WULCA ecosystem meeting
June 13th, 2014
Agenda

• Definition of work inside and outside of WULCA
  – Article from Christian Bouchard and coll.
• Timeline and expected deliverables
• Link with Global Guidance project
• Work leader and contributors
Life cycle impact assessment of water use on ecosystems

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Paper’s to be submitted by the end of Summer 2014

Objective:
Analyze the complementarity and compatibility of proposed methods for the Life Cycle Assessment Impacts (LCAI) of water use on ecosystems

Content:
1. Description of the proposed characterization factors by different authors for each analyzed work
2. Complementarity of the proposed approaches
3. Compatibility of the proposed approaches
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Description of methods

Analyzed research works:

- Pfister et al. (2009) (surface water and groundwater use)
- Verones et al. (2010) (thermal pollution)
- Hanafiah et al. (2011) (surface water use)
- Van Zelm et al. (2011) (groundwater use)
- Verones et al. (2012) (wetland; case study)
- Maendly & Humbert (..) (water dams)
- Tendall (2013) (surface water use)
- Verones et al. (2013A & B) (wetlands; international)
- Amores et al. (2013) (wetland; saline intrusion)

Example

Verones et al. (2010)

Thermic pollution of surface water $\rightarrow$ Temperature increase of surface water $\rightarrow$ Potential disappearance of aquatic species

Fate factor $\rightarrow$ Effect factor
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Complementarity of the proposed approaches

Pathways for groundwater consumption

Example
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Compatibility of the proposed approaches

Fate modelling
1. Basic inventory (released mass of pollutant, used water volume, amount of released heat, transformed land surface, etc.) → pulse environmental intervention modelling
2. 2D inventory (environmental intervention amount & type, and time of use or occupation) → occupation/use modelling + restoration/relaxation modelling

Effect or damage modelling
- Type of ecosystems
- Species
- PDF versus PAF
- per m$^2$ versus per m$^3$

Example of pulse intervention modelling