites. It is also necessary to avoid the construction of structures that could negatively affect the landscape character in areas of landscape value. Such exclusions should be made at programme level in the selection criteria for projects.

It is furthermore suggested to include a criterion related to economical land use and prevention of soil sealing in the project selection criteria. Infrastructure should be created connected to existing settlement/building structures and where possible within the reach of public transport infrastructure.

4.3 Assessment of potential significant environmental impacts in Priority Axis 2 – Climate and Environment

4.3.1 Specific objective iv: Climate change adaption

Climate change related disasters are a common threat to both sides of the border in the programme area. Some sectors are identified to be particularly vulnerable, namely production, environmental protection, civil society, agriculture and forestry. The programme aims to tackle their challenges by:

- Enhancing the cross-border understanding of climate change impacts based on a common cross-border database
- Implementation of joint risk-management plans, solutions and investments across the border
- Increasing awareness to dangers and consequences of climate change impacts and enhance the behavioural change of public and public authorities.

The following types of actions are supported:

- Type of action 2.1 joint knowledge base – stocktaking and data exchange to improve the preparedness towards climate change impacts.
  - exploring the impacts of climate change in the programme area and specific regions including economic risks created by climate change;
  - data exchange and set of monitoring systems of climate change related impacts;
  - know-how exchange across the border on climate change related impacts.
- Type of action 2.2 joint pilot actions and joint solutions in climate change adaptation
  - strengthen cooperation to build up an integrated risk management system;
  - cooperation in climate change adaptation actions (e.g. planting drought-resistant species, urban/rural gardening, green and blue infrastructures[8] for reducing heat island effects);
  - joint solutions for environmental measures on agri-land and in forests (e.g.: soil improvement, avoidance of erosion);
  - joint pilot activities for example in the areas of greening, reduction of land consumption, building refurbishment, water retention for a pleasant microclimate, increase of resilience in the soil.

[8] Green and blue infrastructure in the context of measures to reduce heat islands generally refer to vegetation and hydric (water) elements of the infrastructure that contribute to the cooling of the environment in urban areas. These include e.g. green roofs, green facades, greenery in public spaces, elements supporting the improvement of water retention, etc.

- Type of action 2.3 awareness raising and training on climate change adaptation
  - Awareness raising campaigns, making the issue of climate protection visible to the population in the communities (e.g. awareness raising campaign among community leaders, common civil protection awareness raising);
  - Joint awareness raising actions: Training and skill development in the field of climate change (e.g.: support population training; common civil protection awareness raising);

Potential impacts on the environment

- Human health and well-being: As increased risk of flooding is one of the main environmental impacts of climate change, measures implemented through risk management plans are most likely targeting those issues and thus improving the circumstances for the inhabitants.
- Fauna, flora, biodiversity, habitat protection: No concrete positive impacts are expected on protected areas or protected species. Nonetheless, improvement of habitat quality can be an effect of some actions related to greening/creation of green and blue infrastructures, or improvement of soil functionality.
- Soil, land use: Actions will actively contribute to reduction of land consumption as well as to improving the functionality of the soil by protection against erosion, greening or increasing resilience and water retention.
- Cultural heritage, landscape: No concrete positive impacts on the protected areas are to be expected, however several types of actions in relation to agriculture and forestry or urban greening can improve landscape qualities in general.
- Water (groundwater and surface water): While no concrete positive impacts on the chemical or physical quality of water/groundwater are to be expected, some actions (e.g. improving water retention, reducing erosion) will have positive impacts on water quality.
- Air: No positive impacts are expected.
- Climate and energy: Awareness raising in the general public as well as in public authorities will contribute to reduction of greenhouse gasses in an indirect manner by changing energy consumptions consumer habits. Capacity building will enable active engagement of citizens in reducing such emissions.
- Material assets, raw material, resources: No positive impacts are expected.

The implementation of the specific objective may generate the following negative environmental impacts:

- Human health and well-being: No negative impacts are expected.
- Fauna, flora, biodiversity, habitat protection: No negative impacts are expected.
- Soil, land use: No negative impacts expected.
- Cultural heritage, landscape: No negative impacts expected.
- Water (groundwater and surface water): No negative impacts expected.
- Air: No negative impacts are expected.

- **Climate and energy:** No negative impacts expected.
- **Material assets, raw material, resources:** No negative impacts expected.

Significance of the potential impacts on the environment

The overall potential impacts of the actions under this specific objective are positive, with no concrete negative impacts at all to be identified at this stage. Positive impacts however are oftentimes indirect or small, e.g. reduction of greenhouse gasses through awareness raising and capacity building. Concrete positive impacts are identified in relation to reduction of flood risk, reduction of urban heat islands, reducing soil consumption and improving soil functionalities. None of the potential impacts are significant as they concern mainly the local level.

Table 20: Potential impacts related to specific objective "Climate change adaption"

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0
	Improved flood risk management	←→	+
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	0
	Protection of the ecosystems from invasive species and neophytes	↘	0
	Protection of wildlife migration corridors and biotope networks	←→	0
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	+
	Protection of soil functions	←↗ (AT) ←→ (CZ)	+
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	0
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	+
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	0
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	+
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	+
	Prevention and reduction of heat islands	←→	+
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	+
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	0
	Promotion of recycling and the circular economy	←↗	0

Environmental aspects	Main environmental objectives	ZA	IP
Zero Alternative (ZA) foreseen development: ↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration Assessment of the Interreg Programme (IP) in Comparison to the ZA: + improvement 0 no relevant change – negative effect x no assessment possible at this stage Significance: ✓ potentially significant impact			

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

The proposed impacts are exclusively positive and in line with the overall stated goals and implemented actions under the SO. No negative impacts were identified which need to be offset or prevented.

4.3.2 Specific objective vii: Nature protection and biodiversity

A wide range of aspects are considered in the programme in relation to biodiversity and nature protection, focusing on water, biodiversity in general and sustainable use of resources. The programme addresses these aspects by:

- Enhancing cross-border knowledge and data exchange as well as awareness raising for supporting coordinated water management and increase preparedness towards events such as floods and droughts
- Enhancing cross-border knowledge and data exchange on the biodiversity status of the region as well as implementing joint projects for improving biodiversity and protection of natural habitats
- increasing awareness and understanding in the general public of the richness of the region and its need for better protection, excluding environmental education

The implemented types of actions are:

- Type of action 2.4 joint knowledge base – stocktaking and data exchange to improve water management
  - cooperation for the better protection and management of water resources (e.g.: springs and small watercourses, ground water, joint river basin management, linking water management and nature conservation);
  - joint research activities.
- Type of action 2.5 joint pilot actions and investments in joint ecological water management solutions
  - joint solutions for appropriate water resource management (e.g.: agricultural irrigation, water retention, ecological measures for natural water retention, securing the drinking water resources);
  - joint development of tools for identification of risks and water management measures;

  - water body restoration (e.g.: re-naturalization of rivers and riverbanks, floodplain restoration).
- Type of action 2.6 joint knowledge base – stocktaking and data exchange to enhance biodiversity
  - improvement of the data situation and monitoring approaches;
  - joint databases;
  - joint management plans.
- Type of action 2.7 joint pilot actions and joint solutions to improve and protect biodiversity
  - development of biotope networks;
  - wildlife migration corridors;
  - joint landscape management;
  - control of neophytes and bark beetles;
  - re-settling of FFH species;
  - biodiversity projects with sustainable and integrated tourism elements (no pure tourism projects);
  - joint approaches to restore blue and green infrastructures in urban areas.
- Type of action 2.8 awareness raising activities and training for enhanced biodiversity
  - increase the awareness of the population on biodiversity issues by environmental awareness raising activities;
  - biodiversity projects with training activities.

Potential impacts on the environment

Impacts on the environment are linked to multiple actions, with Water and Biodiversity/Habitats being the most impacted areas due to the programmes focus there.

The implementation of the specific objective may generate the following positive environmental impacts:

- Human health and well-being: No concrete positive impacts are expected.
- Fauna, flora, biodiversity, habitat protection: multiple effects are possible linked to joint management plans and development of biotope networks and migration corridors, restoration of green and blue infrastructures, and landscape management. Active protection through control of neophytes as well as re-settling of species will allow for native species to develop. Awareness raising for the wider public will create indirect effects regarding biodiversity and nature protection.
- Soil, land use: No concrete positive impacts are expected. Restoration of green infrastructures or implementation of landscape management projects can contribute to a good state of the soil.
- Cultural heritage, landscape: Active improvement of landscape quality through management plans can be induced by the projects. Greening in urban surroundings can positively influence landscape perception as well, however will not influence the actual protected areas.

- Water (groundwater and surface water): Water management plans and measures to improve water quality are at the core of the SO. Likely an improvement of quantitative and qualitative state of ground water, as well as an improvement of the qualitative state of the surface water can be induced.
- Air: No positive impacts are expected.
- Climate and energy: No positive impacts are expected.
- Material assets, raw material, resources: No positive impacts are expected.

The implementation of the specific objective may generate the following negative environmental impacts:

- Human health and well-being: No concrete negative impacts are expected
- Fauna, flora, biodiversity, habitat protection: No concrete negative impacts are expected. Increase in tourist numbers, even if linked to sustainable tourism can have a negative impact locally, however not significant.
- Soil, land use: No concrete negative impacts are expected
- Cultural heritage, landscape: No concrete negative impacts are expected
- Water (groundwater and surface water): No concrete negative impacts are expected
- Air: No concrete negative impacts are expected. Small impacts can be related to increased traffic through tourism mobility.
- Climate and energy: No concrete negative impacts are expected
- Material assets, raw material, resources: No negative impacts are expected.

Significance of the potential impacts on the environment

Potential impacts on the environment under this SO are mainly positive. Strong positive impacts are likely to occur in the area of biodiversity and habitats as well as water (ground and surface water). No concrete construction projects are envisaged or likely which significantly impact the environmental aspects, and only minor negative impacts are possible in relation to an increase in tourism numbers. While the location of concrete projects is not yet known, no significant negative impacts (e.g. on protected areas) are likely as a result of funded projects.

Table 21: Potential impacts related to specific objective "Nature protection and biodiversity"

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0
	Improved flood risk management	←→	0
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	+
	Protection of the ecosystems from invasive species and neophytes	↘	+
	Protection of wildlife migration corridors and biotope networks	←→	+

Environmental aspects	Main environmental objectives	ZA	IP
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0
	Protection of soil functions	←↗ (AT) ←→ (CZ)	0
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	0
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	+
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	+
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		+
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	0
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	0
	Prevention and reduction of heat islands	←→	0
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	0
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	0
	Promotion of recycling and the circular economy	←↗	0
Zero Alternative (ZA) foreseen development: ↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration Assessment of the Interreg Programme (IP) in Comparison to the ZA: + improvement 0 no relevant change – negative effect x no assessment possible at this stage Significance: ✓ potentially significant impact			

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

As no significant negative impacts are likely under the SO, no concrete measures to reduce or offset them are necessary to be defined. For the sole aspect with potential negative effects, the programme already defines a focus on sustainable projects and excludes tourism projects without a specific biodiversity aspect integrated.

4.4 Assessment of potential significant environmental impacts in Priority Axis 3 – Education, culture & tourism

4.4.1 Specific objective ii: Education and training

The existence of different education systems and language barriers reduces the permeability of the border region in terms of the implementation of common educational measures and the

recognition of qualifications is limited. Therefore, activities that expand the cross-border education offer to break down existing language and cultural barriers and strengthen competences in the sense of lifelong learning have the potential to further increase the already high level of education in the Czech-Austrian border region.

The following activities will be supported under this Specific Objective:

- Types of action 3.1 Cross border cooperation to improve the cross-border education offers of kindergardens, primary, secondary, tertiary education and vocational schools. Indicative actions are:
  - development of joint/bilingual pedagogic/didactic concepts;
  - joint education schemes (incl. digitalized tools and methods – learning environments, learning room concepts, didactic measures, learning to search online etc.).
- Type of action 3.2 Joint pilot action and investments to improve the cross-border education offers of kindergardens, primary, secondary, tertiary education and vocational schools. Indicative actions are, for example:
  - joint education actions in topics relevant for cross-border area, esp. environmental education, health and nursing, digital skills and technical education;
  - joint actions to adapt skills and knowledge to future job opportunities (e.g. development of cross-border augmented/virtual reality and (social) entrepreneurship as future topics);
  - joint actions to enhance the harmonisation of the vocational education system for meeting the needs of the joint labour market;
  - and other

Potential impacts on the environment

Activities in the area of education generally have little to no direct impact on the environment (except for activities involving the construction of educational infrastructure). On the other hand, indirect impacts, including changes in behaviour and value attitudes or increased competences of target groups involved in educational activities can be considerable. As the programme sets no explicit focus on e.g. some topics of environmental relevance, positive impacts on most environmental aspects are possible but cannot be considered concrete. They might materialise based on the individual projects.

The implementation of the specific objective may generate the following positive environmental impacts:

- Human health and well-being: Improving education has a positive impact on people's socio-economic well-being, which is one of the key determinants of health. However, in terms of protection against flood risks, noise or light pollution (or deterioration in air quality), the impact will be insignificant.
- Fauna, flora, biodiversity, habitat protection: Quality education, or targeted environmental education, promotes understanding and respect for nature conservation.
- Soil, land use: No concrete positive impacts are expected.

- **Cultural heritage, landscape:** Quality education or targeted environmental education facilitates understanding and respect for cultural heritage, including cultural landscapes.
- **Water (groundwater and surface water):** No concrete positive impacts expected.
- **Air:** No concrete positive impacts are expected.
- **Climate and energy:** No concrete positive impacts are expected.
- **Material assets, raw material, resources:** No concrete positive impacts are expected.

The implementation of the specific objective may generate the following negative environmental impacts:

- **Human health and well-being:** No negative impacts are expected.
- **Fauna, flora, biodiversity, habitat protection:** No negative impacts are expected.
- **Soil, land use:** No negative impacts expected.
- **Cultural heritage, landscape:** No negative impacts expected.
- **Water (groundwater and surface water):** No negative impacts expected.
- **Air:** No negative impacts are expected.
- **Climate and energy:** No negative impacts expected.
- **Material assets, raw material, resources:** No negative impacts expected.

Significance of the potential impacts on the environment

Support for educational activities is free from risks of negative environmental impacts. Due to the nature of the proposed activities, no significant positive impact in terms of reduced air and noise emissions can be expected, although improvements in education may have potentially indirect positive impacts on human health and well-being in general (through improvement socio-economic conditions). Partial positive benefits can be expected in terms of strengthening understanding and respect for the cultural and natural values of the region. However, these impacts will be rather indirect and are unlikely to facilitate major changes of the existing trends.

Table 22: Potential impacts related to specific objective "Education and training"

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0
	Improved flood risk management	←→	0
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	0/+
	Protection of the ecosystems from invasive species and neophytes	↘	0/+
	Protection of wildlife migration corridors and biotope networks	←→	0/+
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0

Environmental aspects	Main environmental objectives	ZA	IP
	Protection of soil functions	←↗ (AT) ←→ (CZ)	0
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	0/+
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	0/+
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	0
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	0
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	0
	Prevention and reduction of heat islands	←→	0
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	0
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	0
	Promotion of recycling and the circular economy	←↗	0
Zero Alternative (ZA) foreseen development: ↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration Assessment of the Interreg Programme (IP) in Comparison to the ZA: + improvement 0 no relevant change – negative effect x no assessment possible at this stage Significance: ✓ potentially significant impact			

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

Given the nature of the supported activities, where no significant negative impacts are expected, no measures are proposed.

The programme could consider to specify some areas of particular importance for educational activities, which can lead to projected positive impacts. Those fields could be identified e.g. based on the most relevant aspects outlined in section 1.2 of the programme.

4.4.2 Specific objective v: Culture and tourism

The cooperation programme will contribute to boosting the resilience and adaptivity of the cultural and natural heritage and tourism sector in the region. The programme aims to achieve this by:

- Knowledge exchange, data collection and sharing on relevant topics for tourism and natural and cultural heritage
- Implementing joint solutions and pilot actions including investments in cultural and natural heritage sites, embedded in a strategic framework with integrative aspects

The following activities will be supported under this Specific Objective:

- Type of action 3.3 Cross border know how and data exchange to foster resilience of the tourism and cultural sector. Indicative actions are:
  - joint development of strategically embedded key themes in intangible and tangible cultural and natural heritage;
  - joint development of key themes for tourism development;
  - combine the expertise and competencies of national actors (e.g. of large national museums) with the expertise of regional actors;
  - joint digitisation of cultural and natural heritage for dissemination to different target groups;
  - combine the expertise and competencies of national actors and regional actors;
  - implementation of joint procedures for systematic visitor monitoring in order to implement joint management plans in a targeted manner.
- Type of action 3.4 Joint pilot actions and investments to foster resilience of the tourism and cultural sector. Indicative actions are, for example:
  - joint actions to reconstruct/strengthen the resilience of the hospitality sector in the region to improve better preparedness to future crises and recovery from the Covid-19-crisis;
  - joint investment in key themes for tourism development and in intangible cultural heritage and tangible cultural and natural heritage based on a sound strategic framework;
  - joint expansion and adaptation (e.g. in terms of barrier-free access) or maintenance of the tourist infrastructure with focus on quality development and promotion of joint offers to achieve a higher level of resilience in the tourism sector;
  - improve cooperation of destination managements and create joint (cross-border) destinations under one label with active mutual promotion;
  - and other

Potential impacts on the environment

Due to the complex impact of tourism on the environment, we expect impacts of the specific objective implementation on a number of environmental aspects. While the promotion of cultural tourism or nature-based tourism, if combined with education and awareness-raising, can positively influence the state of cultural and natural assets in the future, infrastructure development, disturbance by visitors and the impact of tourism-related transport can negatively affect human health, fauna, flora, ecosystems, soil, cultural heritage, landscape, air or climate.

The implementation of the specific objective may generate the following positive environmental impacts:

- **Human health and well-being:** The development of infrastructure for active leisure (tourism, sport, etc.) or its use can potentially have a positive impact on people's health (promoting a healthy lifestyle). No impacts in relation to the addressed objectives are to be expected.

- Fauna, flora, biodiversity, habitat protection: Promoting nature-oriented tourism combined with environmental education and guiding visitors to a positive attitude towards nature and landscape protection can indirectly positively influence the status of species and biotopes in terms of their protection.
- Soil, land use: No positive impacts are expected.
- Cultural heritage, landscape: The promotion of cultural tourism associated with education and guiding visitors to a positive attitude towards the protection of cultural and natural heritage can indirectly positively influence the condition of cultural and natural monuments. Tourist use of cultural heritage sites can generate resources for their maintenance and conservation.
- Water (groundwater and surface water): No positive impacts expected.
- Air: No positive impacts are expected.
- Climate and energy: No positive impacts are expected.
- Material assets, raw material, resources: No positive impacts are expected.

The implementation of the specific objective may generate the following negative environmental impacts:

- Human health and well-being: The promotion of cross-border tourist mobility and intensification of tourism in general can lead to an increase in road traffic volumes, especially in tourist destinations, and thus to an increased burden of traffic emissions and noise on the local population. Increase in light pollution and noise can also be associated with the development and operation of the tourism infrastructure, and more generally with increased presence of visitors in popular destinations. However, compared with the transport volumes as describes in the zero alternative, the amounts of additional car transport activities are minor.
- Fauna, flora, biodiversity, habitat protection: Tourism promotion can generate negative impacts on fauna, flora and ecosystems at many levels and in many different ways. These include increased emissions and noise from road transport, increased human presence in the area and the associated increased disturbance of sensitive species, increased waste production, loss of natural habitats through the construction of tourist infrastructure, etc. The system of specially protected areas may be particularly vulnerable to further increases in tourism. However, given the nature and scope of the programme, no significant negative impacts on protected areas are expected and it is therefore unlikely that the implementation of specific objective would jeopardise their objects and conservation objectives.
- Soil, land use: Building new tourist infrastructure can increase land uptake and sealing. Negative impacts on vegetation or ground cover on heavily used hiking trails can locally increase erosion. However, compared to the expected effects on soil sealing caused by urban developments as predicted by the zero alternative, the additional effects triggered by the INTERREG program will be minor.
- Cultural heritage, landscape: Tourism promotion can generate negative impacts on cultural and natural monuments through increased visitor pressure. The construction of new

tourist infrastructure can also negatively affect the landscape and contribute to its further fragmentation.

- Water (groundwater and surface water): No concrete negative impacts are expected.
- Air: The promotion of cross-border tourist mobility can lead to an increase in road traffic, especially in tourist destinations, and thus locally to an increase in transport emissions.
- Climate and energy: The promotion of cross-border tourist mobility may lead to an increase in road transport intensity and thus to an increased production of greenhouse gas emissions. The effect however is not likely to be significant in the overall context.
- Material assets, raw material, resources: Tourism promotion can increase waste production during tourism season.

Significance of the potential impacts on the environment

The implementation of the specific objective includes potential positive impacts on human health, fauna, flora, ecosystems, cultural heritage, and landscape. These are however not certain and will only materialize provided the protection of environmental assets and values will be integrated in the tourism development strategies and tourism products. At the same time, the specific objective has a potential for negative impacts related to the development of tourism in an area with a large number of natural and cultural assets. Therefore, the overall impact of specific objective on the environment is assessed as potentially negative.

All the identified potentially negative impacts are assessed as not significant, given their expected local impact, rather small scale and also taking into account the fact that in protected areas the nature protection authorities are naturally involved in the eventual permitting processes necessary for the implementation of individual projects. The risk that the implementation of specific projects in the territory would support activities with a significant negative impact on the environment is therefore relatively low.

However, it must be stressed that without knowledge of the specific projects, their implementation locations or technical solutions, it is not possible to make a full analysis of the significance of their environmental impacts at this stage. In this respect, it will be necessary to thoroughly assess any future investment projects in the subsequent assessment processes on project level. Precautionary measures at the level of the Programme implementation are set out below.

Table 23: Potential impacts related to specific objective “Culture and tourism”

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0/-
	Improved flood risk management	←→	0
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	+/-
	Protection of the ecosystems from invasive species and neophytes	↘	0
	Protection of wildlife migration corridors and biotope networks	←→	-

Environmental aspects	Main environmental objectives	ZA	IP
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0/-
	Protection of soil functions	←↗ (AT) ←→ (CZ)	0/-
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	+/-
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	+/-
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	0
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	0
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	0/-
	Prevention and reduction of heat islands	←→	0
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	0
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	0
	Promotion of recycling and the circular economy	←↗	0
Zero Alternative (ZA) foreseen development: ↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration Assessment of the Interreg Programme (IP) in Comparison to the ZA: + improvement 0 no relevant change – negative effect x no assessment possible at this stage Significance: ✓ potentially significant impact			

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

In order to prevent the occurrence of significant negative environmental impacts, it is necessary, when approving projects, to ensure that the newly planned tourist infrastructure structures do not encroach on specially protected areas and Natura 2000 sites.

It is also necessary to avoid the construction of structures that could negatively affect the landscape character in areas of landscape value, and it is also necessary to avoid placing linear structures in important wildlife migration corridors in order to avoid restricting the migratory permeability of the landscape.

In the case of tourism projects, it is recommended that the allocation of support be conditional on prior consultation of the project proposal with the relevant nature conservation authorities (e.g. the administration of a protected landscape area or national park).

4.5 Assessment of potential significant environmental impacts in Priority Axis 4 – Cross-border Governance

4.5.1 Interreg specific objective ii: Legal and institutional cooperation

Capacity development of the relevant organisations is expected to stabilise and extend current networks of cooperation in the Czech-Austrian border region.

The following activities will be supported under this Specific Objective:

- Type of action 4.1: joint strategy development and know how exchange. Indicative actions are:
  - Joint strategy development in different areas such as research & technology & innovation (RTI), water management, transport and mobility, natural and cultural heritage, healthy lifestyle, demographic change, health care, regional development, business support services, rescue services ("blue light organisations");
  - Collection and processing of contextual information in the policy areas addressed by the cooperation programme to support strategy development;
  - Development of joint strategies, structures and communication platforms for the exchange of experience and know-how in tourism.
- Type of action 4.2 joint pilot actions addressing the removal of border obstacles. Indicative actions are, for example:
  - Joint activities and know-how exchange among public actors in relevant thematic fields, e.g.:
    - civil protection and disaster control (e.g. cooperation of fire brigades, rescue services),
    - health care,
    - education,
    - waste and recycling management,
    - environmentally friendly transport concepts.
- Type of action 4.3 networking and cluster activities to reduce administrative and legal obstacles. Indicative actions are:
  - Joint actions of SME supporting organisations (Chambers of Commerce etc.) Those include also networking, support to cluster initiatives, coordination activities and others;
  - Institutional cooperation to reduce administrative and legal obstacles;
  - Cooperation between administrative bodies to optimise services to citizens and businesses and to meet the requirements of an open and modern administration.

Potential impacts on the environment

Given the fact that the Strategic Objective focuses on coordination and planning at the level of cross-border cooperation and harmonisation of public administration institutions, public service providers and other so-called "soft" measures aiming at the improvement of the legal and institutional environment, no relevant environmental impacts were detected at the level of detail provided by the Programming document. Some positive environmental impacts are possible in the

different fields targeted by the types of actions (e.g. natural and cultural heritage, water, waste…), however these fields are indicative and rather broad, thus no concrete impacts from the programme were identified.

The implementation of the specific objective may generate the following positive environmental impacts:

- **Human health and well-being:** No positive impacts are expected.
- **Fauna, flora, biodiversity, habitat protection:** No concrete positive impacts are expected.
- **Soil, land use:** No positive impacts are expected.
- **Cultural heritage, landscape:** No concrete positive impacts are expected.
- **Water (groundwater and surface water):** No concrete positive impacts expected.
- **Air:** No positive impacts are expected.
- **Climate and energy:** No positive impacts are expected.
- **Material assets, raw material, resources:** No concrete positive impacts are expected.

The implementation of the specific objective may generate the following negative environmental impacts:

- **Human health and well-being:** No negative impacts are expected.
- **Fauna, flora, biodiversity, habitat protection:** No negative impacts are expected.
- **Soil, land use:** No negative impacts expected.
- **Cultural heritage, landscape:** No negative impacts expected.
- **Water (groundwater and surface water):** No negative impacts expected.
- **Air:** No negative impacts are expected.
- **Climate and energy:** No negative impacts expected.
- **Material assets, raw material, resources:** No negative impacts expected.

Significance of the potential impacts on the environment

Supporting activities in areas of public administration efficiency by promoting legal and administrative cooperation and collaboration authorities, in particular to resolve legal and other obstacles in border regions will not have any significant environmental impacts due to the nature of the foreseeable projects.

Table 24: Potential impacts related to specific objective “Legal and institutional cooperation”

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0
	Improved flood risk management	←→	0

Environmental aspects	Main environmental objectives	ZA	IP
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	0
	Protection of the ecosystems from invasive species and neophytes	↘	0
	Protection of wildlife migration corridors and biotope networks	←→	0
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0
	Protection of soil functions	←↗ (AT) ←→ (CZ)	0
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	0
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	0
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	0
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	0
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	0
	Prevention and reduction of heat islands	←→	0
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	0
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	0
	Promotion of recycling and the circular economy	←↗	0
Zero Alternative (ZA) foreseen development: ↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration Assessment of the Interreg Programme (IP) in Comparison to the ZA: + improvement 0 no relevant change – negative effect x no assessment possible at this stage Significance: ✓ potentially significant impact			

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

Given the nature of the supported activities, where no significant negative impacts are expected, no measures are proposed.

4.5.2 Interreg specific objective iii: People-to-people action for increased trust

Bottom-up cooperation among citizens in the border region, and small-scale projects with the aim to reduce mindsets and draw people across-border together will be supported under this Specific Objective.

The following activities will be supported under this Specific Objective:

- Type of action 4.4 Small scale projects to improve cultural, social and economic relations in the border area. Indicative actions are:
  - people to people activities for improving cultural, social and economic relations in the border area with a clear cross border focus, particularly for supporting building of trust and capacity building
  - jointly explore and develop solutions at local level, e.g. for overcoming obstacles in the fields of public administration or facilitating exchange between associations, e.g. in the fields of education or natural and cultural heritage, in the social, economic or health-care sector.

Potential impacts on the environment

Given the fact that the Specific Objective contains only 'soft' measures focusing on assisting to the cooperation between citizens and institutions and promoting interactions between people from both sides of the border, no relevant environmental impacts can be expected at the level of detail provided by the Programming document.

The implementation of the specific objective may generate the following positive environmental impacts:

- Human health and well-being: No positive impacts are expected.
- Fauna, flora, biodiversity, habitat protection: No positive impacts are expected.
- Soil, land use: No positive impacts are expected.
- Cultural heritage, landscape: No positive impacts are expected.
- Water (groundwater and surface water): No positive impacts expected.
- Air: No positive impacts are expected.
- Climate and energy: No positive impacts are expected.
- Material assets, raw material, resources: No positive impacts are expected.

The implementation of the specific objective may generate the following negative environmental impacts:

- Human health and well-being: No negative impacts are expected.
- Fauna, flora, biodiversity, habitat protection: No negative impacts are expected.
- Soil, land use: No negative impacts expected.
- Cultural heritage, landscape: No negative impacts expected.
- Water (groundwater and surface water): No negative impacts expected.
- Air: No negative impacts are expected.
- Climate and energy: No negative impacts expected.
- Material assets, raw material, resources: No negative impacts expected.

Significance of the potential impacts on the environment

Supporting activities in the areas of developing cooperation between citizens and institutions and promoting interactions between people from both sides of the border will not have any significant environmental impacts due to the nature of the foreseeable projects.

Table 25: Potential impacts related to specific objective "People-to-people action for increased trust"

Environmental aspects	Main environmental objectives	ZA	IP
Human health & well-being	Reduce the population share exposed to excessive noise levels	←↘ (AT) ←↗ (CZ)	0
	Reduce the population share exposed to excessive light pollution	←↘	0
	Improved flood risk management	←→	0
Fauna, flora including biodiversity, conservation of habitats	Safeguarding the biodiversity of the flora and fauna and maintaining the quality of protected areas	←↘	0
	Protection of the ecosystems from invasive species and neophytes	↘	0
	Protection of wildlife migration corridors and biotope networks	←→	0
Soil, land use	Economical land use, reduction of land consumption	←↗ (AT) ←↘ (CZ)	0
	Protection of soil functions	←↗ (AT) ←→ (CZ)	0
Cultural heritage, landscape	Favourable conditions cultural heritage (both objects and areas) trough protection, preservation and awareness-raising	←↗ (AT) ←→ (CZ)	0
	Favourable condition of protected natural and cultural areas (natural parks, cultural landscape) through management	↗ (AT) ←↘ (CZ)	0
Water (ground and surface water)	Protection of groundwater against pollution and harmful substances, safeguarding of a high chemical and quantitative status	←↘ (AT) ←↗ (CZ)	0
	Protection of surface water against pollution and harmful substances, safeguarding a good ecological and chemical status		0
Air	Reduction of emission levels in consideration of respective emission limits	↗ (AT) ←↗ (CZ)	0
Climate and energy	Reduction of GHG emissions by – 36% in 2030 compared to 2005 for Austria – 30% in 2030 compared to 2005 in the Czech Republic	←↗	0
	Prevention and reduction of heat islands	←→	0
	Fostering of renewable energy sources and increase of energy efficiency	←→ (AT) ←↗ (CZ)	0
Material assets, raw material, resources	Reduction and efficient recycling of waste	←→	0
	Promotion of recycling and the circular economy	←↗	0

Zero Alternative (ZA) foreseen development:
↗ Improvement ←↗ Partial Improvement ←→ no change ←↘ partial deterioration ↘ deterioration

Assessment of the Interreg Programme (IP) in Comparison to the ZA:
+ improvement 0 no relevant change – negative effect x no assessment possible at this stage

Significance: ✓ potentially significant impact

Alternatives and measures, to prevent, reduce or offset significant negative environmental impacts

Given the nature of the supported activities, where no significant negative impacts are expected, no measures are proposed.

4.6 Interrelationship between the effects on environmental aspects

Environmental aspects such as air, water, biodiversity etc. do not exist in isolation from each other but are strongly interrelated in many cases. Within the SEA, an effect is directly linked to one environmental aspect and only assessed once in order not to double-count effects and thus overestimate them (e.g. Air pollution is assessed in the chapter "air", and not again in Human health and Biodiversity, where some cross-effects might be relevant). The potential interreleationships are nonetheless relevant and considered in the descriptions of likely effects. Cumulative effects are already included as a criterion to determine the potential significance of an environmental impact.

4.7 Assessment of impacts in relation to the habitats directive

Article 6 (3) of the habitats directive (92/43/EEC) requires an assessment for any plan likely to have a significant impact on a Natura 2000 site in view of its conservation objectives. Given to the nature of the Interreg Programme Austria-Czechia 2021-2027, such an assessment on the level of the programme is met by considerable difficulties as the actual sites of projects are not yet known, thus the impacts on concrete Natura 2000 sites cannot be determined with certainty. However, the general qualitative assessment conducted in the course of the SEA identified no potentially significant effects on any environmental aspects or issues, and thus it is unlikely that significant negative effects will be occurring on Natura 2000 sites. It is however necessary to assess for individual projects (once they are put forth) if they might have a significant impact on such sites based on their location as soon as it is known. The SEA team suggest as well to include the potential for significant impacts on Natura 2000 sites as an exclusion criterion in the project selection.

This general nature of the draft IP AT-CZ 2021-2027 was also reflected during the SEA consultation procedure taking place in the Czech Republic, where the draft IP AT-CZ 2021-2027 was not submitted to the relevant nature protection authorities for the issuance of an opinion pursuant to Section 45i(1) of Act No. 114/1992 Coll., on Nature and Landscape Protection, as amended, as the document does not fulfil the provisions of Section 45h(1) of the ZOPK, i.e. it cannot significantly affect the subject of protection or the integrity of European sites of European importance or bird areas, either alone or in conjunction with other concepts and plans. Instead, in line with the standard SEA practice in Germany/Bavaria, the nature protection authorities are consulted at the stage of joint publication of the draft programme and the SEA report.

As indicated above, the programme does not propose specific localized measures that would lead to claims for the taking of Natura 2000 sites, increase their exposure to pollutants, trigger adverse changes in their management, impact negatively their water regime, or disrupt the sites' migratory accessibility, or create other direct or indirect negative impacts on the sites' conservation objectives and targets.

The programme presents a general framework, the implementation of which will depend to a large extent on further steps in the elaboration of the measures set out under its specific objectives, and the document does not contain any specific interventions or investment projects that would have any spatial projection into the landscape, let alone into Natura 2000 sites.

However, as indicated above the impact on the Natura 2000 sites cannot be ruled out in the case of the future specific projects based on the assessed programme and these specific projects therefore must be assessed separately provided that they fall under the criteria stipulated in the habitats directive (92/43/EEC), and the Czech national legislation (Act No. 114/1992 Coll., on Nature and Landscape Protection, as amended).

5. Difficulties encountered in producing the assessment

The main difficulties encountered when assessing potential impacts of a funding programme which only sets the frame and general direction of projects, but does neither define concrete projects nor concrete sites, are related to the abstractness of the set frame and the wide range of potential implementation projects. The assessment relies on triangulation of potential effects from different information sources, i.e. the knowledge of similar actions undertaken in the 2014-2020 programming period, the knowledge and input from the programme authorities and PTF members about potential and likely projects as well as the knowledge of the SEA team based on longstanding experience in assessing similar funding programmes. While this allows for a sound judgement on potential significant impacts on the programme level, some uncertainties related to location-specific impacts are inherent to the SEA.

6. Monitoring Measures

Article 10 of the SEA directive specifies that monitoring measures shall be prescribed in the context of an SEA if significant negative impacts can be identified. Such monitoring measures shall allow to identify unforeseen adverse effects at an early stage and take mitigating action.

No significant negative impacts have been identified in the SEA for the CP Austria-Czechia 2021-2027, thus no mandatory monitoring measures are necessary to implement. As in general primarily negligible negative environmental impacts have been identified, the nature of which varies widely depending on the types of projects, no supplementary monitoring measures from SEA side are suggested.

Indices

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Annex

A.1 Consultation phase of environmental authorities and the general public

The public consultation of the Environmental Report was held together with the public consultation of the Cooperation Programme over the months of July and August 2021. In line with the national customs and legislation, authorities and the general public on the Austrian side as well as the general public on the Czech side could submit individual statements. Statements from public authorities on the Czech side were gathered by the Ministry of Environment of the Czech Republic and summarised into one statement on behalf of the Czech Republic)

A.2 Comments received during the consultation process

The following formal statements were received during the consultation phase of environmental authorities and the general public:

- Ministry of Environment of the Czech Republic (on behalf of the Czech Republic)

The comments addressed requests clarifications in the document and did not require any changes to the assessments, mitigation or monitoring measures. All comments have been taken up in the final version of the Environmental Report.