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

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1   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 implemeted 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 adoted to cope with water scarcity periods?**	**2 - Water management**
14	How to assess the imediate 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-Brandengurg (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 innova­tio**n
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 equipaments (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 hability-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/inter-regional 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 awarenes**
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**

2   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.
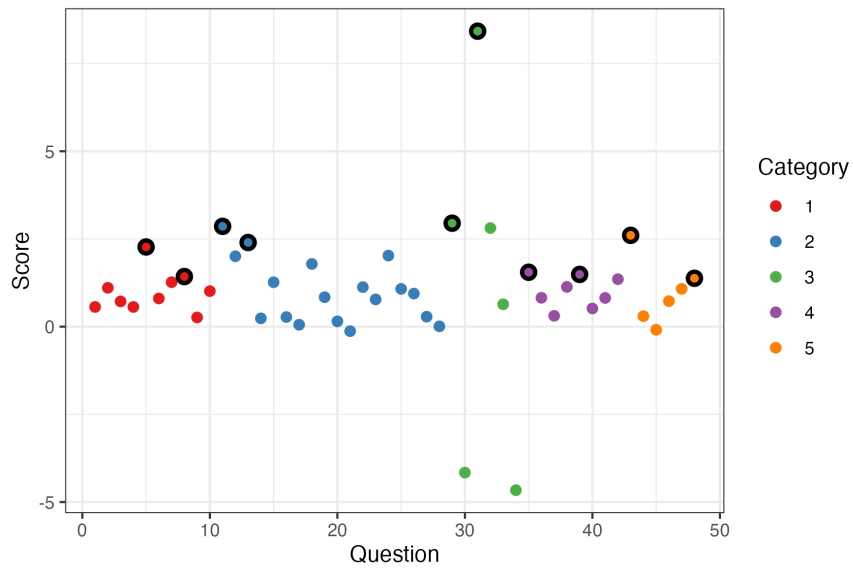
Figure S1. Questions score. Highlighted points indicate the selected questions (two best scoring from each category.

References