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More quality of life and sustainability through research and application

Implementation framework for the EU missions of Horizon Europe in Austria

Imprint

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Introduction

New approaches and cooperation are required to solve the crises of our time. The special challenge about climate change, soil erosion or the pollution of our waters is that they mutually influence and reinforce each other. The current crises were caused by human actions, so the development and implementation of solutions is key. At the same time, crises always open up opportunities. Science, research, technology and innovation (RTI) are carriers of change that can help recognise and use the opportunities of a crisis. The mission policy combines research and application along concrete goals and projects.

Inspired by the five EU missions in Horizon Europe, the „EU Missions“ working group of the RTI Task Force, consisting of the BMBWF, BMK, BMAW, BKA, BMF, BML and BMSGPK and the institutions of the FoFinaG[1], worked out the present implementation framework from September 2021 to September 2022 in a process led by the BMBWF and BMK.

The present implementation framework will help to implement the five EU missions of Horizon Europe in Austria in a tailor-made, effective and verifiable manner. This will contribute to more quality of life and sustainability in our society. The Austrian federal government is thus fulfilling its task of proposing solutions to urgent problems and making important contributions to their implementation.

The measures defined in this implementation framework were defined by five Mission Action Groups, each co-led by an RTI ministry and the ministry responsible for implementation on the respective topic, in a process in which the relevant experts and stakeholders from RTI and implementation were intensively involved. The recommendations of the Mission Action Groups are summarised on pages 11-15 of this report and can be found in detail in Annex 2.

As the department in charge of Horizon Europe, the BMBWF provides resources for the implementation of the EU missions. The BMBWF and the other ministries concerned as well as the other members of the „EU Missions“ working group are also responsible for committed measures and making funds available in their respective areas of responsibility. The participation in the implementation of the specific recommendations of the Mission Action Groups intended by the members of the “EU Missions” working group is summarized in Annex 1 to this report.

1 The institutions of the FoFinaG (Research Financing Act) are: AIT, ISTA, ÖAW, SAL, LBG, AWS, CDG, FWF, OeAD, FFG, and from 2023 also GSA

EU missions of Horizon Europe

The research programs of the EU have been contributing to scientific excellence, technological progress and innovative competitiveness in Europe since the mid-1980s and are among the world's most important programs for RTI. The current research framework program of the European Union, Horizon Europe, expands research policy by making an important contribution to major societal transformations with the help of research-led missions. The EU missions mobilise RTI and sectoral key players around five mission areas with specific objectives, namely:

For each mission, the European Commission, with the support of experts (Mission Boards), has drawn up a European implementation plan[2]. The European plan provides the framework for action for the Austrian implementation measures and at the same time opens up opportunities to deal with urgent challenges across Europe.

A portfolio of programs and instruments contributes to the implementation of the missions. Around €1.9 billion is available from Horizon Europe for the missions in the years 2021 – 2023 alone; further funds will be made available by Horizon Europe in the years to come. There are also other mission-related activities of Horizon Europe, including the 2nd pillar and the EU partnerships, the ERC's „Proof of Concept" instrument or the areas of the EIC Accelerator Challenges and Transition Challenges. In Horizon Europe, the possibility was created to give preference to projects that contribute to the portfolio of measures for the implementation of EU missions in tenders.

The intertwining of research and application also requires the use of sectoral EU policy instruments. This is done at EU level through EU4Health, LIFE, Digital Europe, Erasmus+ and the Structural Funds, among others.

For a successful implementation of the EU missions and the use of the entire solution potential, national, regional and sometimes even local resources must be mobilised. This mix of instruments, policies and funding sources at different levels brings the missions closer to the people who are intended to benefit directly, and it increases their leverage effect, provided that the structures and processes of implementation adequately reflect the diversity of implementation paths (see chapter „Governance in the implementation phase of the EU mis-sions").

Fundamentals of Mission Policy

The EU's mission policy is largely based on concepts by Mariana Mazzucato[3] and on studies[4], commissioned by the European Commission for the design of Horizon Europe. The definition[5] of missions in Horizon Europe includes characteristics such as a cross-

2 EU Mission Adaptation to Climate Change Implementation Plan 2021 / EU Mission Cancer Implementation Plan 2021 / EU Mission Restore our Ocean and Waters Implementation Plan 2021 / EU Mission Climate-Neutral and Smart Cities Implementation Plan 2021 / EU Mission Soil Deal for Europe Implementation Plan 2021

3 Mariana Mazzucato (2018): Mission-Oriented Research & Innovation in the European Union. / Mariana Mazzucato (2019): Governing Missions in the European Union.

4 RISE (2018): Mission-Oriented Research and Innovation Policy / Lamy Report 2017: LAB – FAB - APP

5 Horizon Europe Regulation (2020): chapter on definitions, definition number 5: ‚mission' means a portfolio of excellence-based and impact-driven R&I actions across disciplines and sectors, intended to:

disciplinary and cross-sectoral portfolio of measures in favour of time clearly defined, measurable objectives with an impact on society, also thanks to the contribution of research. EU missions are essentially transformative according to the Polt/Weber typology. [6]

Typology of MOPs

Type of Mission	Goals / Orientation	Examples
‚Science / Breakthrough-Missions'	Aiming at scientific breakthroughs sometimes, but not always with view to the potential application	Human Brain Project, Quantum Flagship, Ebola
‚Technology / Accelerator' – Missions	Realizing functioning complex Solutions, which need concerted and massive application of ressources	Apollo/Artemis-Mission, civil nuclear powerplants, TGV, Concorde, Battery research
‚Transformative Missions'	Change of existing (large-scale) socio-technical systems, involving social, technological, organisational and institutional innovations	German ‚Energiewende', Transport/Mobilitätswende', sustainable and secure water management (NL)
‚Umbrella-Missions'	Initiatives that follow over-arching goals, including parts which are missions in the proper sense (even of different sorts)	German High-Tech-Strategy, global CC research, Adaptation / Mitigation

– achieve, within a set timeframe, a measurable goal that could not be achieved through individual actions,
– have impact on society and policy-making through science and technology, and
– be relevant for a significant part of the European population and a wide range of European citizens; "

6 H. KUITTINEN, W. POLT, K.M. WEBER, (2018): Mission Europe? A revival of mission-oriented policy in the European Union: In: RFTE – Council for Research and Technology Development (Ed.): RE:THINKING EUROPE. Positions on Shaping an Idea. Vienna, September 2018, pp. 191-207

Typology of MOPs

Type of Mission	Predominant style of governance	Challenges
‚Science / Breakthrough-Missions‘	**„Oriented (or even targeted) serendipity“** Initiation centralised, implementation more decentral, medium level of aspiration level on coherence (high diversity because of differing groups of actors in the science system, scientific uncertainty)	Interdisciplinary cooperation, scientific/technological uncertainties („ontological expansion“)
‚Technology / Accelerator‘ – Missions	**„flexible/reflexive planning“** Initiation centralised, implementation: often centralised, often with specialised („dedicated“) institutionen/organisations; high aspiration level w/r to coherence (a functioning artefact/system being the goal)	Planning approach despite uncertainty about availability /feasibility of technological solutions, often with institutionalised links to basic research
‚Transformative Missions‘	**„Goal oriented modulation“** (Kemp et al. 2004) Initialistion: mostly decentral (also central forms conceivable). Implementation: coordiniated, but mostly decentral implementation (multi-level/multi-actor), Governance with experimentation and learning processes; medium aspiration level of coherence, great challenge for coordination because of high complexity, longterm timeframe and large number of actors, adaptive approach needed	Considerable uncertainty about problem, solution and goals, long-term adjustment processes, combination of experimental and ‚framing‘ approaches, policy coordination together with scaling / generalisation
‚Umbrella-Missions‘	**„Soft guidance“** Initiation decentral, but rather loose bundeling under one umbrella, Implementation: combination of different initiatives, weak coordinative linking , low to medium level of aspiration with respect to coherence	Securing coherence in the absence of strong coordination mechanisms

Source: POLT, W., WEBER, M., BIEGELBAUER, P., UNGER, M. (2019): Matching type of mission and governance in mission-oriented R&I policy. Presentation at EU-SPRI Conference, Rome, June 2019

The OECD developed 12 criteria for reviewing mission orientation along the strategic orientation, coordination and implementation of mission policy.

The MOIP Design Principles of the OECD[7]:

MOIP dimension	Main task to be achieved	Definition of the MOIP feature
Strategic orientation	Informing and selecting specific societal challenge(s) and strengthening legitimacy of focused policy intervention towards clear and precise objectives	*Legitimacy* • A consensus is found among a wide group of stakeholder (including citizen) regarding the need and relevance of the mission
		Directionality • The policy is guided by clear and well-informed orientations and strategic guidance formalised in a mission
		Intentionality • Specific and well-articulated need-based goals, with clear timeline and milestones, are derived from the mission
		Flexibility • The targets and means of intervention to meet them can be revised at different stages of the process when needed
Policy co-ordination	Coordinating the strategies and activities of the different institutions involved in the policy	*Horizontality* • The plans and activities of policy bodies covering different policy fields are coordinated to achieve the mission
		Verticality • The plans and activities of policy bodies at different levels of government are coordinated to achieve the mission
		Intensity • The decisions regarding the intervention (objectives, modalities, level of resources) are taken collectively by the involved policy bodies and are binding to them
		Novelty • The plans and activities of different policy bodies and stakeholders are co-ordinated (*e.g.* via a portfolio approach) so as to cover and experiment various alternative solutions to achieve the mission
Policy implementation	Ensuring he consistency and effectiveness of the modes of intervention and resources of the public and private partners mobilised to achieve the policy objectives	*Policy mix* consistency • The policy encompasses a diverse and consistent set of policy interventions (technical, financial, regulatory, etc.) to support different disciplines, sectors, areas and markets, across the innovation cycle, as needed to achieve the mission
		Fundability • Public and private stakeholders involved in the different facets of the initiatives (phases of the innovation process, sectors, markets, etc.) are mobilised to commit resources for the achievement of the mission
		Evaluability • The policy is endowed at the outset with input and output indicators as well as evaluation procedures adapted to its systemic nature, in order to assess its results and learn from its implementation in view of continuous improvement
		Reflexivity • Evaluation and monitoring results are used to inform decision-making and reform the initiative (revision of objectives, adaptation of governance and operating procedures, etc.), as needed to achieve the mission

As part of a „Mission Action Lab - Demonstration Case“, Austria will be examined by the OECD in autumn 2022 with regard to compliance with these principles in order to gain insights into the Austrian design phase and to formulate recommendations for the implementation phase of the EU missions in Austria.

7 OECD (2021): The design and implementation of mission-oriented innovation policies : A new systemic policy approach to address societal challenges, OECD Science, Technology and Industry Policy Papers, n° 100, 2021, Éditions OCDE, Paris.

In Austria, the debate on how to deal with missions was conducted, among other things, as part of the deliberations on preparing a "strategy for a mission-oriented RTI policy" by the then BMVIT.[8] The BMVIT thus built on long-standing RTI programs with elements of a mission-oriented RTI policy in the areas of energy, mobility, circular economy, production and construction (including the RTI programs[9] „House of the Future", „Mobility of the future", „City of the future", „Factory of the future").

As early as 2015, a broad-based study on "areas of strength in the innovation system" referred to: Scientific profiling and economic synergies" on the relevance of mission orientation for the further development of the Austrian RTI system.[10] Austrian innovation research is also involved in the reflection on „mission-oriented innovation policy" within the framework of the OECD. integrated and has been supported by the BMK and BMBWF in recent years.[11] To further increase the impact, the BMK has been implementing four mission-oriented priorities at the interface of technology policy and sectoral policies on mobility, energy, circular economy and cities since 2021.[12]

A policy brief from WIFO from 2022 refers to the high level of public research funding in Austria in international comparison.

„However, public research funding […] has so far been strongly focused on open-topic funding, while, for example, research funding to support specific topics or to solve societal problems has traditionally been limited. There are also hardly any examples of mission-oriented budgeting that would set concrete performance targets within a specific time frame. The missions already being implemented that have been agreed at EU level will therefore introduce new aspects into the Austrian research funding system, which will include the clear increase in public funds for thematically oriented programs (e.g. climate, energy).[13]

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8 During the entire strategy process, the BMVIT was scientifically supported by Wolfgang Polt, Joanneum Research, and Matthias Weber, AIT. Both also played a key role in projects commissioned by the European Commission to develop Horizon Europe and the concept of the mission-oriented approach.

9 www.nachhaltigwirtschaften.at

10 Austrian Institute of Technology, Institute for Advanced Studies, Joanneum Research, Austrian Institute for Economic Research, Centre for Social Innovation (2015): areas of strength in the innovation system: Scientific profile development and economic synergies, on behalf of the BMWFW, 2015

11 P. Biegelbauer, C. Hartmann, W. Polt, A. Wang, M. Weber (2020): Mission-Oriented Innovation Policies in Austria – a case study for the OECD, 2020

12 https://www.bmk.gv.at/themen/innovation/schwerpunkte.html

13 J. Janger (2022): WIFO Research Briefs 15/2022, Funding of RTI Policy Missions in Austria

Embedding the missions in general EU policy

Horizon Europe's EU missions contribute to the goals of the European Union, which are pursued within the framework of important comprehensive strategies, such as the „European Green Deal", „A Europe fit for the digital age" or the „Repower EU" strategy. In addition, the EU missions link research projects with sectoral goals that have been laid down in key documents such as the „European plan to fight cancer", the „Strategy for adapting to climate change" or the „Long-term vision for the rural areas of the EU".

The Competitiveness (Research) Council agreed on 10 June 2022 conclusions on the European Missions[14]. With regard to the governance of the missions, the Council invites the Member States to take into account the specific objectives of the European missions in their national sectoral programming. At European level, the possibility of a labelling system for mission-related activities from other EU programs will be explored, thereby increasing the visibility of the relevant initiatives and facilitating the synopsis of all actions contributing to the implementation of the missions. A similar approach could also be used in Austria.

The Council encourages Member States to put in place appropriate governance structures, including effective coordination with regional and local decision-making bodies. In addition, national, regional and local programs or initiatives contributing to the success of European missions should be identified in the Member States. This multi-instrument portfolio approach characterizes the missions and requires efficient management and the use of strategic foresight and methods for monitoring and analysing the success of the missions. From the point of view of the Council, the success of the missions includes the participation of the citizens throughout the entire life cycle of the missions. The Council therefore asks the Member States to draw up plans for public participation and communication („citizen engagement"). Finally, the Council underlines the importance of higher education and research institutions as intermediaries between citizens and the European missions.

The present implementation recommendations translate the Council's conclusions into a tailor-made package of measures, structures and processes in Austria.

Embedding the missions in Austrian politics

The Austrian RTI Strategy 2030 sets the goal of enabling Austrian RTI actors the best possible participation in the EU missions.

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14 Council of the European Union (2022): Conclusions on European Missions

This objective was also reaffirmed in the RTI Pact 2021 – 2023[15], which is aimed at the RTI ministries and the central facilities in accordance with FoFinaG[16]. Successful participation in mission-oriented programs at European level requires that national research and research funding activities also be aligned to some extent with the missions defined at EU level. Against this background, the RTI departments, with close involvement of the central research and research funding institutions and the sectoral ministries concerned, have developed a national implementation framework for EU missions, which they develop within the framework of the RTI Task Force EU Missions Working Group on the basis of recommendations have set up five specialist working groups ("Mission Action Groups"). The next RTI Pact 2024 – 2026 will further specify the goals of the RTI Strategy 2030 for the implementation of the EU missions.

The implementation of the EU missions supports various national priorities and processes. The EU mission CITIES is closely linked to the focus of the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology (BMK) on climate-neutral cities. It is one of four mission-oriented focal points of the BMK alongside the energy transition, the circular economy and the mobility transition. The EU mission CANCER is dedicated, among other things, to goals that serve the quality of care for patients and their families. The involvement of the Federal Ministry for Social Affairs, Health, Care and Consumer Protection (BMSGPK) is therefore essential for the success of the mission. But the specifications and goals of the Water Protection Directive or biodiversity in the sphere of action of the Federal Ministry of Agriculture, Forestry, Regions and Water Management (BML) or the strategic specifications of the climate protection laws in Austria are important reference and starting points for the missions.

The cooperation between the ministries, the central institutions and the sectoral institutions at federal, provincial and municipal level enables an integrated approach to the implementation of the EU missions in Austria. The partnership-based cooperation between the regional authorities within the framework of existing structures and processes and while maintaining the respective areas of responsibility should be strengthened in the light of the EU missions.

In spring 2022, an Austrian consortium of Joanneum Research, AIT and FFG took over the coordination of a Europe-wide network of mission-oriented ministries and agencies from 17 member states, funded by the European Commission. With this project[17], Europe is honouring, among other things, the importance of missionary politics in Austria.

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15 Austrian Federal Government (2020): RTI Pact 2021-2023

16 Federal Act on the Financing of Research, Technology and Innovation (Research Financing Act - FoFinaG)

17 „Transnational co-operation in mission-oriented policies" (TRAMI), official start on 25 April 2022 with opening by Federal Minister Martin Polaschek in Vienna

A „baseline study of EU missions in Austria“[18] states that Austria‘s RTI actors are in a good starting position with regard to the five mission topics of Horizon Europe. The study revealed the following findings:

- A comprehensive view of the Mission Areas shows that there are numerous cross-connections between the five Mission Areas and their further implementation via the potentially involved actors, but also the underlying mission-relevant questions.
- The bibliometric analysis of the publications shows how strongly the four environmentally oriented missions overlap and interlock in the contributing research disciplines. The strongest thematic overlap can be seen between the Soil and Climate missions.
- In Horizon 2020 (relative to the European environment), Austrian actors were particularly intensively involved in mission-relevant issues in the areas of cities, climate and soil.
- The collaboration analysis shows that Austrian actors cooperate with key scientific actors at European level in all five missions.
- The analysis of the R&D projects at national and European level also shows that although the strengths are very different, Austria has a fundamentally good starting position and anchoring in the European environment in all mission areas.
- In principle, it can be assumed that in all mission areas that are being seriously pursued in Austria, there is potential for an expansion of the actively involved institutions and scientists, which, according to the results of the study, is associated with a higher need for public funding (national and European) would be connected.

18 Michael Ploder, Enikö Linshalm, Marija Breitfuss-Loidl, Christian Hartmann, Andrea Kasztler, Barbara Heller-Schuh, Katja Lamprecht (2022): Baseline study on EU missions in Austria; available online: https://era.gv.at/horizon-europe/missions/baseline-study-on-missions-in-austria/

Recommendations of the Mission Action Groups

Between October 2021 and June 2022, the mission topics proposed by the European Commission were measured against the need for action in Austria and translated into proposals for concrete, national measures. For each EU mission, this task was carried out by a specialist group co-chaired by RTI and sectoral politicians ("Mission Action Groups"). The groups brought together around 300 relevant stakeholders from research and application. The recommendations of the Mission Action Groups can be found in Annex 2.

In addition to the consultations in the specialist groups on the EU missions, events were held in the first half of 2022 that addressed an extended, interested public via the group of people and institutions directly involved in the Mission Action Groups.[19] The continued, comprehensive involvement of the regional and local authorities is of great importance in the implementation phase of the EU missions. The success of all five EU missions depends on a coordinated approach between the federal government, the federal states and, in some cases, the municipalities. For this purpose, the Mission Action Groups use already established bodies and processes between the regional authorities.

The social impact of the EU missions unfolds not least through new products, services and processes on the market. In order to ensure that new research findings open up new application opportunities for companies in a timely manner, the Mission Action Groups will in future increasingly seek cooperation with industry.[20] Existing structures, processes and instruments, which also serve to strengthen and accelerate knowledge and technology transfer (e.g. performance agreements with universities and research institutions, funding programs such as spin-off fellowships, etc.), should also be used, research results from the EU missions at most in implement the economy. In this context, reference is also made to activities at European level (guiding principles regarding the appreciation of knowledge).

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19 An example is the FFG event „European Missions - National Implementation" on 2 June 2022 with around 250 participants and a satisfaction rating of 1.6 (school grading system). In addition, specific dialogue formats took place, including with the federal states (Federal State Dialogue on 15 March 2022) and industry (IV Working Group on Research & Technology on 16 May 2022).

20 Where relevant, synergies with Important Projects of Common European Interest (IPCEI) should be used.

The recommendations of the Mission Action Groups at a glance[21]:

Mission Cancer

Recommendation 1	Establishment of a national molecular research platform; Development of a central research data infrastructure as a contribution to UNCAN.eu
Recommendation 2	Primary and secondary prevention for cancer; screening pilot lung; implementation research (breast, colon, lungs); health services research
Recommendation 3	Networking of National Comprehensive Cancer Centres (CCCs); increased coordination of the existing national CCCs to promote cooperation in the areas of care, research and communication; status quo study; interoperability of data systems; connection to EU CCI network; information and application of EU tenders
Recommendation 4	Development of a national clinical cancer registry, including a (molecular) clinical cancer research program and healthcare research program; Feasibility study to expand clinical cancer registries
Recommendation 5	Implementation of a „Survivorship Passport“ and health services research in the field of paediatric oncological aftercare
Recommendation 6	Co-financing pot for national/EU-funded implementation projects from Horizon Europe and other EU programs in the field of cancer

21 The detailed version of the recommendations can be found in Annex 2.

Mission Climate

Recommendation 1	Establishment of an Austrian Mission Hub „Adaptation to Climate Change“ for better networking of central actors and provision of new services and communication;
Recommendation 2	Develop standardised risk analysis, including better methods, criteria and assessment bases; Research initiative „Climate Change Risk Assessment“; Data infrastructure for climate change risk assessment;
Recommendation 3	Link adaptation to climate change in all sectors, including through test criteria (e.g. federal climate check, public procurement, research), evaluations, award criteria for public funds, national funding landscape geared towards climate resilience and adaptation
Recommendation 4	Promote nature-friendly solutions in selected regions; climate-resilient regional development initiatives; ecological corridors; flood protection; restoration projects; resilient forests; stepping up action against urban heat; research initiative „Nature-based Solutions“; strengthening socio-ecological resilience;
Recommendation 5	“Climate-Resilient Regions in Austria”; Implement social and technical solutions to increase climate resilience; Strengthening of KLAR! and KEM regions; take advantage of the LEADER program; establishment of frontrunner regions; dissemination of „adaptation pathways“ to follower regions; promotion of social, organisational and institutional solutions; strengthening social capital in communities and regions

Mission Cities

Recommendation 1	Further development of the national mission „Climate Neutral City“; public cooperation; program-accompanying support formats; scaling and rolling out solutions; connection to existing initiatives; mobilising other actors, e.g. trade and industry; learning from the experiences of other countries
Recommendation 2	Comprehensive access to funding by the BMK from innovation to implementation, including through the use of public cooperation and public partnerships for capacity building in the cities; bundling of other instruments; addition of the „Watering Can Promotion“; development of new instruments and formats; effects of the economic crisis
Recommendation 3	development of cooperation with the federal states as part of the national mission (spatial planning; cooperation in mobility, climate protection, energy, spatial planning, economy; project cooperation; public cooperation with the selection of pioneer cities with cooperation agreements with the BMK; specific exchange formats)
Recommendation 4	Use of transnational funding formats, e.g. B. Horizon Europe partnership „Driving Urban Transition“, mission platform „NetZeroCities“, tenders in the mission work program of Horizon Europe, INTERREG program „Central Europe“, Connecting Europe Facility, ERDF
Recommendation 5	Offensive communication of the idea of the „climate-neutral city“ as part of the accompanying process for the national mission
Recommendation 6	Use of synergies with other Mission working groups, especially with Mission Climate

Mission Soil

Recommendation 1	Qualitative soil protection by continuing existing activities; assessment of special challenges; new instruments in the light of EU developments; use of experiences from other recommendations
Recommendation 2	Quantitative soil protection, through further development of the methodology for determining land use and monitoring; development of a methodology to determine soil sealing and monitoring of changes; methodology for delimiting priority agricultural areas and preserving natural soil functions, data integration; regional targets for 2030 for land use and soil sealing; training and raising awareness
Recommendation 3	Networking of soil activities, e.g. through a networking platform with access for interested stakeholders
Recommendation 4	Design soil monitoring, including soil condition report in the light of further EU developments
Recommendation 5	Promote soil-related education and continue proven formats; focus on the relationship between soil and nutrition
Recommendation 6	National research initiative „A Soil Deal for Europe“; establishing a national soil research program; co-funding participation in instruments from Horizon Europe
Recommendation 7	Enable participation in living labs and lighthouses of the EU mission (e.g. advice; project partner search; upscaling of local activities; integrate mission-relevant topics into national initiatives)
Recommendation 8	Attract farmers as active soil ambassadors

Mission Waters

Recommendation 1	Education and awareness-raising, through the involvement of important intermediaries (e.g. schools, universities in the field of teaching, technical colleges); teaching content in schools; education and training of teaching staff; adaptation of the teaching degree; promotion of knowledge of the species; raising awareness of other environmentally relevant topics
Recommendation 2	Knowledge transfer through interdisciplinary projects; improved exchange formats for knowledge transfer; strengthen the role of science in exchange formats for water management; knowledge transfer between science and politics; processing of research results in a spatial (e.g. for municipalities, federal states) and in an institutional context
Recommendation 3	Technical focus, by providing the necessary water resources, taking climate change into account; measures to halt the dramatic decline in aquatic biodiversity; creation of a catalogue of near-natural bodies of water and ecological corridors to be protected as a priority; identification of new trace substances to reduce the input of substances and pollutants, in particular (micro)plastic; hydrological and morphological rehabilitation of running water; implementation of the goals of the floodplain strategy and the peatland strategy; wetland monitoring national research initiative „Cleaning up our water bodies“; development of a research data infrastructure for aquatic and semi-aquatic biodiversity; support participation in the „Danube River Basin Lighthouse“;

The evaluation, prioritisation and subsequent implementation of the recommendations of the Mission Action Groups are carried out on the one hand by institutions, committees and processes within the sphere of activity of the sectoral and RTI departments as well as the central RTI facilities in accordance with FoFinaG, which together form the EU Missions working group. In the light of their own responsibilities, technical priorities and budgetary conditions, these departments and institutions express their intention to actively participate in the implementation of individual recommendations (see Annex 1).

On the other hand, cooperation with the local and regional authorities in Austria deserves special attention, for which existing bodies and processes are largely used. In addition, the feedback with developments at the European level remains an important task in the

implementation of individual measures, on the one hand to increase funding and support potential of the EU for Austria, and on the other hand to ensure the complementarity between the Austrian and European implementation of the EU missions.

In addition to the members represented in the EU Missions RTI Task Force, numerous other societal actors, including companies, can contribute to implement the recommended measures. Networking and cooperation with the extended environment of implementation key players is one of the future tasks for the Mission Action Groups.

The comparison with the successes and challenges of other countries in mission policy will be continued both within the EU and in the context of the OECD in order to learn from the experiences of these countries for the implementation of the recommendations in Austria.

Resources required for implementation

The present implementation framework builds on European and national strategies, goals and projects that are intended to contribute to social change for a better quality of life and sustainability. He also questions existing circumstances because the status quo is not sufficient to bring Austria and Europe closer to the politically agreed strategic goals. This applies in particular to the use of resources. The successful implementation of the mission orientation in Austria makes it necessary to sound out possibilities for the more effective use of existing resources as well as for better coordination of existing activities and thus to raise efficiency potentials. Jürgen Janger[22] recently underlined the essential role of reallocating public funds in favour of mission-oriented activities, but without neglecting the existing RTI instruments, including bottom-up funding. In some cases, however, additional, targeted research efforts and well-coordinated transfer measures from research to sectoral application are required, which have not been available to date or not to the required extent. The concrete budget planning is not part of this implementation framework. As far as federal departments and institutions are concerned, it takes place in the course of budgetary processes. Only those measures can be implemented that can be covered within the framework of the applicable federal financial framework law. The future RTI pacts are of particular importance for the RTI sector. A coherent synopsis of resources that contribute to the implementation of an EU mission from different approaches of the federal budget should be sought.

Mission policy is accompanied by an increased need for coordination between policies, processes, measures, instruments and actors. As the coordinating department for Horizon Europe, the BMBWF provides the necessary resources in accordance with the BMG, but seeks coherence with established coordination structures in other departments.

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22 See footnote 10

Implementation tools and processes

The following financing instruments are available as examples and in accordance with the necessary decision-making processes for the implementation of the recommendations:

- RTI Pact 2021 - 2023, insofar as EU missions are already taken into account;
- RTI Pact 2024 – 2026
- RTI Pact 2027 – 2029
- RTI Pact 2030 – 2032

- Fonds Zukunft Österreich, in particular with the aim of implementing EU missions and EU partnerships, insofar as this relates to research and its transfer to Austria;
- Financing instruments for social transformations, insofar as these correspond to the goals of the EU missions (e.g. biodiversity fund, forest fund, transformation fund);
- Sectoral budget approaches of the departments involved in implementation;

- Specific calls for tenders related to the EU missions and other Horizon Europe mission-related funding sources, including EU partnerships;
- Tenders from other EU programs related to the EU missions, including EU4Health, LIFE, Digital Europe, Erasmus+;

The following other existing instruments or those to be developed in the event of approval for the implementation of the EU missions are potentially available, with the decision on the choice of instruments lying with the responsible authorities (selection):

- Advice and support for Austrian participants in Horizon Europe by the FFG;
- Networking activities (e.g. networking platform CCIs, coordination groups, soil forum Austria, Austrian city platform, climate change adaptation model regions (KLAR!), climate and energy model regions (KEM), network nature in the garden, climate alliance Austria, climate change centre Austria (CCCA))

- Educational instruments (e.g. Sparkling Science, curricula, teacher training, endowed professorships, thematically focused dissertations, internships)
- Citizen engagement (e.g. „Ideas Labs“, „Platform Horizon Europe Community Austria“)
- Specific funding programs (e.g. Top Citizen Science, children‘s and youth universities, Sparkling Science, FFG talents regional, hydraulic engineering laboratory)
- Knowledge transfer instruments (e.g. Future Platform Water, UniNetz; Frontrunner Regions, Knowledge Transfer Centres West, East and South)
- Sectoral evaluation and monitoring instruments (e.g. water condition monitoring, soil monitoring)

- Main content of research programs (e.g. Horizon Europe, LIFE, LEADER, ERDF/ Interreg, Connecting Europe Facility, Austrian cancer research program, special research areas of the FWF, BML departmental research, Austrian soil research program, thematic programs of the FFG, Austrian Climate Research Program, KFG program the LBG, KLIF program of the FWF)

- (Data) infrastructures (e.g. cancer research platform, strengthening of the corresponding infrastructure in the care facilities, networking of existing data sources, infrastructure funding from KLIEN and FFG, research data infrastructure for aquatic and semi-aquatic biodiversity)

- Public collaborations, public partnerships
- Public procurement (e.g. pre-commercial procurement)
- Instruments to support translational approaches (also with regard to citizen science, health services research and transfer into practice)

- Regulatory framework (legislation, „regulatory sandboxes“, review of existing special guidelines)

- Experimental spaces (e.g. living labs, lighthouses, climate-resilient regional development initiatives)

- Existing strategy processes (e.g. common agricultural policy, soil strategy, raw material master plan 2023)

- Business-related instruments (e.g. AWS start-up funding, market launch projects)

- Structural instruments (e.g. competence centres, structural development projects, innovation laboratories)

The added value of mission policy lies in using the diverse instruments of implementation in a coherent, holistic manner and with the aim of making a contribution to achieving the goals of the EU missions and helping to solve specific challenges in each case.

Governance in the implementation phase of the EU missions

The networked policy design between those responsible for the provision and application of knowledge along social goals requires that there is a stable political framework for action and effective structures and processes favour an efficient and effective implementation of the recommendations.

The management capacity of Mission Action Groups, particularly their co-chairs, will be strengthened. To this end, the FFG is setting up a Mission Management Unit (MMU) consisting of specialists who have a high level of management expertise at the interface between research and sectoral issues and who can flexibly cover the support needs of the co-chairs of the Mission Action Groups in implementing the recommendations selected for implementation. Important tasks of the MMU are the cooperation with relevant research-related and sectoral experts (involvement of experts e.g. the GÖG, AGES etc.), operational implementation planning for the recommendations, participation in monitoring and the role of a strong link between the EU and at the national level, also in close cooperation with the National Contact Points of Horizon Europe. The existing mission secretariat in the FFG will be given the necessary equipment to meet the growing demands for information, communication, agreement and coordination between those involved.

The need for advice on mission policy changes from the design to the implementation phase of EU missions. The advisory boards of "Foresight & Citizens" and „Strategic Intelligence" have fulfilled their task of preparing the present implementation framework and will be dissolved. In its place, a "Mission Facility for Policy Learning, Foresight, Monitoring and Evaluation" will be commissioned by way of a Europe-wide call for tenders. The central objective of this Mission Facility is the planning and implementation of reflective processes in Austria on the implementation and future development of the mission orientation as well as the establishment of a coherent framework for monitoring and success control for all missions.

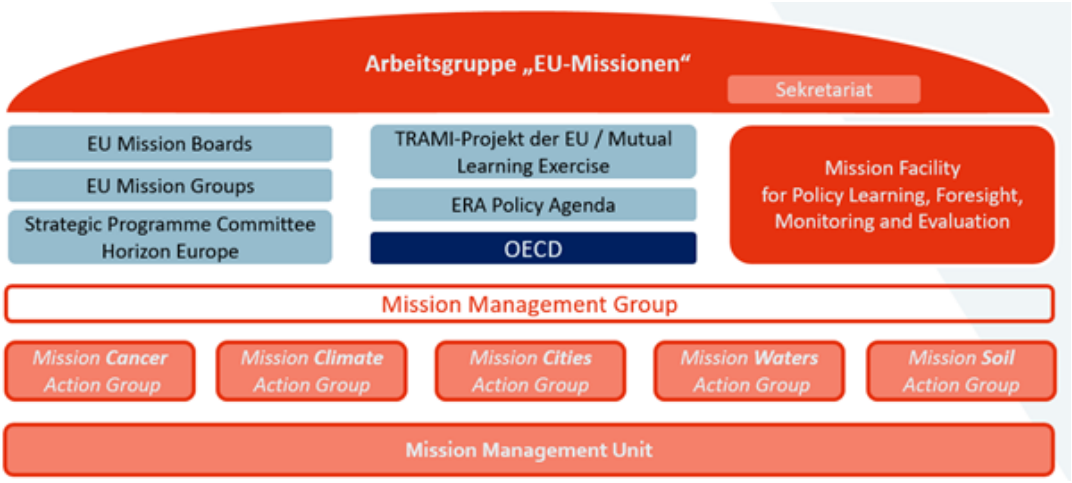
The implementation framework is a strategy document with a planning horizon up to 2030. The governance of the EU missions allows the implementation framework to be adjusted around halfway through the process, i.e. in 2026/27. During this period, the successor program to Horizon Europe will be negotiated and decided, which could necessitate additional adjustments in Austria.
During the implementation phase, the RTI task force working group on EU missions assumes a supporting role at the interface between the implementation framework for EU missions, the RTI pact and the performance and financing agreements of the central RTI institutions. It also supports efforts to work closely with the regional and local levels. If necessary, it in-forms the RTI task force or the political decision-making level.

The Mission Action Groups coordinate the implementation of the individual recommendations of the implementation framework, involve the interested public in further activities, strengthen cooperation with the local and regional level in Austria and seek cooperation with all relevant social forces, including business. The Mission Action Groups are operationally supported in their work by the Mission Management Unit (MMU).

The existing Mission Management Group, consisting of the co-chairs of the EU Missions Working Group, the Mission Action Groups and the Mission Secretariat, will continue its

work. Against the background of their special role in implementation, coordinating key actors from sectoral policies will be invited to participate in the future (e.g. Gesundheit Österreich GmbH, KLIEN, AGES, Federal Environment Agency).

The interaction between the EU missions at European and Austrian level is carried out by the Austrian delegates in the Strategic Program Committee of Horizon Europe and in the EU Mission Groups, by the Austrian members in the EU Mission Boards, and by the Austrian participants in European exchange and experience networks and projects as well as in the context of the ERA Policy Agenda. In addition, Austria uses the global perspective of the OECD to continuously develop and improve its mission policy.



Graphics: Governance of the EU missions in the implementation phase

Annex 1 – Declaration of intent of the members of the RTI task force working group EU missions about their own participation in the implementation of recommendations:

with the exception of BKA and BMF

Other RTI and sectoral actors as well as regional authorities will be invited to participate in the specification of the implementation framework.

Federal Ministry of Education, Science and Research (BMBWF)

The department is involved in the implementation in several ways, namely as the

- lead department for EU research policy according to BMG
- one of the three RTI departments - with a focus on science and research in the field of application-open basic research, taking into account translational aspects, jointly responsible for the content of the missions Cancer, Climate, Soil and Waters
- ministry responsible for education and higher education, particularly universities.

The BMBWF intends to play an active role in shaping the following recommendations, insofar as budgetary coverage is guaranteed and cooperation with the responsible departments and/or central RTI institutions is ensured:

Mission Cancer

Recommendation 1	In cooperation with the relevant universities and research insti-tutions, the BMBWF is coordinating the establishment of a na-tional molecular research platform and the establishment of a joint research data infrastructure as a contribution to UN-CAN.eu. In coordination with the funding agencies FWF, FFG and LBG, the BMBWF will analyse how a mix of funding and control instruments can best implement this project.
Recommendation 3	In cooperation with the BMSGPK, the BMBWF is initiating the networking of the national Comprehensive Cancer Centres (CCCs), which are set up at the relevant universities and hospitals, with the aim of intensifying the coordination of the existing national ones CCCs to promote cooperation in the areas of research, care and communication, with the focus of the BMBWF on the aspects of research, networking and communication. Networking instruments, coordination and the provision of services are central elements of this measure.

Recommendation 4	The BMBWF, in close cooperation with the BMSGPK, is initiating the establishment of a pilot for a national clinical cancer registry, including funding for (molecular) clinical cancer research and healthcare research. Financing of a conceptual study for the planned cancer research program; increased cooperation with BMSGPK, Gesundheit Österreich GmbH, the relevant universities and care structures and other relevant stakeholders in this area. In coordination with the relevant funding agencies, the BMBWF will explore tailor-made funding and control instruments for the development and implementation of a pilot clinical cancer register as well as for cancer and healthcare research.

Mission Climate

Recommendation 1	Establishment of an Austrian Mission Hub ‚Adaptation to Climate Change' for better networking of central key players and provision of new services and communication; in cooperation with the universities, GSA, ÖAW and funding agencies, the BMBWF will develop a mix of funding and control instruments for the implementation of this project.
Recommendation 2	Developing standardised risk analyses includes (a) advancement of methods for making risk factors measurable; and (b) Data Infrastructure for Climate Change Risk Assessment: data basis for event and damage data as well as climate scenarios; in cooperation with the universities, GSA, ÖAW and funding agencies, the BMBWF will develop a mix of funding and control instruments for the implementation of this project. The BMBWF also promotes and supports cooperation with the relevant de-partments and the federal states for the networking of knowledge, data and key players.
Recommendation 4	Forcing of nature-based solutions. In cooperation with universities, GSA, ÖAW and funding agencies, the BMBWF will develop a mix of funding and control instruments for the implementation of this project (to develop nature-based solutions for dealing with the diverse dangers and cascading effects of climate change). The BMBWF supports the strengthening socio-ecological resilience by strengthening cooperation between research institutions and regions

Mission Cities

Recommendation 2	Inclusion of the humanities, social and cultural sciences in the comprehensive access to funding by the BMK.

Mission Soil

Recommendation 2	**Quantitative soil protection.** The BMBWF supports the development of methods (for land use, soil sealing, monitoring) as part of the implementation of recommendation 6.
Recommendation 5	**Promote soil-related education.** The BMBWF supports the appropriate consideration of soil-relevant topics in educational instruments (curricula, etc.). The BMBWF supports the implementation of the recommendation in cooperation with funding agencies by including mission topics in existing programs and initiatives - especially those implemented by the OeAD.
Recommendation 6	**Set research priorities for the implementation of the mission goals. ‚A Soil Deal for Europe'** (with mission-goal-relevant key topics such as land use (context E2), strengthening soil health and soil fertility, carbon storage, etc.) in cooperation with the universities, GSA, ÖAW and funding agencies, the BMBWF will develop a mix of funding and control instruments for the implementation of this project. In addition, the BMBWF supports the establishment of a corresponding cross-departmental networking platform, which supports the implementation of the mission and uses existing platforms for this purpose. The BMBWF promotes and supports cooperation with the relevant departments and the federal states to network knowledge, data and stakeholders.
Recommendation 7	**Enable participation in Living Labs and Lighthouses.** The BMBWF is involved in the implementation of this recommendation as part of its responsibilities in Horizon Europe.

Mission Waters

Recommendation 1	**Education and raising awareness.** The BMBWF supports this recommendation by appropriately considering water-related topics in educational instruments (curriculum, etc.). The BMBWF also supports the recommenda-tion in the context of setting priorities for existing programs and initiatives - especially those that are implemented by the OeAD.
Recommendation 2	**Knowledge transfer.** The BMBWF is involved in the implementation of this recom-mendation by supporting the recommended coordination groups using existing platforms.
Recommendation 3	**Technical focus.** The BMBWF supports the ‚remediation of our waters' (with the thematic priorities mentioned in the MAG recommendation) by corresponding thematic, in particular inter-institutional re-search priorities be explored and agreed with the relevant insti-tutions and funding agencies; the BMBWF supports the further development of the necessary research data infrastructure (by setting priorities within the framework of the performance agreements with the relevant institutions; The BMBWF also promotes and supports cooperation with the relevant departments and the federal states in order to enable the networking of knowledge, data and actors. The BMBWF supports the participation of Austrian institutions in the ‚Danube River Basin Lighthouse' (as part of its responsibilities in Horizon Europe);

Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology (BMK)

In the area of RTI, the BMK launched „House of the Future“ in 1999, the first RTI program with clear mission-oriented approaches and has since used elements of mission orientation in the thematic RTI programs in the areas of energy, mobility, construction and housing, urban development, production, circular economy, etc.

In order to further focus and increase the impact, the RTI of the Innovation and Technology section was bundled in mid-2022, among other things in the areas of „energy transition“, „mobility transition“, „circular economy“ and „climate-neutral city“. This provides a clear reference to the „Cities“ mission, among other things.

Regarding the issue of adaptation to climate change (mission „Climate“), the BMK specifically supports climate change adaptation regions (KLAR!) and climate and energy model regions (KEM). This provides a clear reference to the „Climate“ mission, among other things.

The Austrian adaptation strategy as a nationwide orientation framework pursues the goal of avoiding the adverse effects of climate change on the environment, society and the economy and of using the opportunities that arise. The strategy aims to strengthen the natural, societal and technical adaptive capacity. The adaptation measures should not entail any social or ecological disadvantages, but rather minimize the risks to democracy, health, security and social justice. These goals are in line with the “Climate” mission. Adaptation to climate change is a process that extends over longer time horizons. A continuous improvement of the level of knowledge and experience in the implementation are the basis for constant learning and the prerequisite for corresponding success.

The BMK thus supports mission orientation in the RTI, is related to the priorities of the EU missions and participates in the implementation in many ways, through:

- Responsibility for the RTI area climate-neutral city and implementation of the national mission climate-neutral city, implementation of the RTI funding program
- Comprehensive responsibility for the policy area of general matters of climate and environmental protection according to the BMG, including matters of climate change adaptation
- Responsibility as one of the three RTI departments with a focus on applied, economic-technical and on solving societal challenges
- Responsible or co-responsible department, especially for the „Climate“ and „Cities“ missions

Mission Cities

Recommendation 1	Further development of the climate-neutral city mission. The BMK is committed to long-term support of this mission within the framework of the RTI and other options in the department's portfolio. This in particular through the use of the RTI and other instruments of the department, the mobilization of further possibilities beyond the BMK, the support of Austrian cities in achieving climate neutrality, the capacity building of relevant actors and further measures for implementation this mission.
Recommendation 2	Comprehensive access to funding by the BMK. A comprehensive and targeted access to funding should be used for implementation, e.g. the public-public partnership with cities.
Recommendation 3	Development of cooperation with the federal states. Climate neutrality in cities is to be promoted through targeted cooperation with other actors required for implementation, e.g. cities and municipalities.
Recommendation 4	Use of transnational funding formats. The activities at the Austrian level are supported by the use of suitable transnational formats, in particular the RTI partnership „Driving Urban Transi-tion", by using the suitable formats in Horizon Europe (in particular the „NetZeroCites" platform) , as well as other possibilities, e.g. in the area of structural funds.
Recommendation 5	Offensive Communication of the „climate-neutral city" concept. The concept of the „climate-neutral city" should be actively communicated and the exchange with successful international programs should be supported.
Recommendation 6	Utilising synergies with other missions. Where useful for both missions, synergies with the other missions are sought and used.

Recommendations 1 – 6	Synergetic national mission „Climate Neutral City (KNS). To ensure and optimally use the effects of the European Cities Mission (CNSC), the BMK has launched a synergetic national mission „Climate Neutral City (KNS)“. Recommendations 1 – 6 are thus jointly implemented. KNS is intended to help develop the necessary strategic intelligence and operational competence to achieve climate neutrality in cities by 2040. To this end, KNS should identify the necessary system adjustment needs - in and outside the RTI area -, promote systemic learning and advance the further development of the innovation ecosystem (also beyond the KNS focus). • The BMK will do the following • build up capacity in 10 pioneer cities by 2024 in order to make joint efforts with the large cities (including the CNSC candidate city of Klagenfurt) to achieve climate neutrality and to establish the necessary learning environments • by 2030, to involve an additional 50-70 other cities in the learning processes of the European City Mission and national mission and thus create a broad basis for implementation, transfer and scaling (approx. 50% of the Austrian resident population) • maximise the leverage and synergies between the two missions and align or supplement and further develop your priorities and instruments on demand-oriented and effective solution modules • Involve users and RTI actors in relevant national, transnational and European initiatives and support the formation of effective cooperation networks • in cooperation with the cities and all system actors, initiate and promote necessary adjustments at the regime and system level (regulations, governance, norms/standards, etc.) (in your own department and beyond) • derive requirements and feedback for the alignment and further development of CNSC from the extended wealth of experience of the KNS

Mission Climate

Recommendations 1	Establishment of an Austrian Mission Hub ‚Adaptation to Climate Change‘
Recommendations 2	Develop standardised risk analyses, including better methods, criteria and assessment bases; Research initiative „Climate Change Risk Assessment“; Data infrastructure for climate change risk assessment in cooperation with the federal states
Recommendations 3	Anchor adaptation to climate change in all sectors, including through test criteria (e.g. federal climate check, public procurement, research), evaluations, award criteria for public funds, national funding landscape for climate resilience or align adjustment
Recommendations 4	Force nature-based solutions / nature-friendly solutions, to promote adaptation to climate change, the development and implementation of nature-based solutions (nature-based solutions (NbS) in selected regions recommended.

Recommendations 5	„Climate Resilient Regions in Austria“; Implement social and technical solutions to increase climate resilience; Strengthening of KLAR! and KEM regions; take advantage of the LEADER program; establishment of frontrunner regions; dissemination of „adaptation pathways“ to follower regions; promotion of social, organisational and institutional solutions; strengthening social capital in communities and regions For this purpose, the BMK will: • Effectively support the establishment of an Austrian Mission Hub “Adaptation to Climate Change” (Recommendation 1) • Support the creation of a separate federal-state pot as an ACRP sub-program. Furthermore, as part of the ACRP call 2021, two projects were funded that already repre-sent preliminary work for ÖKS26 - current climate sce-narios for Austria. (recommendation 2) • Introduce the ACRPI (Austrian Climate Change Research Program Implementation) funding program in autumn 2022. The program funds implementation-oriented research projects with high practical relevance in the areas of climate change adaptation and climate protection, which address current issues of decision-makers. On the basis of existing expertise, new scientific findings are to be developed that fill and complement knowledge gaps in the implementation. (Support recommendation 2 • and 3) • Support for the introduction and development of the climate check with criteria for good adaptation to climate change (recommendation 3) • Align your priorities and instruments with need-oriented and effective solution modules or supplement and further develop them to promote good adaptation to climate change in all sectors at all levels (recommendation 1, 2, 3, 4, 5)

Synergies with the „Cities“ mission

The implementation of the „Climate“ mission is supported by the actions to implement the „Cities“ mission, and the numerous synergies and points of contact between these two missions are used. Examples are the bundling of resources in those areas where there are simultaneous effects for climate protection and adaptation in the urban context and possible complementary actions in the area of urban climate resilience. In the Cities Mis-sion, dangers for adaptation measures are also to be identified, which can have counterproductive effects or setback effects for climate protection and must be avoided.

Federal Ministry of Labour and Economy (BMAW)

The Federal Ministry of Labour and Economics is one of the three RTI departments with a focus on applied, business-related research. The BMAW focuses on supporting research that has an effect on growth, prosperity and jobs. This primarily takes place by or in cooperation with companies. The continuation of the technology offensive in Austria with its focal points is one of the main priorities for the BMAW.

First and foremost, the BMAW follows a bottom-up-oriented approach within the framework of its programs (mostly processed via FFG and aws). This does not rule out funding within the framework of ‚mission topics' - on the contrary: the advantage of bottom-up programs is that they can be used flexibly and without the need for further changes to map focal points that occur over time (e.g. due to mission topics) in the demand for research funding, provided these correspond to the funding programs and are selected in open-topic competition. For example, a significant proportion of funded projects can be assigned to the ‚Twin Transition'. To a limited extent, there are also thematic focuses in BMAW funding programs (e.g. ‚Life Science/Health').

Due to its specific role and orientation, the BMAW does not see itself at the centre of the recommendations of the ‚Mission Action Groups'.

Misson Climate

Recommendation 3	Integration BMAW in discussions on recommendation 3 (adaptation to climate change in all sectors, award criteria, public procurement, etc.).

All Missions

BMAW funding approaches largely or fundamentally follow open-topic logics. BMAW is fundamentally open to thematic ‚compartment' solutions in the mission context. (subject to additional funds)

Federal Ministry of Agriculture, Forestry, Regions and Water Management (BML)

The BML supports the missions, which address some major societal challenges. The interaction of the respective departments in their own responsibilities ensures successful implementation. The themes of the missions partially coincide with political objectives for sustainable development. According to the definition of the BMG, the BML is not an RTI department and is therefore not equipped with RTI funds. However, the goals set in the mis-sions and the recommendations for Austria deliberately go beyond the topic of research and innovation. The BML is already providing extensive advance services, e.g. co-chairs the Mission MAGs and participates in the implementation of the respective recommendations according to the available possibilities and responsibilities. The BML intends to play an active role in shaping the following recommendations (for details see recommendations of the MAGs):

Misson Soil

Recommendation 1	Qualitative soil protection: The BML is involved in the activities of the advisory board and the technical development of GAP measures. Furthermore, the research-active departments of the BML will also continue related research activities. The federal states are required to give priority to implementing this recommendation.
Recommendation 2	Quantitative soil protection: The federal states and municipalities are primarily responsible. The BML is responsible for the activities in the ÖROK and the lead partner in the ÖROK implementation pact „Soil Strategy for Austria“. In addition, the BML will continue to support projects in the future, e.g. coordinate land use, monitoring of land use and the coordination and compilation of potential federal measures. The research-active departments of the BML will continue the current activities.

Recommendation 3	Networking of soil activities: The BML continues its activities with regard to the networking of actors and activities, e.g. by working in the advisory board for soil fertility and soil protection to network soil activities and actors. Furthermore, the BML has a coordinating function for the EU soil strategy and the mission (e.g. coordination of the Austrian position, representation in specialist committees in Brussels) and will also support the mission in this way. The research-active departments of the BML will also continue to organise corresponding events. AGES is suggested as a possible processing agency for this recommendation. The resources that would be required should be checked as part of the conception. Coordination by the BML would be possible.
Recommendation 4	Soil Monitoring: The BML is already financing and supporting numerous research projects on this recommendation and will continue to contribute to the implementation of this recommendation through projects, e.g. on soil monitoring and through the research-active departments. Technical cooperation on a concept for soil monitoring, including forest monitoring, is sought, but the BML has no direct responsibility for the topic of soil protection. With the appropriate human and financial resources, soil monitoring could therefore be carried out by the federal states with the participation of the BML offices. This recommendation is considered urgent, but the presentation of the Soil Directive is awaited. However, a basic concept could be developed before the Directive is submitted.
Recommendation 5	Soil Education: The BML is responsible for the agricultural schools and the college for agricultural and environmental education. There will continue to be a focus on the topic of soil-related education in agricultural and forestry training. Furthermore, the BML will continue to be involved in the technical support of soil formation projects within the scope of the LE. The BML has already funded ground-breaking projects such as soil practitioner training and the agricultural soil subject. Furthermore, the BML is already involved in projects to create soil awareness, e.g. on behalf of the BML (together with BMK), teaching materials on quantitative soil protection are already being developed.
Recommendation 6	National research initiative: The BML welcomes a national research initiative „A Soil Deal for Europe“ and the efforts to establish a national soil research program. In the past, the BML has been involved in national research projects as part of departmental research and activities within the framework of the forest fund.

Recommendation 7	Participation in Living Labs/Lighthouses: Participation of the research departments of the BML in living labs within the framework of existing and new Horizon Europe activities is supported. Due to the requirements for living labs, the chambers of agriculture and the federal states appear to be suitable contacts.
Recommendation 8	Soil Managers: The BML supports existing activities. This activity should be carried out primarily by the Chambers of Agriculture and the federal states.

Mission Waters

Recommendation 1	Education and awareness: The BML will continue its involvement in activities such as „Generation Blue“ and „Water Active“. The BML can continue to provide relevant specialist content and consultations and send information to working groups. The BML will also get involved via the research-active departments and continue relevant activities here. The educational institutions appear to be particularly challenged when it comes to implementation.
Recommendation 2	Knowledge Transfer: The BML already supports this recommendation with activities (e.g. coordination, preparation, planning and implementation at local/regional level as part of the IRIS project or implementation of identification courses). The BML can continue to provide relevant specialist content and consultations and send information to relevant working groups. In the field of knowledge transfer, corresponding institutions of the regional authorities appear to be particularly required.

Recommendation 3a	Provision of the necessary water resources, taking climate change into account: The BML participated in the implementation by preparing the national water management plan. The aspects of climate change and biodiversity are firmly anchored in it. The BML is also involved by planning and conducting the surveys in accordance with the Water Condition Monitoring Ordinance and associated special projects on substance inputs and water pollution control, implementation of the nitrate action program; „Water Treasure“ project, creation of the „Future Platform“, collaboration on moor and floodplain strategy, IRIS project, implementation of a preliminary study for wetland monitoring; The BML is also involved in the construction/renovation of the infrastructure for drinking water supply and waste water disposal, taking into account adaptation measures to climate change (UFG). The BML is involved in the promotion of measures to improve the ecological status of water bodies (UFG) and participates in research projects and studies on associated measurement and monitoring methods through the specialist departments.
Recommendation 3b	National research initiative ‚Cleaning up our water bodies‘: The BML is already active in projects related to the recommendation. Among other things, the BML participates in the participation and financing of corresponding projects (e.g. molecular genetic evaluation methods, participation in the implementation of the IAS directive of the EU, preparation of a report on the dissemination and bioindication of and by Odonata, cleaning performance of sewage treatment plants, antibiotic resistance in sewage treatment plants, various studies on the state of the art of pollutant avoidance/retention/cleaning from municipal and industrial point sources and studies on associated measurement and monitoring methods, etc.). The BML also supports the implementation of this recommendation by working in project support groups if these relate to the BML‘s area of responsibility. The research-active departments of the BML will provide support as far as possible.
Recommendation 3c	Setting up the required research data infrastructure: The BML is already involved in the management and further development of the data management of the biological quality elements for the Water Condition Monitoring Ordinance. The BML continues to support plans to implement wetland monitoring. Important contacts for implementation can be found in the specialist departments of the federal states.

Recommendation 3d	Support for the participation of Austrian institutions in the Danube River Basin Lighthouse: The BML can support this recommendation through its membership in border water commissions, support for the International Commission for the Protection of the Danube River and subject-related technical input.

Federal Ministry for Social Affairs, Health, Care and Consumer Protection (BMSGPK)

According to part 2 of the appendix to Section 2 of the Federal Ministry Act 1986 as amended, the BMSGPK is responsible in particular for health care matters. In the area of non-communicable diseases, this includes above all the prevention, treatment and aftercare of cancer. The Austrian position on this is summarized in the National Cancer Framework Program.

In this context, the BMSGPK, as the responsible department, is involved in the national implementation of the Cancer Mission in Austria. The BMSGPK is committed to the following planned measures, subject to a corresponding additional budget for the department for the national implementation of the Cancer Mission by the BMF.

Mission Cancer

Recommendation 1	Review and piloting of new screening programs according to revised recommendations of the Council of Europe (e.g. lung cancer), implementation research of existing programs (including legal review) to increase participation and ensure sustainability
Recommendation 2	Networking of the national Comprehensive Cancer Centres (CCCs) - in cooperation with the BMBWF: increased coordination of the existing national CCCs to promote cooperation in the area of care and research
Recommendation 3	Establishment of a national molecular clinical cancer research program including gradual establishment of a clinical cancer register (nationwide uniform documentation for selected oncological areas, compatibility with UNCAN.eu, EHDS, screening register, etc.) for specific tumour entities - in cooperation with the BMBWF
Recommendation 4	Survivorship Passport: Testing of the implementation in ELGA, development of the SUPA app, connection to ELGA, pilot project at the St. Anna Children's Hospital, nationwide roll-out

Recommendation 5	Make existing, relevant information on cancer available to the primary care community on the primary care platform (primaerversorgung.gv.at).

Austrian Institute of Technology (AIT)

The AIT Austrian Institute of Technology is Austria's largest non-university research institution and, among the European research institutions, is the specialist for the central infrastructure topics of the future.

Thanks to the consistent strategic focus on central research topics from the areas of infrastructure and future challenges, in particular digitalisation, decarbonisation, climate change, security and health, the institute is a fixture in research, technology development and innovation as well as an important partner for the economy in Austria and Europe. The focus of the research activities is, among other things, on innovations in the areas of climate, energy and mobility; the holistic view of low-emission transport technologies and sustainable energy systems, which also requires a stronger coupling of the various energy sectors.

A guiding principle of AIT is sustainability in all its aspects, from the generation and integra-tion of renewable energy and increasing energy efficiency to sustainable mobility systems and environmentally-friendly food production methods to more efficient production technologies and supply chains and climate-resilient urban planning. In accordance with its thematic priorities, AIT invests in its unique laboratory infrastructure, which includes, for example, a battery laboratory, a direct current laboratory, the City Intelligence Lab and Virtual Indus-try Lab as well as molecular biology laboratories.

Mission Cancer

Collectively	Expertise in molecular diagnostics with technologies for personalised diagnosis of cancer
Recommendation 1	Establishment of a national molecular research platform: Sup-port through core competencies in molecular diagnostics

Recommendation 3	Interoperability of data systems: Contribution of the AIT as the central coordination point of the GAIA-X Hub Austria to the creation of a framework in which organizations can agree on a uniform set of rules in which fundamental values such as the mentioned interoperability, data sovereignty and protection, confidentiality and security are guaranteed
Recommendations 4 and 5	Health services research: Development of health care systems and pseudonymisation strategies, especially in the field of paediatric oncology

Mission Climate

Recommendation 1	Effectively support the establishment of an Austrian Mission Hub: Access to and synergies with numerous European platforms and initiatives relevant to Mission Climate (EIT Climate KIC, Mission CSA Climate, JPI Urban Europe/Driving Urban Transition, Mission Innovation, Regulatory Sandboxes/IEA,...), resulting in diverse access to information for the Mission Hub
Recommendation 2	Research initiative „Climate Change Risk Assessment“: Expertise in integrated digital planning to solve urban challenges and for the development of sustainable, intelligent and resilient living spaces; Identification of concrete measures and paths to climate target achievement through holistic consideration of climate protection and adaptation measures; City Intelligence Lab as a unique laboratory infrastructure Data infrastructure for climate change risk assessment: Contribution of the AIT as the central coordination point of the GAIA-X Hub to the creation of a secure framework for the data infra-structure in which data can be processed and shared efficiently and economically, but will continue to retain control of one‘s own data

Recommendation 3	Anchor adaptation to climate change in all sectors: Expertise in the research fields of increased integration of renewable energies, decarbonisation of industrial processes and systems as well as technologies, planning and implementation concepts for resilient cities of the future, supported by state-of-the-art research infrastructures such as City Intelligence Lab and Virtual Industry Lab; R&D for the implementation of electromobility and for a reliable, CO2-neutral transport infrastructure; Exploring the potential of cognitive and cooperative production systems for energy supply and intelligent mobility; Experience in setting up institutions for innovation-oriented procurement and in the analysis, evaluation and positioning of the Austrian RTI landscape; Expertise in foresight, road mapping and stakeholder processes
Recommendation 5	"Climate Resilient Regions in Austria": AIT is part of the NEFI (New Energy for Industry) innovation network, which is demonstrating the path to complete decarbonisation of the manufacturing and energy-intensive industry by 2025; Experience in setting up regional living labs for pilot regions (frontrunner and follower) and in supporting initiatives for systemic transformation, e.g. through the combination of social/organisational and technological innovations

Mission Cities

Recommendation 1	Connection to existing initiatives; Mobilising other key players, e.g. trade and industry: Link to ongoing research projects and initiatives (e.g. for the development of sustainable building concepts); Development of innovations for the industrial & Commercial, Building and Mobility at the Centre for Energy; Research on the integration of sectors, markets and networks with a focus on energy and transport; Development of instruments to increase road safety; Access to and synergies with numerous European platforms and initiatives relevant to Mission Climate (EIT Climate KIC, CAPACITIES, JPI Urban Europe/Driving Urban Transition, Mission Innovation, Regulatory Sandboxes/IEA); Development of monitoring and learning concepts accompanying the program as well as supporting evaluation processes; Design and implementation of foresight and participation processes in cities

Recommendation 2	Comprehensive access to funding by the BMK, development of new instruments and formats: Design, monitoring and (accompanying) evaluation of funding measures as well as in the development and design of cooperation models between key actors
Recommendation 3	Development of cooperation with the federal states as part of the national mission: Design of institutional arrangements for improved cooperation between different actors (regional/local - national - European)
Recommendation 4	Use of transnational funding formats: AIT is the central partner of the mission platform „NetZeroCities“ and the project „TRAMI“ (Transnational cooperation on the missions approach); Participation in numerous Horizon Europe calls; Support in building European partnerships.
Recommendation 5	Communication offensive of the idea of the „climate-neutral city“ as part of the accompanying process for the national mission: Facilitating the co-creation of digital urban planning workflows and processes through the City Intelligence Lab with the opportunity to present to large audiences; Design of user experiences at the Centre for Technology Experience and development of a toolbox for the next generation of human centricity with new methods for co-creation and the involvement of end users; Accompanying system innovations through co-creation processes
Recommendation 6	Use of synergies with other mission working groups: Cross-sector consideration of the research topics mentioned thanks to interdisciplinary orientation; Support from an emerging group focused on interdisciplinary scenario planning and simulation skills at the Centre for Innovation Systems and Policy

Mission Soil

Recommendations 1, 3, 5, 6, 7	Comprehensive focus on qualitative soil protection: Soil improvement activities by microorganisms; Development of bi-opesticides; Development of microbiome solutions to improve crop production and food quality; Exploring molecular and metabolic markers for breeding stress-tolerant, climate-resilient plants; Better soil use through these adapted plants and the optimization of the cycle and the interaction of microorganisms, plants and soil

Recommendation 6	National research initiative „A Soil Deal for Europe“: Expertise and networks for the strategic, forward-looking orientation of a research initiative; Support in the design of funding programs and their embedding in sectoral policies in the multi-level system; Foresight and road mapping for the development of strategic research and innovation agendas; Impact assessment, monitoring and evaluation of transformative/mission-oriented programs and initiatives
Recommendation 7	Enable participation in Living Labs and Lighthouses of the EU mission: Experience in design and implementation of living labs (esp. Policy labs), Regulatory Experimentation and Scaling

Institute of Science and Technology Austria (ISTA)

The Institute of Science and Technology Austria (ISTA) is a multidisciplinary research institute with the right to award doctorates, dedicated to basic research in the fields of physics, mathematics, computer science and life sciences. The guiding principles for the establishment and structure of the institute were developed in a visionary concept that is based on the world‘s best research institutions and outstanding scientific systems and ideas.

Within the scope of its competencies and its sphere of influence, the institute generally supports mission-oriented research, e.g. by informing and supporting scientists in submitting applications and carrying out mission-related activities. Due to the research portfolio of the ISTA, contributions can be expected primarily in the mission areas of cancer, climate and water. The research work of the scientists is not subject to thematic restrictions or specifications from the institute management. Therefore, with regard to the recommendations currently presented and thematically very narrowly defined, no concrete contribution by scientists at ISTA can be bindingly promised at this point in time.

Missions Cancer, Climate, Waters

As explained above, ISTA cannot make binding commitments on individual recommendations.

Austrian Academy of Sciences (ÖAW)

The ÖAW is involved in the implementation in several ways, namely

- as a research institution
- as a research sponsor
- as a scholarly society
- as the voice of science
- as a mediator of knowledge
- as an active cooperation partner
- as a youth sponsor.

Mission Cancer

Recommendations	• Participation in setting up a research data (infrastructure) platform • Active participation in European research initiatives and projects, including labelling of mission-oriented and cross-mission activities • Participation in and support of national network activities

Mission Climate

Recommendations	• Active participation in European research initiatives and projects, including labelling of mission-oriented and cross-mission activities • Participation in and support of national network activities

Mission Cities

Recommendations	• Active participation in European research initiatives and projects, including labelling of mission-oriented and cross-mission activities • Participation in and support of national network activities

Mission Soil

Recommendations	• Establishment of a Mission Hub: Synergetic Crosslinking & Coordination platform for mission-oriented activities and stakeholders, support and training in submitting and implementing HE tenders; Development of future dialogues involving civil society, communication and networking activities, educational instruments and transfer measures. • Mission-oriented project calls within the framework of the Earth Systems Science Program, which is carried out by the ÖAW on behalf of the federal government and aims to research the earth system. This opens up funding opportunities for inter- and interdisciplinary, basic research projects that pursue the mission topics „soil protection and soil health". • Active participation in European research initiatives and projects, including labelling of mission-oriented and cross-mission activities.

Silicon Austria Labs (SAL)

Electronicsbased systems (EBS) are components, assemblies and devices with micro and nanoelectronics as well as embedded software. They are the technological backbone of digitalisation.

With the research areas Sensor Systems, Intelligent Wireless Systems, Power Electronics, Embedded Systems and Microsystems, SAL offers „Key Enabling Technologies" precisely for these electronics-based systems (EBS) and lays the basis for intelligent products and processes that lay the foundation for topics such as Create Industry 4.0, Internet of Things (IoT), autonomous driving, cyber-physical systems (CPS), AI, Smart City, Smart Energy or Smart Health.

Research is carried out both on the model and hardware level as well as on the associated embedded software level, combined with the holistic knowledge of comprehensive system integration.

SAL's activities extend across all industries and are not to be classified as sector-specific. With regard to the EU missions listed below, SAL can find a docking station and make important contributions to many, if not all, missions. This is made possible by the fact that EBS is a key technology that touches almost every aspect of modern life.

Mission Cancer

Recommendation 2	SAL sees itself as a partner in various RDI activities related to cancer surveillance. In the field of ultrasonic sensors for medical applications, SAL has already undertaken initial research efforts. SAL also sees further potential in photonic, spectroscopic and RF terahertz sensors for cancer monitoring. AI and Edge AI for sig-nal and medical data analysis also represent an area where SAL can make a valuable contribution.

Mission Climate

Recommendation 3	SAL can make a contribution in the following areas, among others: • surveillance technology, • modelling and data analysis, • sensor development and implementation, • optimisation/improvement in terms of manufacturing technologies with less material consumption, • power electronics for e-mobility applications, • remote sensing applications for environmental monitoring, • biodegradable and recyclable electronics, • ... Furthermore, achieving increased energy efficiency in EBS devices through miniaturization and optimisation of energy con-sumption is an important goal of our research activities.

Mission Cities

Recommendation 2	SAL acts as an EBS technology provider and enabler, with the main contributions being in the areas of sensor technology, communication technologies, data management and analysis, and IoT applications with embedded intelligence (Embedded AI).
Recommendation 4	SAL continues its strategy of pursuing funding opportunities at national and international level, with existing applications and projects in most of the programs mentioned demonstrating this.

Mission Soil

Recommendation 2	SAL makes a valuable contribution to the achievement of these recommendations through the development of enabling technologies with regard to: Sensors, data analysis tools, embedded systems and embedded AI solutions, communication systems, and remote monitoring and sensing applications.

Mission Waters

Recommendation 3	Water quality monitoring is already being implemented in the Aquasense project (H2020 GA ID: 813680). Therefore, SAL can also offer technical solutions for this mission, e.g. through vari-ous sensor concepts (including electrochemical and photonic sensors), spectroscopy and the associated (AI-supported) data analysis.

Ludwig Boltzmann Gesellschaft (LBG)

The LBG contributes the following prerequisites and principles for participation in the im-plementation:

- Existing Ludwig Boltzmann Institutes (LBIs) and competence centres have research-strategic and thematic references to the EU missions and new program priorities of the LBG such as the clinical research groups can also be included;

- The active LBIs and the LBG Open Innovation in Science Centre (LBG OIS Centre) are well prepared for the requirements of the implementation framework due to their translational orientation at the interface of basic research and application as well as their inter-sectoral cooperation with other partner institutions in the RTI system;

- With the LBG OIS Centre, a mission-themed competence centre is available for questions regarding the involvement of innovative knowledge providers, those

affected and the participation of citizens in all phases of research processes for adequately addressing major societal challenges;

- Like the LBIs, the LBG OIS Centre also combines basic research with the needs of users and thus there is a useful reservoir for translational coordination, research and development contributions.

Based on this, the LBG intends to actively help shape the implementation of the following recommendations of the Austrian Mission Action Groups on the Horizon Europe missions and to offer contributions to the Cancer, Climate and Cities missions.

General LBG's contribution

Status quo of the LBG Open Innovation Science Centre

The LBG Open Innovation Science Centre (LBG OIS Centre) is a competence centre for the participation of citizens along the entire research process in the sense of citizen engagement. This instrument can therefore make a subsidiary, relevant contribution to those research activities whose results and consequences require particularly broad acceptance and in-depth understanding by the population.

The LBG OIS Centre has developed a high level of competence in the areas of „Citizen Involvement" and „Citizen Science". The centre is currently being evaluated as part of the performance agreement for 2022 to 2023. The LBG OIS Centre will then network with the Mission Action Groups and the main organizations and institutions such as CCCA, UniNetz, Centre for Citizen Science, FWF and FFG and in coordination with the outlined support and networking services for all Austrian applicants make this methodical competence available within the framework of the EU missions and participate in the preparation of plans for the participation of citizens („citizen engagement").

Participation can, on the one hand, include support for projects in the topic specification area. The organisation and delivery of workshops (e.g. Ideas Lab) will enable the formation of interdisciplinary teams with researchers from different disciplines and civil society key players. The team at the LBG OIS Centre then supports applicants in developing and submitting their projects as part of a Project Development Lab. Experienced implementation managers from the LBG OIS Centre will support successful projects in the implementation of the respective citizen engagement measures if required. A specially established ethics committee on citizen engagement supports projects with questions about ethics and in particular with the ethics review.

On the other hand, based on its experience with the Action for Sustainable Future Hub, the LBG OIS Centre can help create discussion and experimentation spaces and network

the scientific community with administration, practice and citizens sup-port. Through the OIS Impact Labs instrument, together with partner organisations, open spaces for cooperation between science, administration and civil society can be offered, thereby supporting the objectives of EU missions and at the same time preventing the emergence of pseudo-science, fake news and ideologies.

Planned activity of the LBG OIS Centre within the framework of the EU missions

The LBG OIS Centre offers, as a competence centre for the participation of citizens along the entire research process (i.e. Citizen Engagement), to be involved in the implementation of the missions in Austria. The LBG OIS Centre can provide the strategies and tools mentioned at the beginning. The LBG places a special focus on the area of health and medicine.

Mission Cancer

Recommendation 1	The LBI for Haematology and Oncology (LBI HO) can contribute to the establishment of a national molecular research platform and the development of a central research data infrastructure as a contribution to UNCAN.eu within the framework of existing instruments with a well-developed biobank, which provides leukaemia and stem cell samples for the molecular research platform. The LBI-HO can be an implementation key player from the area of non-university research institutions and in the association of the LBI network and with other relevant active LBI (or their successor activities). The orientation of the LBG clinical research groups to be set up in the future as a result of the broad call cannot be prejudiced. Any clinical research groups dealing with the topic of cancer will in any case contribute to this recommendation.
Recommendation 2	Primary and secondary prevention require broad social acceptance in a special way, which can be promoted through the above-mentioned activities of the LBG OIS Centre.

Recommendation 4	With regards to non-university research institutions, the LBI HO, as an implementation key player in the development of a national molecular clinical cancer research program and a clinical cancer register, can support these in the haemato-oncological area. For this purpose, a translational research platform located in the LBI HO and its partner institutes could be established, which investigates promising molecular concepts that were generated in the national molecular research platform described in point 1, but are not investigated in the national molecular cancer and leukaemia research program be-cause they concern cancer types that are not the topic there, e.g. rare haematologic cancers, where the LBI HO has a lot of experience and strong expertise.

Austrian Promotional Bank (AWS)

Mission Cancer

Recommendations	Examination of the further development (incl. budgetary expansion) of AWS-relevant programs (e.g. LISA PreSeed / Seedfinancing Deep Tech, KHAN-I-Fonds, Best-of-Biotech, LISA umbrella brand) with the thematic focus „Cancer“.

Missions Climate, Cities, Soil, Waters

- Examination of the further development or strengthening of AWS-relevant programs (e.g. IOEB Toolbox, aws Preseed and Seedfinancing GreenTech, Green.IP, Green.Frontrunner)
- Examination of the establishment of an Agro-Tech or Prop-Tech focus (e.g. aws seed programs)
- Examination of the establishment of a funding scheme for „AI applications from start-ups and SMEs, also in cooperation with larger companies“ (topics, e.g.: climate neutral cities).
- Examination of the expansion of the application of the „Green/Climate focus“ within the framework of JugendInnovativ, the largest Austrian school competition
- Examination of the expansion of the program „Strengthening the transformation to an ecological, economical and socially just food system by establishing market-related funding instruments“

Christian Doppler Research Association (CDG)

The CDG's funding programs are open to any topic (bottom-up orientation). The research is based on the questions posed by companies, it is an application-oriented basic research and is carried out in cooperation with the companies with a direct impact on the economy and society. The openness to the subject has the advantage that the research units of the CDG work on problems that are at the cutting edge and are therefore already doing research in the area of the EU missions in many cases. In 2021, about 46% of funding went to CD Labor-atories and JR Centres that provide research contributions to the EU missions. The following table gives some examples of contributions from CD Laboratories and JR Centres to the rec-ommended implementation measures of the EU missions.

The CDG is willing to participate in thematic mission-oriented programs, but this would require additional funding.

Mission Cancer

Recommendation 4	CD Laboratories research new or improved diagnostic methods and therapies in the field of cancer.
Recommendation 6	Relevance for CDG may need to be checked (possibly to expand research work on existing CD Laboratories in the mission area)

Mission Climate

Recommendation 1	Participation in a „Mission Hub" depends on the concrete framework conditions
Recommendation 2	Research is carried out, for example, in CD laboratories on the use of earth observation and geoinformatics technologies for use in disaster situations and on the effects of ecological crises on hydroelectric power plants and flood protection as well as on the circular economy. JR Centres conduct research on assessing the sustainability of energy systems and optimising thermal energy systems.

Mission Waters

Recommendation 3	Recommendation 3: CD Laboratories research the effects of human activity in rivers and the development of sustainable, ecological measures

Austrian Science Fund (FWF)

The baseline study[23] proves that the FWF with approx. 145 million EUR in the years 2017-21 is currently the most important national funding body for mission-oriented research in Austria in terms of volume. The existing national potential for excellent scientific research in the field of missions is made possible to a large extent by the FWF. Against this background, the FWF is aware of its responsibility for the successful implementation of the missions in Austria and strives to further expand the opportunities for mission-related research within the framework of its funding formats.

In the area of basic research, mission relevance and excellence are synergistic, with funds for mission-relevant research being available competitively within the framework of existing FWF funding formats. At the same time, it is evident that due to the expected increase in demand for funding in the missions' subject areas, additional budget funds (e.g. within the framework of the „Fonds Zukunft Österreich") will be required to implement the recommendations of the Mission Action Groups.

Due to the possibility of flexible support for mission-related research while at the same time ensuring the highest quality and lean administrative processing, the FWF plans to give priority to existing funding formats in the design of the national implementation framework for the EU missions. In principle, these can be flexibly adapted in order, for example, to set mission-relevant funding priorities in cooperation with partner funding agencies. In this context, the FWF suggests continuing to identify mission-relevant research analogous to the baseline study (labelling of new and ongoing projects) in order to continuously document the use of funds in this area.

With regard to the effectiveness of national investments in mission-oriented research, connectivity and integration within European initiatives are of central importance. In this context, the public-public partnerships of the European Commission (ERA-Nets and European partnerships) should be emphasized and their relevance with regard to mission-oriented research. In 2017-21, the FWF spent almost 22 million EUR to support Austrian participation in European networks and will continue to do so in the coming years, with participation in European partnerships being planned in close coordination with the BMBWF.

Major societal challenges are all of global importance, which is why initiatives that go beyond the European framework are becoming increasingly relevant. As a member of

23 Michael Ploder, Enikö Linshalm, Marija Breitfuss-Loidl, Christian Hartmann, Andrea Kasztler, Barbara Heller-Schuh, Katja Lamprecht (2022): Baseline study on EU missions in Austria; available online: https://era.gv.at/horizon-europe/missions/baseline-study-on-missions-in-austria/

the Belmont Forum[24], a worldwide partnership of national funding organizations to fund collaborative interdisciplinary research in the field of global environmental change, the FWF enables Austrian scientists to participate in global research initiatives.

The anchoring of the mission topics and implementation perspectives in the social context is particularly relevant in the context of the missions and is indispensable for social implementation. The FWF funding format #ConnectingMinds[25] is particularly suitable for this, which supports the linking of scientific and social knowledge, as well as promoting dialogue between social stakeholders and knowledge transfer into society, combined with corresponding capacity building in Austrian scientific community. In addition, the Top Citizen Science (TCS)[26] program of the FWF offers a further opportunity to provide relevant information and dialogue partners from the point of view of the practice partners, in addition to the purely scientific funding formats of the FWF. Other FWF programs with potential relevance to the implementation concept of the missions are the 1000 ideas program for new high-risk research approaches with high scientific and transformative potential and the „Emerging Fields“ program currently being developed as part of the Excellence Initiative to establish new research directions in Austria .

Depending on the content and requirements of the missions, selected funding formats can be used to form mission-relevant thematic priorities.

Mission Cancer

Recommendation 1	With regard to possible research activities within the framework of a national molecular research platform, the FWF (currently the main national sponsor for competitive cancer research in Austria) proposes using proven existing funding formats (KLIF program for clinical research, individual projects, special research areas/SFB, etc.). A combination of existing funding formats from the agencies working in this area may also appear expedient to ensure efficient processing.

24 https://www.belmontforum.org/
25 https://www.fwf.ac.at/de/forschungsfoerderung/fwf-programme/connectingminds
26 https://www.fwf.ac.at/de/forschungsfoerderung/fwf-programme/foerderinitiative-top-citizen-science

Recommendation 4	The FWF is currently the main national sponsor for competitive cancer research in Austria. With regard to clinical research, the FWF has developed a specific funding format with the KLIF program. When developing a national clinical cancer research program, the FWF advocates a combination of existing funding formats from the agencies active in this area in order to ensure the most efficient possible processing and is willing to contribute its expertise in this area.
Recommendation 5	Care in the field of paediatric oncology requires a concrete inclusion of tried-and-tested procedures and the involvement of patient organizations in new scientific questions. In this context, the FWF proposes the program #ConnectingMinds and ensuring appropriate financial resources.
Recommendation 6	Depending on the funds approved by the Austrian Future Fund, the FWF plans to finance the participation of Austrian researchers in mission-related public-public partnerships (translational cancer research: ERA-Net Transcan, Rare Cancer within the framework of the European Joint Program on Rare Diseases, as well as corresponding follow-up initiatives within the framework of the European Partnerships in close coordination with the BMBWF).

Mission Climate

Recommendation 2	A research initiative „Climate Change Risk Assessment“ should in any case provide relevant basic knowledge, whereby an accelerated and effective utilization of research results for the application requires the integration of user groups in the relevant research steps, starting with the definition of research questions, and implementation perspectives form an integral part. For this aspect, the FWF suggests specifically using the program #ConnectingMinds in addition to other suitable existing program formats. Depending on the question, the other FWF funding programs are of course also available, and depending on the depth of integra-tion of the practice partners, the format Top Citizen Science (TCS) can be consulted. Other FWF funding formats such as the 1000 Ideas Program for new high-risk research approaches with high scientific and transformative potential also appear in this context relevant.

Recommendation 3	A broad sectoral anchoring of adaptation measures with regard to climate change requires evidence-based access and the involvement of the relevant social stakeholders. The funding format #ConnectingMinds of the FWF is geared towards the inclusion of social knowledge and the transfer of knowledge into society and appears particularly relevant in this context for specific goal achievement. In order to continue to promote the integration of Austrian climate research in the European and international context, the FWF plans – depending on the funds approved for this by the Fonds Zukunft Österreich – to finance the participation of Austrian researchers in mission-relevant public-public partnerships (European partnership Biodiversa+) as well as within the framework of the relevant Collaborative Research Actions of the Belmont Forum s (follow-up initiatives to CRA Biodiversity, CRA Climate Environment & Health, CRA Pathways to Sustainability).
Recommendation 4	The research initiative „Nature-based Solutions“ relies on a combination of basic knowledge and the development of concrete implementation perspectives. High-quality basic research on this topic can be financed within the framework of the traditional funding instruments of the FWF. The funding formats #ConnectingMinds or Top Citizen Science (TCS) offer the appropriate framework for integrating research activities and social implementation relevance as well as solution transfer to society.

Mission Cities

Recommendation 2	In an extension of this recommendation, the FWF proposes expanding access to funding, which on the one hand enables basic research (within existing FWF instruments) and on the other hand, it specifically supports the area of co-creation of knowledge and knowledge transfer to society (FWF funding formats #ConnectingMinds, Top Citizen Science, 1000 Ideas Pro-gram).
Recommendation 4	To support the international integration of national research activities, the FWF plans to participate in the relevant Collaborative Research Actions of the Belmont Forums (successor initiatives to CRA Sustainable Urbanisation Global Initiative, CRA Urban Blue & Green), provided the appropriate financial framework conditions are in place.

Mission Soil

Recommendation 6	The planned national research initiative „A Soil Deal for Europe“ relies on a wide range of instruments. From the point of view of the FWF, traditional funding formats (individual projects, international programs, ESPRIT, ...) are the best options, whereby to strengthen this area corresponding additional financial resources are required. In order to continue to promote the integration of Austrian soil research in the European and international context, the FWF is planning – depending on the funds approved by the Fonds Zukunft Österreich – to finance the participation of Austrian researchers in mission-relevant public-public partnerships (European Partnership Accelerating Farming Systems Transition / Agroecology Labs) and within the framework of the relevant Collaborative Research Actions of Belmont Forums (follow-up initiatives to CRA Sustainability of Soils and Groundwater for Society).

Mission Waters

Recommendation 2	A sustainable strengthening of knowledge transfer in the context of water protection requires research-led approaches to a large extent. The FWF funding format #ConnectingMinds is explicitly geared towards this and supports the generation of practice-relevant knowledge together with social actors with the integrative inclusion of transfer activities.

Recommendation 3	A national research initiative „remediation of our water bodies“ requires a broad mix of suitable funding instruments for basic and applied research. The FWF proposes to include its differentiated portfolio in the basic area. In addition to classic knowledge-driven scientific research, the importance of funding formats should be pointed out in this context, which enable concrete research goals to be identified, including relevant social stakeholders, and which integrate knowledge transfer into research activity (#ConnectingMinds and Top Citizen Science). In order to further promote the integration of Austrian research in the European and international context, the FWF plans – depending on the funds approved for this by the Fonds Zukunft Österreich – to finance the participation of Austrian researchers in mission-relevant public-public partnerships (European partnerships Water4All, Biodiversa+) and within the framework of the relevant Collaborative Research Actions of the Belmont Forum (follow-up initiatives to CRA Sustainability of Soils and Groundwater for Society, CRA Pathways to Sustainability).

OeAD-GmbH – Austria's Agency for Education and Internationalisation

With its programs, the OeAD is aimed at people and institutions from education, science, research and culture. It is the interface to educational offers for all phases of life - from kindergarten and school to university and science to vocational training and adult education. It thus makes a significant contribution to knowledge transfer and awareness-raising for socially relevant topics.

Through funding programs such as Sparkling Science 2.0, children's and youth universities, as well as Young Science and Citizen Science initiatives, the OeAD enables important intermediaries (schools, universities, technical colleges, teacher training colleges, non-university research institutions such as museums, etc.) to raise awareness about the integration of the major global challenges. With the various funding lines and initiatives, it supports educational institutions so that children and young people do their own research, become artistically active and learn to use new digital tools. In this way, the OeAD also contributes to reducing scientific scepticism. Against the background of Eurobarometer surveys, which attest to the pronounced scepticism of the Austrian population towards science and technology, this is central to the strengthening of research, technology and innovation and thus to the implementation of the EU missions of Horizon Europe.

The OeAD is particularly committed to overcoming climate change and to sustainable development. This goal is in line with the „Climate" mission and, more broadly, with the „Water", „Soil" and „Cities" missions, since education, research and the involvement of the population are central to achieving the Sustainable Development Goals (SDGs) and for promoting a sustainable and responsible way of life.

The OeAD can contribute to the recommendations below through various measures. In particular, the Young Science initiatives reach a broader public from the younger age segment and support raising awareness. However, these initiatives are basically all open-topic, which is why it is not possible to focus solely on individual topics of the five EU missions of Horizon Europe. On the other hand, thematic steering is conceivable within the framework of the „Sparkling Science 2.0" funding program, whichis its special guideline gives the Federal Minister of Education, Science and Research the possibility of setting a thematic focus. Furthermore, the „Children's

and Youth Universities“ funding program focuses on sustainable development and is therefore close to the topics of the EU missions.

Mission Climate

Recommendation 1	Raising awareness of environmentally relevant topics and climate protection in the general public by actively involving a large number of stakeholders and actors with different back-grounds as well as the population through Citizen Science activities (e.g. Sparkling Science projects).
Recommendation 2	Education to act responsibly from a young age through knowledge transfer and science communication in schools as part of Sparkling Science projects, visits by researchers in school classes (Young Science Ambassadors) as well as at extracurricular learning locations, such as children‘s and youth universities.
Recommendation 3	Increased addressing of population segments that have not or hardly been reached through science communication (people from disadvantaged socio-economic backgrounds, educationally disadvantaged families, people with a migration background, in peripheral regions, etc.) through Sparkling Science projects and children‘s and youth universities.
Recommendation 4	Increased Propagation of Citizen Science in climate change research, since the participatory research approach not only enables civil society engagement and lifelong learning, but also offers potential for monitoring to achieve the SDGs.
Recommendation 5	Raising awareness of the potential of cooperation between science and schools and transfer of citizen science know-how in teacher training and further education. The early sensitisation of teachers for participatory research is central, as they play a key role between researchers and students.

Mission Soil

Recommendation 1	Promotion of cooperation between researchers and regional and local stakeholders, e.g. farmers in the context of citizen science projects, in order to use local knowledge and real-life expertise for the progress of science and research and to enable responsible and climate-friendly behaviour by gaining a holistic understanding of land use, environmental protection and re-source management.
Recommendation 2	Support for bottom-up initiatives of affected users and stake-holders with research institutions (e.g. soil monitoring projects) through appropriate funding opportunities, e.g. Sparkling Science 2.0.
Recommendation 3	Communication of science in public space through low-threshold formats, which enable non-binding and spontaneous participation, e.g. through outreach offers from children's and youth universities.

Mission Waters

Recommendation 1	Involvement of the population in monitoring projects to re-search water quality and (micro)plastic pollution (e.g. citizen science project „Plastic Pirates") and at the same time raise awareness about water protection and biodiversity.
Recommendation 2	Science transfer through different and innovative formats, such as hands-on activities and research-based learning in schools as well as involving the families of the students involved and targeting group-specific hands-on activities in extracurricular institutions and adult education facilities.
Recommendation 3	Promotion of interdisciplinary research projects by involving different disciplines (natural and social sciences) and actors (researchers, stakeholders, business, population) on topics such as water protection, climate change-related risks, renewable energies and resource management (e.g. Sparkling Science 2.0)

Austrian Research Promotion Agency (FFG)

The FFG has a differentiated range of advanced services and monetary funding instruments. These instruments are used, for example, to support classic R&D and entry-level

projects, the development and expansion of structures and infrastructures, as well as young researchers and the qualification of R&D employees.

So far, the funding handled by the FFG – both bottom-up and thematically focused – has addressed the missions to a large extent.

The FFG can therefore actively participate in the implementation of the recommendations for action for the 5 EU missions in many ways, in particular through

- the broad existing portfolio of instruments, of which many instruments, including those with a bottom-up orientation, are very well suited or, with appropriate adjustments, excellently suited to the implementation of essential recommendations (see feedback along the recommendations and first FFG feedback on the implementation framework).
- the possibility of bundling different instruments in programs and calls for proposals
- the existing competence in the design and implementation of complex funding programs that address different target groups (science, business, stakeholders, etc.) and clear objectives
- the possibility of thematic focus or expansion of existing funding instruments and calls, especially with regard to the Cities Mission (in coordination with the program owner)
- the interaction between national and European programs that are bundled in the FFG

The FFG reiterates its commitment to actively participate in the implementation process, but also points out once again that the expansion of existing and the implementation of new funding formats must also correspond to a corresponding need for resources and must be coordinated with the program owners. There is a great deal of openness to cooperation with partner agencies in the design and implementation of measures.

Mission Cancer

Recommendation 1	• Funding of innovative corporate projects (basic program & Austrian Life Sciences program) with a focus on establishing targeted therapies against cancer and relevant raw molecular data that can be made available to the research platform. • Funding of collaborative R&D projects in BRIDGE to transfer scientific knowledge to an initial application. • R&D infrastructure research: construction of infrastructure, • Promotion of innovation networks, these could be extended to universities;
Recommendation 2	Promotion of Impact Innovation projects that deal with the transfer of research results (e.g. efficacy studies) or guidelines into the therapeutic and care processes within healthcare organisations. The participation of the population in the screening programs can thus be increased by means of innovative solutions.
Recommendation 3	• Professional qualification: possible actions: Qualifica-tion networks (innovation camps or boot camps -> short-term, practical) or an innovation laboratory or educational laboratory (long-term) for vocational training; with active involvement of industry partners (development of innovation expertise on cancer); Consideration of the training of doctors in the digital area, networks with different curricula, e.g. on the digital area, on data security or on legal aspects • Innovation Laboratory for Education: e.g. structural development and knowledge transfer in the direction of new training materials or new methodical approaches to career orientation/training in connection with cancer. Concrete needs and thematic focus need to be clarified.
Recommendation 4	Contribution through tender for the promotion of clinical studies in the field of oncology as part of the Life Sciences Austria program.
Recommendation 5	Funding of Impact Innovation projects that contribute to healthcare research and thus to an increase in the quality of life.

Recommendation 6	• e.g: Use of Eurostars: Promotion of innovative research institutions for the development of new innovative products or processes or services that are already close to the market and can be commercialized quickly, for example before clinical studies are carried out.

Mission Climate

Recommendation 1	• Information about central activities of the Mission Hub and assumption of a multiplier function, provision of information on relevant FFG and Horizon Europe projects. Support in the Mission NCP function of the FFG. In the ACRP, a lot of relevant information/results are collected/created that can provide a basis for the transfer of information. The „Climate Day“ organised by CCCA can also play a role here. The instrument of innovation networks can support the establishment of the hub in order to network the relevant actors accordingly. • Examination of the possibilities of integrating citizen engagement into mission-oriented programs of the FFG - a separate cross-mission program could be developed with the appropriate resources.
Recommendation 2	• Central research funding in the area of qualitative and quantitative methods and metrics is necessary - e.g. within the framework of the ACRP and, if necessary, in coordination with the FWF. models and data obtained from ACRP projects should be made available in a targeted manner . In 2022, the ACRP will be handled by the FFG for the first time. Monitoring of the funded projects in this area can be offered by the FFG in the future. For the evaluation of projects that have already been completed and are ongoing, coordination with the KLIEN and the FWF is required in order to obtain a comprehensive picture. Additionally necessary budget can be determined on the basis of a corresponding monitoring. • Data infrastructure for climate change risk assessment could be considered under the R&D infrastructure program.
Recommendation 3	Sustainability is already reflected in several places in FFG Assessment Criteria (as a separate sub-item 1.5, e.g.: in cooperative R&D projects as well as in use and exploitation). „Climate resilience“ is not yet queried here, but an integration can be considered.

Recommendation 4	• The FFG is available for handling relevant funding programs. At the city level, „Construction technologies to prevent summer overheating“ and „Greening projects“ in the „City of the Future“, „Smart Cities Demo“ and „Lighthouses for resilient cities“ programs can be used as nature based solution (NbS) topics can be viewed. In the ACRP, this topic is addressed indirectly. • Databases for NbS can be created. A deepening of this topic (e.g. via a ring-fenced budget) in future tenders can be discussed with the KLIEN.
Recommendation 5	• The implementation of corresponding funding programs for the implementation of EU missions is the core business of the FFG. Adaptation to climate change is also a main content aspect of the ACRP program. • The Impact Innovation program promotes the solution of social challenges, it is thus a funding instrument for the development of social solutions, also in the climate and energy sectors.

Mission Cities

Recommendation 1	• Handling of tenders on specific issues exclusively for pioneer cities, e.g. creation of a kind of „fast lane“ for pioneer cities (ad a) • Include system innovations by describing system maturity levels in the instrument guidelines or optionally in relevant tender guidelines. Note: public cooperation has already been established as a new instrument for cities in the FFG. (ad b) • Development of funding opportunities for the transferability of solution modules (e.g. development of a new special guideline by the FFG based on the urban development fund in Germany) (ad c) • Support for the scaling and roll-out of RTI solutions or the mobilization and integration of other players through innovation networks or ideas labs, or in the area of further training through qualification networks (ad c and ad d) • Promotion of capacity building in trade and industry, for example through a doctoral college/dissertations (build up of HR capacities), through an endowed professorship (build up of HR capacities plus research infrastructure) or an education laboratory/ innovation laboratory for education (structural development and knowledge transfer) (ad e) • Instruments such as the innovation networks can be used to strengthen networking and for knowledge transfer. (ad f)

Recommendation 2	• Support for the pioneer cities through exclusive funding offers within the framework of existing tenders. (ad a) • As part of the priority coordination, the FFG could set up pioneer/ city support to bundle the instruments (ad b) • Development of new financing/funding instruments that are aimed very specifically at the target group of cities, public administration, urban infrastructure and citizens (ad c) Examples of possible new measures: • Development of a new instrument for the implementation of climate-neutral pilot quarters in cities • Strengthening of cooperation with KPC, AWS, state funding, etc. • Development of a doctoral college (cooperation of UNIs with cities/ municipal authorities, public utilities, etc.) • Handling urban infrastructure funding (energy infrastructure similar to EBIN/ENIN) • Offer and further development of instruments to promote learning environment, knowledge transfer and networking (e.g.: innovation laboratories or innovation workshops).
Recommendation 3	• Handling of a call for tenders for „R&D services“ on the legal framework and spatial planning in order to analyse possibilities and measures (ad a) • include current topics in RTI calls for proposals(ad b) • Use of the ÖÖK (public cooperation) instrument of the FFG (ad d). • FFG instruments, such as innovation networks could serve as a model here, but need to be expanded and adapted. (ad e)
Recommendation 4	FFG handles a large number of tenders within the framework of Horizon Europe and is active in the coordination of city-relevant partnerships (DUT) (ad a) and advises cities and relevant stakeholders on participation in tenders
Recommendation 5	Offer of accompanying measures for „dissemination and learning from one another“ or development of a specific instrument (ad b).

Mission Soil

Recommendation 3	The FFG instrument „Innovation Networks“(adapted to the specific requirements) can make a substantial contribution to the networking of soil activities and the exchange of information between interested stakeholders.

Recommendation 5	This recommendation affects all areas of society, ranging from education in kindergartens/schools to the training of soil practitioners. A set of FFG instruments can be considered for implementation: „educational laboratories“ as long-term measures, „regional talent“ (research/school network), internships and „qualification networks“.
Recommendation 6	In the case of corresponding funding programs (national research initiative „A Soil Deal for Europe“, soil research program, co-financing of participation in instruments from HE), the FFG is available with a suitable portfolio of instruments for processing (in addition, all open-topic programs are used and are marked with the label „soil“ in the assessment).
Recommendation 7	• The FFG already serves as the national contact point and thus as the first point of contact for submissions to Euro-pean programmes. Additional formats/measures for implementing the recommended action can be offered with the appropriate resources, e.g. measures for preparing the LLs in AT; increased focus of advisory work on actors who are not yet familiar with HE submissions; collaboration with networks. • The FFG instruments „Innovation Networks“ and „Ideas Lab“ can be used to establish a consortium and to generate ideas. • The instrument „Innovation Laboratory-Innovation Workshop“ is ideal for promoting LL initiatives.
Horizontal recommendations	The areas of research, education and networking could be combined in a national soil programme/soil priority initiative. In the case of a corresponding program, the FFG is available for processing and bundles or adapts those instruments that are required to achieve the program‘s objectives.

Misson Waters

Recommendation 1	FFG instruments such as talents - regional, innovation laboratory for education, innovation workshops, network research school are excellently suited to supporting educational and awareness-raising measures.
Recommendation 2	„Innovation networks“ with corresponding accompanying measures can serve the interdisciplinary transfer of knowledge.

Recommendation 3	• The FFG is available with a suitable portfolio of instruments for handling a corresponding funding program (national research initiative „Remediation of our waters“) and the establishment of a research platform. • The development of a necessary research data infrastructure can be supported by the instrument „R&D infrastructure“. • Support for the participation of Austrian institutions in the Danube River Basin Lighthouse.

GeoSphere Austria (GSA)

With its founding, the GSA is pursuing a highly innovative approach that is almost unique in Europe: the establishment of an integrated geological, meteorological, climatological and geophysical national service based on the competencies of the research institutes ZAMG and GBA, which have been operating separately for more than 150 years. In this way, the research of the different spheres of the earth and their interaction as well as the provision of user-oriented services should be advanced to a decisive extent by bundling synergetic competencies.
It is the main competence of the GSA, data and analysis about

- the weather conditions including weather warnings
- the climate and its changes,
- the geological subsoil as the basis for targeted 4D spatial planning,
- the availability of groundwater resources,
- the occurrence and dynamics of natural hazards such as landslides, heavy rain events, droughts, earthquakes, solar wind and how they are influenced by climate change (land-slides, heavy precipitation events, droughts),
- Potential for alternative forms of energy (solar and wind energy, geothermal energy) as well
- nationally available raw materials to support the environmentally friendly production of products relevant to climate change (building materials, raw materials for innovative materials, alternative forms of energy and energy-saving products),

using the most modern methods and in the highest quality to collect, interpret and make available for social use in accordance with the open data strategy of the federal government and the corresponding EU guidelines.

This includes SKKM (Governmental Disaster and Crisis Management) alerts and user-centric services.

Due to the coverage of the GSA basic tasks with many goals of the EU missions, the GSA is clearly committed to their implementation and is ready to make appropriate contributions. Part of these contributions can be covered under the performance agreement, but additional funding is likely to be required for specific, application-oriented projects at regional and local level.
However, it must also be clearly noted that the GSA considers it essential for the success of the EU missions that appropriate funds are made available at stakeholder level (state, municipalities, associations...) in order to implement the research results and initiate sustainable development processes. Only then can the desired change be achieved.

Mission Climate

Recommendation 1	Participation in Mission Hubs: The GSA can participate in Austrian mission hubs as part of your service agreements and tasks. The aim of a Mission Hub is to coordinate and network the cooperation between the relevant actors in Austria on the topic of the mission, to build on existing structures and initiatives and to bundle activities. GSA participation can cover a variety of issues, from forming consortia and citizen engagement activities to providing information to regions, communities and other stakeholders
Recommendation 2	Climate scenarios and climate risk analyses: The GSA creates Austrian climate scenarios up to 2100, coordinated with neighbouring countries and the Austrian research community. Data, information and analysis can be provided on important topics such as risk and resilience. Even standardised event and damage data can be collected and updated.
Recommendation 3	Strengthening socio-ecological resilience: The GSA carries out initiatives and projects that strengthen the cooperation between research institutions and regional development initiatives, as well as regional stakeholders and business people. In these projects, a very user-oriented approach is planned, in which the results of the R&D, paired with high-resolution, reliable data sets for the development of sustainable planning concepts with a very regional reference, are blended in an innovative way and can be implemented directly by the stakeholders.

Recommendation 4	Planning for resilient cities, communities and regions: GSA can provide planning documentation to reduce the regional impacts of climate change. This is primarily about avoiding over-heating, climate-friendly regional planning, land use, reducing the effects of natural hazards through reduced exposure, using alternative forms of energy and energy storage in urban areas and historic cities, as well as technical measures
Recommendation 5	Regional energy and raw material potential: As part of the decarbonisation of energy systems, GSA can provide numerous planning documents, from solar and wind energy potential to geothermal energy and energy storage. The availability of relevant raw materials for the energy transition as well as raw materials for construction can be quantified and assessed.
Formation of Consortia	As part of its scientific work, the GSA can actively participate in consortia within the framework of the EU's mission calls and set corresponding thematic priorities

Mission Cities

Recommendation 1	Further development of the national mission "Climate Neutral City"; see Recommendation 4/Climate
Recommendation 3	Establishment of cooperation with the federal states: The GSA can use its well-established cooperation with the federal states to support applied projects (pioneer cities,...) at the community level in consultation with them by bringing in their broad expertise in the development of concepts and accompanying their implementation.

Mission Waters

Recommendation 1	In the groundwater projects of the GSA (see recommendation 3), the following two aspects should be an integral part. If ground-water projects are financed with third-party funds (for the Ministry of Agriculture, federal states, water associations, etc.), there is often insufficient funding. It is therefore recommended to provide additional funding for project work in the field of education and awareness-raising. This concerns the following two aspects: Public relations in educational institutions (schools, universities, clubs, etc.) Training offer for teachers, professionals and students

Recommendation 2	In the groundwater projects of the GSA (see recommendation 3), it is necessary to communicate intensively with the water management (administration, politics, stakeholders) in order to: to successfully organise the knowledge transfer of the results after completion of the projects. Since the groundwater projects of the GSA are currently mostly financed with third-party funds, additional funding is also necessary here.
Recommendation 3	In Austria, drinking water is entirely groundwater (or spring water). Groundwater is also important for irrigation. The following contributions can be made by the GSA Studies on groundwater resources at risk from climate change and Studies on groundwater resources that are important for resilient use (e.g. well-protected groundwater resources with a long residence time, deep groundwater). On the one hand, (1) for selected groundwater bodies - based on in-depth investigations of the water cycle in the subsoil (analysis of hydrogeology, development of a hydrogeological model, possibly also a numerical model) and development scenarios of the climate - the risk of climate change should be worked out in more detail. On the other hand, (2) - also based on the development of a hydrogeological model, possibly also a numerical model - the groundwater potential of deeper groundwater deposits should be evaluated in order to be able to use them for a resilient supply if necessary. In order to meet the demand with the groundwater projects, intensive communication with the water management is necessary (see recommendation 2).

Mission Soil

Recommendations	Soil activities are not part of GSA's core activities. However, the GSA can contribute its competence from its core area as a part-ner to a wide range of projects. This applies above all to the aspects of weather, climate, geophysical area characterization (remote sensing, drones, helicopters: gamma radiation, soil moisture, vegetation, electrical resistance), as well as monitoring of infiltration processes with e.g. geoelectrics.

Annex 2 – Recommendations of the Mission Action Groups

Note:
These texts are working documents that were created by experts without binding effect on their respective institutions.
This annex does not contain any budgetary information.

MISSION CANCER – Recommendations of the Mission Cancer Action Group for the „Austrian implementation plan of the EU missions“

Context of the EU mission in Austria

The Mission Cancer of the framework program for research and innovation „Horizon Europe“ (2021-2027) has the goal of „more than 3 million lives saved living longer and better“. In doing so, it faces one of the major health challenges for Europe. Due to a combination of many factors, the disease burden of cancer in Europe is increasing so rapidly that without countermeasures it could soon become the No. 1 cause of death. In addition, there are major inequalities in early detection, research, treatment and the quality of life of those affected. In addition to the mission in Horizon Europe, the EU has therefore launched the policy and implementation-oriented Europe‘s Beating Cancer Plan (EBCP).

There are many synergies between Mission Cancer and the EBCP through shared goals and partial funding. Mission Cancer supports the goals of the EBCP with 3 pillars: (1) Prevent what is preventable, (2) Optimize diagnostics and treatment, and (3) Support quality of life.

The Austrian implementation plan for Mission Cancer also follows these 3 pillars at national level and at the same time goes hand in hand with existing national strategies and programs for better management of cancer:

The Austrian national cancer strategy is institutionally anchored in the BMSGPK and is based on the work of the Oncology Advisory Board, an interdisciplinary committee consisting of 27 members who advise the Minister of Health on all matters of cancer prevention and the care of those affected. In its recommendations, the Oncology Advisory Board follows the principles of „health in all policies“ and makes recommendations for early cancer detection, cancer treatment and the strategic further development of evidence-based medicine in the field of cancer. One focus is the (re)formulation and promotion of the implementation of the Austrian Cancer Framework Program (KRP) - a strategic paper with the character of recommendations that objectively defines evidence-based goals, independent of the interests of national stakeholders. In the field of cancer screening, the National Screening Committee for Cancer (NSK) provides evidence-based recommendations for the introduction, modification and quality assurance of organized national screening programs.

The formulated recommendations for achieving the Mission Cancer Goals confirm the following 6 strategic goals of the KRP:

1. Reduced incidence through prevention and health promotion
2. Reduced mortality and longer survival through early detection, diagnostics and quality treatment

3. Improving or maintaining a high quality of life for people suffering from cancer, their relatives and caregivers
4. Equal access to all care structures and to innovation
5. High-quality data and information for decision-making by healthy people, patients, service providers and policy-makers
6. Promotion of cancer research in all areas

Austrian implementation plan for Mission Cancer

The Mission Action Group Cancer met several times from autumn 2021 to spring 2022 and discussed necessary initiatives to implement Mission Cancer. This group represents the Austrian cancer community with representatives from science, business, patient care, nursing, public health, healthcare providers, patient organizations and health economists.

The following 6 central fields of action result from the 3 pillars:

1. Understanding Cancer Better:
A better understanding of how cancer develops is the central basis for being able to better avoid cancer and to be able to diagnose and treat cancer more efficiently. For this purpose, a national molecular research platform of the central cancer research institutions is to be set up, the aim of which is to generate human samples and molecular raw data according to coordinated processes and analysis protocols and to feed them into a common research data infrastructure as a contribution to UNCAN.eu. A focused approach with specialisation on certain tumour entities should be pursued. The decision to specialise in certain tumour entities should be driven by the „medical need" and the existing expertise.

2. Prevention - testing and piloting new screening programs: Health Technology Assess-ment (Lung-CA) and Piloting of Intestinal and Lung-CA Screening. Implementation research of existing programs to increase population participation in the screening programs.

3. Networking of the national Comprehensive Cancer Centres (CCCs) - in cooperation with the BMBWF:
Increased coordination of the existing national CCCs to promote cooperation in the areas of care, research and communication.

4. Optimal diagnostics and therapy / improved quality of life - implementation of a clinical cancer registry as part of a clinical cancer registry study including research program:
Development of a nationally standardized documentation of clinical data (including Patient Reported Outcomes (PROs) and Patient Reported Experiences (PREs) for

selected oncological areas for the primary and secondary use of data. Selection of the specific tumour entities and the relevant data sets, taking into account issues in the field of oncological clinical research and health services research.

5. Improving Quality of Life - Implementation of a Survivorship Passport
Piloting of the survivorship passport and health services research in the field of paediatric oncology. Study, sustainability concept and further technical development to expand to all oncological areas.

6. Co-funding pot to be able to take advantage of financial support within the framework of EU research and implementation programs (EU4Health, Digital Europe) related to cancer until 2030.

Challenges
The challenge of the national implementation of the Cancer Mission is to dovetail the interface between health care and research more closely and to focus research more on medical needs. In the field of health research, the topics and innovations are traditionally strongly driven by research, which means that potential implementation in the health system initially receives less attention and is only considered relatively late in the innovation chain. In Austria, this situation is reinforced in particular by the bottom-up research funding landscape, which is strongly driven by ideas.

The central idea of the Cancer Mission is to consider the perspective of the patients and the care aspect in research right from the start. However, this requires the introduction of top-down initiatives and, at the same time, increased national networking of research and healthcare stakeholders.

This results in the need for a separate Cancer Mission program with the 6 central fields of action mentioned above. The individual measures for this are shown in the appendix.

As described above, the proposed measures are consistent with the national cancer strategy and also with the measures of the Life Sciences Strategy 2016 (basic research, research infrastructures, big data, personalized medicine, clinical research and translation).

The Cancer Mission in the context of the national research landscape
National cancer research has many years of expertise and a proven international network. In the baseline study (Joanneum Research), this is adequately presented at the publication level.

The relevant locations for national cancer research are Vienna, Graz, Innsbruck, Salzburg and Linz. These are also the locations of the medical universities and also the 5 relevant Comprehensive Cancer Centres (CCCs).

Basic research in the field of cancer also takes place at the Max Perutz Laboratories, the University of Veterinary Medicine Vienna, the CeMM (Centre for Molecular Medicine/ÖAW), the IMBA (Institute for Molecular Biotechnology/ÖAW), the IMP (Institute for Molecular Pathology/ Boehringer Ingelheim) and the IST-A (Institute of Science and Technology Austria). Also worth mentioning is the St. Anna Children's Cancer Research Centre in Vienna.

The Ludwig Boltzmann Society and the Christian Doppler Society promote public-public or public-private partnerships. In addition to the „Ludwig Boltzmann Institute for Haematology and Oncology", a program to promote clinical studies was also launched. The Christian Doppler Laboratories promote, among other things, the thematic cluster „Medicine", which also focuses on cancer research.

BBMRI.at (Biobanking and BioMolecular resources Research Infrastructure Austria), CBmed (Competence Centre for Biomarker Research, Precision Medicine, Graz) and the national platform for personalised medicine also contribute to the Cancer Research Division. The ABCSG (Austrian study group for breast cancer and colon cancer) and the working group for medicinal tumour therapy are already making a major contribution to clinical studies. Topics of health services and prevention research are anchored in the GOEG, at the UMIT and at the IHS.

The funding of these proposals would help to take a necessary important step further in Austria in the direction of timely measures for cancer prevention through to aftercare.

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Mag. Elisabeth Tischelmayer, BMBWF
Co-Chairs Mission Action Group Cancer
Vienna, 15 June 2022

Appendix to Mission Cancer Recommendations

Explanations of the recommended actions

Mission-relevant national need for action in the area of research funding

The qualitative and quantitative goals of the Austrian Cancer Framework Program (KRP) and Mission Cancer are closely linked. There are also synergies at the level of individual initiatives currently being implemented. Using the example of „SUPA“ (Survivorship Passport), in which numerous domestic institutions were involved even before the HORIZON 2020 project „Pan Care SURPASS“ as part of various Joint Actions shows the ambition to synergistically fulfil the following recommendations and goals in the EBCP, Mission Cancer and KRP:

- Flagship Initiative 8 of the European Beating Cancer Plan: „Better lives for cancer patients to be funded through EU4Health, with an electronic passport for cancer survivors to be available by 2022.“
- Mission Board on Cancer Recommendation 8: „Creation of a „European Digital Centre for Cancer Patients“ where cancer patients and survivors can deposit and share their data for personalised care“
- „Survivorship Passport (SUPA)“: Demand of the Austrian cancer framework program - in a first step for children and adolescents, would be a pioneer with great potential (for other chronic diseases)

Another example is the preparation and implementation of organised screening programs for cancer, where the following synergies exist between the initiatives:

- Flagship Initiative 4 of the European Beating Cancer Plan: “A new cancer screening program aims to support member states to offer screening tests by 2025: for breast, cervical and colorectal cancer in 90% of eligible people.
- Mission Board on Cancer Recommendation 4: „Optimising existing screening programs and developing new approaches for screening and early detection“
- Current activities of the NSK and Oncology Advisory Board: piloting and implementation of an organised, quality-assured screening for colon cancer; quality assurance in the already implemented breast cancer screening program; as well as the initiation of preparatory work for the expansion to other types of cancer (e.g. screening for lung carcinoma)

The international activities within the framework of EBCP and Mission Cancer provide important impulses for learning and further development, and they promote the implementation of national and supranational goals in the field of cancer through numerous synergies. These developments at EU level serve as an important motor for European and national decision-making, knowledge development and the implementation of measures.

Furthermore, the research and screening of tumours at the molecular level, the development and establishment of such molecular diagnostic technologies and the identification of new, personalised treatment targets are the inevitable next step in cancer treatment. Several EU member states have already set up national programs for this purpose. Germany is investing EUR 1 billion for this.
The Cancer Mission has formulated Point 1, Understanding Cancer, and Point 3, Optimise Diagnostics and Treatment. This program proposal lies at the interface between basic research and clinical research and at the interface between clinical and translational research.
At the national level, research into the basics and the various molecular analyses are to be networked. The aim is to understand the causes of cancer development for new, targeted therapies. This requires the further development of improved methodological validations and rapid implementation in cancer care.
The anchor points are the cooperation and networking of the national Comprehensive Cancer Centres (CCCs) and a clinical cancer register.
The research results should lead to better national and international networking, better diagnoses and effective treatments and, in the long term, support equitable, timely access to optimal cancer diagnosis and treatment for every patient.

A comprehensive understanding of how cancer develops is required to enable rational approaches to cancer prevention, treatment and care, thereby reducing cancer incidence and improving patient outcomes, e.g. for longer life with cancer (survival) and a better quality of life. It also reduces societal and financial costs.

(1) https://cordis.europa.eu/project/id/899999 - “PanCare studies of the scale-up and implementation of the digital Survivorship Passport to improve people-centred care for childhood cancer survivors”
(2) https://cordis.europa.eu/project/id/965351 - “Cancer prevention and early detection among the homeless population in Europe: Co-adapting and implementing the Health Navigator Model”
(3) Joint Action CraNE: Network of Comprehensive Cancer Centres: Preparatory activities on creation of National Comprehensive Cancer Centres and EU Networking (EU4H-2021-JA-03)

MISSION CLIMATE – Recommendations of the Mission Climate Action Group for the „Austrian implementation plan of the EU missions“

The EU mission ‚Adaptation to Climate Change' aims to support at least 150 European regions and communities to become climate resilient by 2030. This general objective is broken down into five specific goals; the mission wants to

1. support regions to better understand and manage their climate-related risks and opportunities (e.g. using climate risk and vulnerability assessment tools);

2. support regions in developing transformation paths and activities (e.g. by establishing new governance structures);

3. support innovative solutions for climate resilience and help to find additional investments (e.g. by building a Mission Implementation Platform);

4. accelerate the transformation of at least 150 regions to a climate resilient future (by developing and testing climate resilience solutions, e.g. of ecosystems, critical infrastructure or agriculture and forestry);

5. apply at least 75 large-scale demonstrations of systemic transformation to climate resilience (e.g. large-scale projects to restore destroyed ecosystems and ecological corridors and use nature-based solutions, build climate-resilient infrastructure and climate-resilient land and Forestry).

The mission supports various policy goals and relies on synergies with other missions such as Mission Cities, Mission Waters and Mission Soil. The mission contributes to the Sustainable Development Goals of the United Nations, for example SDG 13 (take immediate measures to combat climate change and its effects), which specifically includes adaptation to climate change. The measures listed in the recommendations are essential contributions to sub-goal 13.3. to sensitise the personal and institutional capacities of climate adaptation.

With the Paris Agreement, adaptation to climate change was placed on an equal footing with climate protection. Austria has been following this two-pillar principle in climate policy for years and was among the first EU countries to combine a strategic concept for adaptation to climate change with a comprehensive action plan for implementation (Austrian Strategy for Adaptation to Climate Change, 2012; extended 2017)[27].

As part of the Green Deal, the EU Commission presented a new, more ambitious adaptation strategy on 24 February 2021. It forms the basis of a long-term vision of developing a climate-resilient and climate-neutral society in Europe by 2050, which is fully adapted

27 https://www.bmk.gv.at/themen/klima_umwelt/klimaschutz/anpassungsstrategie/publikationen/oe_strategie.html

to the inevitable consequences of climate change. The focus is on action - adaptation should be driven forward more intelligently, more systemically and more quickly. The primary contact persons for implementation remain the Member States, who are to be supported in their specific adaptation initiatives by increased proactive measures at EU level (COM (2021) 82 final)[28].

1. The Austrian adaptation strategy, as a nationwide orientation framework, pursues the goal of avoiding the adverse effects of climate change on the environment, society and the economy and of using the opportunities that arise. The strategy aims to strengthen the natural, societal and technical adaptive capacity. The adaptation measures should not entail any social or ecological disadvantages, but rather minimise the risks to democracy, health, security and social justice.

2. Different levels of action are affected by the need to adapt: from public administrative units with their various areas of responsibility to the various economic sectors and individuals. Adaptation is a task for society as a whole and requires a well-coordinated approach – both between the affected areas and between those involved.

Adaptation to climate change is a continuous process that requires recurring verification of the effectiveness of the chosen measures. With the first Austrian progress report in 2015, an important basis and basis for comparison was created for the status of national implementation. The second progress report again provides an overall overview of the trend in implementing adaptation to climate change in Austria. This report states that extreme weather events in recent years have contributed to increased adaptation activities in the various sectors down to the municipal level. Numerous measures have already been implemented and through the continuous increase in know-how in all areas, more professionalism in the implementation of measures could also be recog-nised.

Nevertheless, it can be clearly deduced that, despite the recognizable progress in all fields of activity, there is still a clear need for further action. The effects of climate change are still insufficiently taken into account in relevant strategic decisions.

The „KLAR“[29] funding program shows how to specifically deal with the effects of climate change in regions and how to reduce their economic costs through specific regional measures. This climate change adaptation program, which is unique in Europe, currently includes 79 regions (650 municipalities) with more than 1.8 million inhabitants throughout Austria. The KLAR! program promotes a process-oriented approach that specifically includes adaptation, mitigation, conservation and maladaptation prevention.

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28 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0082&from=EN
29 https://klar-anpassungsregionen.at/

The Austrian Climate Research Program (ACRP)[30] represents an essential funding channel for the scientific basis of implementation measures in Austria, which shows concrete recommendations for action for climate change adaptation for politics and administration. The aim of the program is to research the effects caused by climate change and to create the scientific basis for forward-looking decisions in politics, business and society. Further funding options are offered by climate-related funding lines from the FFG and the FWF.

The universities and other research institutions (within the framework of the global budget) provide the central foundations with their own research and their research infrastructures. The main institutions of climate research in Austria, represented in the baseline study, are IIASA, BOKU, Uni Wien, Uni Innsbruck, Uni Graz, TU Wien, AIT, ZAMG, AGES JR, VetMed, Umweltbundesamt, ÖAW etc.

Climate research in Austria is characterized by very good networking, which is perceived far beyond Austria's borders. The (research) networks and platforms set up in the past, such as the Climate Change Centre Austria (CCCA), the Disaster Competence Network Austria (DCNA), as well as the State Conference of Environmental Officers (LURK), the platform Klima| Change|adaptation of the Federal Environment Agency, as well as the KLIEN network.

Only with forward-looking planning and implementation of adaptation measures can damage be avoided and opportunities for many sectors and branches of the economy be used profitably. As the results of the COIN[31] project show the costs of inaction in Austria, the failure to implement adaptation measures will result in considerable costs (2-6 billion p.a.) by 2050. This underscores the urgency of thinking more about climate change adaptation, implementing it and giving it a higher priority on the political agenda.

Existing structures and instruments can be used to implement the mission. However, successful implementation in the sense of the inventor requires additional funding for something new - the interaction of different areas must be made possible with additional resources.

The Austrian RTI Strategy 2030 and the RTI Pact 2021-23 derived from it, represent an important framework for the implementation of the missions. In addition to the goal of increasing participation in EU missions, the following goals are relevant: support applied research and its impact on the economy and society; RTI to achieve climate goals; etc. raise awareness of the value of research and innovation in the public interest; expand research and technology infrastructure (RTIS) and ensure accessibility.

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30 https://www.bmk.gv.at/themen/klima_umwelt/klimaschutz/anpassungsstrategie/acrp.html
31 https://ccca.ac.at/wissenstransfer/coin

MAG Climate proposals for the Austrian implementation plan

The Mission Action Group Climate is made up of representatives from institutions relevant to implementation; it was constituted at the end of 2021 and worked out proposals for the Austrian implementation plan in three meetings up to May 2022.

The challenge and at the same time opportunity of the mission lies in improving or strengthening the cooperation between policy (for climate protection, biodiversity, agriculture, forestry, water management, etc.), research (RTI) and education and to network the areas much more closely.

Within the mission objectives, five recommendations for action were derived:

HE 1: Establishment of an Austrian Mission Hub "Adaptation to Climate Change".
HE 2: Development of standardised risk analyses.
HE 3: Embed adaptation in all sectors: Ensure matching reference and avoid mismatch.
HE 4: Force nature-based solutions.
HE 5: Climate-resilient regions in Austria.

Recommended action 1: Establishment of an Austrian Mission Hub „Adaptation to Climate Change"

In order to ensure a coordinated approach to the cross-cutting matter of adaptation, close cross-sector networking and cooperation between the federal and state governments and all stakeholders involved is necessary with the aim of better networking existing structures, expanding them in a targeted manner and creating new suitable instruments. By using existing structures and concepts, duplication is to be avoided and resources used in the best possible way. Close cooperation with the "Climate Neutral Cities" mission is also important. The activities of the hub should not be limited to adaptation to climate change, but also take climate protection into account.

The Mission Hub should be as broad as possible and involve the main players at national and regional level, both from science and from practice and civil society in their work. In any case, relevant institutions and initiatives that should be networked more closely are the BMK, BMBWF, climate change adaptation officers of the federal states, the climate change adaptation portal (www.klimawandelanpassung.at), CCCA, KLI:EN, KLAR and KEM managers, FFG, Federal Environment Agency, OeAD, Klimakonkret, ACRP, SDG-UniNetz NGOs, citizens, OeAD Centre for Citizen Science, civil society, research institutions, companies..

The aim of the Mission Hub is to coordinate and network the cooperation between the relevant actors in Austria on the topic of „adaptation to climate change“, to build on existing structures and initiatives and to bundle activities.

Tasks of the national mission hub:

1) Services:

a) create an overview of activities in Austria and keep it up to date;
b) further development of the services of the climate change adaptation portal (www.klimawandelanpassung.at) in line with the goals of the mission (including linking to research programs and other initiatives such as CCCA, SDG-UniNetz) synopsis of best practices;
c) monitoring of the implementation of the mission;
d) support for submissions e.g. in European programs up to taking over the coordination/management role;
e) development of future dialogues/climate dialogues with broad involvement of civil society;

2) Communication:
a) informing about project results so that the projects develop appeal for other regions;
b) create discussion spaces for the exchange between different actors (e.g. climate dialogues...);
c) networking of the expert community (science, etc.) with administration and interested actors from practice;
d) broad communication and involvement of civil society with existing communication channels (e.g. CCCA service centre, KLAR and KEMs as access to communities, art as a mediator for communication and transformation etc.);

Existing tools to support implementation:
It is important to use synergy effects; the Mission Hub should be complementary and build on existing structures and know-how, like KLIEN; FFG: dialogue formats; CCCA Service Centre; adaptation network for practitioners; climate change adaptation portal; competency map from the CCCA; UniNetz (SDG);

Implementation responsibility:
BMK - Call for tenders for the Mission Hub, BMBWF (for CCCA); RTI task force

Implementation period:
The term of the Mission Hub itself is long-term; at least 12-18 months will be necessary for construction. Implementation will start in 2023.

Resource requirements (estimate):
At the beginning, the costs will be slightly higher for the development with the various stakeholder rounds to develop an organizational design, during ongoing operation two additional people could be sufficient for coordination and operation.

Governance:
Hub should not only deal with adaptation to climate change, but also use synergies with climate protection activities; Synergies and cooperation with other hubs, e.g. with climate-neutral cities, must be examined.

Obstacles:
Insufficient cooperation between departments; Too little commitment from institutions and regions to implement adaptation measures

Recommendation for action 2: Development of standardised risk analyses.

- Regions that are particularly affected by climate change and its consequences (i.e. have a high level of vulnerability) urgently need adaptation measures - which must be identified, selected and accompanied by monitoring. For the development of suitable measures, as well as the evaluation and quality control of these, methods, criteria, evaluation bases, in particular standardized climate risk analyses, are required. In addition to this, the communication of this risk at community level is essential - suitable forums for this are, for example, the ASDR natural hazards -Conference or eHORA (Natural Hazards Risk Map).
- These analyses require comprehensive, coordinated and harmonized databases, which to date have been insufficient or fragmented in Austria. General availability is also not always given. The implementation of this recommendation can be linked to numerous existing initiatives and methods.
- A process or legal mandate, based on the Swiss example, would be essential, which provides for the provision of the latest data in this context and thus provides the best possible basis for the further development of the Austrian strategy for adaptation to climate change and other sector policies and allows well-founded decisions.
- MAG therefore recommends developing essential basics for this important requirement. Two lines of action are suggested:
- Research initiative ‚Climate Change Risk Assessment'
- Further development of methods for making risk factors measurable (hazard, exposure and vulnerability; including resilience capacities such as adaptation and coping);
- Working out the basis for the development of solutions, usable products and services; Both basic research and application-oriented research (including accompanying research) are necessary for this, as well as the accelerated and effective

utilisation of research results for application. Users must therefore be included in the definition of research bases, and the operational implementation should also be part of the project implementation;
- Data infrastructure for climate change risk assessment
- Creation, backup and provision of basic data, in particular event and damage data as well as climate scenarios (coordinated and in accordance with international specifications (e.g. Sendai Framework); data harmonisation and overlay; modelling and scenario creation; processing and communication of the data;

Implementation tools:
- RTI pact; ACRP; StartClim; Performance agreements with the universities and other RTI institutions, e.g. the new facility Geosphere Austria (GSA); ÖKS15 scenarios, Research infrastructure funding, CESARE – CollEction, Standardization and Attribution of Robust disaster event information (da-tabase at FFG), Austrian Strategy for Disaster Risk Reduction;

New tools that would be needed:
National (continuous) incident and damage database.

Required capacities, resource requirements (estimate):

- There is still a great need for research in this area, which could also be carried out within the framework of ACRP, for example. Parts of it could be taken into account within the scope of the performance agreements of the new facility Geosphere Austria (GSA), especially with regard to climate scenarios and operational implementation.
- Data availability would have to be ensured (by the public sector);
- Responsible body(s) (responsibilities) would have to be specified,
- provide appropriate resources to bodies already involved;

Obstacles:
- Competency fragmentation, some datasets are sensitive, conflicting interests between data collectors and other users, prioritization of tasks of operational protection of people and infrastructure versus a standardized one
- Collection of event and damage data

Implementation responsibility:

- BMBWF (for courses with GSA, and universities); KLIEN; BMK; together BMK+BMLRT+BMI+ research institutions (GSA and others); FFG (FI funding);
- Participation: Universities and research institutions, BL; companies (e.g. insurance companies);

Recommendation for action 3: Ensure alignment in all sectors and avoid misalignment.

- An essential and central task across all sectors is to avoid mismatches or cost-intensive bad invest-ments. The climate check anchored in the government agreement 2020-24 can make a contribution to this by integrating aspects of adaptation.
- As part of the mission implementation, the focus should be on the following tasks:
- Development of criteria for examining the relevance of adaptation to climate change and avoidance of maladaptation (e.g. integration of a criterion in the federal climate check, the climate check of the federal states, in public procurement, in research projects from public funds);
- Evaluation of existing (logistical, financial ...) policies and instruments with regard to the systematic consideration of criteria for adaptation to climate change (e.g.: Spatial planning laws, traffic planning, energy infrastructure...).
- Examination of the allocation of public funds with regard to adaptation and avoidance of maladaptation;
- Comprehensive orientation of the national funding landscape towards adaptation and climate resilience (according to the definition of the progress report is recommended)

Existing tools to support implementation:
ACRP; StartClim

New instrument:
Integration into the federal climate check (KSG new)

Implementation responsibility:
BMK, all federal and state departments; required participation in the implementation:
BMLRT; BMI; BL; KLIEN

Recommendation for action 4: Nature-based solutions / promote nature-friendly solutions.

To accelerate adaptation to climate change, the development and implementation of nature-based solutions (NbS) in selected regions is recommended. NbS could be used or provide helpful services in the following areas: Housing, architecture, tourism, agriculture, forestry, protection against natural hazards, heavy rain and overheating in urban areas through appropriate use of space (e.g. sponge city), renewable raw materials, carbon sequestration, biodiversity.

Two lines of action are derived from the need for action:

Research initiative ‚Nature-based Solutions'

The research initiative aims to develop nature-based solutions to deal with the diverse hazards and cascading effects of climate change. Here, among other things, the understanding of the role of biological diversity in nature-based solutions is to be researched (basic research); further to study the performance of different types of NbS, including their resilience to changing climate patterns, extreme weather events, landslide prevention and erosion control, etc.; it needs to be clarified to what extent ‚green' infrastructure is advantageous compared to ‚grey' infrastructure. Innovative measures also include support for demonstration projects; innovative business, management and financing models as well as economic evaluation methods are also to be developed.

‚Strengthening socio-ecological resilience'

Examples that can or should be developed and continued in line with the mission:

- Cooperation between research institutions and regional development initiatives
- (e.g. DUK+ZAMG+Ötscher Nature Park);
- Further development of ecological corridors, in cooperation with nature reserves (national, biosphere, nature parks, Natura2000 areas, etc.);
- Restoration and restructuring of bodies of water and wetlands; natural flood protection, including expansion of retention areas;
- development of resilient forests;
- Promotion of NbS against urban heat, with the help of fresh air corridors, green and blue infrastructure, intensive green roofs, etc.;

Instruments of implementation:

- RTI pact;
- Performance agreements with the universities and other RTI institutions (according to RTI Pact);
- ACRP;
- StartClim;
- BMLRT Research Program;
- ÖAW research initiative ESS Earth System Sciences;
- HE (Mission WP; Partnership calls, etc. Biodversa+, Water4All)
- LIFE;
- Interreg;
- LEADER;
- Natura2000 program;
- Resilience plan,

- Subsidies (Biodiv fund, forest fund, GAP strategy plan, renovation offensive (KPC), program ‚City of the Future', innovative green city technologies; Smart City demonstration;
- Land use plan, local development concept, contractual spatial planning Flwpl, forest spatial planning (federal and state); development plan, building technology ordinance; forest development plan;

Required capacities and financial resources
When it comes to 'strengthening socio-ecological resilience', the following should be considered: „Damage Cost" (COIN). E.g.: If the biodiversity areas are increased to 10%, compensation costs of approx. 15 to 50 m€ per year arise in the forest. But this results in lower climate damage costs.

Implementation responsibility:

for research initiative:

- BMBWF (RTI Pact, LVs); KLIEN; BMK; BMLRT; FFG (processing);

for ‚strengthening socio-ecological resilience':

- BMK/KLIEN; BMBWF (RTI pact, LV with research institutions); Research institutions (Univ., GSA...); BL;

Required participation in the implementation:

- universities and research institutes;
- companies (for the development of NbS), e.g. ÖAW (referred to by ESS calls);
- Federal Research Centre for Forests,
- Cooperation platform forest-wood-paper,
- KLAR (Climate Change Adaptation Regions);
- Networks: Protected areas (national parks, nature parks, biosphere parks, etc.), nature in the garden, Ö-Green network (largest green network in T.);
- Climate Alliance;
- LEADER manager;
- companies;

Recommendation for action 5: Mission climate resilient regions

In Austria, climate and energy model regions (KEM) and climate change adaptation model regions (KLAR!) are those programs that have been focusing on the implementation of

regional climate protection and adaptation measures for several years. Here, municipalities and regions can play a key role in shaping how climate policy is lived locally.
The large-scale expansion and strengthening of these programs is an urgent task. The aim is for all communities in Austria to be members of a KLAR! and this provides the framework for the implementation of social and technical solutions. Alongside this, the KEM program is also to be further strengthened, since co-benefits in the area of mitigation will also strengthen adaptation. (Contribution to objective 1 of the mission).
Furthermore, priority regions should be established which, as front runners, show and test possible solutions towards a systemic transformation (adaptation pathways) and disseminate their findings to follower regions. (Contribution to objective 2 and 3 of the mission).
It is essential that, in addition to purely technical solutions, the focus is also on non-technical - social, organisational, institutional - solutions. For example, mobility behaviour can change as a result of new work organisation (e.g. more home office), which in turn opens up opportunities for action in spatial planning. The development and strengthening of social capital also makes a significant contribution to increasing the resilience of communities and regions (e.g. by strengthening (voluntary) organizations in the climate sector (heat relievers for vulnerable groups, etc...)).

Recommended actions:

- Accelerated expansion and strengthening of KLAR! and KEM regions
- Establishment of frontrunner regions (priority regions to show and test solutions towards a systemic transformation);
- dissemination of follower regions;
- promotion of social, organisational, institutional solutions;
- Strengthening of social capital to increase the resilience of communities and regions (e.g. by strengthening (voluntary) organizations in the climate sector (heat relievers for vulnerable groups, etc.);

Existing tools:
KLAR! program; KEM program; LEADER program

New tools:
Establishment of KLAR! frontrunner regions

Responsibility for implementation:
BMK; KLIEN

Required participation in the implementation:
BMLRT; BL; Communities

Implementation period:

2023–28

Resource requirements:
For increasing resilience in all 2093 Austrian communities through local regional managers and basic measures, for the frontrunner regions, for necessary investment measures;
The costs can also be covered by earmarking portions of existing annual budgets for climate change adaptation (climate budgeting, cf. EU: 30% of the budget for climate activities).

Governance:
Adaptation must (also) take place at regional level. In order for this to be resource-efficient and structured, close cooperation between the federal, state, regional and local authorities is important.

Depending on the topic, sectoral experts should also be involved. These requirements require close exchange between the existing structures. The Mission Hub Adaptation could provide a suitable coordination framework for this, in addition to coordination at the regional level, which would have to take place via the regional managements.
Lean, efficient and coordinated program control is required for operational implementation. The integration into already existing programs, for example from the climate and energy fund, therefore appears to be purposeful and expedient.

With a regional approach and the networking of the regions, planning can go beyond classic municipal boundaries. With the help of scientific support and the orientation aid of frontrunner regions, the complexity for individual actors can be reduced and assistance can be offered.

MISSION CITIES – Recommendations of the Mission Cities Action Group for the „Austrian implementation plan of the EU missions“

Context of the EU mission in Austria

1. For Austria useful goals and topics the Horizon Europe mission „Climate Neutral and Smart Cities“

As a national contribution to averting the climate crisis, Austria has set itself the goal of achieving climate neutrality by 2040. The urban dimension can make a key contribution to this. Cities occupy only 4% of the area but are home to 75% of the European Union‘s population. On a global scale, cities are responsible for more than 65% of the world‘s energy consumption and 70% of its CO2 emissions.

Cities should therefore also receive support at EU level in the transition towards climate neutrality and in this sense towards more environmental compatibility, sustainability, social justice and better integration of digital technologies. By reducing the climate-relevant emissions by 55% by 2030, an increase in the quality of life, a reduction in air pollutants and noise, safer mobility and safeguarding of ecological sustainability should be achieved for the citizens.

Goals of the mission
The Horizon Europe mission „Climate Neutral and Smart Cities“ is to be developed in close cooperation between the European Commission, local authorities, citizens, economic actors, investors and regional or national decision-making bodies and to achieve the following goals:

1. Achieve climate neutrality in 100 European cities by 2030.
2. Develop these cities as centres of experimentation and innovation, serving as role models for all European cities to achieve climate neutrality by 2050.

An implementation plan was drawn up for this mission, which provides for cross-sectoral access based on the needs of the implementation actors and is intended to achieve synergies between the existing initiatives.

2. For Austria subordinate goals and topics of the EU mission

The goal of achieving climate neutrality for all participating cities by 2030 is to be put aside in Austria in favour of a comprehensive concept and climate neutrality by 2040.

3. Important sector and RTI strategies and processes to which the implementation of the EU mission in Austria could contribute

The Horizon Europe mission provides an integral contribution to the national mission „Climate Neutral City“ and the national goal of climate neutrality by 2040.

Recommendations of the Austrian Mission Cities Action Group

The recommendations of the MCAG were developed in a meeting of the implementation team on 11 May 2022 and refined and confirmed in a final meeting of the strategy team on 31 May 2022. These include the following suggestions:

1. Further development of the national mission „Climate-Neutral City“ (ÖÖK, program-accompanying support formats for the continuation of capacity building in the cities)
2. A comprehensive access to funding by the BMK (specific, coordinated offers of all funding instruments from innovation to implementation)
3. Development of cooperation with the federal states as part of the national mission (e.g. in relation to structural funds)
4. Use of transnational funding formats (Horizon Europe Mission Platform, HE partnership DUT, Mission Innovation)
5. Offensive communication of the idea of the „climate-neutral city“
6. Use of synergies with other mission working groups

Further development of the national mission „Climate Neutral City“

- a) Long-term predictability, which is an example of the turnaround we are striving for with climate neutrality
- It is important that the proposals are concrete and that the role of the individual actors is clarified
- b) System innovations also in the area of financial support for the cities in pursuit of a holistic approach
- Making public-public cooperation (ÖÖK) usable as an instrument
- Adaptation of the relevant funding forms and report templates to the situation in the cities
- c) Scaling and rolling out solutions
- d) Connection to existing initiatives
- within the BMK (get out of oil, get out of gas, domestic environmental promotion, promotion of electromobility, etc.)
- beyond the BMK (e.g. RTI pact, fund future Austria, operational program ERDF-AT)
- Consultative involvement of groups of key players (WKO, Association of Cities, etc.)
- e) Involvement and mobilization of other organisations, regions, ministries, agencies, interest groups, e.g. capacity building not only in the cities, but also in trade and in the relevant industry
- f) learning from the experiences of other countries (e.g. SE - Viable Cities)

2. A comprehensive access to funding by the BMK

a) Use of the ÖÖK/ÖÖP for the development of competence in the cities, in addition to bundling the other existing instruments (funding for electromobility, getting out of oil/gas, etc., domestic environmental funding, KLIEN instruments)

b) Complementing the „watering can promotion“ with specific consultations and with the cities and corresponding interventions

c) Development of new instruments (financing, funding, etc.) and formats (e.g. citizen involvement)

d) Specific answers to the current effects of the economic crisis (lack of material, staff, etc.)

3. Development of cooperation with the federal states as part of the national mission

a) Discussion of the legal framework in the field of spatial planning

b) Cooperation in the areas

- Mobility
- Climate protection (EU funding formats such as ELENA)
- Energy (e.g. energy spatial planning)
- Spatial planning/spatial planning (also energy spatial planning)
- Economy (coordination of ERDF funds)

c) Project-related collaboration

d) Use of the ÖÖK as a possibility for formalised involvement of the federal states

e) Specific exchange format between political actors of the cities and the state

4. Use of transnational funding formats

a) Annual calls for tenders of the HE partnership „Driving Urban Transitions“ (coordination by AT-BMK)

- Formulation of Austrian interests in the annual consultation procedure
- before the tender text is formulated
- Integration of the DUT projects with Austrian participation in the national mission „Climate Neutral City“

b) Funding offers from the “NetZeroCities” mission platform for the HE mission “Climate-neutral and intelligent cities”Support for Austrian cities and users with the submission

c) Call for proposals in the Horizon Europe mission work programme

d) INTERREG program „Central Europe“

e) Connecting Europe Facility (CEF) (https://ec.europa.eu/inea/en/connecting-europe-facilities)

f) ERDF, URBACT and similar instruments in the field of European Structural Funds

5. Offensive communication of the idea of the „climate-neutral city“

Communication as part of the accompanying process for the national mission „Climate Neutral City“

a) Learning from comparable successful programs from other European countries (e.g. the Dutch program on “Erdgasfreie Quartiere” or the Swedish program “Viable Cities”)
b) Providing sufficient funding for communications

6. Use of synergies with other mission working groups
a) Coordination at national level, in particular with the Mission Climate Action Group
b) Consideration of possible joint but also complementary actions in the field of urban climate resilience

MISSION SOIL – Recommendations of the Mission Soil Action Group for the „Austrian implementation plan of the EU missions“

Working document with proposals for national recommendations for action

Context of the EU mission in Austria

The mission "A Soil Deal for Europe" supports the objectives of various policy areas such as agriculture, forestry, biodiversity, climate protection, climate change adaptation, etc. It is therefore linked to other missions such as e.g. the Ocean/Waters Mission or the Climate Change Adaptation Mission. It aims to set up 100 living labs and lighthouses in the EU to improve soil health by 2030. In addition to this general objective, there are also more specific objectives, e.g. formulated on sealing, organic carbon, soil pollution, etc.

Important sectoral and RTI objectives / Objectives and topics relevant or useful for Austria:

The specific goals and sub-goals of the EU mission relate to all types of land use, for Austria the goals are as follows:

1. Reduce desertification
Desertification is currently not a relevant topic in Austria. All activities aimed at improving the floors e.g. by greening, optimal crop rotations to keep covered for as long as possible contribute to the maintenance of soil fertility, to climate change adaptation, to climate protection and can prevent desertification.

In Austria, soil protection measures are primarily implemented within the framework of the Common Agricultural Policy (mandatory measures in Pillar 1 and voluntary measures in Pillar 2). In addition, there is a comprehensive range of educational and consulting services, private initiatives and numerous practice-oriented research activities, e.g. within the framework of EIP Agri. Therefore, the relevant recommendation does not currently include any additional new activities.

Conserve and increase soil organic carbon stocks

The conservation of organic carbon and the increase of the carbon content in the soil (where possible) is a very important topic in Austria and all other member states for reasons of long-term preservation of soil fertility and climate change adaptation. The effects of climate change may have a negative impact on organic carbon in the future. In Austria there are already numerous research activities and data on this topic.

In Austria, soil protection measures are primarily implemented within the framework of the Common Agricultural Policy (mandatory measures in Pillar 1 and voluntary measures in Pillar 2).

Improving soil health also contributes to the Sustainable Development Goals of the United Nations, in particular Goal 2 (End hunger, achieve food security and better nutrition and promote sustainable agriculture) and its subgoal 2.4: ensuring the sustainability of food production systems and also gradually improving land and soil quality.

In addition, there is a comprehensive range of educational and consulting services, private initiatives and numerous practice-oriented research activities, e.g. within the framework of EIP Agri. Therefore, the relevant recommendation does not currently include any additional new activities.

2. Stop soil sealing and increase re-use of urban soils

The topic of „reducing land consumption" is very important in Austria, since many fertile arable and grassland soils have been lost as a result in recent decades. Sealed areas account for just over 40% of the land used in AT, and these soils lose all of their natural functions. In addition to the general reduction in land use, the reuse of sealed areas is also an important topic in Austria. The topic is currently being discussed intensively within the framework of the development of a „Soil Strategy for Austria", the implementation of the mission can support the implementation of this strategy (as soon as it is adopted) in the context of answering targeted questions and research projects.

3. Reduce soil pollution and enhance restoration

Soil pollution is a broad topic for which there are no general uniform standards or definitions either at EU level or at national level. It therefore remains to be seen which ideas will be developed as part of the EU Zero Pollution Action Plan and the Soil Mission calls for proposals. In Austria, there are studies on individual pollutants (e.g. the projects „Monitoring of organic pollutants in Austrian soil" and „Harmonised methods for plastic and microplastic in soil"), concrete legal requirements, e.g. for example, microplastics are only available in Austria in Vorarlberg. The topic of soil pollution was not discussed very intensively in the Mission Action Group, which may also be the reason. The upcoming EU activities on this have to be awaited.

4. Prevent erosion

Erosion is an important issue in a mountainous country like Austria, on which there is already a lot of activity and data. In Austria, soil protection measures are primarily implemented within the framework of the Common Agricultural Policy (mandatory measures in Pillar 1 and voluntary measures in Pillar 2). In addition, there is a comprehensive range of educational and consulting services, private initiatives and numerous practice-oriented research activities, e.g. within the framework of EIP Agri. Therefore, the relevant recommendation does not currently include any additional new activities.

5. Improve soil structure to enhance soil biodiversity

Soil biodiversity is an important topic in Austria as well as in other MS, but relatively little is known about it. In Austria, soil protection measures are primarily implemented within the framework of the Common Agricultural Policy (mandatory measures in Pillar 1 and voluntary measures in Pillar 2). In addition, there is a comprehensive range of educational and consulting services, private initiatives and numerous practice-oriented research activities, e.g. within the framework of EIP Agri. Therefore, the relevant recommendation does not currently include any additional new activities.

6. Reduce the EU global footprint soils

A reduction of the EU's global footprint is an important objective that can only be achieved through optimal coordination of national and EU policies. Particular attention should be paid to conflicting goals, e.g. extensification of raw material production in the EU can lead to an increased need for imports.

7. Improve soil literacy in society

The Mission Action Group considers the topic of raising awareness to be particularly important. There are already numerous activities in this area that can be further developed. In the future, it is particularly important to focus even more strongly on the connection between soil and nutrition, in order to also increase the knowledge of consumers: inside to strengthen soil as a resource.

Soil protection has been taken very seriously in Austria for a long time, so there are numerous activities with regard to all of the objectives proposed in the mission. As part of the implementation of the mission, numerous existing measures, initiatives and research results can therefore already be used. In the Mission Action Group, which has a wide range of expertise, there is agreement that measures must build on what already exists wherever possible.

The responsibility for soil protection in Austria is regulated very differently. Soil protection on agricultural soils is the responsibility of the federal states, as are spatial planning agendas, while soil protection on forest soils is the responsibility of the BMLRT. The BMK is responsible for the law on contaminated sites and waste, as well as climate and environmental protection. This is not a complete list of all legal matters relevant to soil, but it is intended to show that there is no uniform responsibility for soil protection and therefore no authority can be solely responsible for implementing the recommendations. However, in addition to the responsibilities mentioned, the BMLRT also plays a coordinating role in some cases, such as the implementation of the „Soil" mission. This is an

essential aspect for the implementation of the „Soil“ mission, since the implementation of the recommendations usually requires more than one actor or person responsible.

The Austrian RTI Strategy 2030 and the RTI Pact 2021-23 derived from it represent an important framework for the implementation of the missions. In addition to the goal of increasing participation in EU missions, the following goals are relevant: support applied research and its impact on the economy and society; RTI to achieve climate goals; etc. raise awareness of the value of research and innovation in the public interest; expand research and technology infrastructure (RTIS) and ensure accessibility.

According to the baseline study, in Austria in the field of soil research, development and innovation, training and awareness raising, advice and the demonstration of best practices for soil management are combined with the help of living labs and lighthouses; numerous mission issues are dealt with in Austria in an interdisciplinary and interdisciplinary manner (e.g. humus content, carbon stocks, soil sealing, soil conditions, contaminated sites, etc.). In the field of soil research, a multi-stakeholder approach is followed nationally: relevant stakeholder groups (e.g. scientists, practitioners, young experts, political decision-makers), sectors and policy fields (e.g. agriculture and forestry, spatial planning, land rehabilitation, climate and disaster protection) have been working in this Mission Area since close together for a long time. The university research landscape is led by BOKU, Vienna University of Technology, Vienna University, Innsbruck University, Graz University, Graz University of Technology and Salzburg University. Non-university research institutions such as IIASA, AIT, BFA for forest, natural hazards and landscape as well as administrative organizations (AGES, ÖROK, Federal Environment Agency) and associations (Soil Forum, b5, Advisory Board for Soil Fertility and Soil Protection, Austrian Soil Science Society) are strongly represented. With a few exceptions (FWF relevance in the field of soil, e.g. ÖAW, commissioned or departmental research by ministries, municipal credit), basic research funding takes place in the EU framework program.

In the recommendations of the Mission Action Group, the important soil protection issues are covered very broadly and thus all aspects of the mission are dealt with. In the short time available for this complex topic, it was not possible to cover all the issues down to the last detail. However, an attempt was made to give a good overview of what ideas the group came up with together. For the concrete implementation of one or more recommendations, however, a detailed concept including a cost-benefit analysis would first have to be worked out. Many of the issues raised in the mission are currently also being discussed in other contexts at EU level, e.g. in the EU soil strategy, the EU communication on sustainable carbon cycles, the EU climate protection goals or the EU biodiversity strategy. Legislative acts are expected in all of these areas in 2022 or 2023. These developments must be taken into account when implementing the mission.

Existing structures and instruments can be used to implement the mission. However, successful implementation in the sense of the inventor requires additional funding for something new.

The interaction of different areas must be made possible with additional resources.

Recommendation 1: Quality soil protection

MAG Soil considers the protection of soil quality to be very important, especially with regard to the fact that sufficient fertile soil is available for the production of raw materials even under changed climatic conditions. Qualitative and quantitative soil protection are therefore the most important prerequisites for healthy soils. This is also reflected in the mission in the specific goals such as reflected in erosion or organic matter. Naturally, the threats to the ground and the associated objectives of the mission do not affect all MS to the same extent. In Austria, the high level of acceptance of the ÖPUL measures by farmers in recent decades has led to a verifiable improvement in soil quality. In the new CAP 2023+, even more attention is paid to soil protection at EU level. The effect of the CAP measures must be proven using indicators. Evaluation projects and accompanying research play an important role in this.

In addition to area funding and measures, there are numerous other instruments in Austria that promote qualitative soil protection (e.g. measures by the federal states, measures by the LK, educational, advisory and training measures, research projects with practical relevance, e.g. about EIP projects, own initiatives by farmers)

The topic of moor protection is also becoming more and more important in the context of biodiversity and climate protection. In Austria, a moor protection strategy coordinated with the federal states was adopted on this topic in 2022.

Concrete recommendations on the individual qualitative ground targets in the mission do not appear to be necessary at this point in time. In addition to the continuation of previous activities in Austria, the implementation of recommendations 3, 4 and 6 in particular can contribute to the goals of the mission in the area of qualitative soil protection.

Continuation of previous activities with regard to the objectives of the mission that are primarily relevant for Austria, namely the preservation of organic carbon stocks in the soil, the reduction of soil pollution and improvement of remediation, prevention of erosion and improvement of the soil structure to promote biological diversity in the soil. A common definition of soil health and indicators and threshold values with

regard to the planned EU Soil Health Act are currently also being discussed at EU level as part of the EU Soil Strategy.

Relation to EU mission goals

Qualitative soil protection primarily provides contributions to the following objectives

- Reduce land degradation relating to desertification
- Conserve and increase soil organic carbon stocks
- Prevent erosion
- Improve soil structure to enhance habitat quality for soil biota and crops
- Reduce the EU global footprint on soil

Important implementation steps

- The previous activities for qualitative soil protection must be continued at all levels, with particular attention being paid to the effects of climate change.
- Depending on the developments at EU level (planned Soil Health Law), new and additional instruments for qualitative soil protection may have to be developed and implemented.

Required capacities / requirements

- Long Term Commitment
- Use expertise as before, e.g. from
- federal government, federal states, practice, research, consulting and educational institutions
- soil forum; network country; Austrian soil science society; Interest groups

Implementation responsibility
Federal government, federal states, educational, consulting and training institutions; LK; Farmers research institutions

Resource requirements
No additional resource requirements at this time

Implementation period
Immediately, ongoing, long-term, permanent activity

Recommendation 2: Quantitative soil protection - reduction of land use and soil sealing

MAG Soil considers the reduction of land use to be one of the most important projects with regard to soil protection. A reduction in land use should be aimed at, above all for

reasons of ensuring food security and protecting the natural functions of the soil. At EU level, reference can also be made in this context to the EU soil strategy (reduction of land use in the long term to ‚net zero after 2050' (Zero Land Take 2050)).

With the decision of the Austrian Spatial Planning Conference of 20 October 2021, the development of a soil protection strategy to reduce further land use and soil sealing by the end of 2022 was politically commissioned. Since then, the work has been carried out by a specialist committee set up for this purpose. Core content is:

1. The creation of an Austria-wide harmonised database and uniform data collection methods
2. The development of a target system with quantitative national targets and target horizons
3. The development of federal state goals that are coordinated with the national goals, taking into account spatial structural conditions
4. The development of a nationwide uniform monitoring system
5. The identification and further development of particularly effective instruments and measures for a more efficient use of existing potential (esp. inner development and densification, activation of vacancies, recycling of fallow land, mobilisation of dedicated building land) as well as those for the protection and development of natural, green and recreational areas
6. An action plan with concrete activities, milestones and target horizons for implementation up to 2030

Relation to EU mission goals

- Objective 3 (no net soil sealing and increase the reuse of urban soils)
- 3. 1 (Increase urban recycling of land beyond 13% and switch from 2.4% to no net soil sealing….)
- Operational objective 3.8. (Develop robust approach to track the EU's global soil footprint)

Important implementation steps

With the adoption of the soil strategy at the end of 2022, implementation of the agreements will begin in January 2023 in line with the above action plan.

Collection and dissemination of good practice examples based on existing studies and information.

Broad awareness in both the formal and non-formal educational sector (schools, planners, assessors, decision-makers, the general public, etc.), in particular narrative development

that reducing land use is not a restriction, but enormous advantages has (emphasize protection aspect, why do we need floors).

Required capacities/conditions

- There must be an agreement between the federal and state governments and other important stakeholders
- Uniform methods for recording land use and transparent presentation/monitoring
- Dialogue must be continued with regard to the implementation of agreed measures and the further development of the measures

Usable instruments

- ÖROK: Order to prepare a draft resolution for an Austrian soil strategy
- Brownfield recycling/brownfield dialogue between BMK + Federal Environment Agency (funding for the implementation of recycling projects)
- Use already successful examples to reduce the use of land in the federal states and municipalities (e.g. orientation on good examples and mainstreaming, such as INKOBA Freistadt - by dividing the municipal tax, the municipal competition is counteracted)
- Federal state initiative „Together for our soil - https://bodeninfo.net/projekte/gemeinsam-fuer-unseren-boden“
- Use of existing expertise and knowledge is seen as essential (BOKU, TU, AGES etc.), e.g. forecast models for the development in Austria, soil function assessment, advisory board for soil fertility and soil protection

Implementation responsibility

Implementation lies with the federal government (“functional spatial planning” through sector policies), with the federal states (general competence for nominal spatial planning) and with the individual municipalities (local spatial planning, implementation)

Resource requirements

From today‘s perspective (the final version of the strategy and action plan is not yet available), the following activities/measures will be required in particular, the financing of which is currently open

- Further development of the methodology for determining land use, monitoring
- Development of a methodology to determine soil sealing, monitoring of changes
- Development of a methodology to delimit priority agricultural areas in terms of food security and to preserve natural soil functions, data integration (especially for climate protection and climate change adaptation)
- Based on a nationally defined target value: derivation of regional target values for 2030 for land use and soil sealing
- Further training and awareness-raising measures for decision-makers at the municipal level

- Increased enforcement activity also requires administrative resources (federal, state, local). Additional research is required due to the (further) development of measures and instruments to reduce land use and sealing.

Implementation period
- Implementation should be started as soon as possible
- Implementation is a continuous process that requires constant work

Recommendation 3: Networking of ground activities

Information on soil activities can easily get lost or even for soil experts it is difficult to find relevant information on a certain topic.

A platform could therefore be very helpful for practitioners, teachers, spatial planners, researchers, consumers, administration, politics and interested parties and

- receive an overview of the entire soil topic (in the sense of merging and making information available) (competences and responsibilities would not be affected),
- provide easier access to information,
- enable easier networking/exchange on certain questions/topics (contact persons).

At the technical level, there are very well-established instruments/infrastructure that are very sparingly financed: Soil Forum Austria (BFÖ), Soil Platform (BP), Austrian Soil Science Society (ÖBG), Advisory Board for Soil Fertility and Soil Protection (FBBB), joint federal-state cooperation projects (BBK projects). An essential step, however, is the expansion to include agricultural and forestry practice. This requires additional instruments and efforts.

However, the effort involved in operating a platform is high, which means that resources are required.

Broad exchange is a key point for mutual understanding; many different options for the best possible information transfer: meetings, analogue or online meetings, lectures, seminars, working groups, excursions, visits, cooperation on scientific projects. The instruments are already being used on an ongoing basis and should possibly be expanded further, e.g. by intensifying the networking meetings of the related institutions such as the advisory board for soil fertility and soil protection of the BMLRT, the soil forum (ÖBG and UBA), the advisory board for soil protection Upper Austria, the relevant departments from the federal states, the soil alliance, the LKÖ, the soil.water.protection advice of the LK Upper Austria and others relevant institutions and initiatives; compilation of

the activities could probably be implemented relatively quickly; the construction and implementation of a digital platform will take more time and costs

Relation to EU mission goals Target 8.4

Important implementation steps

- The need for a new networking platform or an extension of an existing platform must be determined
- Central coordination/responsible body
- Opportunity for various stakeholders (ministries, federal states, research, associations, etc.) to provide materials/information; Dissemination of the project and call for notification, collection of activities, data

Required capacities / requirements

- A clear concept is necessary incl.
- funding needs
- Central point of contact required
- clarify responsibility; good coordination is important; agreement with the federal states is necessary. cross-competency cooperation would be necessary
- Coordination: Regulate knowledge transfer, including the question of obligation
- Application/distribution of the platform through different channels
- Needs maintenance/updating
- Use already established infrastructure, e.g. Bodenforum Österreich (as a physical event) and Bodenplattform (digital turntable), joint BBK projects. Good examples: Switzerland with national soil centre, ABODAT project, in which soil data is brought together virtually, ÖBG publications on soil awareness. Consolidation of formats important.

Implementation responsibility
All

Resource requirements
In principle, the implementation of the recommendation should build on existing instruments that must be adequately financially secured

Implementation period
Immediately

Recommendation 4: Soil monitoring (incl. status report)

Monitoring is an important basis for decisions; pressure from EK for regular reports on soil indicators and soil condition monitoring in MS is likely to increase in the coming years; important that MS themselves know about the state of the soil and its long-term development (e.g. influence of climate change, food security ...).

The mission offers the opportunity to define indicators in an internationally coordinated manner and to use the existing multitude of data (connection with monitoring).

LUCAS project at EU level is to be expanded with the involvement of the MS.

Establishment of an Austria-wide uniform monitoring of soil hazards in the sense of the EU soil strategy and the expected future Soil Health Law would therefore be useful and could be done in connection with LUCAS; monitoring should build on the existing data (e.g. from projects) and on the existing monitoring systems of the federal states and bring practical benefits for all those interested in soil; duplication of activities must be avoided.

Relation to EU mission goals

Targets 8.1 (awareness of the societal role and value of soil is increased amongst EU citizens, including in key stakeholder groups, and policy makers) and 8.4 (appropriate information and training to improve skills and to support the adoption of sustainable land management practice)

Important implementation steps

Concrete considerations should be made in 2023 (after the ABoDat results and the draft for an EU soil directive are available) (is an Austrian soil monitoring system necessary or is the EU framework by LUCAS sufficient, for example)

Required capacities / requirements

- Submission of the Soil Health Law (announced by the EC for the first half of 2023) and the specifications contained therein could be awaited (content on LUCAS and soil monitoring in general can be expected)
- Activities at EU level on the topic of monitoring (currently within the framework of the EU soil expert group) must be actively supported by the Austrian stakeholders
- Results of the ABoDat project (https://dafne.at/projekte/abodat); are available until June 2023.

- Selective, targeted monitoring, which is combined with recommendations for measures or evaluations of measures (otherwise it is only a status survey)
- Development of the monitoring system only jointly by the federal and state governments; Integration of the available data and building on existing monitoring systems of the countries
- Concept and structure must be created, financing clarified and all organizations responsible for soil involved (also integrate soils outside of LW and FW)
- set clear targets; define target groups; define scope clearly define implementation period; set frequency
- Increased monitoring of soils in the mountains, soil biology (consider whether key species, complete monitoring or proxy indicators) would be desirable
- in addition to the classic soil parameters, information on: soil microbiome (current project), long-term exact tests on humus and nutrients in different cultivation methods; microplastics and organic pollutants
- Use of digitalisation
- clarify methodological issues; harmonisation of the monitoring methods and parameters (soil function assessment, sampling protocol, etc.) as well as the database and agreement on a uniform system, e.g. for soil consumption, soil sealing is necessary
- Use of base. Identify preparatory work. Merge existing data (ABODAT). Use reports on SDGs etc. Use BL data. Build on what already exists, e.g. LUCAS, BZIs, AustroPOPs, PLASBo, long-term soil monitoring areas of the federal states, forest soil condition inventory
- Involvement of research institutions
- Financing possibly via the federal-state cooperation
- Willingness to cooperate (information on management) on the part of the farmer and the granting of soil sampling is required - this also requires appropriate compensation
- Coordination of the report by a central office (Federal Government/UBA/AGES...); joint development of a concept involving the federal states and relevant institutions (LKÖ, b5 ...)
- Monitoring: Implementation centrally or in the federal states (resource)

Implementation responsibility

The federal and state governments together with the relevant actors from practice and research

Resource requirements

- Costs depend on the design of the monitoring (parameters, frequency, number of examination points) and cannot be estimated without a concrete concept;
- sufficient budgetary resources for the central contact point for coordination and also for publications
- sufficient budgetary resources for the cooperation partners (countries, project partners, ...)

- sufficient budgetary resources for compensation, including an incentive for those entitled to use the land

Implementation period
If a decision is made to monitor, 3 years are assumed for implementation

Recommendation 5: Promote soil-related education

Education is an essential prerequisite for the sustainable use of soil and is therefore an extremely important part of the implementation of Mission Soil. The focus is on the acquisition of skills and the promotion of awareness, so that the value of soil as a resource is recognized for society and action is taken accordingly. All professional groups that have to do with soil are required, but at the same time it must be started in the schools. Food can make it easier to get started with the floor topic. Many soil-relevant topics are included in the existing curricula and training courses, but there is a need to raise awareness and deepen knowledge about soil and relevant contexts.

There are also numerous good extracurricular educational opportunities, but their widespread use would have to be sufficiently and permanently secured and financed. In the future, the educational offer should also increasingly include quantitative soil protection and the associated decision-makers and professional groups.

Relation to EU mission goals
- Objective 8: Improve soil literacy in society

Important implementation steps
- Continue to support existing, well-functioning and well-established soil-related educational measures.
- Facilitate entry into the soil topic by relating soil to food (e.g. conveying the connection between healthy soil + healthy food ... soil quality and protein content, vitamins, micronutrients in food); Offer information about the quality of food (e.g. Nutriscore).
- Develop new formats and new target groups (consumers; room planners, architects) edit, inform, especially on a regional level .... etc.; – Make information about regional soil diversity available to the population (e.g. in connection with field days or excursions).
- Bring the cycle principle into the classroom.
- Inform the city population – agriculture in the city. >> Organisation of urban-rural dialogues, mayoral formats.
- Involving young people (to date 35,000 participants at Erdfarben).

- Develop and use creative forms of communication (e.g. design projects, Weltacker)
- Promote soil practitioner training (possibly also promote it internationally).
- Spread training offers (training for appraisers, etc.) for pedological construction supervision.
- ‚Do good and talk about it!' – Info panels on agricultural land, soil educational trails, campaigns on specific issues.
- Hold joint press conferences with various organisations (e.g. NGO, AK etc.).

Required capacities / requirements

- Long Term Commitment
- Coordination
- Use the planned platform (HE ...) for coordination
- Cooperation of all relevant institutions at federal and state level required
- Involvement of all institutions that work in the field of soil formation (research, LK, schools ...)
- Better anchoring in schools, kindergartens, etc., consumers; sometimes a better connection between soil and food is needed (part of recommendation 7: Research priorities)
- Transfer of knowledge to all social classes, „use" multipliers for this - e.g. mayors provide information about „their" areas, NGOs, etc.
- Build on best practice
- Offers from BFW and ÖGB (Ö. Boden Gesellschaft)
- Internships at companies
- Financial requirements for continuation and expansion of programs as well as for coordination

Usable instruments

- Curricula
- Funding programs (e.g. Sparking Science, Young Science, Citizen Science)
- Programs such as „Soil makes school" or soil workshops for schools (Federal Environment Agency (https://www.umweltbundesamt.at/seminare-schulungen/boden-und-bildung)
- HE networking and HE ground monitoring

Implementation responsibility

- BMBWF (incl. education)
- BMLRT
- ÖAD

Participation required by:

- Educational institutions
- all soil managers/users
- Universities and research institutes, e.g.
- University network
- ÖAW regarding SDG activities

Resource requirements
Coordination staff

Implementation period
Immediately, ongoing, long-term - permanent activity

Recommendation 6: Set research priorities for the implementation of the mission goals.

The implementation of the mission must be supported by appropriate research priorities, e.g. through focal points in the performance agreements and in the RTI pact.

Important implementation steps
One is recommended

- National Research Initiative ‚A Soil Deal for Europe‘,
- with the main topics
- Land use, soil sealing (development of methods, basis for monitoring... -- in the context of E2: quantitative soil protection)
- Soil compaction
- Nutrients
- Soil microbiome
- Strengthening of soil health and soil fertility
- Organic pollutants and microplastics in the soil
- Carbon storage
- Establishment of a research platform

Relation to EU mission goals

Research provides contributions to all 8 Objectives
- Reduce land degradation relating to desertification
- Conserve and increase soil organic carbon stocks
- No net soil sealing and increase the reuse of urban soils
- Reduce soil pollution and enhance restoration
- Prevent erosion

- Improve soil structure to enhance habitat quality for soil biota and crops
- Reduce the EU global footprint on soils
- Increase soil literacy in society across Member States

Usable instruments

- RTI pact, besides:
- LV of the universities and other research institutions
- BMLRT Research Program
- ACRP
- FWF funding programs
- HE (Mission WP, Ps. Calls)

Required capacities / requirements

- Support for the participation of Austrian institutions in tenders for the mission on the ground, which require self-financing
- close cooperation with networking platform (constant publication of ongoing research projects of all relevant institutions (federal, state, universities, federal offices and institutions, etc.)
- coordination and constantly updated publication of the current research projects of all relevant institutions (federal, state, universities, federal offices and institutes, ...) provide an overview and avoid duplication
- use of the expertise (results of already completed research projects and theses (Bachelor, Master, PhD) of all soil research institutions, including BOKU, Federal Environment Agency, research institutions of the BMLRT (AGES, BFW, BAW, Raumberg-Gumpenstein...)

Implementation responsibility

- BMBWF (for RTI pact, for LVs)
- BMLRT
- KLIEN
- FFG (for advice)
- FFG (for development)

Participation required by

- research institutions
- ÖAW with regard to ESS calls
- Departments
- Federal states

Resource requirements:
Financing partly from existing research funding from the various institutions plus financial resources for networking and cooperation

Implementation period
Accompanying research is an ongoing activity

Recommendation 7: Enable or support participation in Living Labs and Lighthouses (LL+LH).

In order for Austrian institutions and individuals to have a good chance of successfully participating in the Horizon Europe (HE) calls for LL+LH, targeted support is required at national level. Particular attention should be paid to communities/target groups that are not yet familiar with HE applications.

Relation to EU mission goals
- Operational Objectives 2.0: Co-create and upscale place-based innovations to improve soil health in all places
- 2.1: Engage with Member States and regions to build capacities for living labs and lighthouses
- 2.2: Create transnational clusters of living labs

Important implementation steps
- Comprehensive information and (individual) advice, especially for communities/target groups who are not yet familiar with HE applications
- Support in finding project partners (brokerage events, seed funding, initial financing...)
- Support (financial etc.) for upscaling local activities
- Promotion of LL+LH relevant initiatives at national level
- Offer of structures that make it easier to apply for calls, e.g. joint contract between LL+LH partners

Usable instruments
- FFG advisory services
- ACRP
- Funding programs (GAP strategy plan (GSP), LEADER, Interreg, LIFE, BMLRT departmental research, ...)
- HE (Mission WP, Ps. Calls)…

New instruments
Co-funding for participating in HE calls that require self-funding

Required capacities / requirements
- Dedicate existing funding instruments to prepare and support LL/LH initiatives
- Sufficient advisory capacity

- Identify and network interested parties in all relevant areas (companies, administration at all levels, research, education, etc.).

Implementation responsibility
- BMBWF (RTI-TF)
- BMLRT
- BMK
- KLIEN
- FFG

Participation required by
Federal states, Research institutions

Resource requirements:
Advice and support, including financial support for new target groups, third-party costs for accompanying measures (workshops/studies), co-financing of Living Lab projects/ activities (that are not funded by EU funds) via new or existing instruments

Implementation period
Immediately

Recommendation 8: Attract farmers as active soil ambassadors

- MAG Soil is of the opinion that the implementation of the mission can only be successful if the practitioners also stand behind it and support the mission. The link between farming, soil, food and practitioners, consumers, citizens, politicians and decision-makers needs to be strengthened in the future to promote mutual understanding and discourse and also to inform about the many soil activities that are already taking place. There is a lot that is innovative on Austrian farms; committed companies could be networked in this way, also across borders (e.g. the BL). Best practice examples can be shown (possibly with the help of a map of Austria).
- Winning managers (e.g. of agricultural and forestry areas, and other green and open spaces (city gardens, parks, leisure and recreation areas, nature conservation areas, etc.) as ambassadors and multipliers of the mission
- Research on and with agricultural and forestry operations and evaluation of innovations from practice in connection with living labs
- Focusing on particularly effective measures (with high leverage)
- Connection with lighthouses
- Collection of Best Practices in Soil Management – EU and International Examples

- Make activities within and outside of agriculture more visible (possibly with a map)

Relation to EU mission goals
An active involvement of the farmers as active soil ambassadors of the mission contributes both to the qualitative soil protection goals and to raising awareness. Recommendation is to be seen in close connection with the subject of living labs and lighthouses.

Important implementation steps
Need/interest in improving communication between practitioners among themselves and the interested population must be determined; it must be checked whether the mission can be integrated into existing activities of the practitioners or whether a new format is required.

Required capacities / requirements
- Cooperation between science/administration/politics
- find „volunteers“ who are happy to participate; develop a suitable format
- Endowment required for the participating practitioners
- LKÖ must be involved

Implementation responsibility
All

Resource requirements:
In principle, the recommendation is based on best practice examples from existing measures; Formats must first be developed if necessary;

Implementation period
Immediately, ongoing, long-term permanent activity

MISSION WATERS – Recommendations of the Mission Soil Action Group for the „Austrian implementation plan of the EU missions“

Framework conditions

The mission ‚Restore our Ocean and Waters by 2030' aims to restore our oceans and waters to a good condition by 2030. The general objective is broken down into three specific objectives, namely

1) **protect and restore marine and freshwater ecosystems and their biodiversity,**
2) **eliminate or prevent pollution of our seas and waters and restore habitats,**
3) **to make the ‚Blue Economy' sustainable, climate-neutral and circular.**

Premise
The water law obligations currently in force in Austria form the legal basis for ongoing and planned implementation activities on water management issues and the associated research initiatives. These already largely cover the main goals and directions of the mission at national and international level. The activities are supported in particular by the EU Water Framework Directive (WFD) and its „daughter directives" (e.g. Groundwater Directive, Environmental Quality Standard Directive), the EU Nitrate Directive, the EU Industrial Emissions Directive, the EU Municipal Waste Water Directive and the EU Floods Directive (HWRL).

In 2022, the third National Water Management Plan (NGP 2021) in the third implementation cycle of the WFD and the national flood risk management plan in the second implementation cycle of the WFD were published, which were drawn up in close cooperation between the federal government and the federal states. The comprehensive involvement of NGOs, interest groups and the public was guaranteed not least by the corresponding legal requirements (mandatory public participation).

For 30 years there has been a national and nationwide monitoring and investigation program operated by the federal and state governments according to uniform rules, which maps the water and water quality of groundwater and surface water and represents the basis for remediation measures. The legal basis for this is formed by the Austrian Water Law Act and the Water Condition Monitoring Ordinance. This instrument also represents the central basis for the preparation of management plans. For more than 125 years, a hydrographic measuring network has been operated in Austria, which collects data on Austria's water cycle and represents an essential basis for water management planning.

Technical, legal and research-relevant content that water management practice has to take into account is also obtained from the water-related implementation of nature conservation regulations by the federal states (in particular EU Fauna-Flora-Habitat Directive and Bird Protection Directive) as well as from national and international nature conservation strategies (e.g. Convention on Biological Diversity). This means that other departments are also taken into account and, if necessary, integrated. At this point,

reference should also be made to the Sustainable Development Goals of the United Nations, in particular SDG 6 (clean water and sanitation).

Water research in Austria is comprehensively interdisciplinary and interdisciplinary and combines issues of water, water technology and water resource research. According to the Baseline Study (2022), due to the continuous increase in the thematic scope in recent years, research institutions and commercial enterprises have increasingly specialized in individual aspects. In particular, the larger universities such as the University of Vienna, BOKU, the University of Innsbruck and the Vienna University of Technology have national scientific competencies relevant to Mission Waters; R&D in this area is also carried out by federal agencies (Federal Environment Agency, Federal Geological Institute, Central Institute for Meteorology and Geodynamics), by state authorities and non-university scientific institutions (IIASA, WasserCluster Lunz) and the Natural History Museum Vienna. Relevant know-how, especially with regard to intersectoral knowledge transfer, is contributed by the tourism sector and the ship and fisheries association. The Austrian Joint Waters Initiative (AJWI), founded in 2018, contributes to the strategic networking of research in Austria. In addition to networking national competencies and improving cooperation between research, industry and between sectors, the AJWI also aims to bundle national interests at European level (JPI Waters, positioning for Horizon Europe). The scientific competencies relevant to the mission are also repre-sented by three Christian Doppler Laboratories (CDL). The CD Laboratory for Dynamics of MetaEcosystems in Regulated River Landscapes systematically and comprehensively researches the complex Danube ecosystem, the CD Laboratory for Sediment Research and Management investigates erosion, transport and deposition of sediments and the CD Laboratory for innovative methods in river monitoring, modelling and River engineering develops a detailed understanding of the processes taking place in rivers.

Importance of the mission

The importance of the mission and the recommendations developed from it results from the strengthening of the path taken in water management practice, from the will to continue it ambitiously and from the motivation to adapt and optimise it if necessary. Furthermore, their importance results from the need to integrate current and future water management issues and framework conditions even more closely, with climate change and the decline in Biodiversity. Interdisciplinary water management approaches are to be used to a greater extent (e.g. the water body development and risk management concept GERM); new survey, evaluation and rehabilitation methods are to be developed and taken into account. Social indicators such as ecosystem services, are to be integrated.

The Integrated River Solutions in Austria (LIFE IP IRIS) project, which will run from 2019 to 2027, can be cited as a forward-looking example of an integrative project: It applies the GERM instrument to seven rivers in six federal states; Flood protection and the

ecological condition of the water bodies are to be improved, nature conservation issues and the topic of ecosystem services are integrated, as is modern monitoring to evaluate the measures. The BMLRT, the relevant departments of the affected offices of the state governments, Via Donau and the Federal Environment Agency are integrated into the project. Another example is the Christian Doppler Laboratory for Dynamics of Meta-Ecosystems in Regulated River Landscapes, which researches the complex ecosystem of the Danube to understand the impact of human activities on the biodiversity and ecosystem services of the river and to propose sustainable ecological measures for the Austrian Danube develop. The lab was launched in October 2021.

When implementing the missions, it is also about anchoring the processes mentioned more firmly in the social and socio-political context through appropriate information, through education and awareness-raising as well as through knowledge transfer.

On the one hand, numerous existing structures and instruments can be used to implement them. However, additional supplementary funding is also needed to ensure greater interaction between different areas.

The Austrian RTI Strategy 2030 and the RTI Pact 2021-23 derived from it represent an important framework for the implementation of the missions. In addition to the goal of increasing participation in EU missions, the following goals are relevant: support applied research and its impact on the economy and society; RTI to achieve climate goals; etc. raise awareness of the value of research and innovation in the public interest; expand research and technology infrastructure (RTIS) and ensure accessibility.

Obstacles

In particular, the integration of the areas of climate change and biodiversity, which must be strengthened, makes a „holistic“ approach in water management practice necessary. Experience shows that integrative and interdisciplinary projects are able to break new ground in water management practice. Obstacles in connection with the fulfilment of the mission‘s goals can arise in particular when implementing such projects: this is due to the fact that the subject areas relevant to water management are anchored in different federal ministries due to their area of responsibility, as well as the constitutionally justified determination of the competence of the federal states, in particular for nature conservation, fisheries and spatial planning. Spatial planning is also to be understood as a cross-cutting issue for which the federal government and local authorities are also responsible.

1. Proposals from MAG Waters for the Austrian implementation plan

The Mission Action Group Waters is made up of representatives from institutions relevant to implementation ; it was constituted in autumn 2021 and worked out proposals for the Austrian implementation plan in three meetings up to May 2022.

The challenge and at the same time opportunity of the mission lies in improving or strengthening the cooperation between policy (water management, biodiversity, climate change), research (RTI) and education and networking the areas much more closely.

Fields of action

Within the goals of the mission, 3 fields of action were derived:

Field of action 1: Education and awareness raising

Measures to protect or rehabilitate bodies of water and the sustainable use of water as a resource require increased efforts to raise awareness for specific target groups in order to ensure that these measures are supported by the population and thus support political action. A major challenge here is communicating the connections between the major water management issues of the future, the challenges of climate change and the biodiversity crisis. The Corona pandemic makes clear and even fuels widespread scepticism about scientific findings/results. The close interaction between professional competence or science and politics as well as a correspondingly coordinated communication with the population make measures more tangible for them and promote broad support for implementation. This will also be necessary for future measures in the field of water management.

A corresponding sensitization for water ecological and water management issues, problems and developments through adequate scientific communication, through the use of the media and through the development of specific modern tools should therefore be aimed at. In this context, it is particularly important to “translate” and adequately present (“visualise”) research results and transfer them more quickly and efficiently to implementation, for example by actively involving those affected. This requires the creation of appropriate institutions equipped with the necessary funds or institutionally anchored structures. These „coordination groups“ to be created are responsible for the orientation, evaluation and any adjustment of the corresponding processes as well as the networking of those affected. The „coordination groups“ also have to identify, integrate or, if necessary, create those interfaces that have to play a key role in mediation. Schools, extracurricular institutions and institutions of adult education are in a leading position in this context. Mention should be made in this context of teaching content in schools appropriate to age groups and the necessary further training for teaching staff, as well as any adjustments to curricula. Citizen science programs can raise awareness of bodies of water and knowledge, particularly about the animal and plant species that live there,

as well as climate change-related risks such as floods and droughts, among the general public, while at the same time providing information for water-related research. A broader integration of program tracks, such as FFG talents, is conceivable.

In doing so, attention must be paid to the implementation of appropriate data systems within these programs, which guarantee the necessary quality control, can be evaluated and are compatible with existing data storage. The already existing, comprehensive and publicly accessible Water Information System Austria (WISA) could offer the appropriate platform for this. The areas of knowledge of species and identification competence, which have been pushed into the background at all levels of education and research in recent years and which represent the central basis for the aquatic ecological assessment, must be promoted by appropriate measures.

Implementation steps

a. Identification, integration or creation of those interfaces that have to play a key role in teaching (schools, universities in the area of teaching, technical colleges, extracurricular institutions and adult education institutions);
b. teaching content in schools appropriate to age groups;
c. the necessary training and further education of the teaching staff;
d. adaptation of the teaching degree;
e. adjustments to curricula;
f. promotion of knowledge of the species;
g. raising awareness of issues such as environmental and climate change related risks, renewable energies.

Required capacities / requirements:

- Creation of appropriate institutions equipped with the necessary funds or institutionally anchored structures;
- Implementation of appropriate data systems, especially within citizen science programs, which ensure the necessary quality control, can be evaluated and are compatible with existing data storage;
- Use of existing expertise, networks and structures: e.g. the already existing, comprehensive and publicly accessible Water Information System Austria (WISA);
- The areas of knowledge of species and identification skills, which have been pushed into the background at all levels of education and research in recent years, as well as their application, are to be promoted through appropriate measures (e.g. through teacher training and further education; adjustment of the teaching degree);
- Will of the politicians for future-oriented changes and strategy as well as involvement of the stakeholders who are necessary for the implementation. Increase awareness and knowledge of this strategy and implementation plans;
- Budget for coordination, awareness activities, smaller studies

Finance/resource requirements:
About 30% of the funding should be used for this field of action; it would make the most sense if research projects always provided for a corresponding proportion of interdisciplinary knowledge transfer and public relations work;

Appropriate resources are also needed to strengthen species knowledge and identification skills (especially at universities, but also in teacher training).

With regards to governance, the following is proposed:
Mandate for inter-ministerial core group, extended group with specialist key persons with influential mandate and decision-making authority of their institutions, sounding board with multipliers and relevant stakeholders - communication open and transparent; Start with a motivated, active core group with the option to expand if necessary; Basis for the first steps: Existing strategies/legal foundations/programs/initiatives/programs/(teaching) plans that have already been budgeted for or are possible in the 2024-2026 budget as part of the RTI Pact. Also see the way as a goal; ensure that the staff are well-trained and motivated in this regard; possibly also linked to a relevant organization that can also play a leading role in implementation (and ideally be accepted by other institutions in this role).

Usable instruments

- Curricula; Teacher training; Funding programs such as Sparkling Science, Citizen Science, FFG talents regional; HEU calls;

Implementation responsibility

- BMBWF (Education); Educational institutions from kindergarten to universities, Universities and technical colleges in the field of teaching; Extracurricular institutions; Adult education institutions

Participation required by
Stakeholders from local to national

Implementation period

- immediately and permanently; 10 years (forming years of youth) until visible sustainability can be achieved.

Field of action 2: Knowledge transfer

The area of knowledge transfer is closely linked to that of raising awareness. At this point, the need to improve knowledge transfer between the various disciplines involved in water and aquatic theoretical and applied research should be emphasized. In this context, the increased planning and implementation of interdisciplinary projects and the

creation of appropriate exchange formats promote knowledge transfer. The transfer of knowledge from science to the political level and vice versa is also to be promoted. The appropriate summary and translation of research results and the adequate preparation in the spatial (e.g. for municipality, federal state, national area) and in the corresponding institutional context is essential in order to correctly address and facilitate the solution of water management challenges. The provision of corresponding institutionally anchored resources for the collection, summary, processing and distribution of knowledge at the policy, implementation and stakeholder levels should be emphasized. This also involves the creation of appropriate exchange formats in which science is also represented. As in the field of education and awareness-raising, the creation of appropriate institutions equipped with the necessary funds or institutionally anchored structures is necessary to enable the establishment or deepening of communication between science and politics. It would make sense to tie up a corresponding proportion of the funds for interdisciplinary knowledge transfer and public relations work in research projects.

The “Future Platform Water” is an example of a new exchange format. This was founded on the basis of the results of the „Austrian Water Treasure“ study published in 2021. This study provides an unprecedented analysis of the available groundwater resources, water uses and their development up to 2050. The effects of climate change can already be clearly felt in all water-dependent sectors - above all in agriculture. In some regions in the east of the country, there are already signs of conflicts over use due to the decline in groundwater resources and the simultaneous increase in water demand.

Implementation steps
a. Raising awareness of issues such as environmental and climate change related risks, renewable energies;
b. Collection, synthesis, processing and distribution of knowledge to policy, implementation and stakeholder levels. this also involves,

- Creation of appropriate exchange formats in which science and ‚practice‘ are represented;
- Creation of appropriate institutions or institutionally anchored structures for the establishment or deepening of communication between science and politics;
- Integration of interdisciplinary knowledge transfer and public relations in research projects;

Required capacities / requirements:

- Provision of corresponding institutionally anchored resources;
- Budget for coordination, awareness activities, smaller studies; resource mix necessary;
- Commitment, perseverance, national human resources, relevant programs/projects/ initiatives, governance;
- Reallocation of existing resources, and provision of new resources;
- Coordination groups;

- Reallocation of existing resources, and provision of new resources;
- Suggestion: Research projects should provide for a corresponding proportion of interdisciplinary knowledge transfer and public relations work with a corresponding budget.

Usable instruments
The exchange format “Water Platform for the Future” described above
Other tools that can be used are:

- Funding programs such as Sparkling Science, Citizen Science, FFG talents regional; HEU calls; EU database e-Corda; Hydraulic engineering laboratory (WBL);

New tools that should be used:
Integrative tools, e.g. framework for linking HE and LIFE projects;

Implementation responsibility
BMBWF (incl. education); BMLRT; BMK; Federal states; Funding agencies, e.g. FFG, ÖAD

Participation:
Universities, e.g. within the technology transfer centres; UniNetz (SDG), Technical colleges; Facilities according to FoFinaG, other non-univ. research institutes,

Implementation period

- can start immediately, e.g. with ongoing course of the universities;
- 4 years and longer;
- In terms of motivation / a motivating start, a conscious selection of a few key areas that have a shorter implementation time should be made right from the start;

Field of action 3: Technical focus

The greatest water management challenges in the coming years will be restructuring or renaturation of impaired and protection of near-natural aquatic ecosystems, sustainable management of surface water and groundwater and the sustainable use of water as a resource. In this context, the tension between hydropower as renewable energy / water protection / biodiversity should be mentioned in particular. The provision of the necessary water resources must be ensured, taking climate change into account. Corresponding changes in land use (land use; agriculture and forestry) are to be implemented. In this context, the corresponding measures to protect against extreme events caused by climate change (drought, floods) should also be mentioned. In this context, the resource management in relation to quantity management, i.e. quantitative water management, is one of the diverse usage claims that should be addressed in this context.

For water management planning, especially in the field of agricultural irrigation, current data and reliable forecasting tools are necessary in order to be able to take appropriate measures with regard to the responsible use of the valuable resource water and to ensure food production. The great challenge is certainly not to make the achievement of other goals too far away or even impossible when pursuing a goal.

Appropriate measures must be taken to stop the dramatic decline in water-related biodiversity. Process, biotope and species protection are to be understood as complementary approaches; Process protection can also refer to anthropogenically formed habitats. The hydrological and morphological rehabilitation of the rivers, taking into account their longitudinal and lateral connectivity, is to be carried out in accordance with the priorities drawn up in the national management plans. The areas of solids balance, sediment transport and related problems such as bottom depressions must be taken into account. As already started in the Austrian water industry in the past few years, recommendations for action from so-called Deriving „Best Practice“ examples of water body rehabilitation for future projects.

A catalogue of semi-natural bodies of water or body of water sections that are to be given priority protection from an ecological and water typological point of view is to be drawn up.

The use and management of bodies of water (e.g. by energy management, angling, pond management) should be placed more in an interdisciplinary scientific context.

Taxonomical expertise and determination competence are to be strengthened as a basis for understanding ecological processes. The importance of climate change for the spread of animal and plant species and the effects of expansive and invasive species in the native aquatic and semi-aquatic ecosystems must be given increased consideration. Measures must be taken to identify new trace substances and their effects, substance and pollutant inputs from point sources and from the area reduce, whereby great attention should also be paid to reducing the entry of (micro)plastic.

The hydrological and morphological rehabilitation of watercourses mentioned in the mission objectives and the restoration of their continuity requires the consistent continuation of the in Austria in particular through the implementation of the Water Framework Directive, which is reflected in particular in the gradual improvement of the proportion of surface water bodies with at least good ecological status or potential.

The national water management plans document both successes and the need for ambitious continuation. The implementation of the goals mentioned in the meadow strategy and peatland strategy created as part of the biodiversity strategy is essential in order to protect the endangered species in these to strengthen communities settled

in habitats. A wetland monitoring developed on the basis of selected aquatic and semiaquatic bioindicators is to be implemented in order to be able to document long-term developments, to create the basis for measures and to be able to evaluate them. This means that the body of water-related part of biodiversity monitoring should be implemented as the basis for measures and their success control.

As can also be derived from the Strategic Development Goals of the United Nations, bodies of water are increasingly to be seen as social-ecological systems. The prerequisite for this is the broadest possible „holistic" involvement of science, water management implementation, affected users of water and bodies of water and the population. The corresponding technically well-founded dialogue and exchange between these groups is a prerequisite for this and must therefore be guaranteed. Funding programs must be aligned accordingly. At this point, reference is made to the UniNEtZ options report on Austria's options for action to implement the UN Agenda 2030 for a future worth living.

It requires interdisciplinary research approaches in the fields of hydrology, hydrogeology, river morphology and aquatic ecology that take into account both the natural characteristics and their climate change-related changes. The prerequisites are the political and professional will as well as the appropriate resources for the further development of existing and development and testing of new methodical approaches. Molecular-biological methods (DNA barcoding, eDNA) should be mentioned here as an example, which represent both an essential contribution to the determination of biodiversity and an addition to the methodology for characterizing and evaluating water bodies.

The greatest water management challenges in the coming years will be restructuring or renaturation of impaired and the protection of near-natural aquatic ecosystems, flood risk and drought management under climate and land use change, improvement of the morphological condition and solids balance of running water, water in the context of renewable energies, the sustainable management of surface water and groundwater and the sustainable use of water as a resource; In this context, the conflicting priorities of hydropower as a renewable energy / water protection / biodiversity must be taken into account.

Implementation steps

MAG Waters sees the following need for action:

a. Provision of the necessary water resources, taking into account climate change, this includes

- In this context, the corresponding measures to protect against extreme events caused by climate change (drought, floods) should also be mentioned.
- Resource management in relation to quantity management

b. Measures to stop the dramatic decline in aquatic biodiversity, which includes

- process, biotope and species protection - as complementary approaches; Process protection can also refer to anthropogenically formed habitats;

c. Creation of a catalogue of semi-natural bodies of water or bodies of water sections and ecological corridors that are to be given priority protection from an ecological and water typological point of view;

d. Identification of new trace substances and their effects, to reduce substance and pollutant inputs from point sources and from the area, to reduce the input of (micro-) plastic deserves a lot of attention here;

e. Hydrological and morphological rehabilitation of watercourses (of national and international importance) and accompanying floodplain systems as well as the restoration of their continuity upstream and downstream for biota and sediments through the consistent continuation of the in Austria in particular through the implementation of the Water Framework Directive, which is reflected in particular in the gradual improvement of the proportion of surface water bodies with at least good ecological status or potential;

f. The implementation of the goals specified in the Alluvial Strategy and Moor Strategy to strengthen the communities settled in these endangered habitats;

g. Implementation of a wetland monitoring developed using selected aquatic and semiaquatic bioindicators for the documentation of long-term developments, for the development of measures and for the evaluation of measures; thus the body of water-related part of the biodiversity monitoring is implemented as a basis for measures and their success control

Three initiatives are derived from the need for action:

1. National research initiative ‚Cleaning up our water bodies' with four thematic priorities:

A. ‚Aquatic ecology in the light of climate change', includes changes in aquatic and semiaquatic fauna and flora by invasive and expansive species and the typological characteristics of standing and flowing water bodies and wetlands;

B. ‚Sustainable management of water resources altered by climate change';

C. ‚Restructuring and renaturation of rivers and restoration of longitudinal and lateral connectivity', and protection of near-natural rivers and river sections;

D. Identification of micropollutants and trace substances as well as (micro)plastics, their entry paths into water bodies, creation of methodological bases, assessment of their risk potential, possibilities for reduction;

... and the establishment of a research platform;

2. Development of the required research data infrastructure:

includes data management for aquatic and semiaquatic biodiversity; and networking with existing data storage;

3. Supporting the participation of Austrian institutions in the Danube River Basin Lighthouse

Required capacities / requirements:

- Use of the nationwide monitoring and investigation program that has been operated by the federal and state governments in Austria for 30 years according to uniform rules, which maps the water and water quality of groundwater and surface water and represents the basis for remediation measures; The legal basis for this is formed by the Austrian Water Law Act and the Water Condition Monitoring Ordinance;
- In addition, support for the participation of Austrian institutions in the mission's tenders, which require self-financing (co-financing);
- For water management planning, especially in the field of agricultural irrigation, current data and reliable forecasting tools are necessary in order to take appropriate measures with regard to the responsible use of the valuable resource water and to ensure food production, taking into account the ecological status of the water bodies and the quantitative status of the to be able to set groundwater;
- When pursuing a goal, the great challenge lies in not allowing the achievement of other goals to become far away or even impossible;
- As already started in the Austrian water management in the past years, recommendations for action from so-called best-practice examples of water body rehabilitation for future projects are to be derived;
- The use and management of bodies of water (e.g. by energy management, angling, pond management) must be placed more in an interdisciplinary scientific context; an analysis of rivers with a catchment area larger than 500km2 is required;
- Improving taxonomic expertise and determination competence, as a basis for understanding ecological processes;
- The importance of climate change for the spread of animal and plant species and the impact of expansive and invasive species in the native aquatic and semi-aquatic ecosystems must be given increased consideration;
- As can also be derived from the SDGs (Strategic Development Goals of the United Nations), bodies of water are increasingly to be seen as social-ecological systems; The prerequisites for this are the broadest possible „holistic" involvement of science, water management implementation, affected users of water and bodies of water and the population;
- The corresponding technically well-founded dialogue and exchange between these groups is a prerequisite for this and must therefore be guaranteed;
- funding programs are to be aligned accordingly;
- Use of the (recently presented) option report from UniNetz;
- interdisciplinary research approaches are needed in the fields of hydrology, hydrogeology, river morphology, aquatic ecology and social sciences, which take into

- account both the natural characteristics and their climate change-related changes; (e.g. the water body development and risk management concept GE-RM);
- Development and consideration of new survey, evaluation and rehabilitation methods;
- the Integrated River Solutions in Austria (LIFE IP IRIS) project, which will run from 2019 to 2027, can be cited as a forward-looking example of an integrative project: it applies the GE-RM instrument to seven rivers in six federal states; flood protection and the ecological condition of the water bodies are to be improved, nature conservation issues and the topic of ecosystem services are integrated, as is modern monitoring to evaluate the measures. The BMLRT, the relevant departments of the affected offices of the state governments, Via Donau and the Federal Environment Agency are integrated into the project; Prerequisites are the political and professional will as well as the appropriate resources for the further development of existing and development and testing of new methodical approaches; Molecular-biological methods (DNA barcoding, eDNA) should be mentioned here as an example, which represent both an essential contribution to the determination of biodiversity and an addition to the methodology for water body characterisation and assessment;

Usable instruments

- RTI Pact;
- EU Water Framework Directive (WFD) and „daughter directives“ (e.g. Groundwater Directive, Environmental Quality Standard Directive), the EU Nitrate Directive, the EU Industrial Emissions Directive, the EU Municipal Waste Water Directive and the EU Floods Directive (HWRL);
- National Water Management Plan (NGP 2021);
- National flood risk management plan;
- Nature conservation regulations of the federal states (in particular EU Fauna-Flora-Habitat Directive and Bird Protection Directive) as well as national and international strategies related to nature conservation (e.g. Biodiversity Convention);

besides:

- Performance agreements of universities and research institutions with BMBWF;
- Research initiative Earth System Sciences (ESS) (ÖAW in relation with the course with BMBWF);
- Research infrastructure funding;
- BMLRT Research Program;
- Environmental promotion, incl. Biodiv fund;
- ACRP;
- FWF funding programs;
- CDL;
- National Water Management Plan (NGP 2021);
- National flood risk management plan;

- HE (Mission WP, Ps. Calls);
- National and European funding programs (GAP strategy plan (GSP), LEADER, Interreg, LIFE, BMLRT departmental research, ...);
- FFG;
- Promotion within the scope of the Christian Doppler Society (CDLs)

Implementation responsibility
RTI-TF; BMBWF (LV); BMLRT; Funding agencies; FFG (for settlement)

Participation:
Universities and research institutes; ÖAW within the scope of the ESS calls; BL; Research institutions;

Implementation period
at least 10 years.

Selection of topic-related links:

- WISA - https://info.bmlrt.gv.at/themen/wasser/wisa.html
- NGP 2021 - https://info.bmlrt.gv.at/themen/wasser/wisa/ngp/ngp-2021.html
- HMP 2021 - https://info.bmlrt.gv.at/themen/wasser/wisa/hochwasserrisiko/risiko-managementplan.html
- Water Treasure study - https://info.bmlrt.gv.at/themen/wasser/nutzung-wasser/wasserschatz-oesterreichs-studie.html
- Water Platform for the Future - https://info.bmlrt.gv.at/themen/wasser/nutzung-wasser/zukunftsplattform.html
- Results of the surveillance programs - https://info.bmlrt.gv.at/themen/wasser/wasserqualitaet.html
- LIFE IP IRIS AUSTRIA - https://life-iris.at/
- WISA – Public query - https://wasser.umweltbundesamt.at/wisa-datenabfrage/#/
- Moor strategy 2030+ - https://info.bmlrt.gv.at/themen/wasser/wasser-eu-international/europaeische-und-internationale-wasserwirtschaft/feuchtgebiete/moorstrategie-oesterreich-2030plus.html
- Alluvial strategy - https://info.bmlrt.gv.at/service/publikationen/wasser/Auenstrategie-fuer-Oesterreich.html
- Options report - https://www.uninetz.at/optionenbericht

List of abbreviations

ACRPI	Austrian Climate Change Research Programm Implementation
AGES	Austrian Agency for Health and Food Safety GmbH
AIT	AIT Austrian Institute of Technology GmbH
AWS	Austrian promotional bank
BKA	Federal Chancellery
BL	Bundesländer - Federal States
BMAW	Federal Ministry of Labour and Economy
BMBWF	Federal Ministry of Education, Science and Research
BMF	Federal Ministry of Finance
BMG	Federal Ministries Act
BMK	Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology
BML	Federal Ministry of Agriculture, Forestry, Regions and Water Management
BMSGPK	Federal Ministry of Social Affairs, Health, Care and Consumer Protection
BOKU	University of Natural Resources and Life Sciences
CCCs	Comprehensive Cancer Centres
CDG	Christian Doppler Forschungsgesellschaft
EFRE	European Regional Development Fund
EIC	European Innovation Council
ELGA	Electronic health record
ERC	European Research Council
FFG	Austrian research promotion agency
FoFinaG	Research Funding Act
FTI	Research, Technology and Innovation
FWF	Austrian Science Fund
GÖG	Austrian National Public Health Institute for Health Promotion, Quality, Planning and Research
GSA	GeoSphere Austria
GSK	Humanities, social and cultural sciences
HE/HEU	Horizon Europe
IIASA	International Institute for Applied Systems Analysis
ISTA	Institute of Science and Technology – Austria
KLAR!	Climate Change Adaptation Regions (Klimawandel-Anpassungsregionen)
KLIEN	Climate and Energy Fund (Klima- und Energiefonds)
KNS	Climate Neutral City (Klimaneutrale Stadt)
LBG	Ludwig Boltzmann Society
LV	Performance Agreements

MAG	Mission Action Group
MS	Member states of the EU
ÖAW	Austrian academy of sciences
OeAD	Agency for Education and Internationalisation
OECD	Organisation for Economic Co-operation and Development
SAL	Silicon Austria Labs GmbH
SDGs	Strategic Development Goals of the United Nations
TRAMI	Transnational cooperation in mission-oriented policies“
UNCAN.EU	EU project; A Coordination and Support Action to prepare UNCAN.eu platform
WIFO	Austrian Institute of economic research