

The WULCA experience: building consensus on a water scarcity indicator involving diverse stakeholders in 7 steps

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Triggered by the mandate from the Global Guidance Flagship project of the UNEP-SETAC Life Cycle Initiative received in May 2013 [1], WULCA worked at building consensus for a water scarcity indicator following the 7 steps described below. The process is currently at step 6.

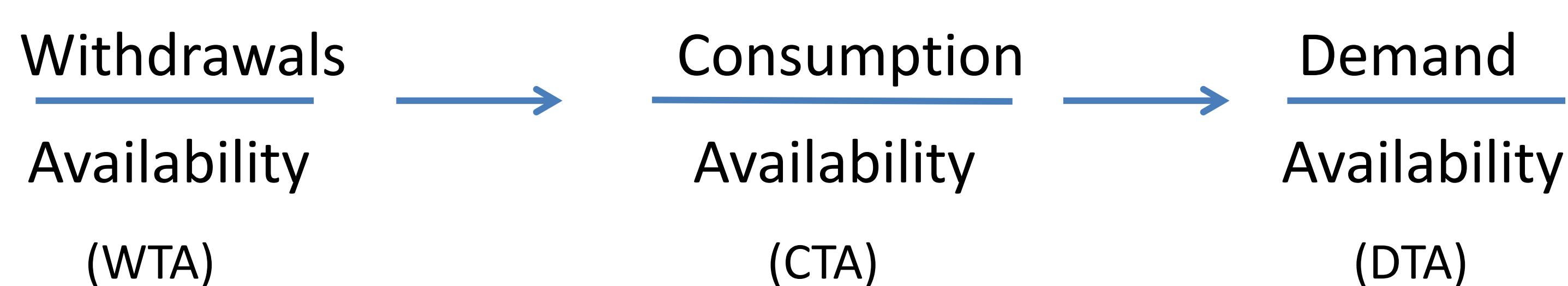
1. Finding funding, experts and active members

- 8 industrial sponsors (see below) and one fellowship to support WULCA's activities for 2 years
- 13 active members to this sub-group and over 100 experts from 21 countries

2. Sub-Committee preliminary work

- The question to answer was identified [2]:

“What is the potential to deprive another user (human or ecosystem) of water when consuming water in this area?”



- Evolution of scarcity indicators format in LCA, leading to proposal of DTA by WULCA sub-committee to the experts

3. Expert workshops and new proposals

- Three (3) workshops: Zurich (Switzerland), San Francisco (USA) and Tsukuba (Japan), including 48 experts
- Discussions in the expert workshops led to three new proposals due to absolute water availability per area not being represented in previous indicators [3] (AMD = Availability Minus Demand)

1.DTA_A

For non-arid regions
 $DTA_A = \frac{\text{Demand}}{\text{Availability}}$
For arid regions
 $DTA_A = \text{Max}$

2.DTA_x

$DTA_x = \text{Relative availability} \times \text{Absolute availability}$
 (DTA)

3.AMD

For Demand < Availability
 $AMD = \frac{1}{\text{Availability} - \text{Demand}}$
For Demand ≥ Availability
 $AMD = \text{Max}$

4. Development of proposals , analysis and second expert consultation

- The three proposals were further developed, analyzed and mapped and option 1 (DTA_A) was eliminated due to high influence of normative choice on arid regions.
- Experts were consulted again via email and web meeting (23 respondents)

SPONSORS

5. Choice of decision criteria

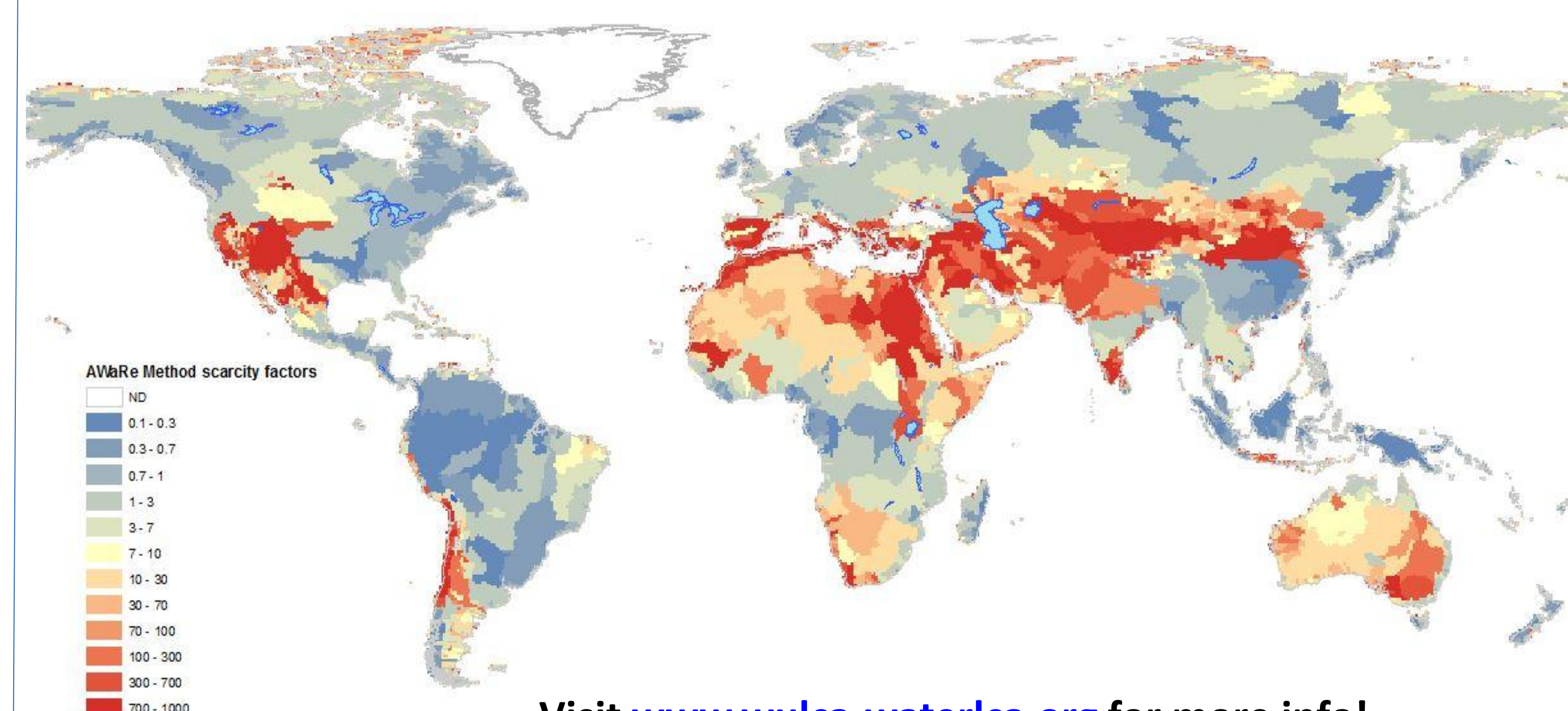
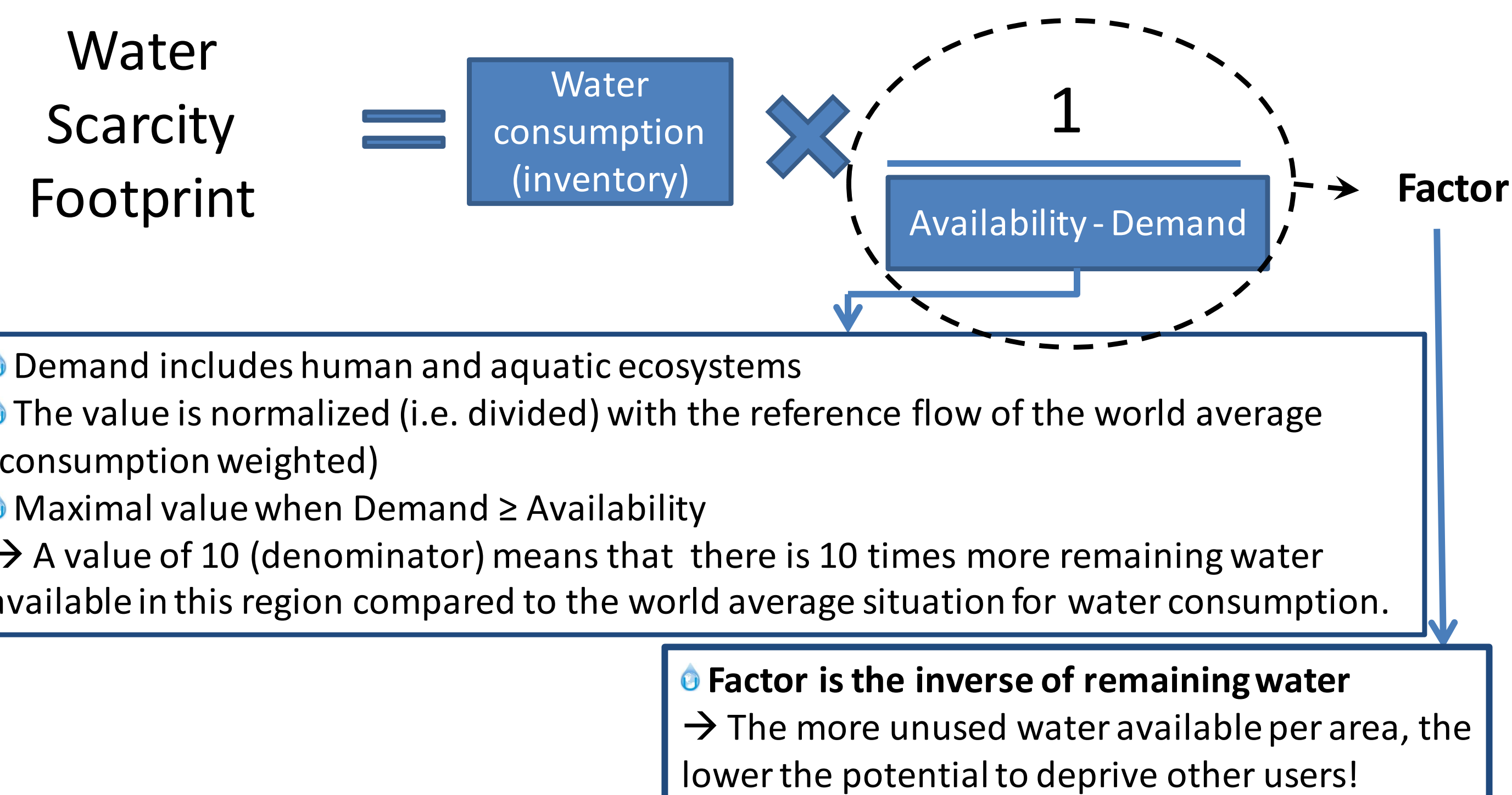
1- Stakeholders acceptance

2- Robustness of results against cases of closed basins

3- Influence of main normative choice

4- Physical meaning

6. Preliminary recommendation and testing



7. Pellston workshop and final recommendation: January 2016

- [1] O. Joliet et al, “Global guidance on environmental life cycle impact assessment indicators: findings of the scoping phase,” *Int. J. Life Cycle Assess.*, Jan. 2014.
- [2] A.-M. Boulay, et al, “Building consensus on a generic water scarcity indicator for LCA-based water footprint : preliminary results from WULCA,” in *LCA Food*, 2014, vol. 2050, no. October 2014.
- [3] A.-M. Boulay et al, “Consensus building on the development of a stress-based indicator for LCA-based impact assessment of water consumption: outcome of the expert workshops,” *Int. J. Life Cycle Assess.*, vol. 20, no. 5, pp. 577–583, Mar. 2015.