

Report on adaptation measures (2021)

(Information on national adaptation actions pursuant to Article 4 and Annex I of Commission Implementing Regulation (EU) 2020/1208)

Annex to Chapter 3.3:

3.3 Summaries of national strategies, policies, plans and efforts, with a focus on goals and objectives, foreseen actions, budget and timeline

Tab. 1: Overview of national strategies, policies and plans supporting the implementation of adaptation actions in key sectors

Sector/ National strategies
Agriculture and food
<ul style="list-style-type: none">• Concept of Agricultural Development of the Slovak Republic for 2013-2020 (2013) The Strategy for the implementation of the Common Agricultural Policy, contained in the Concept of Agricultural Development of the Slovak Republic for 2013-2020, aims to create stable conditions for viable food production, sustainable management of natural resources and apply measures against climate change and create preconditions for balanced territorial development.• The rural development program of Slovakia for 2014 –2020 (2014) The program contains several measures and schemes contributing to better climate change, such as climate- and agri-environmental measures and other measures to support organic farming.
Biodiversity
<ul style="list-style-type: none">• Updated National Biodiversity Protection Strategy until 2020 (2014) The Strategy aims to create a policy framework to halt biodiversity loss and accelerate the transition of the Slovak Republic as an EU member state to a "green" economy that can use natural genetic resources more efficiently. The primary goal is to halt biodiversity loss and ecosystem degradation and the degradation of ecosystem services in the Slovak Republic by 2020, to ensure the restoration of biodiversity and ecosystems to an appropriate extent and increase our contribution to preventing biodiversity loss worldwide.• Action plan for the implementation of the Updated National Biodiversity Protection Strategy until 2020 (2014) The Action Plan is the primary tool for implementing the Updated National Biodiversity Protection Strategy until 2020, containing a total of 167 tasks that contribute to the fulfilment of 6 objectives and 33 measures of the said national Strategy. The tasks and measures concerning climate change include:<ul style="list-style-type: none">- B.3.4 Development of a strategic framework for setting ecosystem restoration priorities and the preparation and implementation of wetland and river ecosystem revitalisation program as a contribution to reducing the effects of climate change;- B.3.6 Ensuring the positive impact of the Slovak Adaptation Strategy on the adverse

effects of climate change on biodiversity through ecosystem-based; Task 89. To mitigate the adverse effects of climate change by the implementation of adaptation measures in water management

- F.9.4 Ensuring the participation of science and research in improving the awareness on biodiversity, its values, significance, functioning, status and trends and the consequences of biodiversity loss and damage, Task 164, implementing and applying research on the impact of climate change on biota and mitigation and adaptation measures.

- **Update of the Wetland Care Program of Slovakia until 2024 (2019)**

It is a basic strategic document of the Slovak Republic to fulfil obligations arising from the Convention on Wetlands of International Importance, Especially as Waterfowl Habitats (Ramsar Convention). One of the Ramsar Convention's priorities is "Climate change and wetlands (It is important to know and understand the great importance of wetlands for mitigating climate change and adapting to its adverse effects)". The program includes a related objective: Objective 11: Ongoing or completed restoration (revitalisation) in degraded wetlands, with a priority for sites important for biodiversity protection, natural disasters risk reduction, maintaining the living standards of the population and/or mitigating climate change and adapting to climate change.

- **Wetlands Action Plan for the years 2019 - 2021 to the Wetland Care Program of Slovakia until 2024 (2019)**

The action plan consists of 65 measures/tasks, which contribute to the fulfilment of four strategic objectives (including one operational) of the Wetland Care Program. It makes a significant contribution to improving the knowledge of wetlands, their protection and restoration, wise and sustainable use, and, last but not least, to raise public awareness. Tasks related to climate change include task 11.2: Ensuring the implementation of the proposed adaptation measures of the updated Climate Adaptation Strategy of the Slovak Republic (protective measures in infiltration areas and spring areas, addressing environmental burdens, increasing the inundation and retention capacity of the landscape, agricultural land, sustainable grassland management, management and revitalisation of wetlands, including peatlands, enabling the natural dynamics of flows, creation of wetlands also in built-up areas, afforestation, construction of green infrastructure, etc.).

- **Priority action framework for financing Natura 2000 in the Slovak Republic for the 2021 - 2027 EU programming period (2020)**

This is a multi-annual strategic planning tool that aims to provide a comprehensive overview of the measures needed to implement the pan-European Natura 2000 network and related green infrastructure, indicating the funding needs for these measures and their links to relevant EU funding programs. Priority PAF actions will contribute to the specific objectives of the EU's nature directives and provide companies with significant socio-economic benefits and benefits in terms of ecosystem services. Benefits may include climate change mitigation and adaptation to climate change or other ecosystem services.

The list of priority actions to be implemented also includes:

- Climate change mitigation measures;
- Research in the field of climate change impacts on Natura 2000 sites and their

<p>protection measures and the protection of selected species.</p> <p>Other necessary measures include research on the adaptability of certain species and habitats to climate change.</p>
<p>Buildings</p>
<ul style="list-style-type: none"> • <u>Update of the Strategy for the Renewal of the Fund for Residential and Non-Residential Buildings in the Slovak Republic (2017)</u> <p>The Strategy sets the framework for buildings renovation, after which new and existing buildings undergoing major renovation will meet minimum energy performance requirements adapted to local climatic conditions.</p> <ul style="list-style-type: none"> • <u>Long-term Strategy for the renewal of the building fund (2021)</u> <p>The Strategy is based on the Updated Strategy of the Fund of Residential and Non-Residential Buildings in the Slovak Republic, updated with information from 2017 to 2019. The Strategy identifies those areas of renewal that require increased efforts and human and financial resources. Targeted implementation of a cost-effective deep renovation of the building will significantly reduce the need for heating and cooling and ensure significant energy savings in the future. Emphasis is placed on buildings' renovation with the worst energy efficiency, the renovation of public buildings and family houses. The Strategy forms part of the Integrated National Energy and Climate Plan of the Slovak Republic.</p>
<p>Coastal areas</p>
<p>Not relevant for the Slovak Republic.</p>
<p>Civil protection and emergency management</p>
<ul style="list-style-type: none"> • <u>National Security Risk Management Strategy of the Slovak Republic (2016)</u> <p>The Strategy aims to improve the institutional and legislative framework of risk management, responsibilities of individual entities, methods of financing, and strategic objectives of risk management. The goal is to provide a framework for activities, especially in the prevention and preparedness phase, to increase the accessibility of early warning and information systems, but primarily for risk reduction activities. The Strategy is closely linked to the Strategy for the Adaptation of the Slovak Republic to the Adverse Impacts of Climate Change (2014) and the Operational Program Environmental Quality for 2014-2020. It creates opportunities for their financing using financial resources from EU structural and investment funds.</p>
<p>Energy</p>
<ul style="list-style-type: none"> • <u>Updated Concept of the Hydropower Potential of Watercourses of the Slovak Republic until 2030 (2017)</u> <p>It evaluates the possibilities of fulfilling strategic goals in electricity production from renewable energy sources (from energy from watercourses) concerning meeting ecological and environmental goals according to European and national legislation and international conventions.</p> <ul style="list-style-type: none"> • <u>The concept of electricity production development from small renewable energy sources in the Slovak Republic (2013)</u>

The concept contains a comprehensive approach to legislative and possible financial support for developing small energy sources, designed mainly to cover households' consumption without negative impact on the stability of distribution systems and the effect of financial savings for small resource operators distribution companies.

- [Energy Efficiency Action Plan 2017-2019 with a view to 2020 \(2017\)](#)

It evaluates energy efficiency measures at the national level and monitors the fulfilment of goals. Furthermore, it proposes the steps necessary to meet the predefined goals by 2020. Energy efficiency measures contribute to increasing energy security, reducing the production of greenhouse gases and other pollutants, increasing employment, the competitiveness of businesses and reduced energy costs for households.

- [Integrated National Energy and Climate Plan for 2021-2030 \(2019\)](#)

The plan updates the Energy Policy (UV SR No. 548/2014), defines national priorities and goals in 5 areas: decarbonisation, energy efficiency, energy security, internal energy market, research, innovation and competitiveness.

- [Low-carbon development strategy of the Slovak Republic until 2030 with a view to 2050 \(2020\)](#)

It defines measures required to achieve climate neutrality in the Slovak Republic by 2050. In the energy sector, it proposes a target for RES, targets for energy savings by increasing energy efficiency, increasing carbon prices within the EU ETS; the transition from coal to other low-emission to non-emission sources; earlier decommissioning of solid fuel power plants; decarbonisation of electricity generation after 2020 through the use of RES and the development of nuclear energy; support scheme for RES in electricity generation, reduction of final energy consumption in all sectors after 2020; support for the use of new innovative technologies in industrial production (BAT techniques); electrification of transport after 2020.

Finance and insurance

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Forestry

- [National Forestry Program of the Slovak Republic \(2007\)](#)

In terms of adaptation of forests and forest management to climate change, the most important strategic goals of the National Forestry Program of the Slovak Republic are 1. Support for ecological forest management, and 2. Improvement and protection of the environment.

- [Action plan of the National Forestry Program of the Slovak Republic for the period of 2015 – 2020 \(2015\)](#)

It builds on the content and structure of the National Forestry Program of the Slovak Republic, translates its 5 strategic objectives and 39 updated framework objectives into measures. Selected measures related to climate change:

- 1.5.3 Support the stability and increased biodiversity of forests above the standards of regular forest management (adaptation of future forests to climate change);
- 2.9.2 Develop models of the target state of forest structure and adaptation of forest

<p>stocks to climate change for basic forest types</p> <ul style="list-style-type: none"> ○ 2.12.2 Develop analysis and prediction of the development of damage to ecosystems (forests and wood) by introducing insects and fungi in connection with climate change and the timber market's globalisation. <ul style="list-style-type: none"> • The concept of nature-based management in the forests of the Slovak Republic (2019) <p>Nature-based forest management (NBFM) is considered a robust climate change adaptation measure that generally increases forest resilience and forests' ability to cope with climate change stresses (resilience). At the same time, NBFM is a mitigation (climate change mitigating) measure with the potential to provide more sustainable and balanced volume growth and, in the long run, to accumulate, on average, higher timber stocks than regular management, which has a positive impact on the carbon balance.</p>
Health
<ul style="list-style-type: none"> • Action Plan for the Environment and Health of the Population of the Slovak Republic V (NEHAP V) (2019) <p>Among the several determinants affecting health, the Action Plan draws attention to the context of possible future health impacts. The greatest attention will be paid to the effects of extreme events (floods and droughts) due to climate change., novel polluting materials from pharmaceutical or personal care products, cyanobacteria, and the presence of new pathogenic microorganisms.</p>
Marine and fisheries
Not relevant for the Slovak Republic.
Transport
<ul style="list-style-type: none"> • National Strategy for the development of bicycle transport and cycling tourism in the Slovak Republic (2013) <p>The National Strategy does not integrate climate change policy into its priorities and measures. The expected benefits of cycling and the role of cycling in environmental protection rests in mitigating the negative impact of road transport, particularly noise, emissions, and dust particles.</p> <ul style="list-style-type: none"> • Strategy for public passenger and non - motorised transport development until 2020 (2014) <p>The Strategic Plan does not integrate climate change policy into its vision or follow-up strategic objectives, focusing on enhancing environmentally friendly infrastructure by increasing the energy efficiency and accessibility of public passenger transport vehicles, ensuring quality public passenger transport infrastructure, accessible and high-quality non-motorised transport infrastructure.</p> <ul style="list-style-type: none"> • Transport development strategy of the Slovak Republic until 2030 (2017) <p>The Strategic Plan integrates adaptation to climate change into overarching and specific strategic objectives for the development of transport infrastructure, which reflects the trends and needs set out in European and national strategic and analytical documents. The basic entry points for transport development are the promotion of such infrastructure that minimises the impact on the environment, is resilient to the possible consequences of</p>

climate change, and improves users' safety and protection.

- [Methodological guide for assessing the impacts of climate change on major projects in the transport sector \(2018\)](#)

The methodological guide provides a comprehensive solution to assessing climate change impacts on transport infrastructure projects in their planning and construction. The methodology is focused exclusively on ensuring the resilience of transport structures to natural risks related to climate change through a purposeful process of vulnerability and risks reduction. This process includes implementing adaptation measures and changes in the technical solution of the construction and individual buildings.

Urban

- [Update of the National Strategy for Regional Development of the Slovak Republic \(2015\)](#)

It defines the long-term vision of support for the regional development of the Slovak Republic, strategic goals and priority areas, as well as specific measures or activities to be carried out to ensure sustainable regional development based on increasing the economic performance and competitiveness of the economy, including social stability and social cohesion. Within the priority area, "B. Sustainable growth: promoting a greener and more competitive, resource-efficient economy" - it defines the measure: adapting the landscape structure to climate change to reduce flood risks, drought risks, increase soil erosion protection and retention capacity of agricultural and forest land, as well as minimising the share of impermeable surfaces and the creation of new impermeable areas in urban areas in the metropolitan areas of municipalities, supporting the increase of the share of vegetation for the retention and infiltration of rainwater in settlements.

- [The Conceptual Framework of Urban Development of the Slovak Republic until 2030 \(2018\)](#)

It is a countrywide conceptual framework, and it aims to evaluate the current state of urban development, to create preconditions for a partnership approach of public administration and at the same time to create preconditions for systemic change of the current state. The proposed measures are aimed at a systemically better approach and the creation of conditions for the optimal and more targeted development of urban areas in Slovakia. The proposed changes can be summarised in two areas - strengthening the role of urban development in the context of regional development, partnership and cooperation, and structural changes in cities' functioning. One of the tasks is the creation of the Platform for the Development of Slovak Cities, the main goal of which will be mainly an expert discourse on the principles and application of integrated development management. The measures also address the need to analyse the interconnection of a selected range of cities and their functional areas, services provided at the city level, or support for public transport and adaptation to climate change's adverse effects.

The framework does not interfere with the powers of local governments. However, it supports the coordination and involvement of various stakeholders so that Slovak cities are better adapted to new challenges, are sustainable, productive and resilient.

Water management

- [The Conceptual Framework of Water Management Policy of the Slovak Republic until](#)

2015 (2006)

The conceptual framework points to the expected adverse effects of climate change. Following the new conditions that climate change will bring, it emphasises the need to reassess the sustainable use of water resources under the new conditions, reassess and optimise the use and management of existing water systems, consider the possibility of building storage spaces with a predominant effect on long-term runoff regulation, the need for comprehensive interdisciplinary solutions, the need to support research in climatology, in the area of quantification of changes caused by climate change, water management systems and to introduce the results of this research into forecasts and planning, while supporting the implementation of the National Climate Program.

- **Proposal of Orientation, Principles and Priorities of Water Management Policy of the Slovak Republic until 2027 (2015)**

The basic tools for achieving environmental goals in water management, which are defined by the document Proposal of orientation, principles and priorities of water management policy of the Slovak Republic until 2027, include:

- more intensive and comprehensive integration of water policy objectives into the planning and development of economic activities dependent on the use of water resources or affecting the state of water (especially agriculture, industry, including energy, shipping, water abstraction) to ensure prevention and mitigation of environmental impacts, which may be caused by the use of water resources;
- strengthening the resilience of water management to the negative effects of climate change and promoting an approach from crisis management to prevention and preparedness to ensure a sustainable balance between water demand and supply, taking into account the needs of human activities and natural ecosystems using effective monitoring and warning system.
- Implementation of effective measures on watercourses and in the country, aimed at improving runoff conditions, slowing down runoff from river basins, reducing flood waves, water retention in the country and their effective regulation to protect lives, health and property of natural and legal persons, historical and cultural heritage and economic activities against the risk and adverse consequences of floods.

- **Flood Risk Management Plan in Sub-basins of the Slovak Republic, 2015 (2015)**

The plan sets out measures for the implementation of flood risks management, which also belong to the measures that significantly support the adaptation of the Slovak Republic to climate change.

Currently, the Flood Risk Management Plan in sub-basins of the Slovak Republic is being prepared for the second planning cycle, that is, for the period 2022-2027.

- **Water plan of Slovakia - update 2015 (2016)**

Slovakia's water plan points to the interconnectedness of water planning with the issue of climate change in the area of adaptation to climate change, protection against floods, drought and water scarcity and ecological flows.

Specific adaptation measures for water management were addressed through the Strategy of Adaptation of the Slovak Republic to the Adverse Consequences of Climate Change -

Update 2014

- [VALUE IS WATER - Action plan to address the consequences of drought and water scarcity](#) (2018)

The "VALUE IS WATER" action plan aims to prevent drought through preventive measures and eliminate the negative effects of climate change. In addition to characterising and assessing the occurrence of drought and identifying uncertainties, this document contains, in particular, a program of preventive, operational and crisis measures. Preventive measures are developed for the areas of agriculture and forestry, residential land, water management, drought research and development, and environmental education and training.

- **Draft Water Plan of Slovakia - update 2021) (in the process of preparation)**

The currently prepared draft Water Plan of Slovakia for the third planning cycle includes the negative impacts of climate change, such as drought, water scarcity and other effects of climate change, among the major water management problems for the first time.

Increasing emphasis is being put on:

- implementation of measures to promote water retention in the country,
- ensuring the required amount of water of adequate quality at all necessary times by building appropriate water storage capacities,
- elimination of water pollution, also given the long-term low flows,
- reassessing the capacity of public sewerage systems with regard to the occurrence of torrential rains
- regulation of changes in runoff conditions in the river basin, and related floods, erosion, water scarcity) by linking water management measures with measures in forestry, agriculture, spatial planning, etc.

Specific adaptation measures for water management are contained in Chapter 5.4 of the Strategy for the Adaptation of the Slovak Republic to the Adverse Consequences of Climate Change - Update 2018.

- **Draft of the Concept of Water Management Policy of the Slovak Republic until 2030 (in the process of preparation)**

Currently, the concept of water management policy of the Slovak Republic until 2030 is being prepared. Several working groups participate in its preparation, one of which is independently focused on the issues of landscape management and adaptation to climate change and one on the revitalisation of watercourses in the Slovak Republic. Adoption of the concept is expected in December 2021.

ICT (information and communications technology)

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Land use planning

See "Agriculture"

Business

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Industry
<ul style="list-style-type: none"> • Smart Industry for Slovakia Conceptual Framework (2016) <p>The concept aims to introduce automation and digital production into industrial processes, digitisation of control systems and the use of communication networks to ensure interoperability and flexibility of processes to efficiently use energy, raw materials and create a network of interconnected, collaborative and integrated smart factories within supply chains, which will allow a flexible response to market changes using the most advanced technologies.</p> <p>The concept also takes into account the commitment agreed in Paris at the UN Conference on Climate Change COP 21 - to significantly reduce greenhouse gas emissions, of which up to 80% are produced by some of the energy processes. Achieving the proposed objectives, in particular by increasing the share of renewable energy sources in the source base and increasing energy-saving efforts through energy efficiency measures, will not be possible without technological and operational changes in the electricity system. That is why the concept of using smart technologies in energy is so important.</p> <ul style="list-style-type: none"> • The Smart Industry Action Plan of the Slovak Republic (2018) <p>The Action Plan aims to support industrial, service and trade enterprises, regardless of their size, aimed at creating better conditions for the implementation of digitisation, innovative solutions and increased competitiveness: reducing bureaucracy, amending legislation, defining standards, changing training programs and the labour market, co-financing research and the like. The Action Plan provides a set of 35 measures that should be implemented by the end of 2020.</p> <p>The Action Plan supports the implementation of the National Adaptation Strategy of Slovakia (2018) in Objective 3.3. Translating adaptation into increasing the resilience of businesses and their business activities to the adverse effects of climate change, and the framework measure: Use tools to identify and assess risks from climate change and then use innovative tools to plan and manage business processes, reduce or eliminate risks of climate change to value chain or identified as risks by external stakeholders.</p> <ul style="list-style-type: none"> • The Strategy of the Economic policy of the Slovak Republic until 2030 (2018) <p>The Strategy points to the need and adaptation of industry to ambitious climate goals while maintaining its competitiveness and the industry's approach to implementing appropriate, preventive, timely and effective climate adaptation measures.</p>
Tourism
<ul style="list-style-type: none"> • Tourism development strategy until 2020 (2013) <p>The Strategy briefly mentions adaptation measures in connection with the development of mountain tourism resorts, which must respect climate change and build ski facilities at a minimum valley station altitude of 700-800 meters above sea level.</p>
Rural development
See "Urban"

Rock environment and geology

- [The Conceptual Framework of Geological Research and Geological Survey of the Territory of The Slovak Republic \(2017\)](#)

The conceptual framework sets priorities and creates preconditions to coordinate geological research and geological exploration financed from the state budget, public funds or private sources to meet the needs of society, government, private sector, and other organisations providing geological services in Slovakia, other allowance organisations of the Ministry of Environment, water management organisations and for the needs of other ministries (especially the Ministries of Economy, Transport, Education, Health and Defence).

The conceptual framework's main goal is to continually increase the level of knowledge of the geological structure of Slovakia while continuously monitoring and developing methods of geological research and geological survey with emphasis on innovative approaches to serving the changing needs of economic and social practice. Specific objectives include, in particular, support for geological research, deposit geological exploration of minerals with an emphasis on critical minerals, hydrogeological and engineering geological exploration, support for reducing environmental pollution and increasing the efficiency of information systems.

Tab. 2: An overview of existing monitoring systems in the Slovak Republic relevant to obtaining information on the implementation of selected adaptation actions

Sector/ monitoring systems
Agriculture and food <ul style="list-style-type: none"> <u>Partial Monitoring System - SOIL</u> <p>Institution/ Ministry: NPPC – VÚPOP/ MPRV SR</p> <p>The subject of monitoring: Organic carbon in the soil, Soil erosion, Salinisation induced by anthropogenic activity.</p> <p>Relation to NAS adaptation measures: Preservation and increase of organic carbon in the soil. Measures to eliminate soil erosion. Salt elimination measures (salt-loving plants, phytoremediation - except for selected habitats of European and national importance associated with the salty environment).</p>
Biodiversity <ul style="list-style-type: none"> <u>Complex information and monitoring system ŠOP SR</u> <p>Institution / Ministry: ŠOP SR / MŽP SR</p> <p>The subject of monitoring: The subject of monitoring is 66 types of habitats, 146 species of animals and 49 species of plants of European importance. Monitoring takes place at more than 10,000 monitoring sites throughout Slovakia.</p> <p>Relation to NAS adaptation measures: Obtaining information for evaluating the effectiveness of implementing adaptation measures concerning biodiversity, assessing the structure, stability and resilience of biodiversity (ecosystems, habitats, species and their communities) and the overall adaptive capacity of the natural environment.</p>
Energy <ul style="list-style-type: none"> <u>Energy Efficiency Monitoring System</u> <p>Institution / Ministry: SEIA / MH SR</p> <p>The subject of monitoring: Primary and total energy consumption in the sectors according to the energy efficiency action plans.</p> <p>Relation to NAS adaptation measures: Reducing energy consumption and promoting cost-effective measures in the field of energy efficiency in the Slovak Republic following relevant plans and strategies focusing on energy efficiency, implementation of energy labelling, which will contribute to consumers' orientation towards more energy-efficient appliances.</p>
Forest management <ul style="list-style-type: none"> <u>Partial Monitoring System Forests</u> <p>Institution / Ministry: NLC / MPRV SR</p> <p>The subject of monitoring: The forest monitoring system provides reliable and comparable data on forests within Europe. Primary measured data are often used for scientific analysis or the validation of forest development models from various aspects (including climate change and adaptation). It is part of the European forest monitoring system, which also contributes to the objective of the EU Forest Action Plan: "To maintain and improve</p>

<p>biodiversity, carbon sequestration, integrity, health and resilience of forest ecosystems".</p> <p>Relation to NAS adaptation measures: Obtaining information for evaluating the effectiveness of the implementation of adaptation measures concerning forests and forestry.</p>
<p>Water management</p>
<ul style="list-style-type: none"> • <u>Partial Monitoring System - Subsystem Water</u> <p>Institution / Ministry: SHMÚ / MŽP SR</p> <p>The subject of monitoring: Partial monitoring system - Water consists of several monitoring subsystems: 1. Quantitative indicators of surface waters, 2. Quantitative indicators of groundwater, 3. Groundwater quality, 4. Surface water quality, 5. Thermal and mineral waters, 6. Irrigation water, 7. Recreational waters.</p> <p>Relationship to NAS adaptation measures: Monitoring hydrological characteristics relevant to the assessment of flood risk, drought risk, and water retention.</p> <ul style="list-style-type: none"> • <u>Framework program for monitoring water in Slovakia for the period 2016-2021</u> <p>Institution / Ministry: SHMÚ, VÚVH, SVP, ŠGÚDŠ, ŠOP SR / MŽP SR</p> <p>The subject of monitoring: Monitoring of quantity and quality of surface and groundwater</p> <p>Relationship to NAS adaptation measures: Monitoring of hydrological characteristics relevant to the assessment of flood risk, drought risk and water retention in the country</p> <ul style="list-style-type: none"> • <u>Drought Monitoring</u> <p>Institution / Ministry: SHMÚ / MŽP SR, VÚPOP / MPRV SR</p> <p>The subject of monitoring: Monitoring of meteorological, hydrological and soil drought, monitoring of groundwater and the occurrence of drought.</p> <p>Relationship to NAS adaptation measures: Monitoring hydrological characteristics relevant to the assessment of flood risk, drought risk, and water retention.</p> <ul style="list-style-type: none"> • <u>Flood Warning and Forecasting System (POVAPSYS)</u> <p>Institution / Ministry: SHMÚ / MŽP SR</p> <p>The subject of monitoring: POVAPSYS is a flood forecasting integrated system that informs users about current flood forecasts and warnings.</p> <p>Relationship to NAS adaptation measures: Monitoring and presentation of hydrological characteristics relevant to flood risk assessment.</p>
<p>Tourism</p>
<ul style="list-style-type: none"> • <u>Centre for Forecasts and Warnings SHMÚ</u> <p>Institution / Ministry: SHMÚ / MŽP SR</p> <p>The subject of monitoring: Extreme weather situations, meteorological and hydrological warnings.</p> <p>Relation to NAS adaptation measures: Provision of information services for visitors in case of a threat.</p>

Rock environment and geology
<ul style="list-style-type: none">• <u>Partial Monitoring System Geological Factors</u> <p>Institution / Ministry: ŠGÚDŠ / MŽP SR</p> <p>The subject of monitoring: Landslides and other slope deformations.</p> <p>Relation to NAS adaptation measures: Stabilising urbanised areas and areas of interest potentially prone to slope movements.</p>

Tab. 3: Overview of the main existing information systems or other information sources in the Slovak Republic relevant to obtaining information on the implementation of selected adaptation measures

Sector / Information system or other information sources
Biodiversity <ul style="list-style-type: none"> • <u>Complex information and monitoring system ŠOP SR</u> Institution / Ministry: ŠOP SR / MŽP SR The subject of the Information system / Information source: The information system provides monitoring data concerning individual species' status and habitats of European importance from permanent monitoring sites. It includes information on 66 habitat types, 146 animal species and 49 plant species of European importance. Relation to NAS adaptation measures: Providing information for evaluating the effectiveness of implementing adaptation measures about biodiversity, providing information for assessing the state of structure, stability and resilience of biodiversity (ecosystems, habitats, species and their communities) and overall adaptive capacity the natural environment. • <u>Set of Indicators of the State of Biodiversity Protection</u> Institution / Ministry: SAŽP / MŽP SR The subject of the Information system / Information source: Biodiversity indicators are information tools that summarise data across a complex of environmental variables to indicate the overall state and trends in biodiversity changes and the factors that affect this state. They are an essential tool in assessing the state and development of the environment towards meeting the goals of sustainable development. Relation to NAS adaptation measures: Provision of information for evaluating the effectiveness of adaptation measures concerning biodiversity.
Forest management <ul style="list-style-type: none"> • <u>Forest Management Information Bank</u> Institution / Ministry: NLC / MPRV SR The subject of the Information system / Information source: Data on forestry, wood processing industry, hunting Relationship to NAS adaptation measures: Providing information for evaluating the effectiveness of adaptation measures concerning forestry.
Water management <ul style="list-style-type: none"> • <u>Partial Monitoring System - Subsystem Water</u> Institution/ Ministry: SHMÚ/ MŽP SR The subject of the Information system / Information source: Monitoring the hydrological characteristics necessary to assess flood and drought risks and of landscape water retention. Relationship to NAS adaptation measures: Slowdown of water runoff from river basins,

<p>Reduction of maximum flood flow, Flood risk assessment, Water management.</p> <ul style="list-style-type: none"> • Maps of Flood Danger and Maps of Flood Risk <p>Institution / Ministry: SVP / MŽP SR</p> <p>The subject of the Information system / Information source: Maps are part of the Flood Risk Management Plan in sub-basins of the Slovak Republic, 2015.</p> <p>Relationship to NAS adaptation measures: Monitoring and presentation of hydrological characteristics relevant to flood risk assessment.</p> <ul style="list-style-type: none"> • Drought Monitoring <p>Institution / Ministry: SHMÚ / MŽP SR, VÚPOP / MPRV SR</p> <p>The subject of the Information system / Information source: Monitoring of meteorological, hydrological and soil drought, monitoring of groundwater and drought.</p> <p>Relation to NAS adaptation measures: Setting up monitoring of climate system elements (including hydrological and meteorological elements) to monitor the effects of climate change.</p>
Tourism
<ul style="list-style-type: none"> • Meteorology and Hydrology Warning Monitoring Systems <p>Institution / Ministry: SHMÚ / MŽP SR</p> <p>The subject of the Information system / Information source: Extreme weather situations.</p> <p>Relation to NAS adaptation measures: Provision of information services for visitors in case of threat (early warning and necessary information).</p> <ul style="list-style-type: none"> • Pollen Information Service <p>Institution / Ministry: RÚVZ in Banská Bystrica / MZ SR</p> <p>The subject of the Information system / Information source: Pollen information service for visitors to destinations, advice recommendations for allergy sufferers.</p> <p>Relation to NAS adaptation measures: Pollen information service for destination visitors.</p>
Rock environment and geology
<ul style="list-style-type: none"> • Environmental Burden Information System <p>Institution / Ministry: SAŽP / MŽP SR</p> <p>The subject of the Information system / Information source: Information on-site risk, information about on-site remediation</p> <p>Relation to NAS adaptation measures: Reduce the risk of contamination of the area, e.g. by spreading contaminated material from environmental pressures, mining waste repositories and rocks containing sulphidic rock-forming minerals, To support technologies enabling sustainable remediation of ecological pressures in the changing conditions accompanying climate change.</p> <ul style="list-style-type: none"> • Mining Waste Management Information System <p>Institution / Ministry: SAŽP / MŽP SR</p>

The subject of the Information system / Information source: Inventory of heaps and sludges, determination of their risk

Relation to NAS adaptation measures: Reduce the risk of contamination of the area, e.g. distribution of contaminated material from environmental loads, deposits of mining waste and rocks containing sulphidic rock-forming minerals, Carry out a qualitative inventory of heaps and sludge from the point of view of ongoing climate change and identify the riskiest objects to ensure the reduced release of heavy metals into the environment.)

List of abbreviations:

EU	European Union
EU ETS	EU Emissions Trading System
MH SR	Ministry of Economy of the Slovak Republic
MPRV SR	Ministry of Agriculture and Rural Development of the Slovak Republic
MZ SR	Ministry of Health of the Slovak Republic
MŽP SR	Ministry of the Environment of the Slovak Republic
NAS	Strategy for the Adaptation of the Slovak Republic to Climate Change - Update (2018)
NEHAP	National Environmental Health Action Plan
NFFM	Nature-friendly forest management
NLP SR	National Forestry Program of the Slovak Republic
NPPC- VÚPOP:	National Agricultural and Food Center - Research Institute of Soil Science and Soil Protection
PAF	Priority action framework
PBHL	Nature-friendly forest management
RÚVZ	Regional Public Health Office
SAŽP	Slovak Environment Agency
SEIA	Slovak Innovation and Energy Agency
SHMÚ	Slovak Hydrometeorological Institute
SR	Slovak republic
SVP	Slovak Water Management Enterprise
ŠGÚDŠ	Dionýz Štúr State Geological Institute
ŠOP SR	State Nature Protection of the Slovak Republic
VÚVH	Water Management Research Institute