4 Summary

The WIMEK Cluster Climate, Water and Society (CWS) is a multidisciplinary research cluster studying environmental systems, with a focus on challenges related to water and climate (Figure 1). The **mission** of the CWS cluster is to improve our understanding and ability to represent natural and human dimensions of climate and water resources in a changing global environment. We aim for excellent disciplinary research in the atmospheric, hydrological, and ecological sciences combined with innovative multidisciplinary, interdisciplinary and transdisciplinary approaches related to climate, water and society. We develop new and novel solutions for a more sustainable world with sufficient, clean, equitably distributed and climate-proof water resources for people, food production and natural ecosystems. Our solutions aim to limit the impact on the environment by reducing greenhouse gas emissions, preserving biodiversity, increasing resilience against natural hazards, and improving environmental quality. Within CWS we thus generate **new knowledge** that improves our understanding of the impact of interventions across scales and disciplines, and link our research to capacity building, community action and policy initiatives aiming to generate a broad **impact on society**.

The research contributes to all **three grand challenges** defined by WIMEK. In terms of *Climate action* our science stimulates and enables mitigation and adaptation. In terms of *Managing our future biosphere* we develop strategies for sustainable use of water, the atmosphere, and ecosystems. In terms of *Advancing circular systems,* the CWS cluster investigates innovation towards closed water and nutrient flows and co-creating water-food-energy-environment and climate solutions. We highlight CWS research by presenting several case studies: Plastics in Nature and Society, Circular water systems, Climate Information Services, Sustainable Nutrient Management, Longitudinal dams, Water Justice, Weather Extremes.

The CWS groups employ in total 22 full professors, 25 associate professors and 30 assistant professors. In addition the cluster employs 26 post-docs and a total of 209 PhD candidates are associated with the cluster. The number of staff, our research capacity and number of PhD students have grown by about 10 to 20% over the last 6 years. Most of the growth has occurred over the last 3 years. Also for the coming years we expect to grow as a result of a combination of higher student numbers and successful acquisition of funding.

The accomplishments of CWS over the last six years include more than 1900 articles in peer reviewed scientific journals. More than 6% of the publications are highly cited (top 1%) and almost 30% belong to the 10% most cited articles. This implies that our publications have more impact than average (Field Weighted Citation Impact 2.4-3). The excellence in science is also shown by a large number of prestigious personal grants: over the last six years eleven NWO-Talent Programme grants and three ERC grants were awarded to CWS scientists. The fact that a large number of our early career scientists received these personal grants shows the capacity of the cluster to create an inspiring and fruitful environment, and the future potential. About 70% of our research capacity is funded by research grants and projects. Almost all of our PhD candidates are funded by external partners and funding bodies. The variety of funding sources guarantees a robust and future proof acquisition strategy. This includes capacity building initiatives through which a substantial number of African and Asian PhD students are funded. Our research has an important impact on society through (1) direct involvement of stakeholders, (2) contributions to science-policy assessments, (3) scientific advice to governments, water user federations, indigenous and farmer organizations, businesses and NGOs, (4) informing the general public, (5) co-creation of water and climate knowledge, and (6) the development of water and climate information services.

The CWS **strategy for the coming six years** is first of all to perform excellent research in the domain of climate, water and society. The strength of our cluster is in the quality of the research as well as in the societal impact. The opportunities for CWS lie in the increasing interest from the public and private sector for climate, water and society related problems. These problems ask for a transdisciplinary approach. Our cluster will take up this challenge by bringing together researchers from different disciplines. Identified topics that we aim to evaluate across different scales (landscapes, water basins, countries, continents and world) include, for instance (1) understanding of our future climate, and how to adapt to a more variable and extreme climate, (2) water scarcity in relation to climate change, (3) sustainable nutrient management in relation to the increasing demand for food while reducing environmental impacts. The cluster is well-situated and with a large capacity to respond to the demand of society for knowledge-based adaptation.