

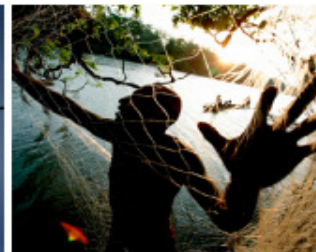


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Water indicators for bioenergy

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Structure

- Some preliminary thoughts about indicators
- A risk-based approach
- Draft indicators from the Alliance for Water Stewardship
- Four simple steps
- Showing stakeholders

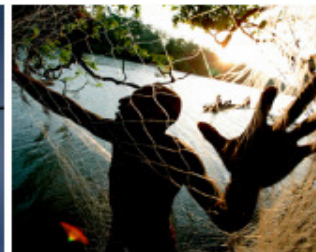




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Water and measurement

- Why are we doing this measurement?
- Indicators need to show you and your stakeholders how the risks arising from your key impacts and dependencies relating to water are changing

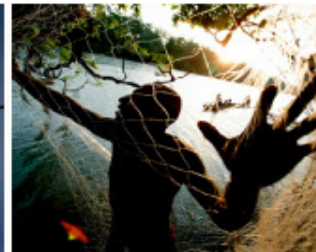




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Water Metrics Journey

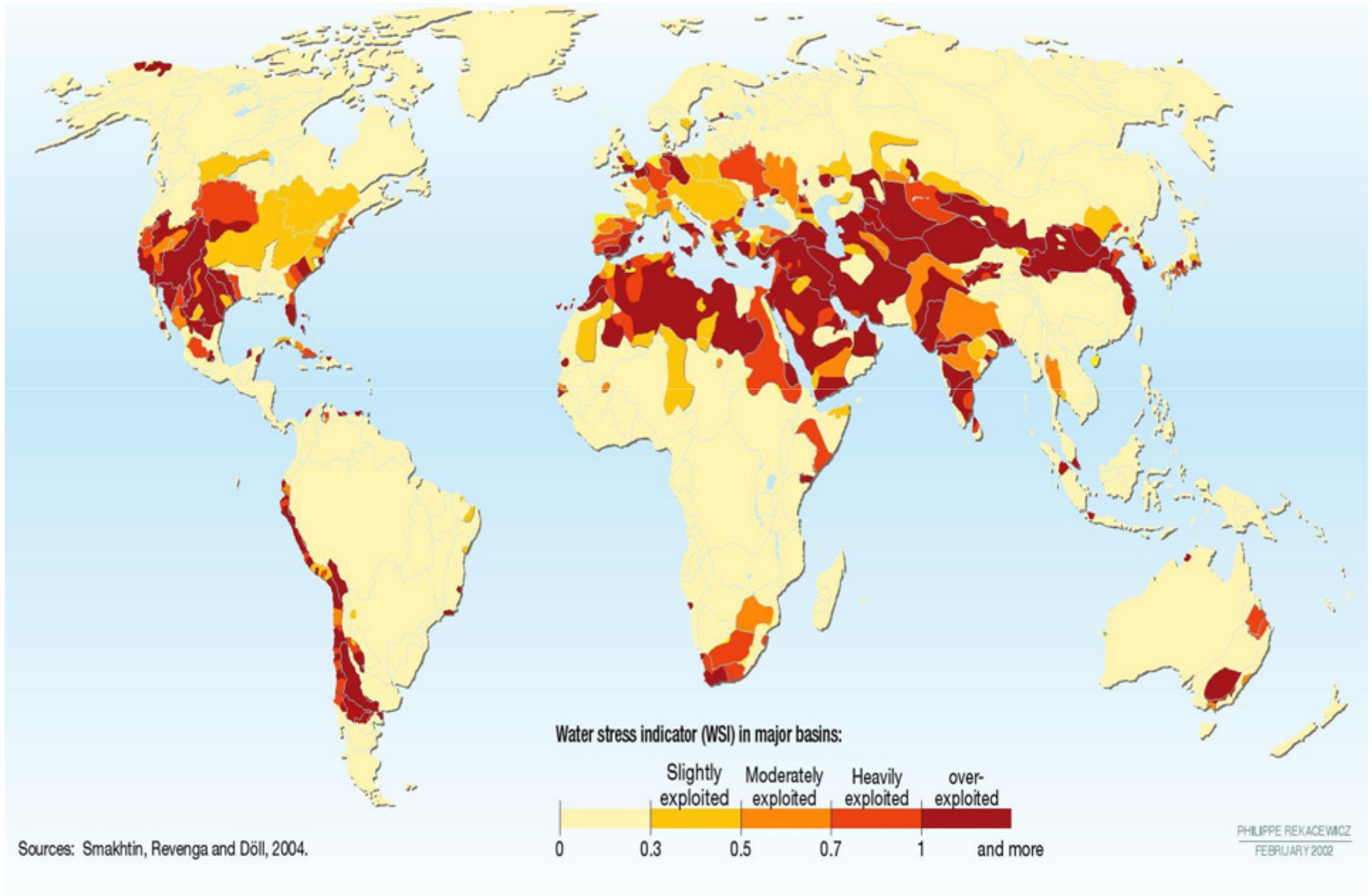
- Start out measuring crop per drop
- Realise that this tells you little
- Realise that the issues are at the catchment level
- Indicators needed at catchment level



Water-related risks

- **Physical** - through scarcity, flooding, poor quality, infrastructure neglect
- **Financial** - lost revenue through higher costs
- **Regulatory** - change in the rules of the game, less availability e.g South Africa
- **Political** – water inavailability turns politics against business
- **Reputational** – huge potential loss of market share in global markets
- **Social** – licence to operate, risks of disturbance

Water risks are local





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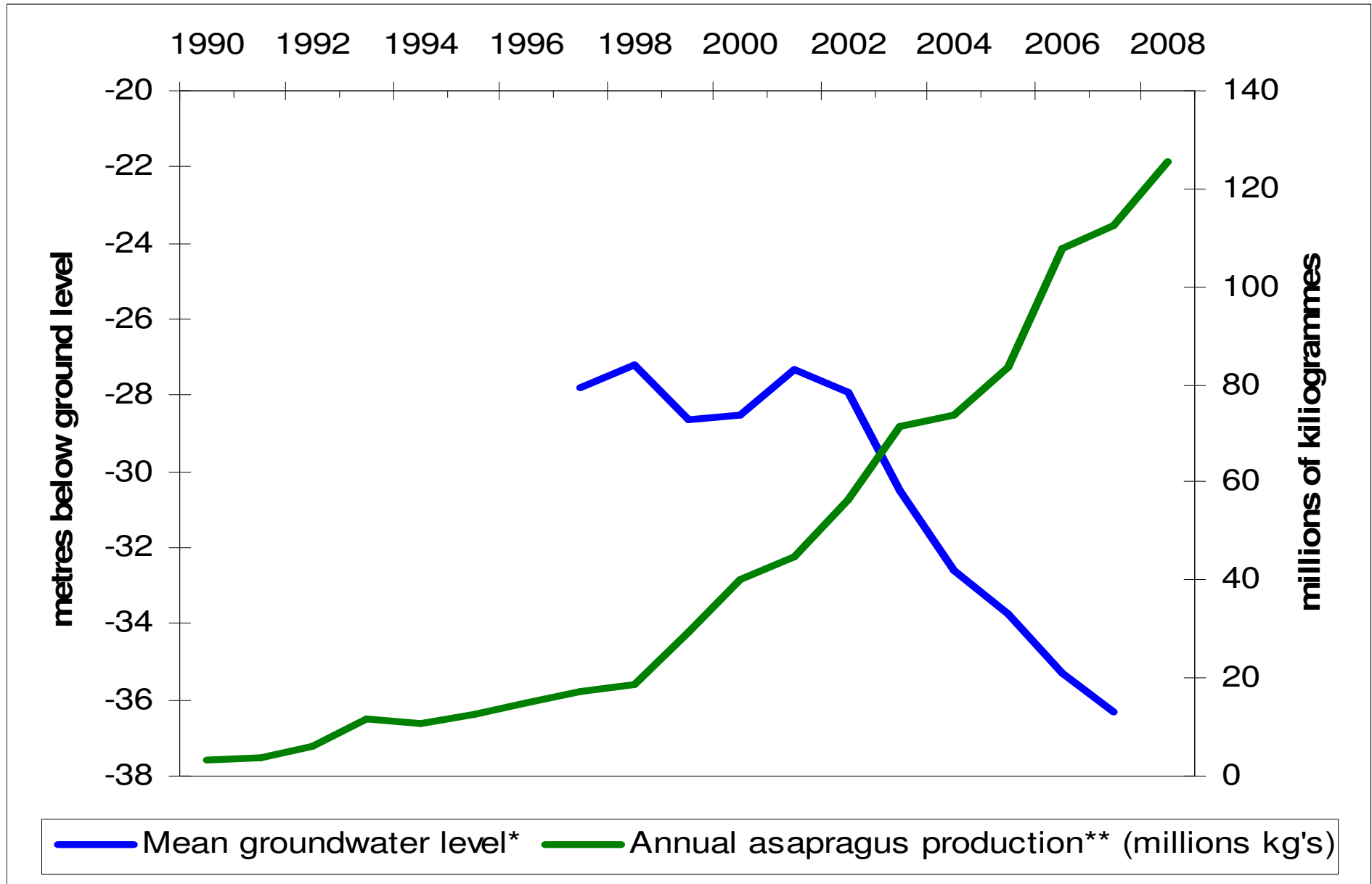
Where do water-related risks emanate from?

- too little water, too much water, and/or poor water quality
- the consequences of these situations
- the consequences of the responses to these conditions

WATER RISKS ARE SHARED RISKS!!!



Asparagus production and mean groundwater level in Peru

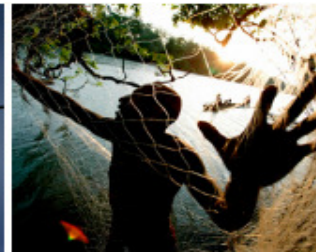




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Measurements are partial solutions

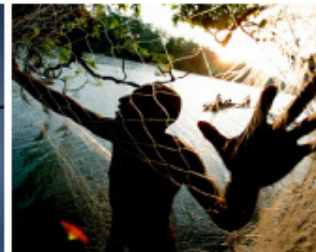
- Water Footprinting – does not tell you context
- Modified water LCA – does not tell you if you have mitigated the risk
- Farm-level indicators, efficiency, % sustainable sources, show you are trying but don't show cumulative impacts
- Catchment level indicators, like river flow and groundwater level, tell you more about shared risk





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Draft Principles, Criteria and Indicators from the Alliance for Water Stewardship



Preliminary Thinking on Impacts, Principles, and Criteria for Water Stewardship

- **Impact: Impaired water flow regime**
- **Impact: Impaired water quality**
- **Impact: Lack of water governance**
- **Impact: Impaired ecosystems and habitat (TBD)**



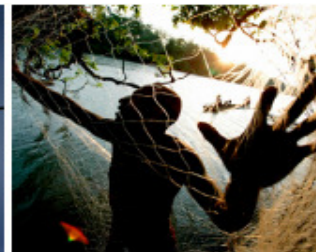
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Impact: Impaired water flow regime

- **Principle 1: Restore and maintain water flow regime**
 - **Criteria 1.1: User flow volume**
 - **Indicator 1.1.1:** Intake volume at user site
 - **Indicator 1.1.2:** Discharge volume at user site

Target: No user in a catchment can affect monthly flow conditions by more than X %
 - **Criteria 1.2: Catchment flow volume**
 - **Indicator 1.2.1:** Monthly flow volume measured at target points in the catchment

Target: Cumulative flow monthly changes in a catchment cannot be greater than by Y %



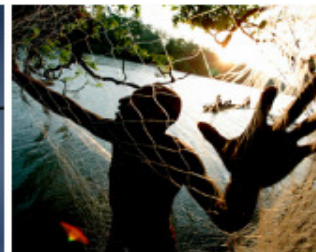
Impact: Impaired water quality

- **Principle 2: Restore and maintain water quality**
 - **Criteria 2.1: Nutrients in effluents**
 - **Indicator 2.1.1: Nitrogen concentration**
Target: 4 mg/L total nitrogen in effluent
Or
 - **Indicator 2.1.1: Chlorine concentration**
 - **Note:** Indicator will vary by sector and Target in standard could vary by sector and/or catchment
 - **Criteria 2.2: Sediments in effluents**
 - **Criteria 2.3: Temperature of effluents**



Impact: Lack of water governance

- **Principle 3: Improve water governance**
 - **Criteria 3.1: Local water use regulations**
 - **Indicator 3.1.1:** Are there local regulations that govern water use and quality?
 - **Criteria 3.2: Voluntary systems for water management**
 - **Indicator 3.2.1:** Are there voluntary systems to manage water use and quality?
 - **Criteria 3.3 Water Pricing**
 - **Indicator 3.3.1:** is water priced in the catchment?

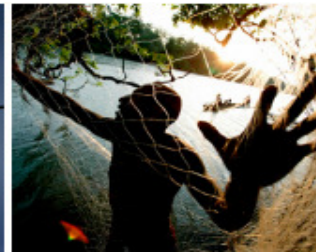




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Impact: Impaired ecosystems and habitat (TBD)

- **Principle 4: High Value Wetlands Maintained (TBD)**

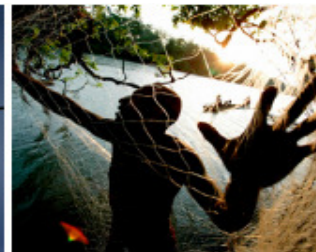




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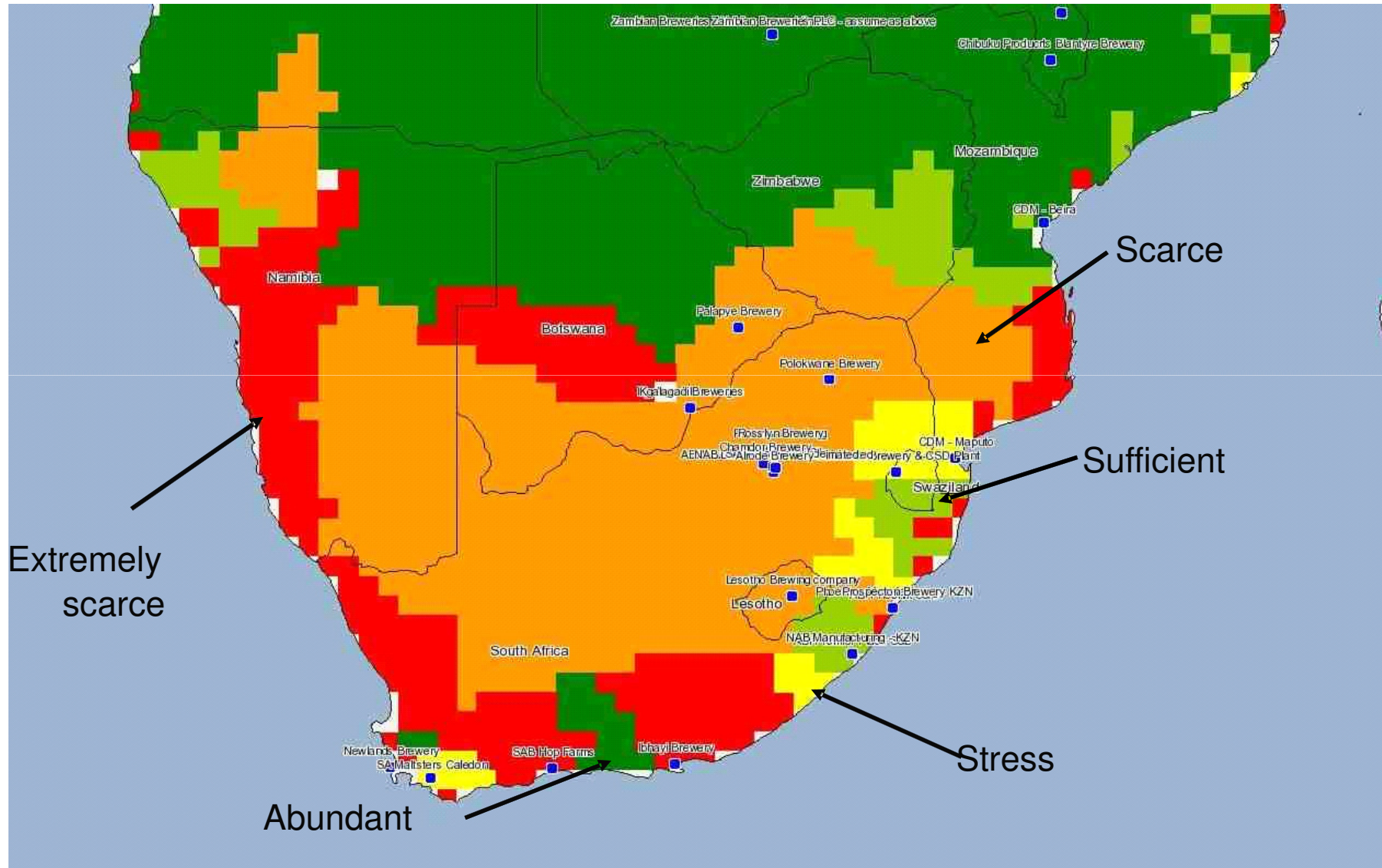
Four simple steps

1. Screen using the WBCSD tool
2. Target Water Footprint on problem areas
3. Reduce your own impacts
4. Get the context managed



Step 1 – Screen using the WBCSD tool

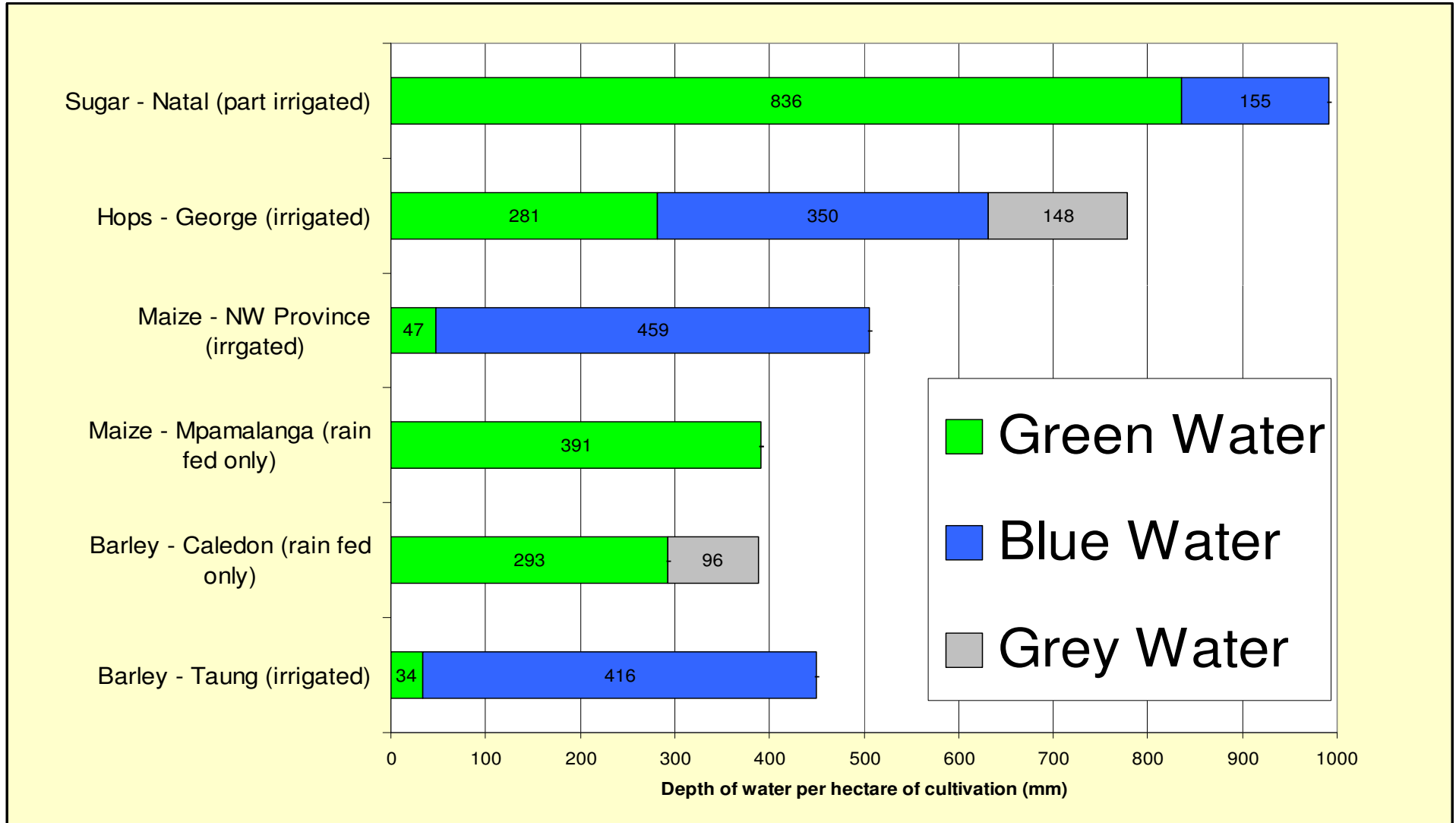
What is the water status around your factories and farms?



Acknowledgements to SABMiller

Step 2 - Target Water Footprint assessment on known problem areas

What kind of water dependency is it?



Step 3 - Reduce your own impacts

Reduce the impacts of your operations and purchases – without this you are not credible

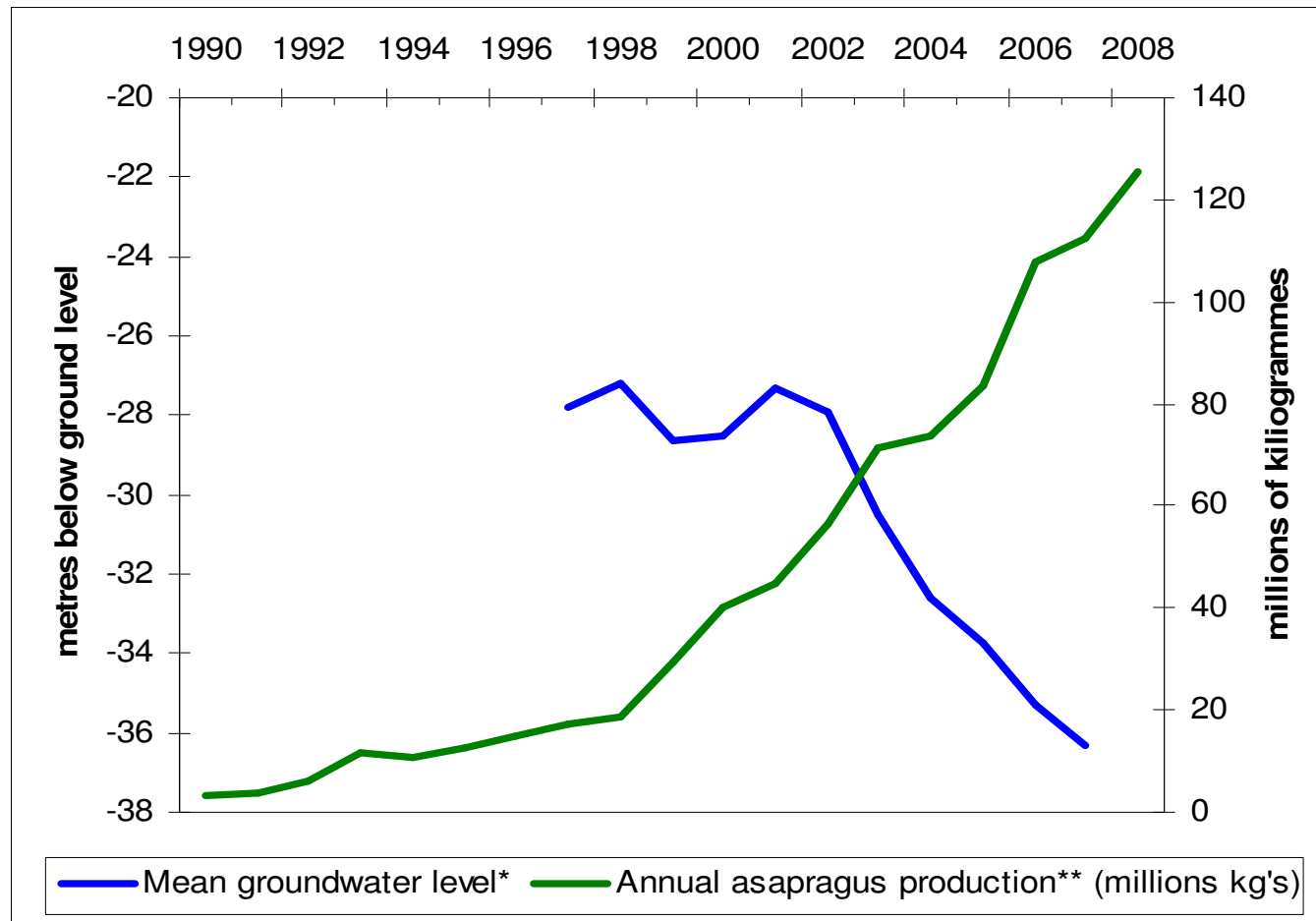


Step 4 - Get the context managed

Act beyond the fenceline

Water is a shared problem so work together to address it

Working together will reduce costs of mitigating risks

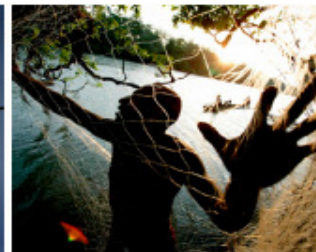




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Showing stakeholders your sustainable management

- Specify your water-related risks
- Quantify risks where possible, use judgement too
- Acknowledge shared risk and your impact on it
- Say what needs to be done to mitigate it
- Report improvements you've made
- State where the overall problem is at
- You may have to exit if you cannot mitigate the risk





Resources

- Water Footprint Network
<http://www.waterfootprint.org/?page=files/WFN-mission>
- Alliance for Water Stewardship
<http://www.allianceforwaterstewardship.org/>

Thanks for listening

