Context-Based Water Targets

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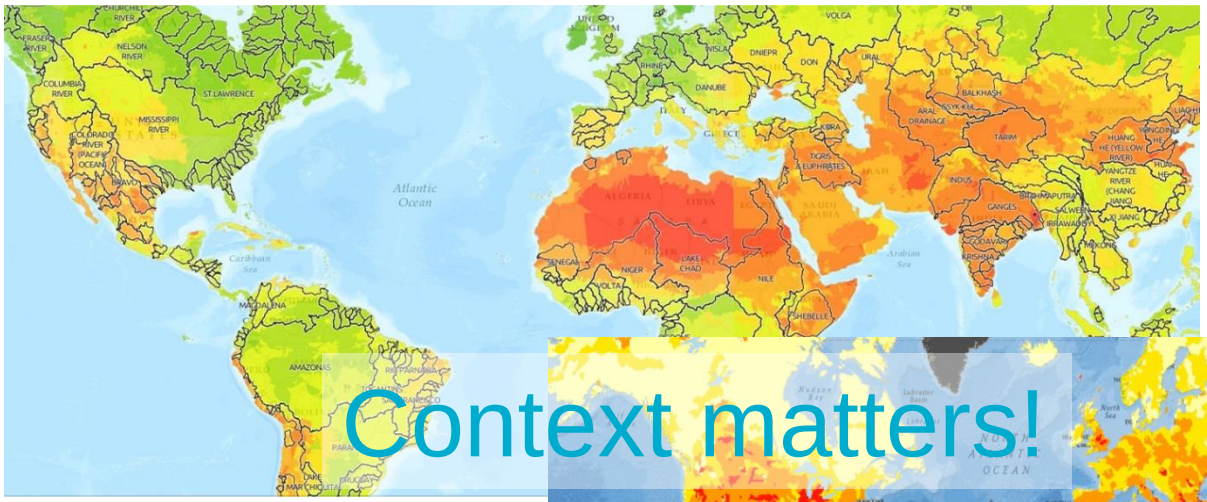
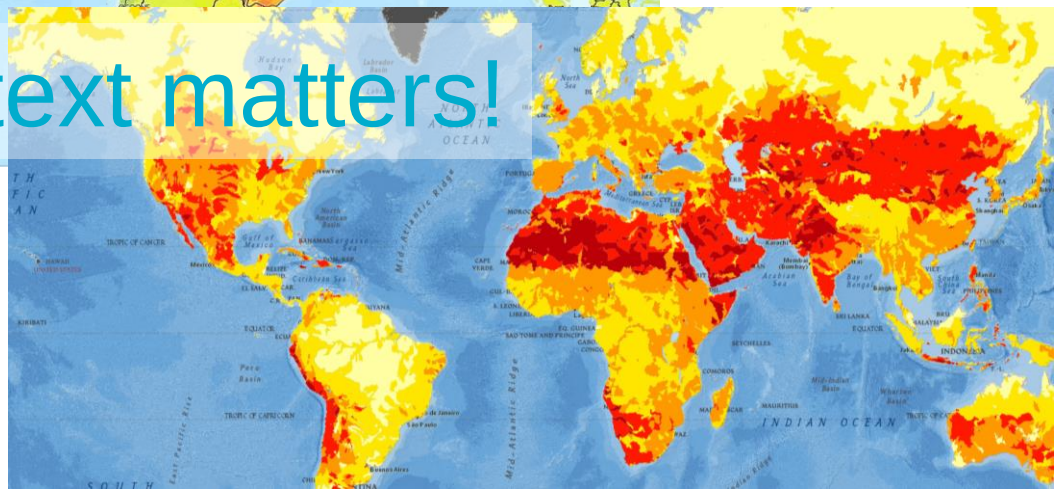
Water use metrics: A lot? A little? Does it matter?

- Consumption: Mm3 or m3/kg of production
- Wastewater: BOD/COD of water



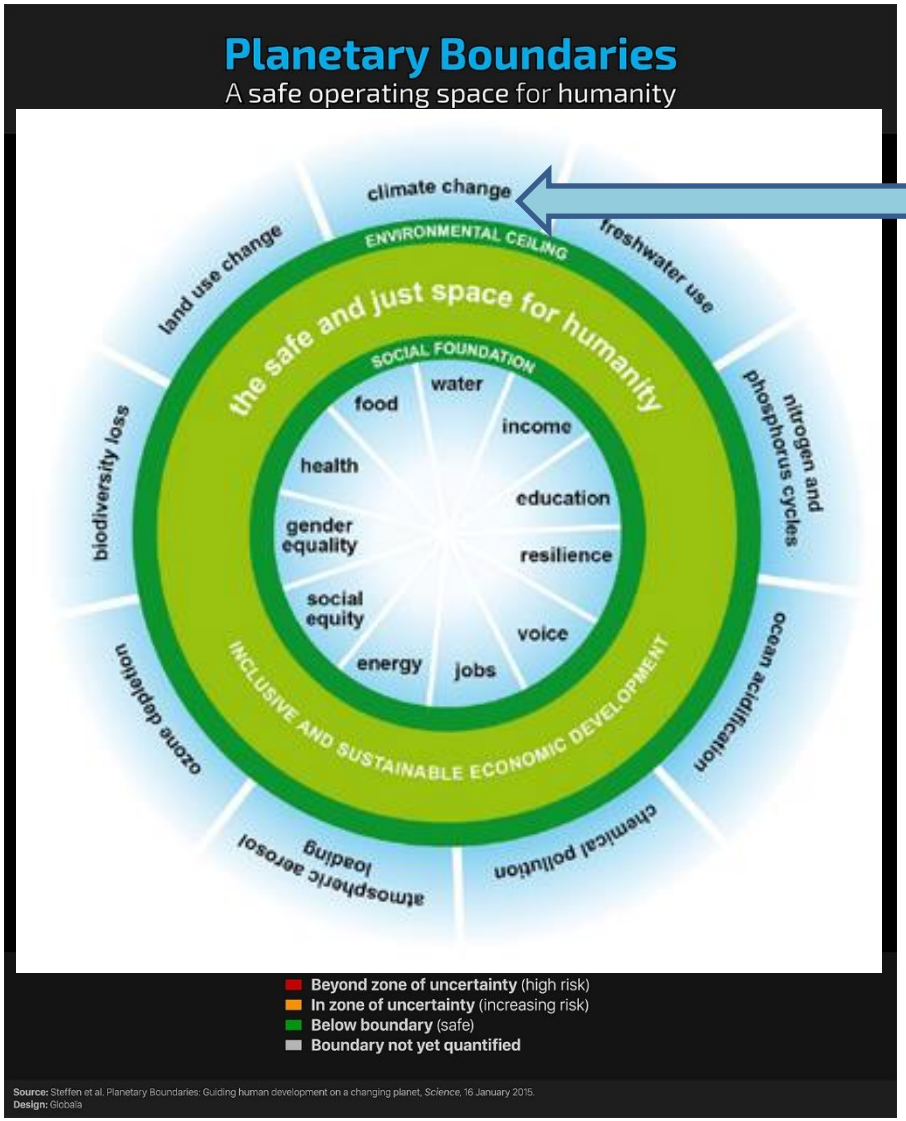
Context matters!



Source: WWF Water Risk Filter

Source: WRI Aqueduct

Context-Based Sustainability



SCIENCE BASED TARGETS

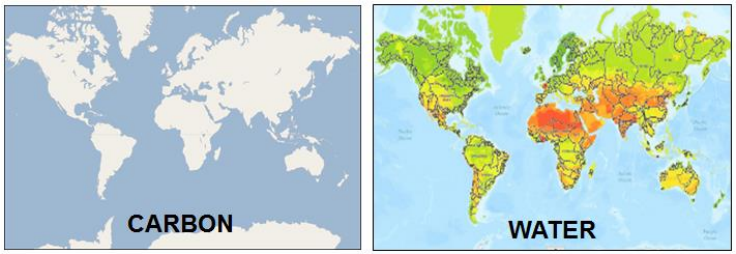
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

One Planet Thinking™

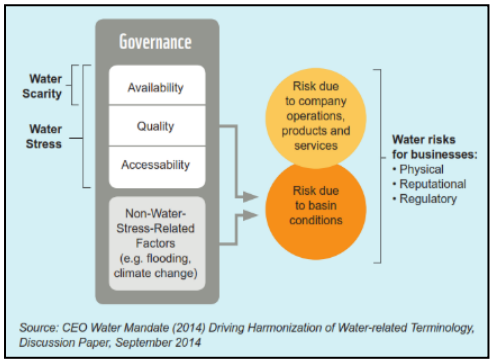
Rockström et al. (2009) Planetary Boundaries. Ecology & Society http://www.ecologyandsociety.org/vol14/iss2/art32/

The shift from “Science” to “Context”

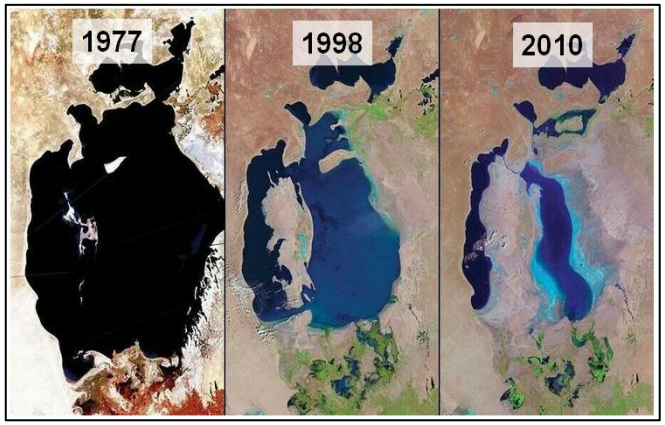
1. Not static nor spatially consistent



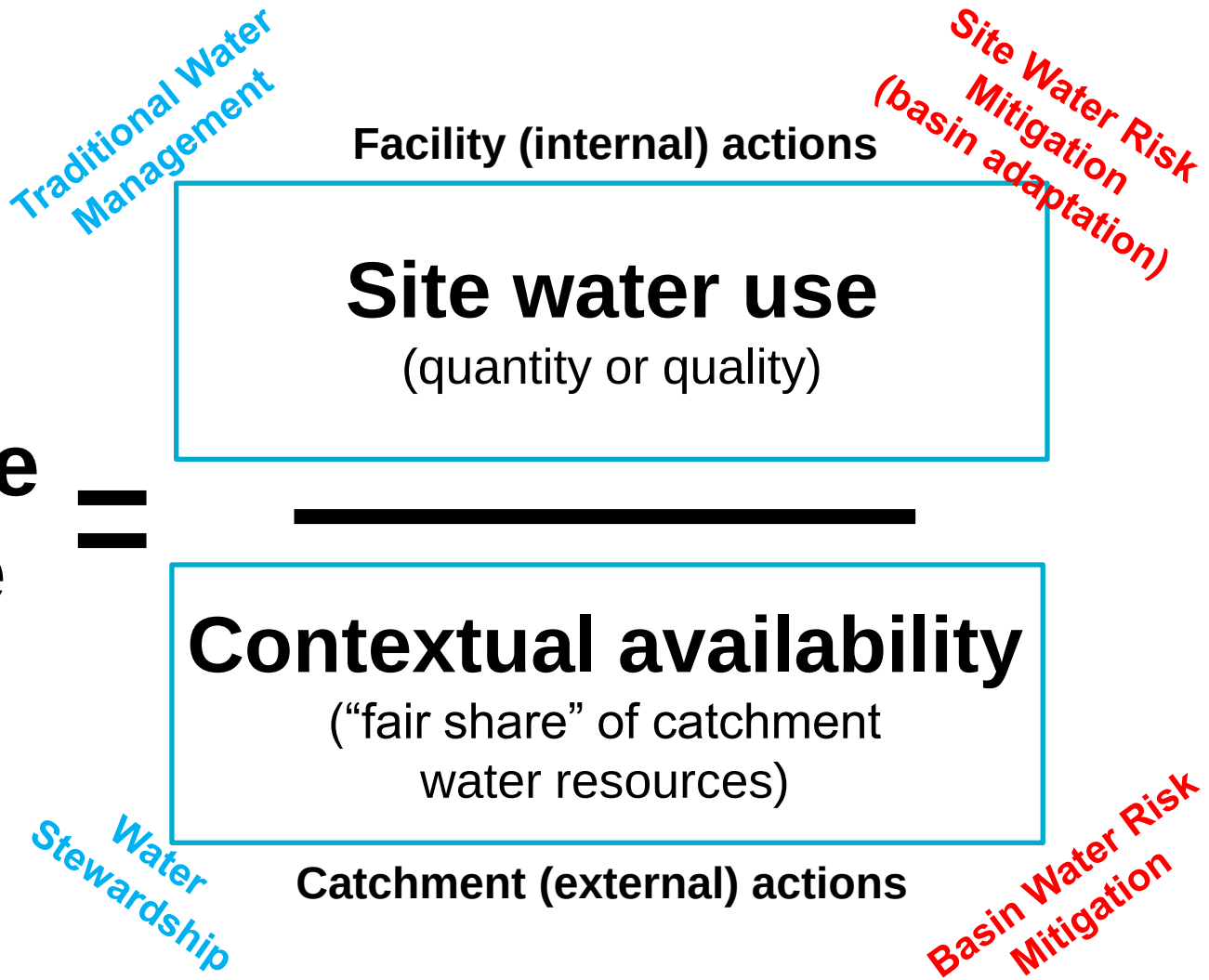
2. Sustainable use is multidimensional
– i.e., quantity AND quality (and often influenced by legal allocation)



3. Allocation equitability
– i.e. “fairness of distribution” or how we divide the pie (baseline issue)



Context-Based Water Targets: Re-defining water performance

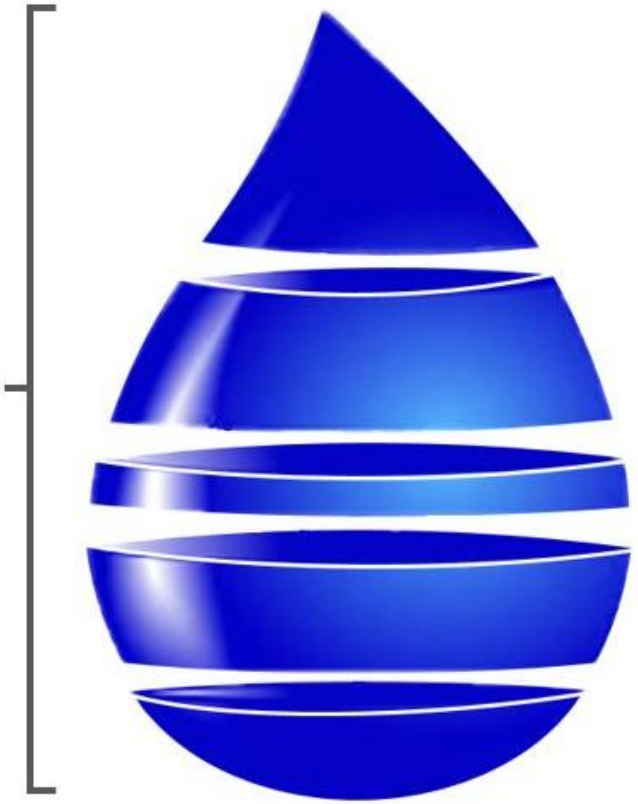


NB: Adapted from McElroy & van Engelen (2012)

Visualizing context-based water availability

Contextual Availability =

Total annual precipitation
(i.e., sum of available renewable water resources)



Terrestrial ecosystems
Evapotranspiration

Freshwater ecosystems
In-stream flow requirements

Human consumption
(Human Right to Water)

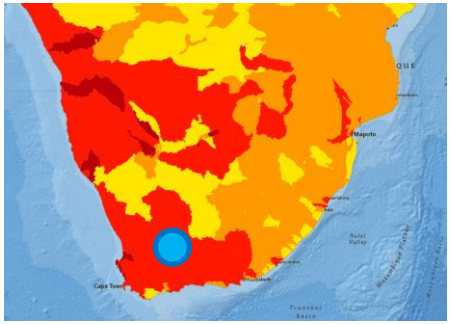
Economic & social water allocation

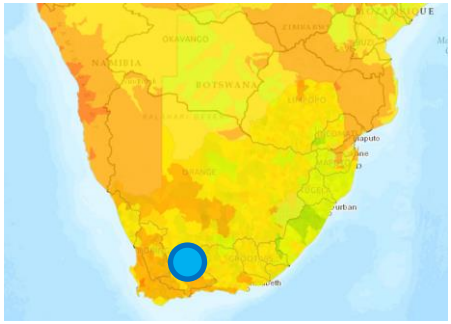
Specific facility allocation

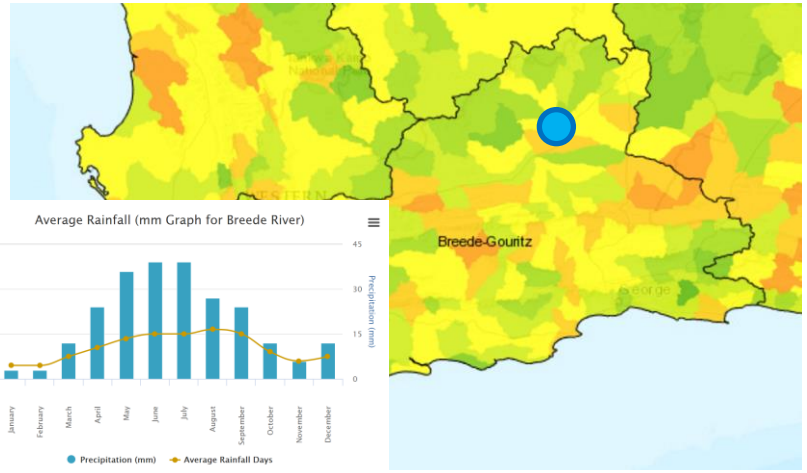
= your facility's "fair share" in context that will ensure sustainability

NB: Adapted from McElroy & van Engelen (2012)

Theoretical mine example



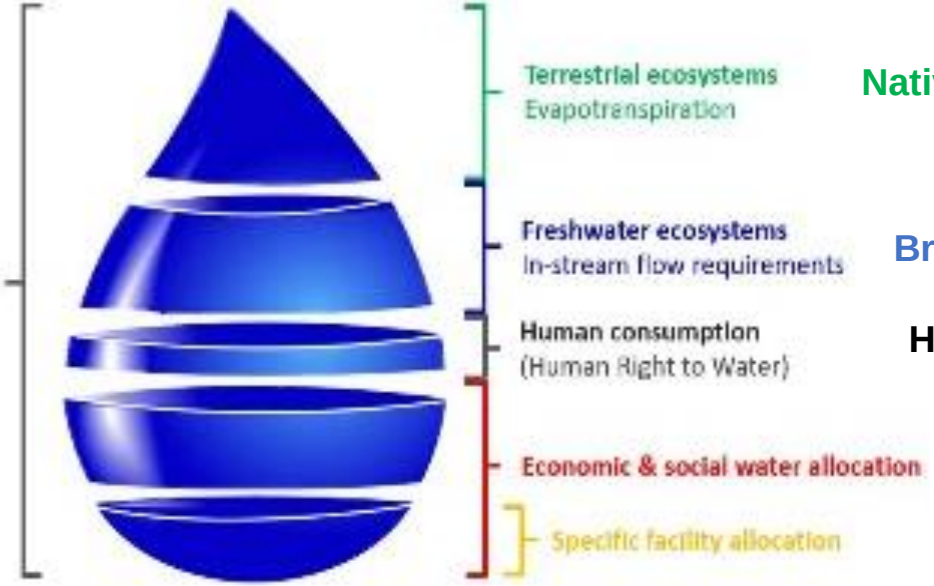




Name: Cape Town Mine
Catchment: Breede (12,384 km^2)
Catchment Precipitation (avg total): 300mm
Catchment population: 100,000
Municipal water needs: 10M m^3
Catchment Volume: 3.715B m^3
Catchment GDP: $15B
Breede e-flow req.: 1.39B m3
Native Fynbos ET: 500M m3

Mine - GDP contribution: $1B
Mine - total freshwater consumption: 120Mm^3

Theoretical mine example



Native Fynbos ET: 800M m3

Breede e-flow req.: 1.39B m3

Human need: 10M m3

Catchment GDP: $15B

Catchment Precipitation: 300mm
Catchment Volume: 3.715B m^3

Mine - GDP contribution: $1B
Mine - total freshwater consumption: 125Mm^3

Mine's "fair share" allocation = 3.715 - 0.8 - 1.39 - 0.01
= 1.515 Bm^3 x [1/15 = 6.6%]
= 101 Mm^3

Mine's Water Use Performance = 125 Mm^3 / 101 Mm^3
= 1.237
= Unsustainable → reduction target = 240K m^3

Options toward mine-site sustainability: enabling cost-benefit sustainability calculations

Sustainability performance =

$$\frac{\text{Internal water action options}}{\text{External water actions}}$$

Internal water action options

Improve site level water use efficiency ($10M; 100K m^3), pump & use salt water ($20M; 500K m^3), etc.

External water actions

Improve others' efficiency ($1M; 200K m^3); water fund ($1M; 100K m^3); reallocation from farmers ($500K; 300K m^3); etc.

NPV-driven solution selection: Work with catchment farmers to re-allocate 300K m^3 for $500K); CBWT = 1.27 – 0.3 = 0.97 = sustainable

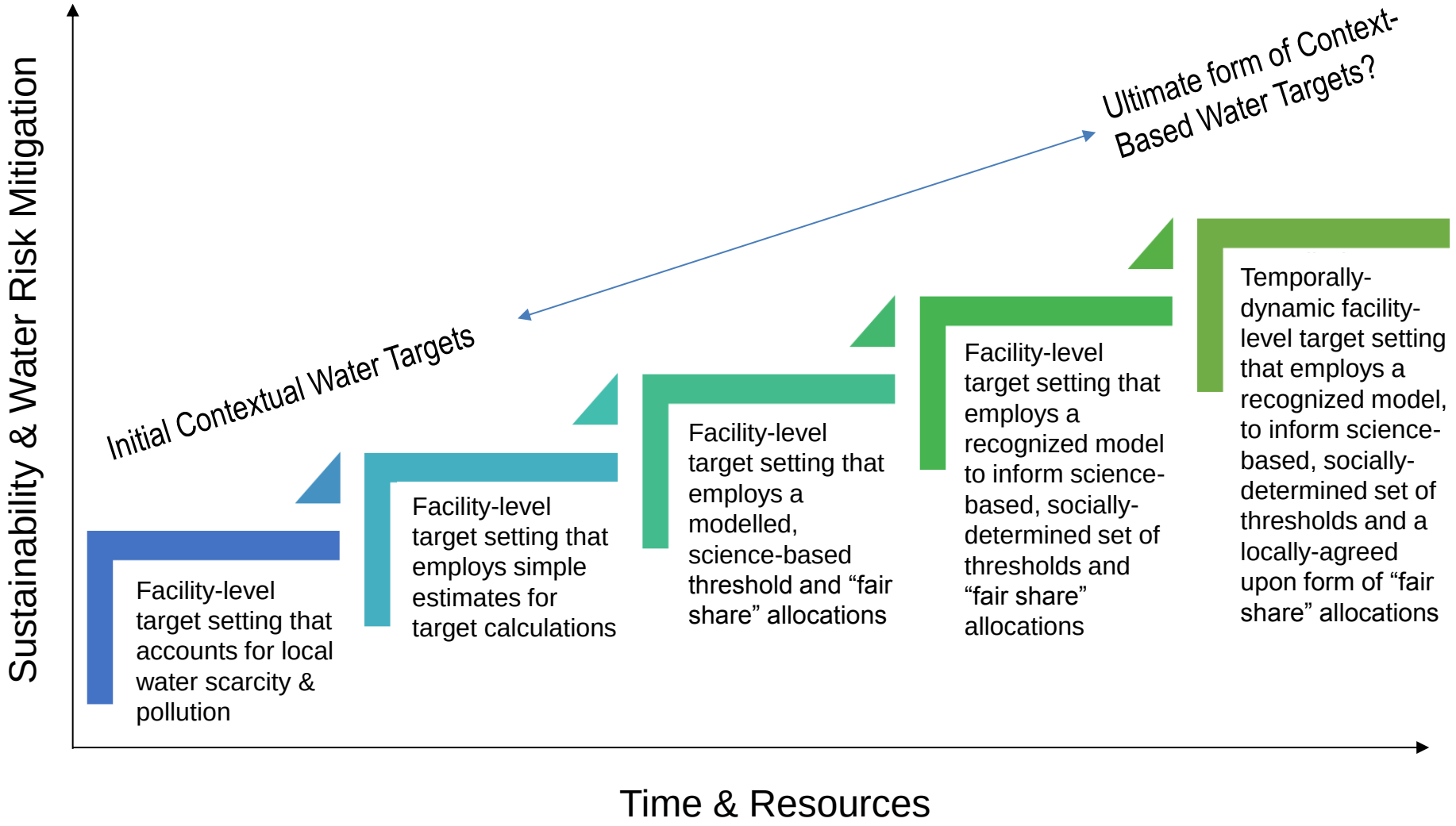
Why Context-based water targets (now)?

1. **Align water users**
2. **Ensure shared benefits**.
3. **Inform water disclosure** efforts
4. **Inform agricultural standards**
5. **Harmonize many efforts in the water stewardship** sphere!

Corporate benefits of Water Context-Based Targets

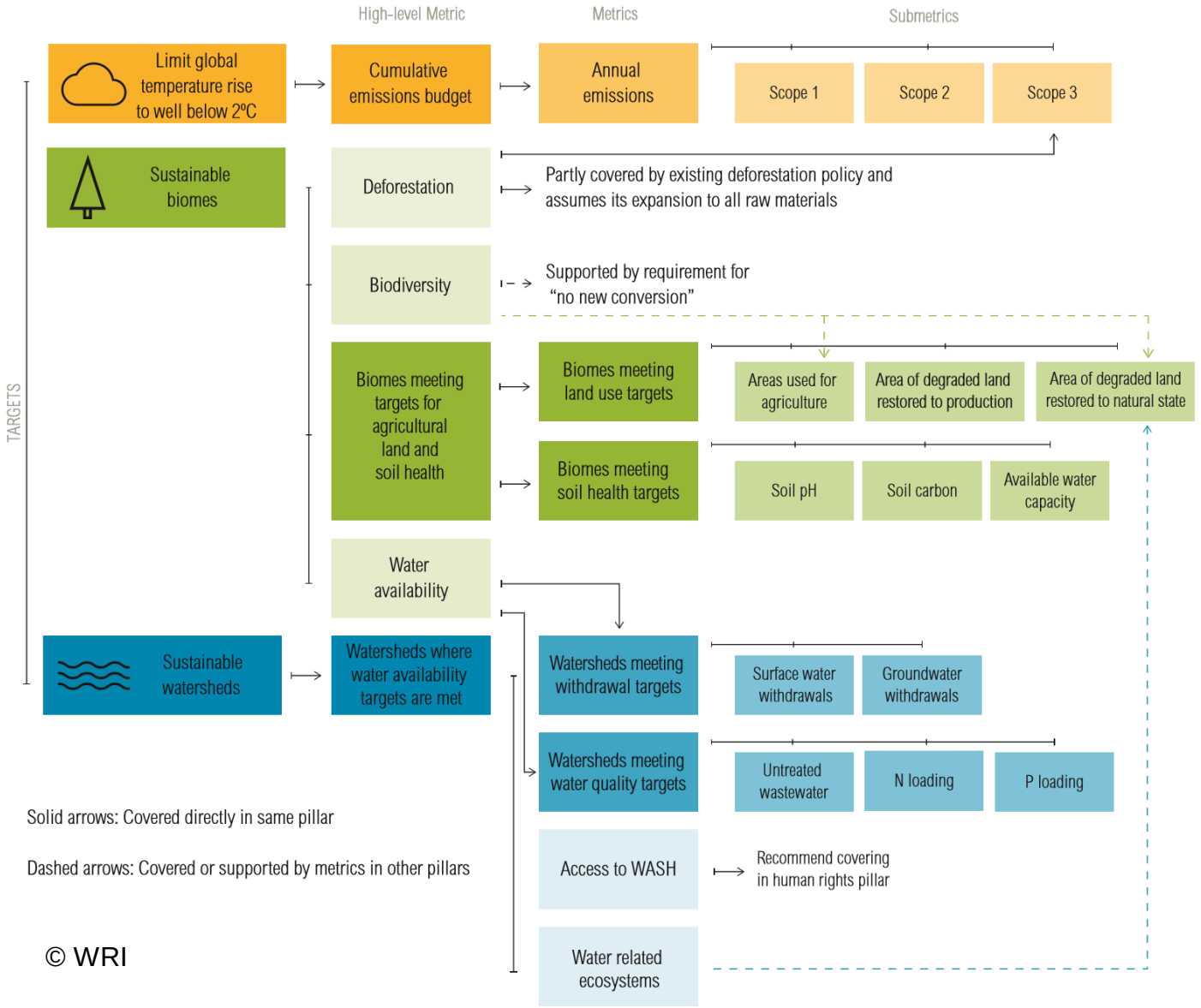
1. **Corporate risk reduction**
2. **Efficient use of CSR $**
3. **A clear sustainability “end point”**
4. **Potential reduction in reporting**
5. **More meaningful contributions**

A pathway that builds on existing efforts



A pathway that links water to climate & landscapes

WRI's Initial work on Context-based targets



Conclusions:
Context-based water targets

- We need to account for context.
- sustainability thresholds are respected
- alignment to public sector & cost effective
- We're just getting started!