



*Stress sub-working group meeting  
July 10th, 2014*

**Present:**

Alessandro, Inga, Lorenzo, Stephan, Markus, Montse, Anne-Marie, Masaharu, Anders, Sebastien, Jane, Manuele, Alain, Taikan Oki (joined in the middle)

1. Repetition goal and scope
2. (1) CTA/WTA.
  - Pro:** low uncertainty, less value choice
    - > Still value choice as only human focus (equivalent of a 1 and 0 weighting)
    - > Lorenzo: If ecosystem are not really depriving users, then no deprivation for humans (but for ecosystems?); maybe not a value choice.
    - > not only question of impacts on humans but also on ecosystems (two impact dimensions -> two "users")
  - Con:** Focus too narrow (mainly human use)
  - Comment Brad/Jane WTA also addressed impacts on ecosystems
    - > question is if it is representative of impacts as it might have impacts even if there is WTA = 0
    - > Jane: question of present scenario or characterization factor (i.e. effect of marginal change) and question if we go to midpoint or endpoint
    - > Manuele / stephan / AM: It is not necessarily a difference in midpoint/endpoint assessment. For CF, we need to assess the effect of additional water consumption and even if there is no water consumption now, it might be affecting ecosystems
    - > Markus: differentiate inventory and impact assessment: only human use is inventory but ecosystem might be relevant for the impact assessment
3. (2) DTA
  - Lorenzo: How much water is ecosystem needing -> principally 100%? Anne-Marie tested (see slides): EWR +20% is tested (no change in rank), maximum (62% rank correlation between EFR and EFR max but DTA and DTA may was still rank correlated by 96% (for uncertainty and sensitivity)
  - > spatial pattern might not change a lot, but maybe would if fair and good conditions EWR is much different and it might give different weights to human and ecosystem aspects (the higher the EWR, the higher weight on the environmental dimension) -> scale can be adjusted later on. For terrestrial, no equivalent numbers available (further discussions required).
4. (3) Impact-oriented (Masaharu: maybe rather requirements to availability)
  - Maybe too ambitious? No discussion here
5. (4) Criticality
  - Carrying capacity (Anders; see slides) Normalize by carrying capacity. Idea is not to assess marginal changes but assess flows from a potential capacity
  - CF is People/ (availability-EWR).

It is not at a marginal stage, but is an average impact (it is like option 4 but with people instead of area)

6. Summary: options 1 and 4 would have low uncertainty but rather low relevance. Number 2 medium relevance and uncertainty; option 3: high uncertainty and relevance.

Manuele: maybe consider more options (relevance maybe split into different aspects, communication aspects, etc). Relevance of number two might be higher (i.e. satisfactory)

7. Other important questions

- Terrestrial ecosystems / green water -> TBD
- Temporal / seasonal aspects-> second priority (can be included with monthly factors for example, awaiting Amandine Pastor's monthly EFR values, but also annual CF is required)

8. Decisions?

- a. Manuele suggests a focus on 2 and 3
- b. Jane suggests focus on 1 and 2
- c. Anne-Marie suggest number 2
- d. Alessandro: evaluate 2 and 3 further; maybe option 2 is enough
- e. Stephan: testing is required before deciding on what is good -> proceed with option 2 and 3
- f. Anne-Marie: shall we mainly focus on option2? Much time would be required for option 3 and not enough support to justify it at this point
- g. Jane: comparison of WFN approach and option 4 ((carrying capacity) -> difference in EWR -> already done in LCA Food paper
- h. Lorenzo: would be nice to see how option 2 changes if terrestrial ecosystem requirements are included or not.
- i. Montse: Test also indicator with terrestrial water consumption:  $(ET+human\ water\ consumption)/(availability-EWR)$
- j. Masaharu: Option 2 might be better for industrial countries but less suited for developing countries?; maybe there is a regional bias? -> take a hybrid of options 2 and 3 (basically a option in-between)

9 Next steps:

- Anne-Marie will work on updates of indicators: mainly option 2 with some adjustments towards including some additional aspects (as suggested above)
- Expert workshops: volunteers needed to support anne-Marie and Stephan (please contact Anne-Marie):
  - Zurich
  - San Francisco
  - Japan.
  - Volunteers so far: Masaharu
- Next time: Montse to present about natural/actual water availability