

Helmholtz Water Safety and Security Initiative

2nd Call for Applications – Theme Proposals

Helmholtz Association | The Initiative and Networking Fund | 04/2025

Table of Content

| | |
|---|-----------|
| 1 The campaign at a glance | 2 |
| 2 The three Solution Labs | 4 |
| 2.1 SOLVE – Securing Terrestrial Water Cycles: the Helmholtz SOLution Lab Elbe RiVEer Basin | 4 |
| 2.2 SLRE – Solution Lab Rur Erft | 5 |
| 2.3 URBAN LE – A Helmholtz Solution Lab. Systemic blue-green-red urban development | 6 |
| 3 Call for Theme Proposals | 7 |
| 3.1 Prerequisites for funding / Evaluation Criteria | 7 |
| 3.2 Type and scope of the funding | 8 |
| 3.3 Eligibility | 9 |
| 3.4 Transfer by design (Transfer concept) | 9 |
| 3.5 Submission and selection process | 9 |
| 4 Contact & Helmholtz Access | 10 |
| Annex | 10 |

1 The campaign at a glance

Drought and heat stress, floods and heavy rainfall: Climate change is already having a significant impact on the water cycle. Both sudden water surplus and prolonged periods of scarcity, sometimes combined with heat waves, become more severe and less predictable. In countries of the Global South, it is already evident that this uncertain supply can hinder social and economic development. However, in the future, industrialized nations, like Germany, will also have to adjust to fluctuating water availability — and thus will face competition between the needs of people and nature, industry, and agriculture: Water is the key resource of the 21st century.

The Helmholtz Association is tackling this pressing challenge with the launch of the Helmholtz Water Safety and Security Campaign. The breadth of Helmholtz expertise on the subject of water is unique in the German scientific landscape, as our centers cover the entire water cycle with their research programs – from the global terrestrial water cycle to the molecular level. As part of a research campaign, the Helmholtz Initiative and Networking Fund (INF) will provide up to 9 million euros from 2026 to 2028 for three joint research projects by the Helmholtz Centers and their partners that are dedicated to shaping novel interdisciplinary research activities in the field of water safety and security for people and the environment.

The following portfolio of topics was developed to address the campaign theme of *‘water safety and security in the 21st century’*. This portfolio provides the thematic framework, consisting of three overarching water-related topics and three crosscutting topics that have particular potential for scientific innovation and for transfer to application:

Portfolio of themes

- Terrestrial water cycles (δ natural ./ anthropogenic)
- Urban BlueGreenRed water systems (water, vegetation, energy)
- Water quality and a pollutant-free water cycle

Cross-cutting topics

- Monitoring, remote sensing and sensor technology
- Digitalization, information technologies, data analysis
- Microbiome, ecosystem interaction and data analysis

The campaign structure envisions the establishment of three Solution Labs. Each Solution Lab will act as a hub, coordinating a comprehensive, cross-center, and cross-domain thematic project in at least one of the three main thematic areas as well as the crosscutting topics. Solution Labs are interdisciplinary and transdisciplinary platforms designed to develop and test innovative solutions for complex challenges, such as water cycle management in model regions. They aim to foster knowledge exchange and transfer among researchers, policymakers, industry, and civil society. These labs consolidate expertise and infrastructure across research domains, promote collaboration with partners, and operate with a modular, long-term approach, ensuring both physical infrastructure and networking activities.

The selection of locations for the three Solution Labs and the subsequent selection of cross-center thematic projects follows a two-stage process with two separate calls (1st call for Solution Lab Sites / 2nd call for theme projects). In both stages, a “transfer by design” approach needs to be applied, which requires the earliest possible integration of the user perspective, and market or demand requirements into the research and development process. The approach is characterized by application-oriented methods and realistic implementation plans, as well as the involvement of stakeholders in the relevant phases of research, development and implementation.

Structure of the campaign

The first stage / the 1st call for applications (also Lab-Proposal) includes funding options for the establishment of three physical Solution Labs, addressing at least one of the following themes: **Terrestrial Water Cycles, Urban Water Systems, or Water Quality**. With the location of the Solution Labs, successful applicants receive a funded position (1 FTE / ~ 100€ p.a.) for coordination. The Solution Labs are designed to work on at least one of the three campaign themes and serve as hubs for the thematic projects, which are to be selected in the second stage of the campaign. Thus, together with their local environment, the overarching research focus of the Solution Labs form the basis for the proposal for thematic projects in the second stage of the application process / 2nd call.

The second stage / 2nd call for applications (also Theme-Proposal) aims at identifying promising theme projects (including sub-projects) with strong potential to address significant water-related challenges. Applicants are expected to submit proposals that involve one of the three pre-selected Solution Labs. Each theme project should be based on the synergistic combination of several areas of expertise from different research areas. At the same time, a suitable transfer strategy with external partners / stakeholders is to be developed from the very beginning („Transfer-by-Design“). To ensure that additional impact and synergies are achieved during the funding period of the campaign, the coordination centers (selected in the first stage) are also encouraged to exchange information regularly between all three solution labs.



2 The three Solution Labs

Solution Lab Roadshow-Event

Below you will find short summaries of the Solution Labs selected in the first selection meeting on March 31, 2025. In addition, an online roadshow event will take place on **14 May 2025 from 10:00 to 12:00 via Zoom** to provide anyone interested in the call with a detailed overview of the Labs.

During the event, each of the three selected Solution Labs will present themselves in a 15-minute slot. Afterwards, interested participants and potential applicants from all Helmholtz Centers will have the opportunity to ask questions to the Solution Lab consortia during a 15-minute Q&A session.

Afterwards, the Helmholtz Head Office campaign team will be available for a 30-minute Q&A session regarding the application and selection process for the second campaign stage / second call.

Participation is possible via the following link, prior registration is not required:

<https://helmholtz-de.zoom-x.de/j/63393238480?pwd=0h7RZqYYbkXBQG6TGjFOrzWNLp84ry.1>

Meeting ID: 633 9323 8480

Passcode: 420990

2.1 SOLVE – Securing Terrestrial Water Cycles: the Helmholtz SOLution Lab Elbe RiVEer Basin

Thematic fit: Terrestrial Water Cycles

Location: Elbe river basin

Participating Helmholtz Centers: Helmholtz Center for Environmental Research (UFZ), Helmholtz Center for Geosciences (GFZ), German Aerospace Center (DLR), Helmholtz Center Dresden Rossendorf (HZDR), Helmholtz Center Hereon, Max Delbrück Center for Molecular Medicine (MDC), Alfred Wegener Institute – Helmholtz Center for Polar and Marine research (AWI)

External partners: Federal Environment Agency (UBA), German Technical and Scientific Association for Gas and Water (DVGW), Elbe River Basin Community (FGG Elbe), Saxon State Office for Environment, Agriculture and Geology (LfULG), State Agency for Flood Protection and Water Management of Saxony-Anhalt (LHW), Brandenburg State Office for the Environment (LfU), Berlin Water Works (BWB), Thünen Institute (Federal Research Institute for Rural Areas, Forestry and Fisheries)

Short description of the Solution Lab: The SOLVE Solution Lab addresses the urgent need for sustainable water management in the Elbe River Basin by focusing on the development

and implementation of science-based strategies for ‘keeping water in the landscape’ and to enhance ecosystem health. To achieve this, SOLVE pursues three main objectives:

- Identifying and refining water management measures that effectively regulate water storage, runoff, and groundwater recharge
- Understanding and quantifying how these measures unfold at the catchment scale and impact ecosystem health
- Establishing a Water Action Hub as a long-term platform for the co-development and implementation of water management strategies through close collaboration between scientists and stakeholders

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2.2 SLRE – Solution Lab Rur Erft

Thematic fit: Terrestrial Water Cycles

Location: Rur Erft catchments, North Rhine-Westphalia

Participating Helmholtz Centers: Research Center Jülich (FZJ), Helmholtz Center for Environmental Research (UFZ), Helmholtz Center for Geosciences (GFZ), Karlsruhe Institute of Technology (KIT)

External partners: Federal Institute of Hydrology (BfG), Federal Institute for Geosciences and Natural Resources (BGR), State Office for Nature, Environment and Consumer Protection North Rhine-Westphalia (LANUV), Ministry of Agriculture and Consumer Protection North Rhine-Westphalia (MLV), Chamber of Agriculture North Rhine-Westphalia (LWK-NRW), Erft Water Association (EW), Eifel-Rur Water Association (WVER), Drought Analytics, FloodWaive Predictive Intelligence Ltd, Geoverbund ABC/J

Short description of the Solution Lab: The SLRE Solution Lab aims to develop nature-based solutions to manage water extremes, both droughts and floods, which represent key challenges for future water security and climate adaptation. To address these problems, SLRE seeks to involve stakeholders through a co-design and transfer-by-design approach. A key element of the approach is the use of *Interactive Solution Rooms*, in which stakeholders can define and simulate Storylines, such as sequences of multiyear extreme events, and explore solutions in an interactive fashion. SLRE plans to implement a *Digital Twin* approach, combining modeling, monitoring, and data assimilation with artificial intelligence (AI) technologies. This allows for a holistic evaluation of conjunctive water use and nature-based adaptation strategies, ensuring that solutions are stakeholder-driven, scalable, and transferable.

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2.3 URBAN LE – A Helmholtz Solution Lab. Systemic blue-green-red urban development

Thematic fit: Urban BlueGreenRed Water Systems

Location: Leipzig, Saxony

Participating Helmholtz Centers: Helmholtz Center for Environmental Research (UFZ), Helmholtz Center Dresden Rossendorf (HZDR), Karlsruhe Institute of Technology (KIT), Helmholtz Center for Infection Research (HZI)/ Helmholtz Institute for One Health (HIOH)

External partners: City of Leipzig: Office for Environmental Protection (AfU), Urban Greenery and Water (ASG), City Planning Office (SPA), Mobility and Civil Engineering Office (MTA), Department “Digital City” (DDC); Municipal and Utility Partners: Leipzig Municipal Waterworks (KWL), Leipzig Municipal Utilities (LStadtwerke); Media and Digital Networks: Central German Broadcasting (MDR), Network “Connected Urban Twins”; National and Federal Institutions: German Association of Cities, UBA – German Environment Agency; Urban Development and Water Management Initiatives: Berlin Urban Nature Pact (ALETТА), Central German Competence Network for Water Management

Short description of the Solution Lab: The URBAN LE Solution Lab aims to hydrologically and energetically decouple urban districts from centralized wastewater systems, creating closed local water cycles. By applying combined hydrological thermal storage concepts, the lab supports both climate protection and adaptation and optimizing urban water, cooling, and heating infrastructures. A key focus is the development of an integrated blue-green-red (BGR) water management system that improves rainwater management, enables multifunctional urban spaces, and introduces new solutions for water reuse, conservation, and storage. Through an intensive co-design process with stakeholders, the lab ensures that solutions align with the latest planning frameworks and incorporate innovative management and operational models. A key area of collaboration is water quality research. Additionally, the growing demand for functional digital twins and data driven scenario modelling in modern water management creates multiple opportunities for cooperation with advanced data analytics and information technologies.

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3 Call for Theme Proposals

The objective of this call is to support the establishment of long-term transdisciplinary and application-oriented theme projects, which will be integrated in the three Solution Labs (see above) selected in the first campaign stage. Applicants are therefore expected to submit one overall theme proposal (consisting of a maximum of six sub-projects) linked to one of the pre-selected Solution Labs.

We invite all Helmholtz researchers to participate in this competitive call. Successful applications will demonstrate that their transfer-oriented projects in combination with a Solution Lab make a tangible and impactful contribution to addressing the challenges of the campaign and ensuring water safety and security in the 21st century.

3.1 Prerequisites for funding / Evaluation Criteria

- **Thematic Alignment**
Proposals must address at least one of the three overarching campaign topics (Terrestrial Water Cycles, Urban Water Systems, or Water Quality) and at least one cross-cutting topic (see above, and in the [Whitepaper](#)).
- **Transfer by Design**
A “transfer by design” approach is required, supported by a detailed workplan outlining clear steps, timelines, measurable milestones (e.g., TRL or performance metrics), and accessible resources to ensure the project’s successful implementation.
- Projects should develop innovative, practically relevant methods and technologies with high impact potential within three years.
- **Consortium Composition**
Each consortium must include partners from at least three Helmholtz Centers and two research fields, demonstrating interdisciplinary, transdisciplinary, and cross-center collaboration. Specific interactions between sub-projects and broad involvement across scientific domains – including social sciences, if applicable – are expected.
- **Integration with Solution Labs**
Applicants are expected to submit an overall theme proposal, including a maximum of six sub-projects, which involves one of the three pre-selected Solution Labs (see above). Therefore, all theme projects must be clearly linked to one of the three Solution Labs. However, applications from PIs or centers that are not yet affiliated with a Solution Lab are particularly welcome, provided that they submit their application in collaboration with one of the selected Solution Labs. It is mandatory to consult with the existing Solution Lab consortium before submitting an application.
- **Project structure**
All sub-projects included in an application must be clearly distinguishable and feasible to carry out their work independently.

- **Strategic Partnerships**
Projects are expected to maintain existing and develop new strategic partnerships (local to international level), especially through co-creation with industry or other non-academic sectors. A qualified letter of intent must be submitted. All partner roles must be clearly defined in a concise co-creation workplan.
- **Resources and Infrastructures**
Applicants must demonstrate sufficient infrastructure, equipment, and personnel. A gender-sensitive, diversity-oriented approach is encouraged, with an emphasis on female and early-career scientists.
- **Co-Funding Requirements**
Each participating Helmholtz Center must co-fund at least 25 % of the project budget provided by the Initiative and Networking Fund. The distribution of co-funding should be aligned with the funding allocated to each sub-project and can be adapted to specific needs. The application must a) specify the co-financing as allocated to the project and involved partners and b) as distributed over the respective project years. It may therefore vary over the course of the financial years and between partners. Co-funding must be detailed by partner and year, and confirmed via a signed letter from the Management Board (*dt. Vorstand*). The letter may be submitted in any format; neither original copies nor digital signatures are required.
- **Eligible Contributions**
Contributions may take the form of direct costs (e.g. consumables) covered by the center's own resources or direct contributions in kind, such as personnel time or use of infrastructure. Please note that overhead costs are neither funded by the IVF nor eligible as matching contributions.
- **Project Duration**
Projects must run at least three years (2026–2028). It is assumed that the centers will ensure sufficient sustainability of the projects from basic funding once funding has expired.
- **Status Conference**
Funded projects must participate in at least two status conferences during the funding period. These conferences aim to promote knowledge exchange and networking among the projects. The status conferences will be organized jointly by the coordination positions of the three Solution Labs.

3.2 Type and scope of the funding

- The “*Water Safety and Security campaign*” provides a total budget of 9 million euros over a period of three years (2026-2028).
- Requested funding volume must not exceed €6 million per proposal, with a maximum of eight sub-projects allowed per proposal.
- No more than 33 % of the total funding for a proposal may be allocated to the coordinating center of the Solution Lab.

- The amount of funding allocated to the selected theme projects and sub-projects may differ from the requested amounts and will be determined by an international expert panel in the final selection meeting on October 7, 2025.
- Project funding is provided as fixed-amount financing. Personnel costs (expenditures), material costs (expenditures), and investments according to the NKBF 2017/Version November 2019 (for the funded Helmholtz Centers) and the ANBestP (for partners' external to the Helmholtz Association) are eligible for funding.

3.3 Eligibility

Helmholtz Centers and German universities (as partners of the Centers) are eligible for funding – regardless of whether they are already participating in a Solution Lab. The participating Helmholtz Centers and, if applicable, other partners involved are expected to provide co-financing, the total of which should at least correspond to the amount of 25 % funding provided by the Initiative and Networking Fund over the entire project period.

In addition, associated partners not eligible for funding – such as governmental bodies, NGOs, industrial partners (e.g. start-ups, SMEs, large corporations), as well as non-university institutions – may also be included to strengthen the proposed project.

3.4 Transfer by design (Transfer concept)

Throughout all project phases, the user perspective, market needs and value, as well as the socio-economic relevance of the project in addressing water-related challenges should be consistently considered. To ensure this, input from stakeholders – including industry, non-academic and regional partners, state-level and governmental bodies, and end-users – is expected. The MoU with the Federal Environment Agency (UBA) may serve as a possible framework for collaborations. The roles and contributions of external partners must be clearly defined in a concise co-creation workplan.

Knowledge transfer and solution-oriented dialogue should be integrated across all project stages and activities. Applicants are asked to describe specific formats for collaboration and exchange, including any existing structures already in place. Ideally, the transfer offices of the research centers should be involved from an early stage.

To further enhance the visibility of the campaign and to support the dissemination of the projects' scientific, technological, and methodological results, the Helmholtz Head Office will provide a dedicated section on the Helmholtz website. Therefore, all funded projects are expected to share information on their progress – including their contributions to the overarching campaign goal of securing water safety and security, their social, ecological, and economic impact, and potential actions for sustainable water management.

3.5 Submission and selection process

Proposals must be submitted by July 15, 2025 (11:59 pm) via the ProMeta platform under the following link: <https://ivf.helmholtz.de/?chifid=44d2d0ca257f275225245245225>.

Proposals must be uploaded in two copies: 1. Please upload a consolidated PDF file containing the template for the overall theme project (incl. annex) and all templates for the sub-projects. 2. In addition, each sub-project template should also be uploaded separately as an individual file.

Following a formal criteria check, all applications will be reviewed by the selection panel before applicants are invited to present their projects at the final selection meeting on October 7, 2025. Each presentation will be followed by a short Q&A session. The panel's decision will be based on the submitted Theme-Proposals as well as the presentations and discussions during the meeting. Additional information on the format will be provided by the Helmholtz Head Office campaign team at a later stage.

Dates & deadlines

| Campaigning Phase | |
|-----------------------------|---|
| 12/2024 | Publication of 1st call for applications (Lab-Proposal) |
| 04/2025 | Publication of 2nd call for applications (Theme-Proposal) |
| Lab Proposal Stage | |
| | <i>Preparation of lab proposals</i> |
| 31/03/2025 | Lab proposal selection meeting (1-day meeting) |
| Theme Proposal Stage | |
| | <i>Preparation of theme proposals</i> |
| 04/2025 | Publication of Solution Lab sites |
| 14/05/2025 | Online Roadshow Solution Labs + Q&A |
| 15/07/2025 | Submission deadline for theme proposals |
| 7/10/2025 | Theme proposal selection meeting (9.00am - 6.00pm) |
| 01/2026 – 12/2028 | Funding period |

4 Contact & Helmholtz Access

The Helmholtz Head Office will provide all relevant information, templates, and supporting documents on the [Helmholtz Website](#). For further inquiries, please contact water@helmholtz.de. Our campaign team (Nicolas Tellner, Benjamin Hoss and Carla Plumion) remains at your disposal for any additional questions or support.

Annex

1. Application templates (overall theme project & sub-project templates): Including the required attachments/ Letters of support
2. Declaration of consent regarding data protection

3. Data Protection Compulsory Information – GDPR