



Supplement of

Brief communication: What do we need to know? Ten questions about climate and water challenges in Berlin-Brandenburg

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S1 Proposed questions

The table below contains all 48 questions presented in the questionnaire during phase S2 (See Methods section in the main text).

Table S1: Complete list of proposed questions on the topic of Climate and Water for the Berlin-Brandenburg region. Highlighted questions were found the most relevant.

No.	Question	Category
1	What are the possible/feasible local adaptation measures to improve resilience against climate extremes?	1 - Climate adaptation and resilience
2	How to adapt forests to risks of drought/heat (damage, pests, fires)? Which tree species (increasing biodiversity) and management strategies should be used so that they can provide the ecosystem services we require?	1 - Climate adaptation and resilience
3	How can we ensure an equitable contribution of both urban and rural areas in terms of adaptation?	1 - Climate adaptation and resilience
4	How can ecosystems and agriculture adapt to extended drought periods expected in the future?	1 - Climate adaptation and resilience
5	What strategies do stakeholders in Spreewald think are important to deal with challenges of climate change impacts, governance and coal-phase out and how could these strategies be implemented?	1 - Climate adaptation and resilience
6	How can we foster a paradigm shift and create new forms of discourse on how to deal with water, rather than just focusing on technical solutions and individual water-saving measures?	1 - Climate adaptation and resilience
7	What are the possible impacts of water abstraction restriction measures in the events of drought?	1 - Climate adaptation and resilience
8	What changes in management and policy can make the Spree more resilient to droughts?	1 - Climate adaptation and resilience
9	How to sustainably transition Brandenburg agricultural sector towards irrigated fields?	1 - Climate adaptation and resilience
10	What is the impact of forest management on droughts?	1 - Climate adaptation and resilience
11	What are the possible scenarios for the Spree catchment and the city of Berlin after the mining phaseout in the Lausitz and the accelerating climate emergency?	2 - Water management
12	What management strategies should be implemented to allow emergency irrigation to mitigate crop losses during dry/hot summer periods (e.g. dry spells and flash droughts)?	2 - Water management
13	What management strategies can be adopted to cope with water scarcity periods?	2 - Water management
14	How to assess the immediate and legacy economic and ecosystemic impacts of large development projects (e.g. Tesla factory)? How to balance its benefits and estimate mitigation costs?	2 - Water management
15	How to optimize and improve the current water resources monitoring system (ground water, soil water, lakes and rivers)?	2 - Water management

16	When do conflicts emerge between actors in the Berlin-Brandenburg (urban-rural) dipole? Which discourses and ideas are behind these conflicts?	2 - Water management
17	How can administrations effectively manage the challenges of climate change in water management despite a lack of resources (personnel, time and money)?	2 - Water management
18	How can we tackle the issue of increased water shortage after the coal-phase out in Lausitz region as articulated in the UBA study?	2 - Water management
19	How can cross-federal states negotiation between Berlin-Brandenburg-Saxony regarding water sharing of the Spree river be more legitimate, effective, and transparent?	2 - Water management
20	How can integrated water resources management be better implemented despite a number of challenges (such as focus on status quo, lack of personnel (+bureaucracy), lack of communication, strong specialisation of governance leads to fragmented plans)?	2 - Water management
21	How can we align the multiplicity and different meanings of water (urban vs. rural, across different sectors and users etc.) and better understand the interconnectedness?	2 - Water management
22	How human-induced activities mitigate or accelerate the impacts of drought on the Spree river basin?	2 - Water management
23	What are the impacts of irrigation on water resources? How will it change under climate change and increasing demand for water?	2 - Water management
24	How can climate change impacts and adaptation in water-related planning be systematically integrated across different sectors and federal states?	2 - Water management
25	How do we balance regional economic development (Tesla creating a large number of jobs in the region) backed by politics and the protection of water resources (located in a water reserve area)?	2 - Water management
26	What would be the alternative water resources in the events of drought? (apart from the current plans to transfer water from the Elbe)	2 - Water management
27	Can catchment level drought impact database assist on local drought monitoring systems?	2 - Water management
28	How global and regional scale models connect/inform local issues and conditions?	2 - Water management
29	What is the feasibility of a multi-sector impact-based drought monitoring and forecast be implement	3 - Technological solutions and innovation
30	Can AI improve the water management in urban areas? Can an AI integrated household water management system assist on mitigation of water shortages?	3 - Technological solutions and innovation
31	To what extent can NBS (nature-based solutions) be implemented in Berlin (urban) and Brandenburg (rural) to increase resilience and community awareness?	3 - Technological solutions and innovation

32	Is emergency irrigation a feasible solution for dry extremes? To what extent and with what impacts can it be implemented?	3 - Technological solutions and innovation
33	What are the potential off-site interventions that would result in positive feedbacks in Berlin?	3 - Technological solutions and innovation
34	What are the threats to privacy rights on big data models for environmental analysis?	3 - Technological solutions and innovation
35	What other regions have experienced such drastic changes in river flow and what were the long-term impacts? What can we learn from it?	4 - Past, present, and future impacts
36	How other locations that experienced sudden changes in river flow coped with it? How is the Spree case similar/different?	4 - Past, present, and future impacts
37	What is the legacy effect of early landscape management in Brandenburg on ecosystems?	4 - Past, present, and future impacts
38	What are the vulnerabilities of historical water management equipments (dikes, channels, drainage, etc) under climate change and land use change scenarios?	4 - Past, present, and future impacts
39	How climate change has affected and will affect the multiple users of the water systems in BBR?	4 - Past, present, and future impacts
40	When are the breakpoints of the ability-to-supply multiple users in BBR (drinking water, landscaping, agriculture, leisure)?	4 - Past, present, and future impacts
41	Why are issues of the river Spree are part of a larger scale/interregional problem and where do we need to implement mitigation measures to effectively cope with them?	4 - Past, present, and future impacts
42	How to include impacts on other-than-human habitats and living conditions on drought forecasting?	4 - Past, present, and future impacts
43	How can individual and community perception of extreme events improve our impact assessment and monitoring?	5 - Governance and public awareness
44	When will the greater public realize that we are facing an era of water shortages?	5 - Governance and public awareness
45	Is the institutional set-up (e.g. AG FGB = Arbeitsgruppe Flussgebietsbewirtschaftung) for water sharing of the Spree still suited for dealing with current and future challenges?	5 - Governance and public awareness
46	How can we avoid trade-offs/conflicts and promote harmonisation of targets and indicators across strategies?	5 - Governance and public awareness
47	What is the role of academia in increasing community awareness to climate and environmental changes?	5 - Governance and public awareness
48	Can co-creation assist integration between science and administration to face climate change challenges?	5 - Governance and public awareness

S2 Selection process

- After all answers to the questionnaire were collected (S2), a *relevance score* weighted calculated as the weighted average. The best-scoring questions from each category were selected. In Figure S1.

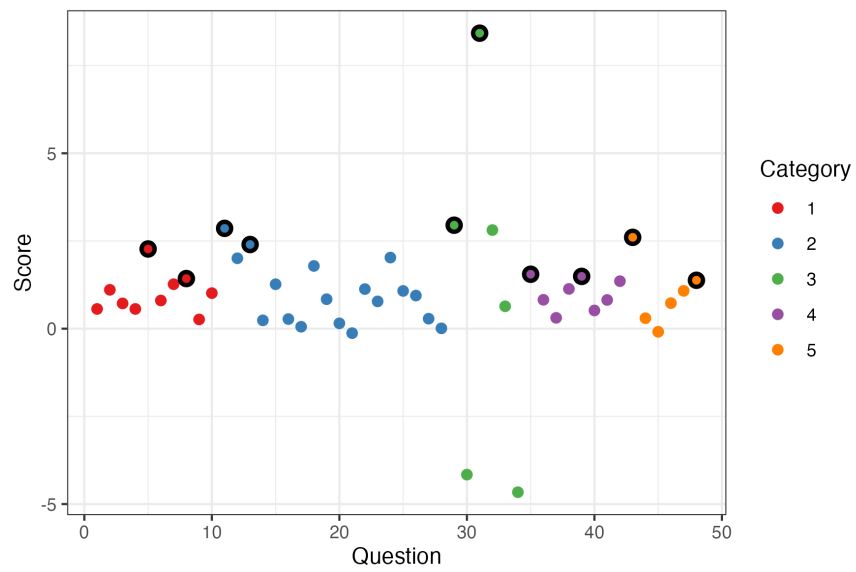


Figure S1. Questions score. Highlighted points indicate the selected questions (two best scoring from each category).