



Water, environment, and health

Interventions in the environment may bring benefits for health and well-being but could also increase health risks. Climate change is aggravating this: adaptations bring more surface water bodies, while higher temperatures make freshwater and coastal areas more attractive to swimmers but also to pathogens. Deltares expands its earlier work on pollution and other risks to vector-borne diseases and early warning, translated into health burden. By reducing risks and making (co-)benefits more visible, we will also contribute to SDG3 on good health and well-being.

From 2019 onwards we have been working on three priority knowledge questions:

1. How to predict effects of environmental change on vector-borne diseases?

These are transmitted by organisms and debris in water and may be aggravated by climate change and its physical and social effects, including mitigation measures. We apply and develop habitat models for the prediction of

health burden, assess the effects of changes in water management and propose interventions.

2. What are the future health risks under extreme weather and can we develop early warning for water-borne pathogens?

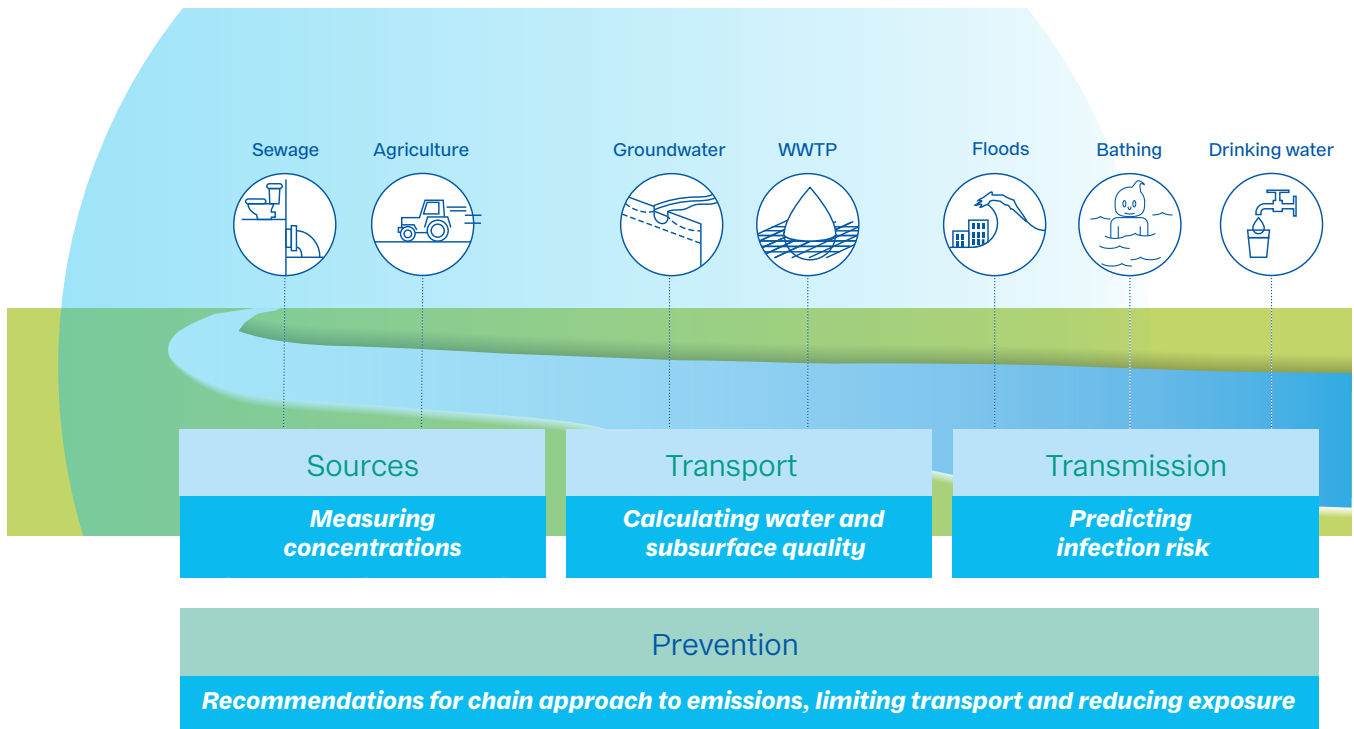
We monitor, model and forecast water-related impacts of (future) extreme weather, e.g. by mobile DNA detection of pathogens on plastic and antibiotic resistance. This will be used for improved modelling of disease agents -beyond contaminants, toxic algae and E.coli- and parameterisation of pathogen survival under various environmental conditions.

3. What is the health burden of water management in river basins and coastal areas?

We predict health impacts of water-related infectious diseases and chemical contaminants (e.g. pesticides) in D-health, together with its importance for end users by extending existing models, on pathogen and substance fate and transport, to health impact models and linking river basin ecosystem alteration and biodiversity changes to health impacts. Together, this will support joint decision making in health and water management.



Health burden
of climate
change



The chain approach in Water, Health and Environment includes sources, transport and transmission

Working together

We can only do this by working together with other organisations, drawing on a wide range of scientific disciplines. We have been reinforcing and expanding partnerships with the health sector, such as academic medical centres (through the Netherlands Centre for One Health), international biomedical research institutes and the World Health Organization.

Together with our partners we will generate ideas and develop proposals, but also organize joint seminars or sessions at conferences. This ensures a broad scientific base and applicability of our tools and solutions.

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Deltares is an independent institute for applied research in the field of water, subsurface and infrastructure. Throughout the world, we work on smart solutions, innovations and applications for people, environment and society. Deltares is based in Delft and Utrecht.

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