



SD-WISHEES



Joint Vision

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List of Partners

Acronym	Full title
CNR	(Coordinator) National Research Council of Italy (CNR)
AAS	The African Academy of Sciences
IRMI/KMI	Institut Royal Meteorologique de Belgique
WEG	World Experience for Georgia
EWA	Energy and Water Agency
CMCC	Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici
ISPRA	Italian Institute for Environmental Protection and Research
UEFISCDI	Unitatea Executiva Pentru Finantarea Invatamantului Superior A Cercetarii Dezvoltarii Si Inovarii
GSES	Gses Management B.V
ANR	Agence Nationale de la Recherche
MUR	Ministero dell'Università e della Ricerca
UEVORA	University of Evora
PRIMA	Fundación Prima
ECOALBANIA	EcoAlbania
BELSPo	Service Public Fédéral de Programmation Politique Scientifique
PAL	Project Aid Ltd

SUMMARY

The SD-WISHEES Joint Vision document outlines a collaborative strategy to protect cultural and natural heritage assets from the growing threats of hydroclimatic extremes, such as high-precipitation events, floods, droughts, and heatwaves across Europe and beyond. The project is committed to promoting inclusive, transdisciplinary research and innovation (R&I) efforts, through the Water-Climate-Cultural Heritage (WCCH) Nexus, strengthening links between science, policy, and communities to build resilience and sustainability in heritage protection.

Climate change exacerbates the vulnerability of both tangible assets, such as monuments and landscapes, and intangible assets, such as traditions and knowledge systems, with hydroclimatic extreme events posing serious risks to heritage, economies, and social cohesion, from global to local level. In particular, regions with limited resources and fragmented governance face added challenges in effectively safeguarding their cultural legacy and participating in European R&I initiatives. At the same time, cultural heritage is increasingly recognised not only as an asset at risk but also as a strategic resource for climate adaptation, resilience, and sustainable development.

Building on the final SD-WISHEES Roadmap and extensive stakeholder engagement and consultation, as well as on the recommendations related to enhancing and extending the impacts of possible Research and Innovation (R&I) pathways, which helped to identify cooperation barriers, innovative solutions, and best practices, the **Joint Vision identifies three strategic priorities for action: (i) supporting informed decision-making, (ii) enhancing cross-sectoral and transnational cooperation, and (iii) empowering communities, youth, and local knowledge systems for hydroclimatic resilient heritage.** The project aims to empower stakeholders including policy- and decision-makers, Research Funding Organisations (RFOs), scientific communities, businesses, local communities, young students, and international organisations, by co-creating adaptive solutions and supporting evidence-informed policies, R&I agendas and societal benefits.

The Joint Vision provides a strategic framework to guide future research, policy development, and collaborative action beyond the lifetime of the SD-WISHEES project. Its implementation will build on the partnerships, knowledge, and networks established during the project, supporting the uptake of R&I results into policy and practice while strengthening cooperation across the European Research Area (ERA), the Balkans, Africa, and other international organisations.

As a living strategic framework, the Joint Vision is intended to evolve through continued stakeholder dialogue, emerging scientific evidence, and future R&I initiatives. Together with the SD-WISHEES Roadmap, set of recommendations for enhancing innovation pathways, policy briefs and “best practice” documents, it provides a lasting legacy for strengthening hydroclimatic resilient cultural heritage, promoting evidence-informed decision-making, and fostering inclusive and sustainable cooperation across the WCCH Nexus.

THE CULTURAL HERITAGE CHALLENGE

Cultural heritage, as defined by UNESCO, represents the legacy we receive from the past, live in the present, and pass on to future generations—it embodies who we are and what shapes our collective identity. Cultural heritage extends beyond monuments and collections of objects (tangible culture) to include intangible dimensions such as languages, traditions, knowledge systems, and social practices, as well as natural heritage like landscapes and biodiversity. Together, these elements form the cultural and ecological fabric that sustains societies and their sense of belonging.

Placing culture at the heart of sustainable development is essential to ensuring a human-centred, inclusive, and equitable transition. The safeguarding and promotion of cultural heritage is both an end in itself and a vital driver of the three pillars of sustainability—social, economic, and environmental. Global policy frameworks, including the Paris Agreement and the United Nations 2030 Agenda for Sustainable Development, explicitly recognise the role of culture in supporting more resilient and adaptive socio-economic and governance models.

At the same time, cultural heritage is increasingly recognised not only as an asset at risk but also as a strategic resource for climate adaptation and resilience. Historic landscapes, traditional water management practices, Indigenous and local knowledge systems, and community-based stewardship provide valuable knowledge and solutions that can support more sustainable and context-specific responses to hydro-climatic challenges. Protecting heritage therefore also means strengthening society's capacity to adapt to climate change and manage future risks, while creating opportunities for the wider uptake, replication, and long-term application of R&I results across policy, practice, and society.

Scientific evidence increasingly highlights that climate change, particularly through its impacts on water cycle, poses a serious threat to the preservation of cultural heritage. Gradual temperature increase due to climate change, combined with hydroclimatic extremes, such as floods, droughts, and high-precipitation events, accelerate the deterioration of cultural assets and disrupt traditional ways of life. Water-related hazards have been identified as a leading factor in the degradation of cultural heritage, particularly in Europe. These risks manifest through multiple pathways—from flooding, sea-level rise, and weathering to the loss of wetlands, salinisation, and changes in land use—as well as through the socio-economic consequences of water crises. According to UNESCO assessments, as of March 2021¹, 35% of natural sites and 21% of cultural assets (both tangible and intangible) face high flood risk, while prolonged droughts and desertification contribute to the degradation of sites and the erosion of indigenous knowledge and traditions.

Societies have long recognised the importance of protecting cultural heritage for its educational, historical, and identity values. While national initiatives—such as those in Japan, Italy, Turkey, and the United Kingdom—have developed innovative approaches for conservation and restoration, global frameworks such as the Sendai Framework for Disaster Risk Reduction (2015–2030) and the Sustainable Development Goals provide a shared foundation for coordinated action. Yet, in the face of intensifying climate- and water-related hazards, renewed international cooperation is urgently needed to safeguard cultural assets and to develop innovative, sustainable measures for their protection, restoration, and adaptive management.

The scientific community has a pivotal role to play in this effort. By advancing knowledge on the complex interactions between water systems, climate dynamics, and cultural assets, research can support the design

¹ Arrighi, C. (2021). A global scale analysis of river flood risk of UNESCO World Heritage Sites. *Natural Hazards and Earth System Sciences*, 21(11), 3417–3432. <https://doi.org/10.5194/nhess-21-3417-2021>

of effective adaptation measures and inform decision-making processes. This requires strong transdisciplinary collaboration—combining expertise in hydrology, climate and biological sciences, heritage studies, engineering, social sciences, and policy analysis—as well as mechanisms for translating scientific insights into policy and community action through participatory co-design, stakeholder engagement, and knowledge exchange that support the uptake and long-term use of research results. In this regard, transnational R&I initiatives such as the Joint Programming Initiatives (JPIs), PRIMA, and the SD-WISHEES project itself provide a unique platform to coordinate research, align national efforts, and strengthen the science-policy interface. It also requires integrating scientific knowledge with traditional, Indigenous, and local knowledge systems through participatory and co-creation approaches that strengthen evidence-informed decision-making and community resilience.

Through this Joint Vision, SD-WISHEES seeks to build on these foundations to promote a more integrated approach linking **water resilience, cultural heritage preservation, and sustainable development** through the WCCH Nexus. The Joint Vision provides a strategic framework to guide future research, innovation, policy, and practice, supporting the effective uptake, scaling, and long-term sustainability of R&I results, ensuring that cultural heritage contributes not only to preserving the legacy of the past but also to strengthening climate resilience and sustainable development for future generations.

WHAT ARE THE MAIN DRIVERS?

Hydroclimatic extreme events are becoming more frequent and severe, threatening both cultural and natural heritage assets across Europe and beyond. Furthermore, the Mediterranean basin is considered a climate change “*hotspot*” because it is warming faster than the global average, with more severe impacts like heatwaves, droughts, floods, extreme precipitation events and sea level rise. Floods damage historic cities and monuments, droughts compromise traditional landscapes fostering land degradation phenomena, heatwaves negatively impact socialization, storms accelerate the deterioration of fragile sites, and sea level rise accelerates shoreline erosion. Climate change, combined with urbanisation and environmental degradation, is amplifying these threats.

Cultural heritage—monuments, buildings, artefacts, landscapes, traditions—is **increasingly exposed to multiple and interlinked risks**. **Natural heritage**, such as wetlands, forests, and river basins, which form part of cultural identity, **is equally at risk**. These vulnerabilities also affect tourism, traditions, local economies, and community cohesion, while increasing the need for accessible knowledge, innovative tools, and evidence-informed solutions that can be effectively adopted by policymakers, practitioners, and communities.

At the same time, widening countries, specifically including in the Balkans and Africa, face structural barriers to participating in European R&I. The difficulty of building effective partnerships, limited resources, fragmented governance, and a lack of technical capacity prevent many regions from fully engaging in transnational cooperation programmes. This not only widens the innovation gap but also undermines collective capacity to respond to shared challenges and address the WCCH Nexus. In addition, the limited uptake, replication, and long-term sustainability of R&I results reduce the potential societal, policy, and market impacts of existing knowledge and solutions. Addressing these challenges requires stronger cross-sectoral and transnational cooperation, evidence-informed decision-making, and greater integration of scientific, traditional, Indigenous, and local knowledge systems.

The SD-WISHEES project has contributed to addressing these drivers by **promoting heritage protection, climate resilience, and long-term collaboration in the WCCH Nexus through the Joint Vision and Roadmap**, providing a strategic framework for future research, policy, and practice.

WHAT IS THE VISION?

The vision of SD-WISHEES is to enhance collaboration and strategic alignment between ERA, the EU, the Balkans and Africa in R&I to tackle effectively the impacts of hydroclimatic extremes on cultural and natural heritage through an integrated WCCH Nexus approach. It seeks to strengthen the uptake, long-term sustainability, and replication of R&I results across policy, practice, and society, fostering resilient and adaptable solutions that respond to diverse regional contexts.

It aspires to safeguard heritage not only as an asset at risk but also as a driver of climate resilience, **sustainable development, innovation, and societal wellbeing**, strengthen social resilience, and promote inclusivity by bridging regions and actors under-represented in R&I actions in Europe and beyond. Heritage is understood not only as the legacy of the past but as a foundation for identity, wellbeing, knowledge, adaptive capacity and innovation. A resilient heritage contributes to community cohesion, inspires creativity, and supports the green and digital transitions.

This vision recognises that effective climate adaptation requires integrated, cross-sectoral and transdisciplinary collaboration in the WCCH Nexus framework, connecting research, policy, practice and communities. It promotes meaningful stakeholder engagement, co-creation, and knowledge exchange to ensure that R&I outputs are relevant, accessible, and widely adopted. It values scientific knowledge alongside traditional, Indigenous and local knowledge systems, acknowledging their essential role in strengthening climate resilience and supporting sustainable adaptation pathways for cultural and natural heritage protection.

Protecting both tangible and intangible cultural heritage assets, as well as natural heritage, from hydroclimate extremes is an investment in the future, especially for supporting sustainable new generations. It is about **ensuring that monuments, landscapes, traditions, and ecosystems continue to inspire, sustain, and connect future generations while actively contributing to climate adaptation, resilience, and sustainable development, through the long-term application, scaling, and continuous improvement of knowledge, innovative solutions, and collaborative action contributing to Hydroclimatic Resilient Heritage.**

WHAT IS THE MISSION?

The mission of SD-WISHEES is to mobilise, align, and reinforce R&I efforts across multiple-sectors and regions in Europe and beyond. It seeks to create a coherent WCCH Nexus framework where science, policy, practice and society collaborate to co-design, co-produce, and implement solutions and tools for the protection of cultural heritage against the growing challenges posed by the increase of hydro-climatic extreme events due to climate change.

SD-WISHEES will deliver practical strategies to support governance innovation, evidence-informed decision-making, knowledge generation and exchange, and the development of user-centred tools and methodologies that facilitate the uptake, long-term sustainability, and replication of R&I results in the context of the WCCH Nexus.

The mission also aims to strengthen the translation of research into policy and practice by fostering cross-sectoral and transnational cooperation, supporting the uptake of R&I results, encouraging continuous stakeholder engagement and co-creation, and promoting scalable, adaptable, and context-sensitive solutions across different regions.

The mission also emphasises inclusivity. By empowering widening countries strengthening equitable partnerships across Europe, the Balkans and Africa, building capacity, and creating opportunities for participation for youth, local communities, and diverse stakeholders, SD-WISHEES strives to ensure that no region or community and no person are left behind. The project also recognises the value of scientific, traditional, Indigenous, and local knowledge systems as complementary sources of innovation and resilience. Through mutual learning, knowledge exchange, and long-term collaboration, heritage resilience becomes shared responsibility, driven by collective innovation, and solidarity across borders and generations.

WHAT ARE THE GRAND CHALLENGES?

Safeguarding cultural and natural heritage from hydroclimatic extremes requires overcoming a series of interconnected challenges:

- The insufficient integration of cultural heritage protection into climate adaptation, water governance, disaster risk reduction, and resilience policies limits coherent, integrated and effective action across sectors continue to hinder coordination among institutions, sectors, and governance levels.
- Knowledge, data, and monitoring gaps, including the lack of interoperable information systems, risk assessment methods, and evidence to support informed decision-making, constrain effective adaptation to anticipate, assess, and manage risks, while limiting the effective uptake and application of R&I results.
- Technological limitations include a lack of tailored user-centred monitoring systems and predictive tools operational guidance, and accessible methodologies for heritage resilience.
- The increasing frequency and intensity of extreme events, such as floods, droughts, heatwaves, sea level rise, and storms, combined with socio-economic pressures, urbanisation, land degradation, and biodiversity loss, multiplies the risks to fragile cultural and natural heritage assets.
- The limited recognition and integration of traditional, Indigenous, local, and living heritage knowledge systems reduce opportunities to develop context-sensitive, co-created and community-based adaptation strategies.
- The unequal participation of widening countries in European R&I together with persistent disparities affecting several territories, such as the Balkans and Africa, exacerbates innovation and protection gaps, limiting opportunities for knowledge exchange, institutional learning, and equitable partnerships.
- Insufficient uptake of research results means that scientific knowledge is not adequately translated into policy, practice, market innovation, or community benefit. Many valuable project outputs are not sustained, replicated, or scaled beyond individual project lifetimes.
- Limited institutional capacity and unequal access to research funding hinder participation in transnational R&I programmes, while insufficient long-term investment and financial sustainability reduce the continuity and impact of successful initiatives.
- Limited stakeholder engagement and co-creation throughout R&I processes reduce the legitimacy relevance, usability, and long-term adoption of solutions by policymakers, practitioners, and communities.
- Fragmented dissemination, communication, and knowledge-sharing mechanisms limit awareness of existing tools, methodologies, and good practices, resulting in duplication of effort and missed opportunities for collaboration and wider uptake.

These challenges are systemic. Addressing them requires integrated approaches that combine science, policy, governance, innovation, community participation and different knowledge systems. They also demand cross-border, cross-sectorial and intergenerational cooperation, as hydro-climatic extremes do not respect political boundaries and affect societies across all regions and generations.

SD-WISHEES is a practical attempt to bridge these gaps by aligning research agendas, mobilising stakeholders, strengthening evidence-informed decision-making, promoting the co-creation, uptake, and long-term sustainability of R&I results and promoting inclusive solutions.

TARGET GROUPS OF THE SD-WISHEES JOINT VISION

The SD-WISHEES joint vision aims to create a shared framework for addressing systemic challenges at the intersection of **water, innovation, sustainability, health, environment, and society**. Its outcomes are designed to generate tangible benefits for a wide range of target groups who play essential roles in shaping water-related research, policy, and practice across Europe the Balkans, Africa and beyond.

1. Policymakers and public authorities

National, regional, and local authorities responsible for water, environment, civil protection, cultural heritage, and health policies together with public RFOs are key beneficiaries of SD-WISHEES. The project provides them with evidence-based recommendations and policy tools to strengthen the integration of water, climate and cultural heritage objectives in strategic planning and regulatory frameworks. By facilitating access to consolidated scientific knowledge and supporting evidence-informed decision-making, SD-WISHEES supports the design of more coherent and resilient policies that align with the Sustainable Development Goals and the EU's Water Resilience and Climate Adaptation strategies, as well as regulations and directives in the context of WCCH Nexus, while promoting the uptake, scaling, and long-term sustainability of R&I results within governance, planning and management processes.

2. R&I communities

Through collaborative agenda-setting activities, innovation exercises, knowledge synthesis, and shared research priorities, the project enables researchers to identify gaps, align agendas, and develop interdisciplinary approaches. It also fosters stronger connections between water, climate and cultural heritage research domains, promoting innovation pathways that address emerging risks and support sustainable solutions in the context of the WCCH Nexus. It also promotes stronger collaboration in the context of ERA between European communities and widening countries (e.g., in the Balkans and Africa), encouraging equitable participation, capacity building, and long-term research cooperation, including mentoring, knowledge exchange, co-creation, and institutional learning that strengthen future participation in international and transnational R&I initiatives.

3. Cultural heritage, water, climate and disaster risk management practitioners, businesses and professionals

Utilities, SMEs, technology providers, and consulting firms in the water, climate and cultural heritage sectors will benefit from SD-WISHEES through improved access to research outcomes, demonstration projects, and opportunities for collaboration in innovation ecosystems. The project's emphasis on co-creation and demonstration encourages the uptake of new technologies and nature-based solutions, while strengthening the links between scientific advances and market deployment. The Joint Vision promotes the uptake of R&I results into practice by supporting risk assessment, monitoring, preparedness, adaptation planning, and hydroclimatic resilient heritage management, while encouraging the co-design of practical, user-centred

tools, technologies, and methodologies that can be adapted, replicated, and sustained across different operational contexts.

4. Civil society, young people, and local communities

SD-WISHEES also targets citizens, NGOs, young people, and community organisations that contribute to stewardship and awareness. By promoting inclusive dialogue and knowledge sharing, the project enhances public understanding of water-climate-cultural heritage interlinkages and supports behavioural change. Empowering communities to participate in decision-making processes strengthens social ownership of policies and solutions. Moreover, youth involvement can benefit both R&I initiatives as well as the youth themselves. Initiatives that are developed in partnership with youth are more likely to be effective at engaging the population and, therefore, to have a greater impact. Involving young people as partners in decision-making processes that affect them or in the search for innovative solutions, given their strong propensity for divergent thinking and the generation of a wide variety of new ideas, increases the likelihood that decisions or innovations will be accepted, adopted, and integrated into their daily lives. The SD-WISHEES project promotes participatory approaches, co-creation, and the integration of traditional, Indigenous, and local knowledge systems alongside scientific knowledge, strengthening community ownership, climate literacy, and long-term stewardship of cultural heritage.

5. European and international partnerships

Finally, SD-WISHEES serves as a bridge between European initiatives and global frameworks. International organisations, RFOs, and networks will benefit from the project's insights on how to coordinate actions, align strategies, and scale up successful practices. The joint vision thus contributes to building a stronger, more coherent global research and policy landscape for water, climate and cultural heritage. By fostering cross-sectoral and transnational collaboration, the project supports the alignment of research agendas, the exchange of good practices, and the development of scalable solutions that reinforce climate resilience and sustainable cultural and natural heritage management across regions and supporting the broader societal uptake of R&I results.

6. Education, training, and capacity-building organisations

Schools, universities, vocational training providers, professional associations, and lifelong learning organisations can use SD-WISHEES outputs to strengthen education, professional development, climate literacy, and intergenerational knowledge transfer related to cultural heritage resilience.

WHAT ARE THE STRATEGIC PRIORITIES?

Building on the SD-WISHEES Roadmap on strategic R&I needs and priorities, recommendations for R&I uptake, and Hurdles for participation in transnational R&I programmes deliverables and extensive stakeholder engagement and consultation, SD-WISHEES has identified three interrelated strategic priorities:

1. Supporting Informed Decision-Making by strengthening uptake and impact

Strengthening the evidence-base is required to integrate cultural heritage into climate adaptation, disaster risk reduction, and water governance. This includes improving risk assessment and monitoring systems, developing interoperable knowledge infrastructures, supporting the implementation of cultural heritage indicators, and promoting innovations in dissemination and investments that enhance evidence-informed policies and that facilitate the uptake, replication, transferability, and long-term sustainability of R&I results.

Achieving such requires promoting the co-design of tools and methodologies with end-users to ensure their usability, accessibility (including low-tech solutions where appropriate), adaptability, and scalability across different contexts. It also requires encouraging the integration of project outputs into existing decision-making systems and the development of shared digital repositories for tools, methods, datasets, and training materials, enabling long-term knowledge sharing and wider uptake of research outcomes.

2. Enhancing Cross-Sectoral and Transnational Cooperation with widening regions

Fostering long-term collaboration across disciplines, sectors, institutions, and regions to address the interconnected challenges of the WCCH Nexus. This priority promotes coordinated R&I programming, stronger partnerships across the ERA, the Balkans, and Africa, knowledge exchange, capacity building, and the wider uptake of R&I results through existing networks and cooperation mechanisms. It also encourages project clustering, collaboration across initiatives, and the development of long-term partnerships that extend beyond individual project lifecycles.

To maximise long-term impact, this priority emphasises aligning R&I activities with policy and legal frameworks, strengthening cross-sectoral and inter-ministerial cooperation, identifying champion stakeholders, establishing permanent support centres, and diversifying funding opportunities to ensure continuity beyond project funding. Sustainable funding mechanisms and improved communication of funding opportunities are recognised as essential for maintaining stakeholder engagement and supporting the implementation of project results long-term. Particular attention is given to strengthening capacity building, flexibility, adaptability, and interregional knowledge transfer, especially in less developed regions, while ensuring that transnational cooperation delivers clear and tangible local benefits.

3. Empowering Communities, Youth and Local Knowledge Systems for Hydroclimatic Resilient Heritage

Promoting participatory and inclusive approaches that place communities and youth at the centre of Hydroclimatic Resilient Heritage. This priority supports the integration of traditional, indigenous, and local knowledge systems alongside scientific knowledge, strengthens community and youth engagement and local leadership, and encourages continuous stakeholder engagement, co-creation, and knowledge exchange

processes that enhance the long-term resilience, stewardship, ownership, and societal uptake of cultural heritage.

It also reinforces education and capacity-building by linking project training activities with professional certification and career pathways, co-developing curricula for young people, students, and professionals, embedding long-term mentoring programmes, and promoting peer-learning and interregional knowledge transfer. Stakeholder engagement should begin early and continue throughout project implementation through structured local committees, participatory governance, and arts-based approaches that foster trust, inclusion, and ownership.

Evidence from stakeholder consultations further highlights that communities, including young people associate the protection of cultural heritage from extreme hydroclimatic events with identity, community, tradition, and history, underlining the importance of community engagement and knowledge sharing. These findings also suggest that while transnational cooperation remains important, its added value should be clearly connected to local needs and benefits to strengthen participation and societal uptake.

Together, these priorities form a comprehensive agenda and provide a strategic framework that connects research, policy, practice, education, and society. They promote integrated solutions that strengthen climate resilience, support sustainable development, and ensure that cultural heritage continues to contribute to the wellbeing, identity, and adaptive capacity of present and future generations. They emphasise the importance of linking technical innovation with policy change, education and capacity building, sustainable governance and funding, stakeholder co-creation, and societal engagement to maximise the long-term impact and legacy of R&I.

The SD-WISHEES Joint Vision is not only about producing knowledge but also about creating lasting pathways for impact in the WCCH Nexus through collaboration, innovation, capacity building, and sustainable implementation.

HOW WILL THE JOINT VISION BE IMPLEMENTED AND MONITORED?

The Joint Vision will be implemented through the SD-WISHEES Roadmap, which identifies priority actions, stakeholder responsibilities, and opportunities for collaboration across research, policy, practice, and society. Implementation will be guided by participatory, evidence-informed, and adaptive approaches that promote collaboration across governance levels, sectors, and regions, ensuring that actions respond to evolving challenges and stakeholder needs.

Implementation will rely on continuous stakeholder engagement, co-creation, cross-sectoral partnerships, and transnational cooperation involving researchers, policymakers, public authorities, practitioners, businesses, civil society organisations, young people, local communities, education and training providers, and international organisations. Particular emphasis will be placed on strengthening equitable partnerships with Widening countries, such as the Balkans and Africa, promoting mutual learning, mentoring, institutional capacity building, and knowledge exchange.

The implementation process will support the development, testing, deployment, and long-term uptake of innovative tools, methodologies, governance approaches, and capacity-building activities that strengthen resilience across the WCCH Nexus. Solutions will be developed and refined through user-centred approaches, ensuring that they are practical, accessible, adaptable to different contexts, and capable of delivering lasting societal, regulatory, and, where appropriate, market impacts.

Monitoring will assess not only the implementation of planned actions but also the uptake, effectiveness, replication, scalability, and long-term sustainability of R&I results. Progress will be evaluated through appropriate indicators covering governance, stakeholder engagement, capacity building, policy integration, knowledge transfer, innovation uptake, and societal impact. Monitoring will also support continuous learning, enabling the periodic review and refinement of priorities, actions, and implementation mechanisms based on evidence, stakeholder feedback, and emerging challenges.

The implementation of the Joint Vision will also promote knowledge sharing, project clustering, and collaboration with complementary European and international initiatives to maximise synergies, avoid duplication, and accelerate the transfer of knowledge, tools, and good practices across regions and sectors.

The Joint Vision is intended to remain a living and evolving framework. Its implementation will therefore encourage long-term institutional commitment, diversified funding opportunities, and sustainable governance arrangements that ensure the continuity, maintenance, and further development of successful initiatives beyond individual project lifecycles. Regular review and stakeholder dialogue will enable the Joint Vision to evolve in response to scientific advances, policy developments, societal needs, and emerging hydroclimatic risks.

Successful implementation will depend on sustained collaboration among research-performing organisations, RFOs, policymakers, practitioners, businesses, civil society, and communities, recognising that hydroclimatic resilient cultural heritage is a shared responsibility requiring long-term commitment and collective action.

WHAT ARE THE ILLUSTRATIVE APPLICATIONS?

The SD-WISHEES Joint Vision can be applied across a wide range of research, policy, and practice contexts through the WCCH Nexus to strengthen hydroclimatic Resilient Heritage. Illustrative applications include:

- Designing future European, national, and regional R&I programmes that integrate cultural heritage into climate adaptation, disaster risk reduction, and water governance agendas, while promoting the uptake, long-term sustainability, and replication of R&I results.
- Supporting RFOs in developing coordinated research agendas, joint calls, and funding instruments aligned with the strategic priorities identified in the SD-WISHEES Roadmap, including mechanisms that encourage interdisciplinary and transnational collaboration, capacity building, demonstration activities, and the continuation of successful initiatives beyond project lifecycles.
- Informing evidence-based policymaking by integrating cultural heritage considerations into climate adaptation strategies, water management plans, and disaster risk reduction frameworks, supported by interoperable data, risk assessment methodologies, and accessible knowledge resources.
- Strengthening cross-sectoral cooperation among heritage managers, water authorities, climate scientists, civil protection agencies, policymakers, and local communities to develop integrated and context-specific adaptation solutions through continuous stakeholder engagement, co-creation, and knowledge exchange.
- Promoting community-led adaptation initiatives that combine scientific knowledge with traditional, Indigenous, and local knowledge systems to enhance the resilience of cultural and natural heritage, strengthen local ownership, and support the wider societal uptake of R&I.
- Supporting capacity-building activities, education, and training programmes for researchers, practitioners, public authorities, youth, and civil society organisations working across the WCCH Nexus, including lifelong learning, mentoring, professional development, and the transfer of knowledge across generations and sectors.
- Supporting the co-design, testing, validation, and deployment of practical, user-centred tools, technologies, methodologies, and governance approaches that are adaptable to different environmental, institutional, and socio-economic contexts.
- Promoting open knowledge exchange through digital platforms, searchable repositories, project clustering, and the sharing of tools, methodologies, educational resources, and good practices to maximise synergies and reduce duplication of effort.
- Facilitating international cooperation between Europe, the Balkans, Africa, and other regions through knowledge exchange, collaborative research, and the sharing of good practices and innovative solutions, while strengthening equitable partnerships, institutional learning, and long-term collaboration.

These illustrative applications demonstrate how the Joint Vision can continue to guide future R&I initiatives, policy development, and practical actions beyond the lifetime of the SD-WISHEES project, supporting the effective uptake, scaling, and long-term sustainability of R&I results, contributing to more resilient communities and the long-term protection of cultural and natural heritage under a changing climate.

WHAT ARE THE EXPECTED IMPACTS?

The implementation of the SD-WISHEES Joint Vision is expected to generate long-term scientific, policy, societal, economic, and environmental impacts by strengthening the WCCH Nexus. Expected impacts include:

- More evidence-informed decision-making through improved knowledge, risk assessment, monitoring approaches, and the integration of cultural heritage into climate adaptation, disaster risk reduction, and water governance policies, supported by interoperable data, accessible knowledge resources, and improved decision-support tools.
- Stronger cross-sectoral and transnational cooperation across the ERA, the Balkans, Africa, and other international organisations and initiatives, fostering more coordinated R&I efforts and long-term institutional partnerships.
- Greater alignment of future R&I agendas and funding programmes with the priorities identified in the SD-WISHEES Roadmap, supporting collaborative, transnational and interdisciplinary research across the WCCH Nexus, while promoting the continuity and sustainability of successful initiatives beyond individual project lifecycles.
- Increased capacity of researchers, policymakers, practitioners, RFOs, educators, and local communities to address the complex challenges posed by hydroclimatic extreme events through integrated, evidence-based approaches, supported by education, lifelong learning, mentoring, and knowledge exchange.
- Greater recognition and integration of traditional, Indigenous, and local knowledge systems alongside scientific knowledge, contributing to more inclusive, context-sensitive, co-created, and socially accepted adaptation strategies.
- Enhanced participation of local communities, youth, civil society, and other stakeholders in the co-creation, implementation, and stewardship of hydroclimatic resilient cultural heritage, strengthening local ownership and long-term resilience.
- Improved uptake of R&I results into policy, management practices, governance processes, and investment decisions, strengthening the long-term resilience of cultural and natural heritage and generating lasting societal, regulatory, and, where appropriate, market impacts.
- Greater availability and use of practical, user-centred tools, technologies, methodologies, and governance approaches that support adaptation planning, cultural and natural heritage management, and climate resilience across different territorial and institutional contexts.
- Improved knowledge sharing through open, interoperable, and searchable platforms, project clustering, and the wider dissemination of good practices, reducing duplication of effort and accelerating innovation.
- A lasting collaborative network that continues to facilitate knowledge exchange, capacity building, international cooperation, institutional learning, and the long-term uptake and replication of R&I results beyond the lifetime of the SD-WISHEES project.

Collectively, **these impacts can contribute to a more resilient, inclusive, innovative, and coordinated European and international R&I landscape, where cultural heritage is increasingly recognised not only as**

an asset to be protected but also as a strategic resource for climate adaptation, sustainable development, and societal resilience. By strengthening collaboration across science, policy, practice, and society, the Joint Vision will help ensure that R&I generate lasting benefits for present and future generations through the effective uptake, scaling, and long-term sustainability of knowledge, tools, and solutions within the WCCH Nexus.

The SD-WISHEES project has contributed to strengthening the ERA by fostering closer alignment between national and transnational R&I programmes addressing WCCH Nexus. Its legacy extends beyond the project's lifetime by providing a shared strategic vision and roadmap that support future research, policy development, and collaborative action. Its impacts extend beyond the scientific community to influence policies, institutions, and societies, generating systemic changes that can strengthen Europe's capacity to respond to the intertwined challenges of climate resilience, water management, disaster risk reduction, environmental sustainability, and cultural heritage preservation.

At the **strategic level**, SD-WISHEES has strengthened the coherence and effectiveness of European R&I systems by improving coordination, alignment, and synergies among programmes, RFOs and funding organisations. Through joint programming stakeholder engagement, strategic foresight, and the development of the SD-WISHEES Roadmap the project can contribute directly to the objectives of the ERA, particularly its actions on prioritisation and the optimisation of national R&I investments. SD-WISHEES also has supported the full participation of **Widening countries** in collaborative R&I efforts, reinforcing research capacities, bridging geographical divides, and promoting balanced European excellence. Furthermore, the project strengthened international cooperation with neighbouring regions such as the Balkans, the Mediterranean, and Africa, thereby creating a foundation for continued international collaboration on hydroclimatic resilient cultural heritage. The project's **impact on national R&I programmes** will be achieved through the development of a shared strategic framework and common research agendas inspired by SD WISHEES findings. By encouraging the alignment of priorities, promoting cooperation between funding organisations, and sharing knowledge, SD-WISHEES provided a basis for optimising the use of public investments while avoiding duplication of efforts. This alignment of priorities promotes the emergence of a coordinated, impact-driven network of national and regional programmes. It also empowers less experienced research funders by fostering mutual learning, capacity building, and cross-country cooperation, which together contribute to a more integrated European research ecosystem.

For the **R&I community**, SD-WISHEES stimulated scientific excellence and interdisciplinary collaboration. The project strengthened links between disciplines—such as hydrology, climate studies, cultural heritage, and social sciences—while providing new opportunities for transnational networking and joint projects. SD-WISHEES supported the development of integrated R&I agendas, evidence-informed decision-making, and stronger links between research, policy, and practice. This, in turn, is expected to facilitate the generation of innovative solutions and increase the uptake of R&I results to address hydroclimatic extreme events affecting cultural and natural heritage.

The project also can deliver strong **socio-economic and policy impacts**. By improving the science-policy-society interface, SD-WISHEES **has strengthened the capacity to translate** research findings into actionable recommendations for decision-makers. The project **provided strategic guidance, policy recommendations, and implementation pathways** that support adaptive governance models cross-sectoral cooperation, and stakeholder participation. These outcomes strengthen the resilience of European societies and economies in the face of climate change and resource scarcity. The project contributes directly to the achievement of several Sustainable Development Goals (SDGs), notably **SDG 6 (Clean Water and Sanitation)**, **SDG 11**

(Sustainable Cities and Communities), and **SDG 13 (Climate Action)**, while reinforcing European cohesion and reducing regional disparities.

From an **environmental and cultural perspective**, SD-WISHEES promoted innovative approaches to protect ecosystems, water resources, and cultural heritage against the impacts of hydroclimatic extremes. The project contributes to the implementation of the **European Green Deal**, the **EU Water Resilience Strategy**, and the **European Strategy for Climate Adaptation** by supporting climate adaptation, restoration, and risk management measures in the WCCH Nexus context. Its demonstration activities served as practical showcases of sustainable solutions that integrate environmental, cultural, and socio-economic dimensions. The knowledge generated through SD-WISHEES provides a foundation for future demonstration activities, collaborative initiatives, and the implementation of hydroclimatic resilient heritage management approaches across different territorial contexts.

Finally, SD-WISHEES embed **cross-cutting impacts** that ensure the sustainability and inclusiveness of its results. Open Science principles, gender equality, and the “Do No Significant Harm” approach are fully integrated across all project activities. Through stakeholder engagement, knowledge dissemination, and policy dialogues, SD-WISHEES ensured that its outputs—such as the Joint Vision, policy briefs, and strategic roadmap and recommendations—remain accessible and relevant well beyond the project’s lifetime. The continued implementation of the Joint Vision will depend on the commitment of researchers, RFOs, policy- and decision-makers, practitioners, civil society, and international partners to build on the networks, knowledge, and strategic priorities established through SD-WISHEES. The project’s long-term legacy will be a more coordinated, inclusive, and evidence-informed R&I landscape capable of transforming scientific knowledge into actionable strategies that enhance climate resilience, protect cultural heritage, and support sustainable and inclusive development.

WHAT IS THE CALL TO ACTION?

“Building resilient heritage means building resilient societies.”

The Joint Vision of SD-WISHEES calls on policymakers, researchers, RFOs, funders, practitioners, youth and local and scientific communities to work together beyond the lifetime of the project. It is an invitation built upon the SD-WISHEES Joint Vision, Roadmap and uptake recommendations through continued collaboration, co-creation, knowledge exchange, and the development of adapted, inclusive, and sustainable systems for heritage protection and hydroclimatic resilience in the face of climate change. This requires shared responsibility, solidarity, long-term partnerships, evidence-informed decision-making and investment in R&I. It also requires ensuring that R&I results are effectively translated into policy, practice, education, and, where appropriate, market applications, so that successful solutions can be adopted, replicated, scaled, and sustained over time.

By strengthening cross-sectoral and transnational cooperation, valuing scientific, traditional, Indigenous, and local knowledge systems, promoting equitable partnerships and mutual learning, and translating research into policy and practice, we can ensure that cultural and natural heritage is recognised not only as an asset to be protected but also as a strategic resource for climate adaptation, sustainable development, societal resilience, and innovation.

We also call on research-performing organisations, RFOs, governments, international organisations, and funding bodies to support long-term collaboration, strengthen institutional capacities, promote open knowledge sharing, and invest in user-centred tools, education, and governance approaches that enhance the resilience of cultural and natural heritage across diverse regional and socio-economic contexts.

By uniting our efforts, sharing knowledge, investing in people and innovation, and fostering a culture of collaboration and continuous learning, we can ensure that cultural and natural heritage continues to inspire, educate, and sustain present and future generations, while strengthening the resilience of communities and contributing to a more sustainable and climate-resilient future through the WCCH Nexus.



SD-WISHEES
Tackle Hydroclimatic Extreme
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