Balancing clean Water and Energy provision under changing climate and eXtremes

Fact Sheet

Project Information

B-WEX
Grant agreement ID: 101039426

Funded under
European Research Council (ERC)

DOI
10.3030/101039426

Total cost
€ 1 500 000,00

EU contribution
€ 1 500 000,00

Coordinated by
UNIVERSITEIT UTRECHT
Netherlands

Start date
1 January 2023

End date
31 December 2027

Objective

Providing clean water and energy simultaneously to a growing global population and under a changing climate is a major challenge. The demand for the two and their systemic interdependencies are particularly strong during droughts and heatwaves. Despite the recent growth in water-energy nexus studies, there is little fundamental understanding of the cascading effects and feedbacks between water and energy systems during extreme weather events. Because existing global model approaches mainly focus on whole-system optimisation and are based on coarse spatiotemporal water and energy system representations, we lack understanding on how water-energy system processes cascade in time and space under a changing climate and extremes. Yet such understanding is urgently needed so that we can balance clean
water and energy provision in our changing world in which climate shocks are increasing.

In B-WEX, I will develop spatially explicit pathways that reveal how the provision of clean water and energy can be balanced under various water management and energy transition developments, including the feedbacks and cascading mechanisms under present to future droughts and heatwaves in regions worldwide.

With my team, I will build a novel global framework which will be the first to integrate high spatiotemporal resolution models of hydrology, water quality, water use and energy systems to estimate how water and energy system processes cascade in time and space. Together with key actors, we will also develop quantitative water management and energy transition (climate action) pathways, which we will then combine with our new framework, enabling us to estimate trade-offs between water and energy systems during present to future droughts and heatwaves. The B-WEX project will greatly deepen our understanding of the cascading effects and feedbacks between clean water and energy systems development that occur under changing climate and extremes, and including climate mitigation actions.

**Fields of science**

natural sciences › earth and related environmental sciences › hydrology

engineering and technology › environmental engineering › natural resources management › water management

**Programme(s)**

HORIZON.1.1 - European Research Council (ERC)  

**Topic(s)**

ERC-2021-STG - ERC STARTING GRANTS

**Call for proposal**

ERC-2021-STG

See other projects for this call
Funding Scheme

HORIZON-AG - HORIZON Action Grant Budget-Based

Coordinator

UNIVERSITEIT UTRECHT
Net EU contribution
€ 1 500 000,00

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Region
West-Nederland > Utrecht > Utrecht

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Other funding
€ 0,00

EC signature date 15 March 2022
Last update: 13 July 2022

Permalink: https://cordis.europa.eu/project/id/101039426

European Union, 2023