



WORLD
RESOURCES
INSTITUTE

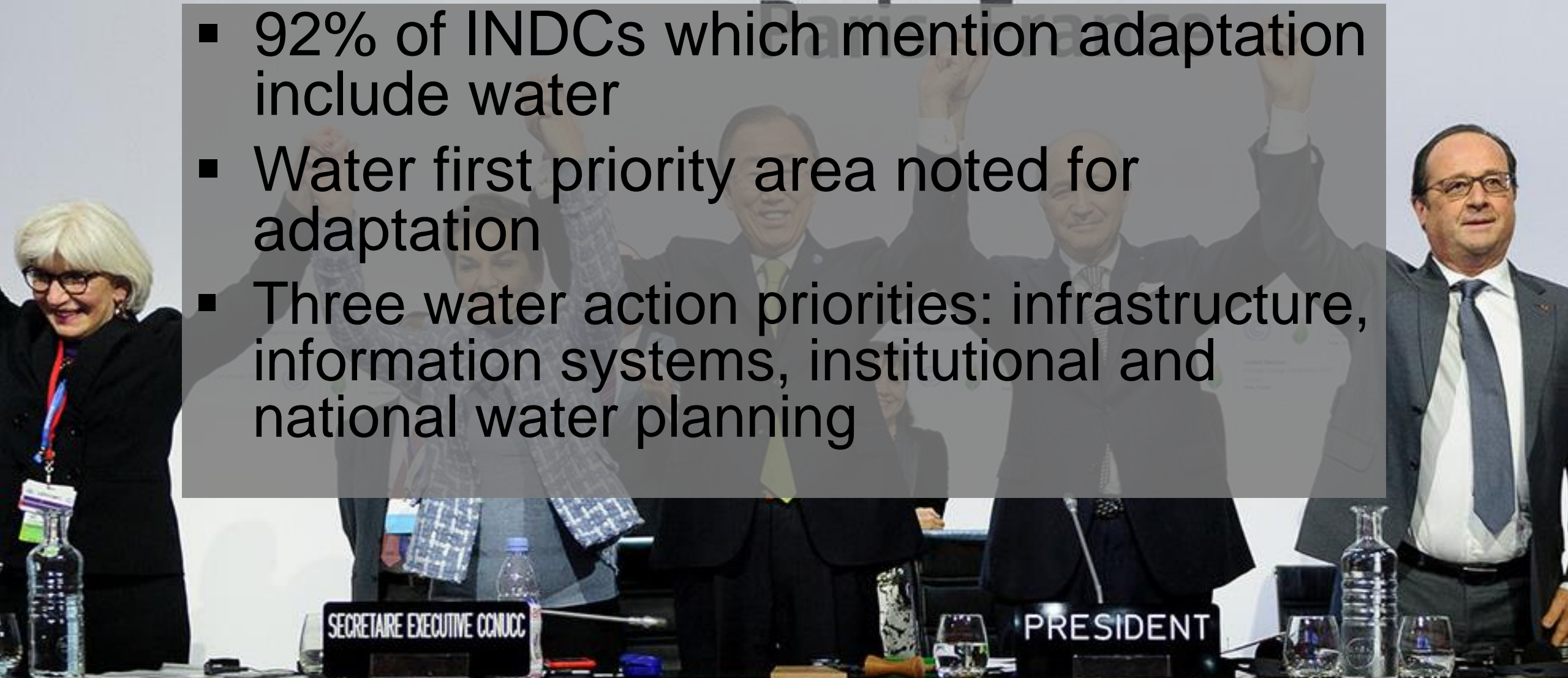
*From Global Policy to Local Project:
Managing Water Through NDCs
Stockholm World Water Week, 2017*

Multi-sectoral water resources planning in Ethiopia

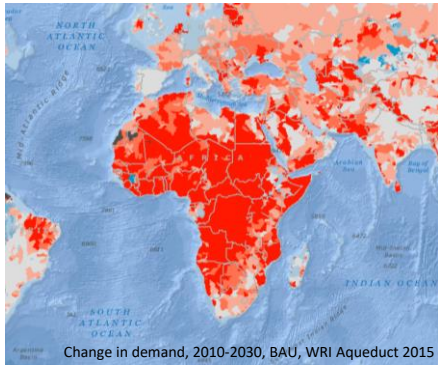
Betsy Otto, Director, WRI Global Water Program

CLIMATE CHANGE ALSO MEANS ADAPTATION

- 92% of INDCs which mention adaptation include water
- Water first priority area noted for adaptation
- Three water action priorities: infrastructure, information systems, institutional and national water planning



Sustainable and resilient water resource management is essential for social and economic development



Rising demands for water from agriculture, energy, industry, and urban centers increase stress on available supplies.



Watershed degradation undermines ecosystem services that deliver benefits for water quality and quantity.



Climate change will lead to increased variability and uncertainty in water availability.



Poor governance, including weak institutions and limited financial resources, undermine ability to manage risks.

A long, symmetrical row of national flags on tall, silver poles stretches across a green lawn towards the United Nations Secretariat Building. The building is a large, classical-style structure with a central entrance and the words "UNITED NATIONS" and "NATIONS UNIES" above it. The sky is clear and blue. The flags are of various colors and designs, representing different countries.

Country water risk assessment

THE WATER SECURITY IMPROVEMENT PROCESS

The WSI Process Builds on Eight Essential Practices

Focus on **priority water risks** in a defined geographic and technical space

Engage and mobilize **water users** as the actors that affect water resources

Employ a **"systems thinking"** approach to address causes, not just symptoms

Address **uncertainties** about information, science, climate change, and human behaviors to ensure robust decision-making and adaptive management

Negotiate integrated actions that distribute tangible benefits to water users, including especially women and marginalized groups

Design **science- and fact-based** solutions through a combination of infrastructure development, watershed management, behavior change, and institutional improvements

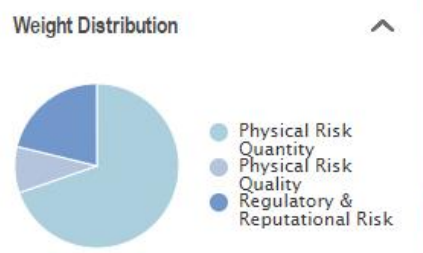
Build **adaptive management** capacities of institutions and communities to improve resilience to stresses and shocks

Ensure **sustainability** through economic efficiency, environmental soundness, and social equity.

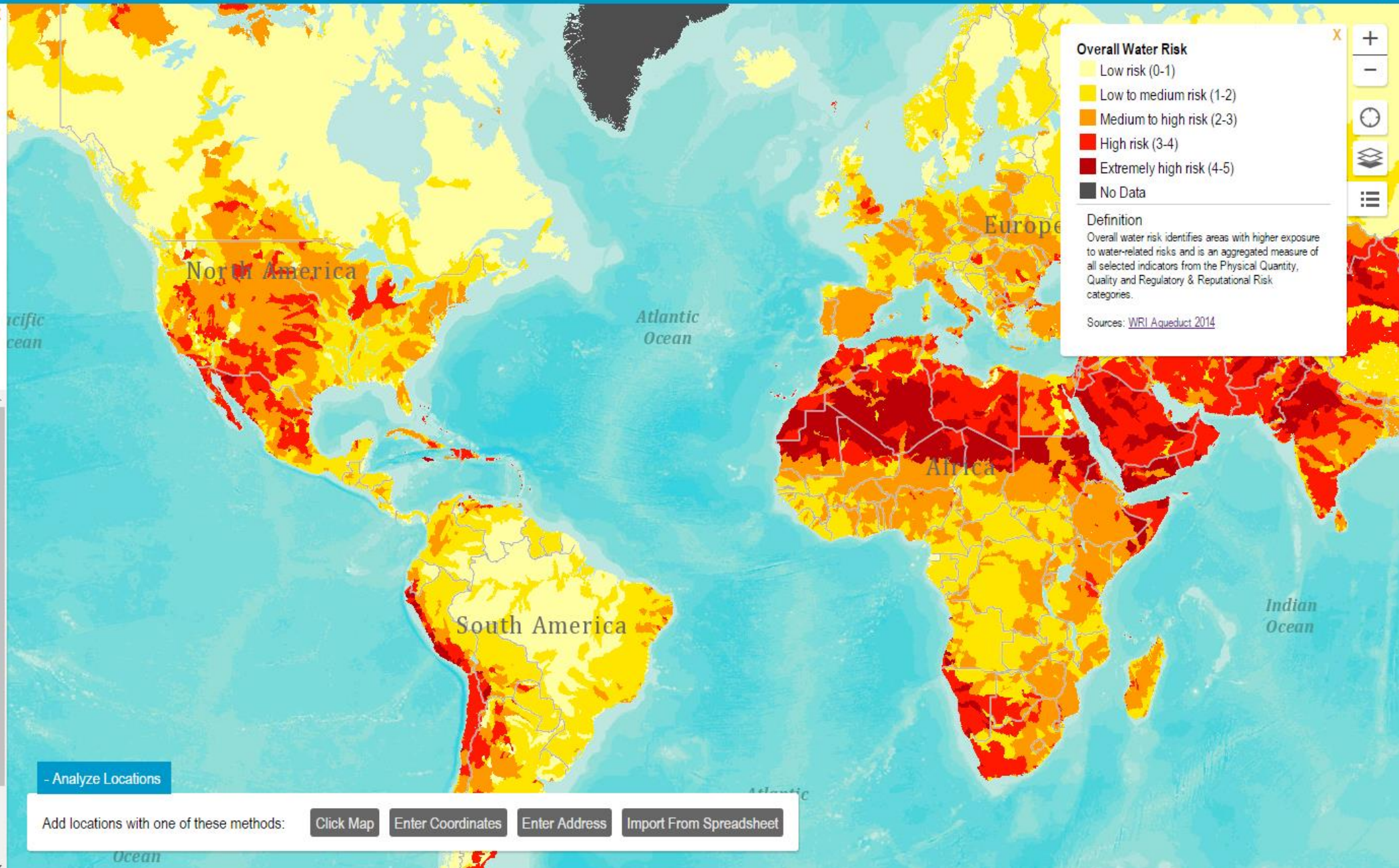
These maps show where water-related risks are most severe.

Map Transparency 100% none

Weighting Scheme: Default Customize Weights



- Overall Water Risk
Physical Risk Quantity
Baseline Water Stress
Inter-annual Variability
Seasonal Variability
Flood Occurence
Drought Severity
Upstream Storage
Groundwater Stress
Physical Risk Quality
Return Flow Ratio
Upstream Protected Land
Regulatory & Reputational Risk



Overall Water Risk legend with color key and definition text.

Analyze Locations - Add locations with one of these methods: Click Map, Enter Coordinates, Enter Address, Import From Spreadsheet

These maps show how climate change and/or development could affect water resources over the next 30 years.

Map Transparency

100% none

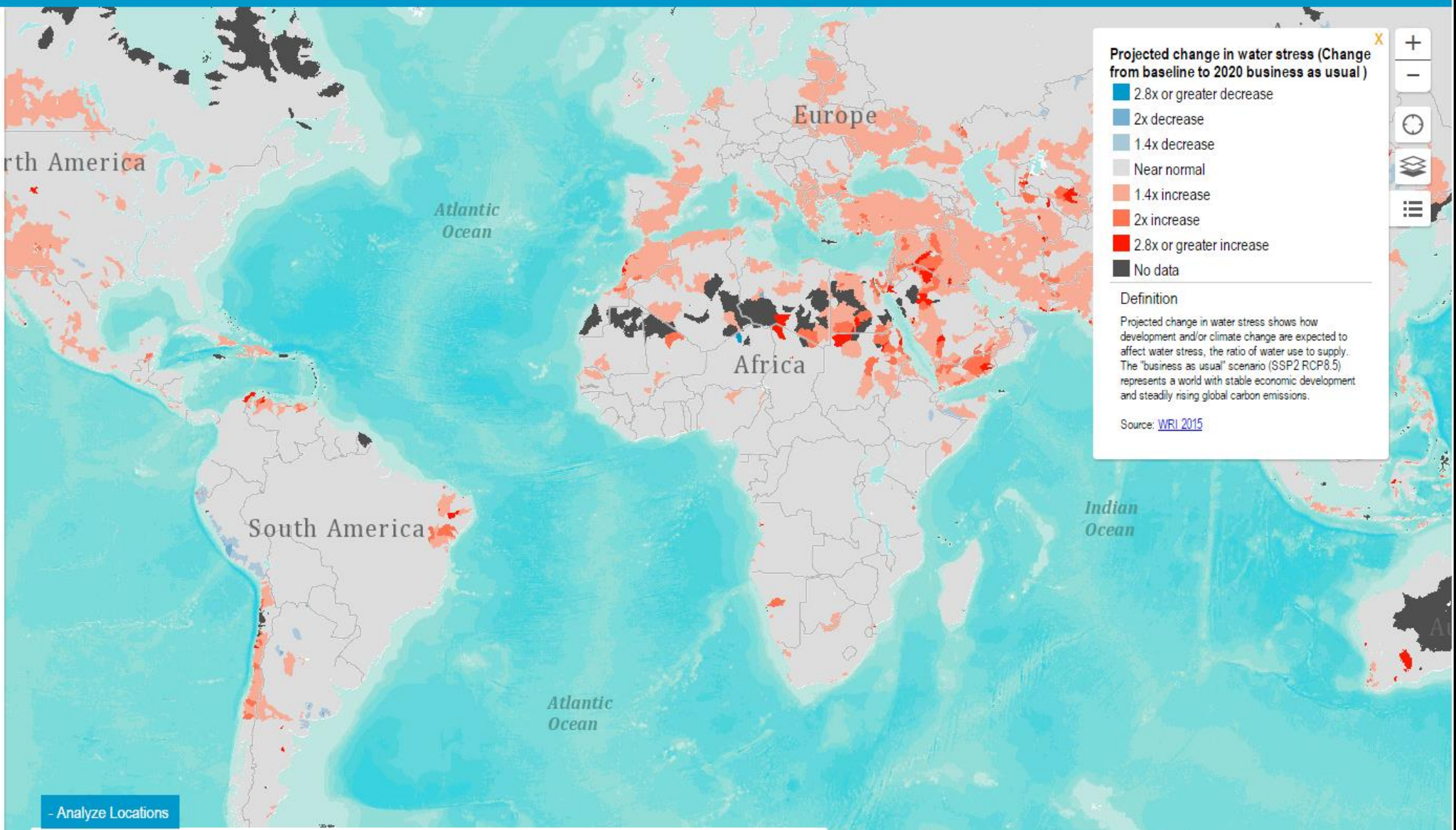
- 1. Select an indicator**
- Projected change in water stress**
 - Projected change in seasonal variability
 - Projected change in water supply
 - Projected change in water demand

2. Select a time frame

Change in water stress from historical conditions to: **2020**

Water Stress In Year: **2020**

- 3. Select a climate scenario**
- Future water availability depends on how the world grows. These possible scenarios are based on the IPCC 5th assessment report.
- Optimistic
 - Business as usual**
 - Pessimistic



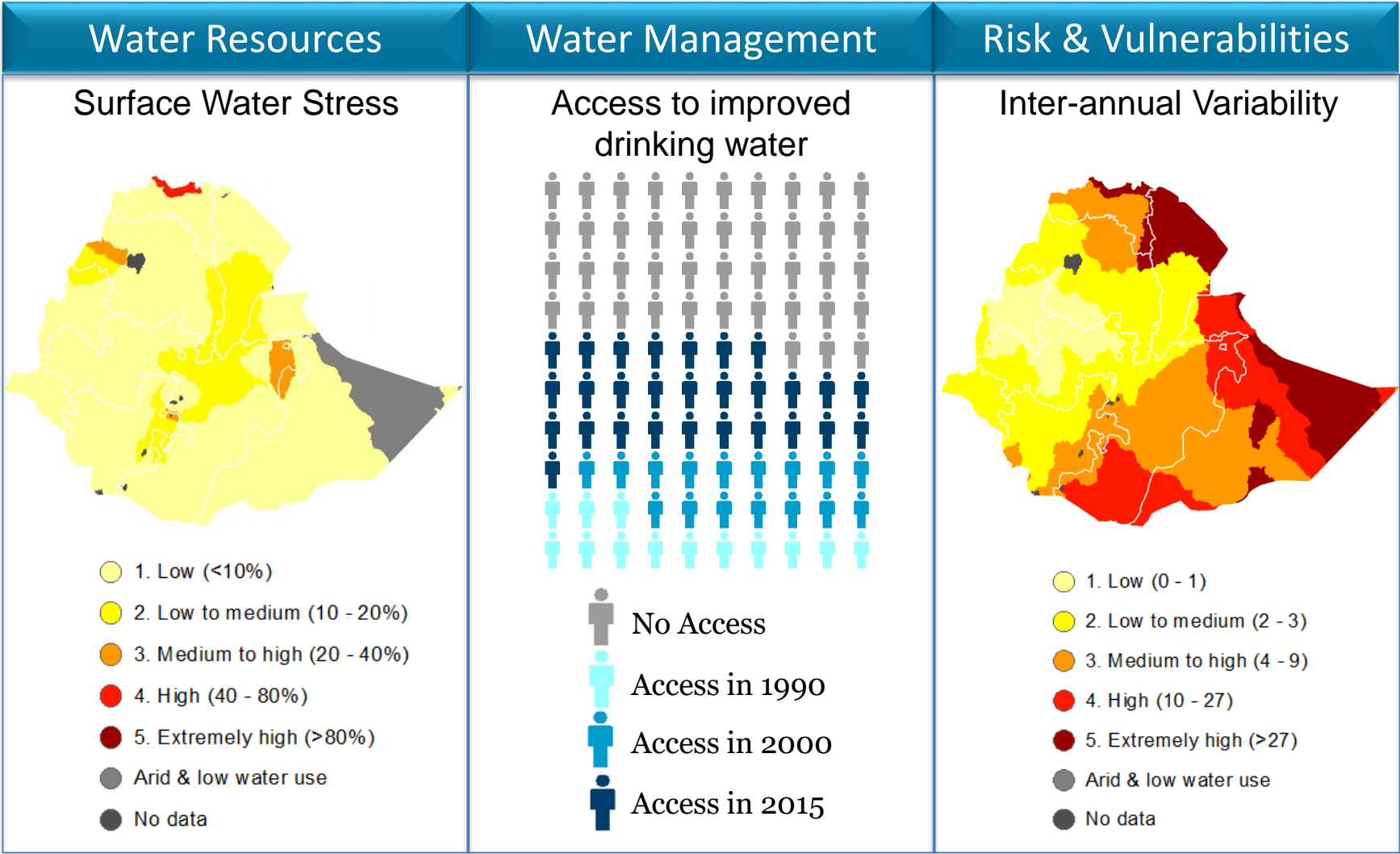
- Analyze Locations

Add locations with one of these methods:

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COUNTRY-LEVEL RISK ASSESSMENTS

USAID Sustainable Water Partnership example: Ethiopia

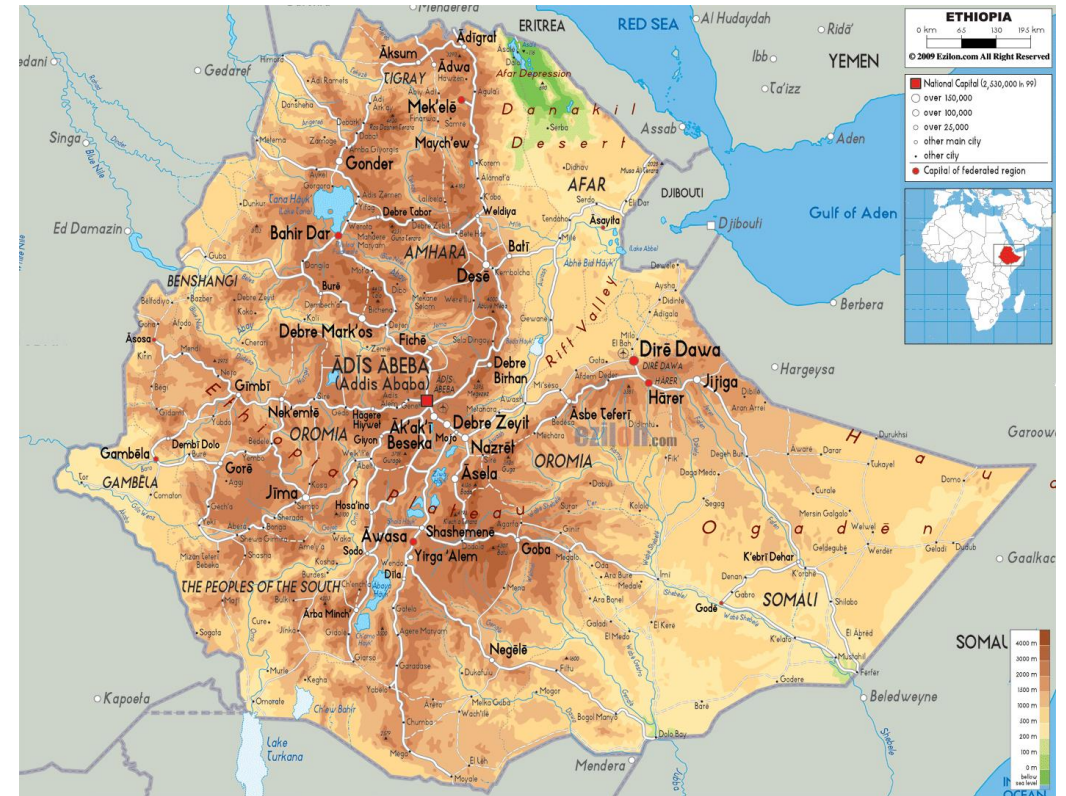
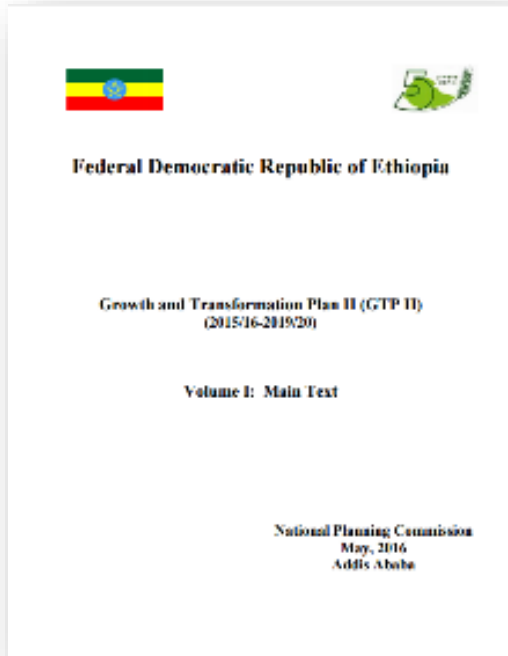


Data sources: Aqueduct 2014; WHO/UNICEF Joint Monitoring Programme; Aqueduct 2014

An aerial photograph of a lush, green landscape in Ethiopia. The terrain is hilly and covered in dense vegetation, including various types of trees and shrubs. In the upper right corner, a small cluster of traditional buildings with thatched roofs is visible. The overall scene depicts a rural, agricultural area with a rich natural environment.

Ethiopia: Climate adaptation, water & development

ENSURING FUTURE GROWTH THROUGH RESILIENT DEVELOPMENT OF WATER RESOURCES

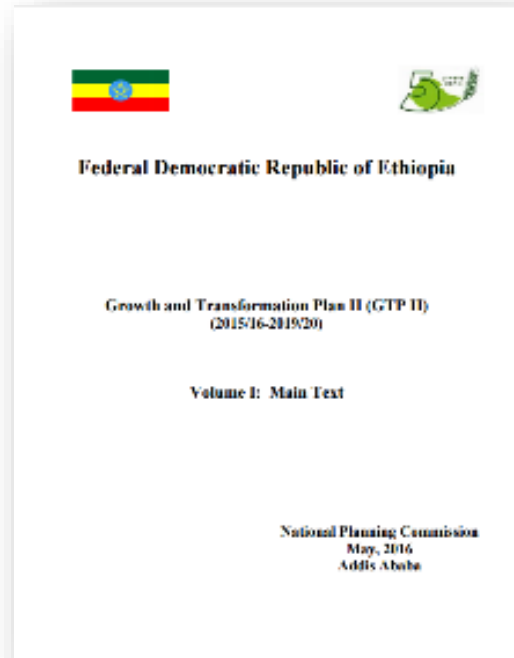


WATER SECURITY WILL MAKE OR BREAK ETHIOPIA'S AMBITIOUS 5-YR GROWTH TARGETS

- **45% in irrigation** (large/medium scale, 300,000 ha)
- **4-fold increase in power generation;**
80% hydropower (13,817MW)
- **20% annual industrial growth rate**
- **47% increase in urban potable water supply coverage rate (51% to 75%)**



ENSURING FUTURE GROWTH THROUGH RESILIENT DEVELOPMENT OF WATER RESOURCES



Aqueduct – Ethiopia:
mapping water risks



Social & economic implications
of water constraints across
sectors



Identify policy & investment
opportunities



Strengthen capacity related
to balancing water demands



An aerial photograph of a lush, green watershed landscape. The terrain is hilly and covered in dense vegetation, including various types of trees and shrubs. The colors range from vibrant green to darker, more saturated greens, indicating different types of plant life. In the upper right corner, a small cluster of traditional thatched-roof huts is visible. The overall scene depicts a healthy, restored natural environment.

Policy & investment opportunity: Watershed restoration

NDCs and Adaptation: landscape restoration catalyst



24 Countries

have committed to restore
79 million hectares of
degraded land by 2030

TIGRAY, ETHIOPIA

1 million
hectares of land
have been re-greened

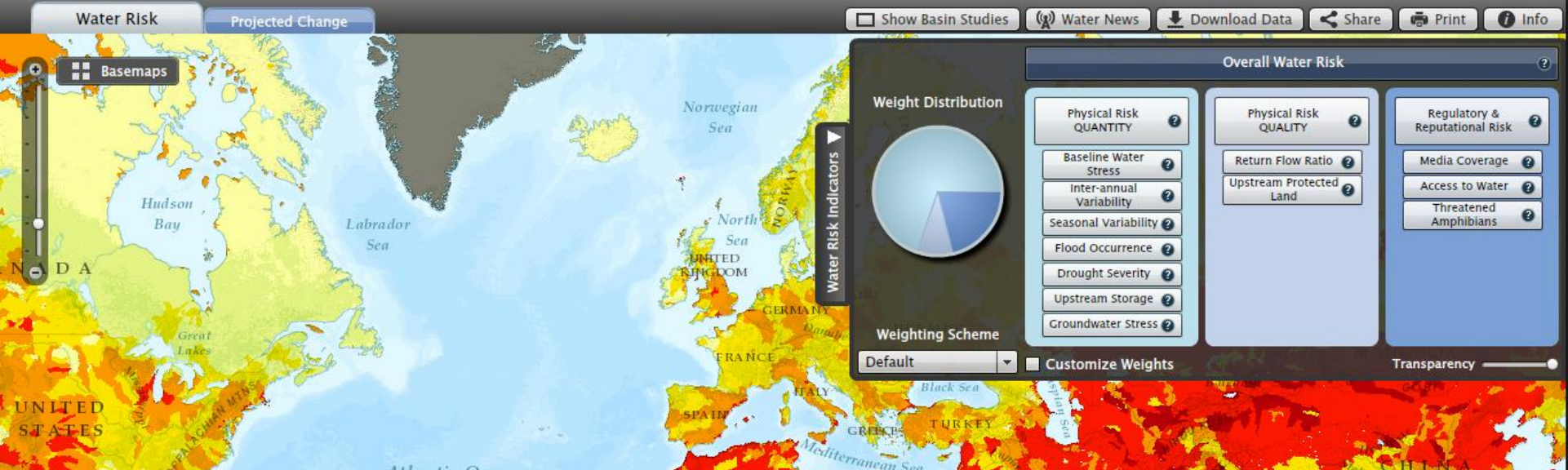
TIGRAY, ETHIOPIA



Groundwater levels
have been recharged
downslope



650 new
shallow wells



Thank you
 botto@wri.org

Analyze Locations ▼

Risk Categories: Overall Water Risk | Physical Risk QUANTITY | Physical Risk QUALITY | Regulatory & Reputational Risk | Projected Change

Clear All | Add Location | Import | Export

| | Location Title | Country | Catchment | Overall Water Risk | | |
|---|----------------|----------------------------------|-----------|------------------------------|------------------------------|------------------------------|
| | | | | Overall Water Risk | Physical Risk QUANTITY | Physical Risk QUALITY |
| 📍 | Location 1 | Democratic Republic of the Congo | CONGO | 2. Low to medium risk (1-2) | 1. Low risk (0-1) | 2. Low to medium risk (1-2) |
| 📍 | Location 3 | India | INDUS | 5. Extremely high risk (4-5) | 5. Extremely high risk (4-5) | 5. Extremely high risk (4-5) |

Legend

Overall Water Risk

- Low risk (0-1)
- Low to medium risk (1-2)
- Medium to high risk (2-3)
- High risk (3-4)
- Extremely high risk (4-5)
- No data