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Asia Water Forum 2022

8–11 August 2022 • Online

Focus Area: 4: Climate change and water-related risks

Session Title: 4A: Understanding, managing and communicating risks

Schedule: 9 August 2022 (Tue), 3:00 p.m. - 4:30 p.m. (GMT+08)

Development of water risk assessment tool based on a latest global hydrological model

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Outline

- Water risk: scope, assessment, and tool
- Available technology: model, data, viewer





Water risk

- Water risk
 - Physical and social
 - Quantity and quality
 - Drought (scarcity) and flood (excess)
 - Global and regional
- Recent trend: active participation of private sector
 - Climate change
 - SDGs
 - Environmental-Social-Governance Investing
- Global water scarcity information for private sector





Water risk assessment

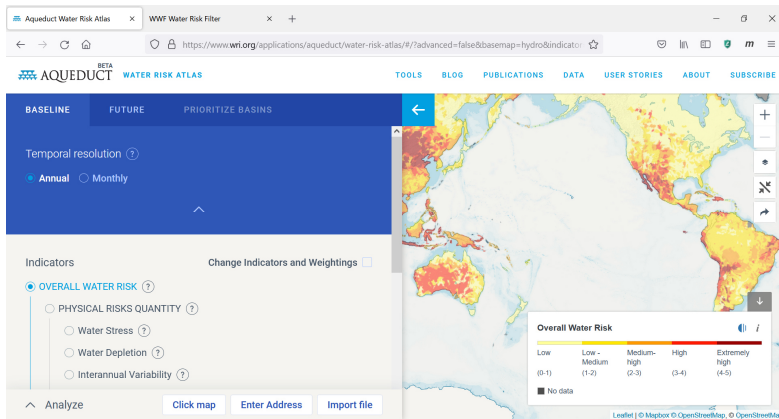
- Global water scarcity
- The drivers
 - Population and economic growth
 - Increase in water demand
 - Globalization (trade & supply chain)
 - Propagation of cause and effect
 - Climate change
 - Unstableness of water supply
- Interests of private sectors
 - Short-term business continuity
 - Long-term business sustainability
 - Disclosure/Reporting (e.g. TCFD, CDP, etc)
 - Options (actions to take)



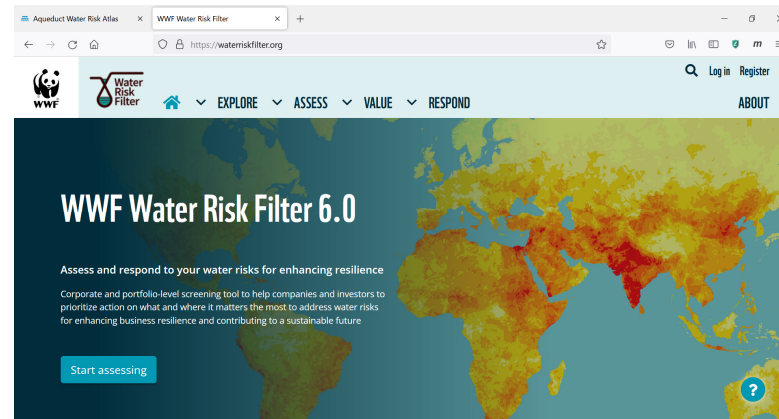


Water risk assessment tool

- Screening (e.g. WRI Aqueduct, WWF Water Risk Filter)



<https://www.wri.org/aqueduct>



<https://waterriskfilter.org/>

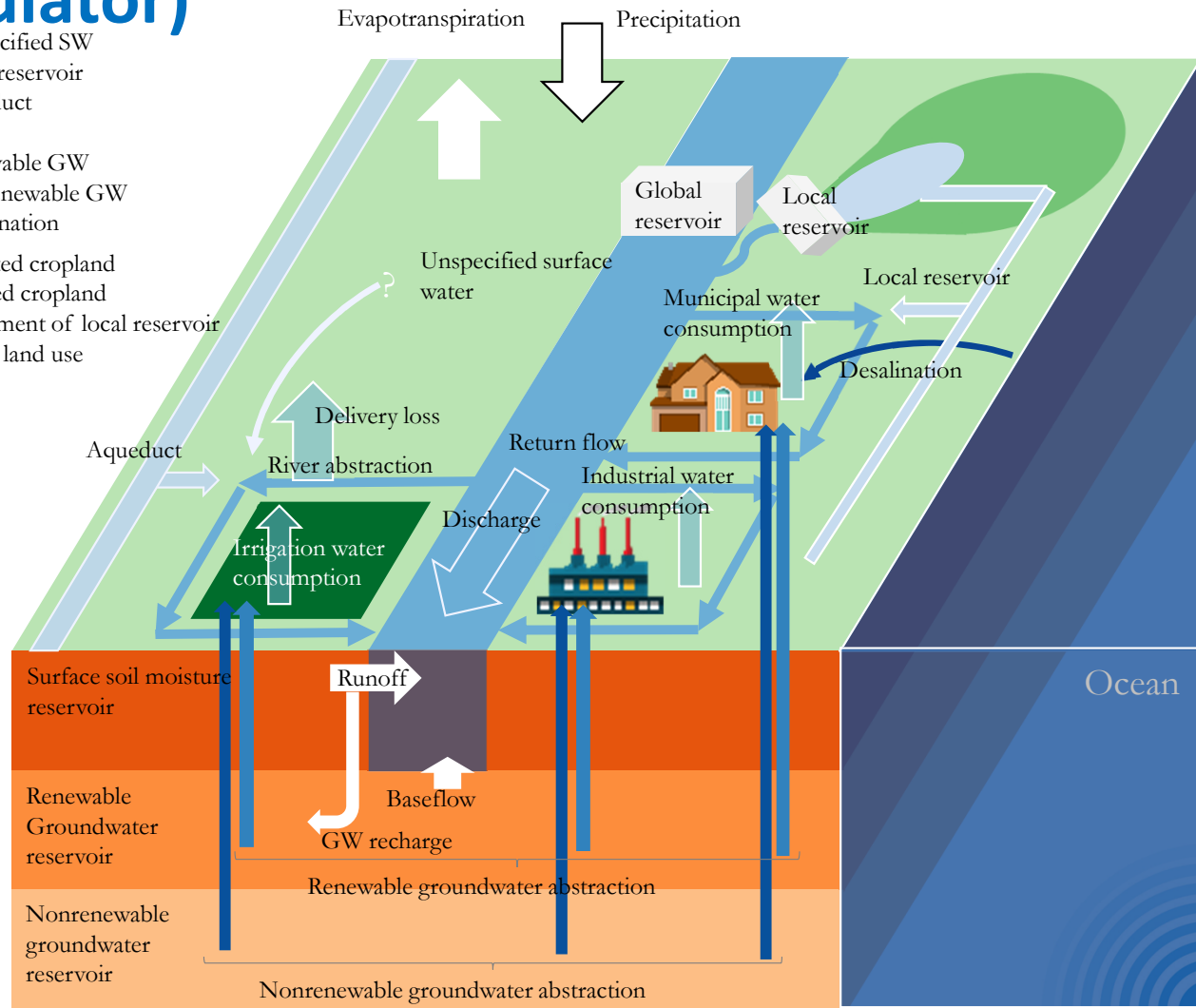
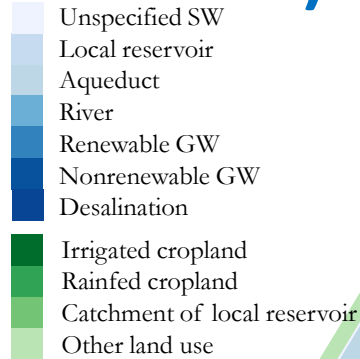
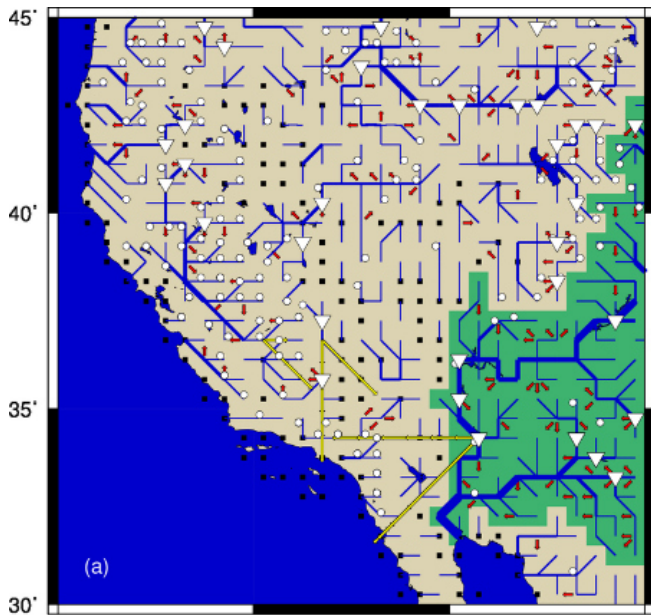
- Assessing
- Issues
 - Difficulty in interpreting the results (e.g. cause and effect)
 - Limited information on potential actions





The H08 model (simulator)

- Global hydrological model including human activities

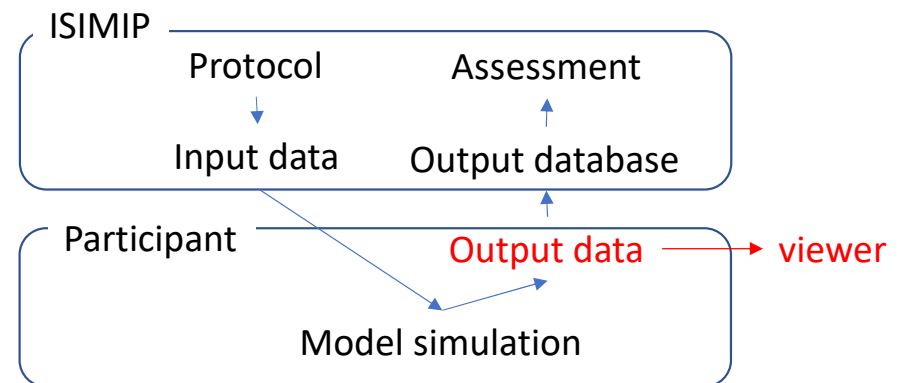


Hanasaki et al. 2018, Hydrol Earth Syst. Sci.



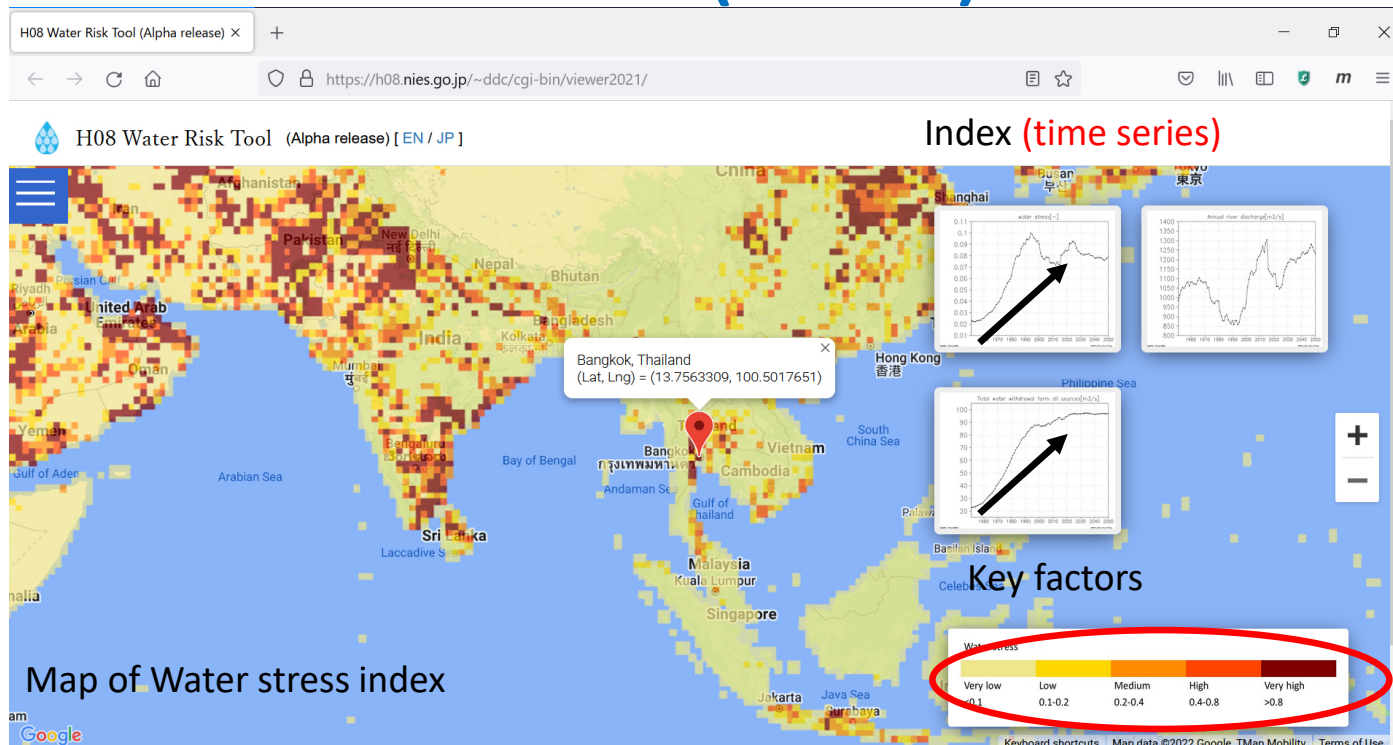
The ISIMIP project (simulation framework)

- About
 - Inter Sectoral Impact Model Intercomparison Project
 - International project to conduct systematic global climate change impact assessments
- Activity
 - Coordinate common protocol
 - Provide latest input data
 - Collect and distribute output data
 - Coordinate multi model assessment
- **Our project**
 - ISIMIP Phase 3
 - H08 output data viewer for public





The H08 water risk tool (viewer)



- Activity in progress
 - Collaboration with university (model developer), manufacturing company (information user), and consulting company (model operator).

<https://h08.nies.go.jp/h08/viewer.html>





Conclusions

- Active participation of private sector is a key to address global water issues.
- The spatio-temporary detailed global assessments of future water-related risks are of particular interest to the private sectors.
- The water risk assessment tool developed by our group will be potentially useful which provides the latest science-based information for non-specialists.
- Relevant activities should be further promoted to achieve a water-secured world.

Boulangue, Julien Eric Stanislas and Yoshida, Takeo and Nishina, Kazuya and Okada, Masashi and hanasaki, Naota, Delivering the Latest Global Water Resource Simulation Results to the Public. Available at SSRN: <https://ssrn.com/abstract=4079280> or <http://dx.doi.org/10.2139/ssrn.4079280>

