WULCA

WULCA
A LIFE CYCLE
INITIATIVE PROJECT

Life Cycle Initiative

UNEP

SETAC

Basel and teleconference meeting
Anne-Marie Boulay, Chair
Stephan Pfister, Co-Chair

Annual meeting
SETAC Europe, Basel, Switzerland
May 15th, 2014

Outline

- Introduction to WULCA
- Framework and Consensual indicator Project
- Work progress:
  - Human Health subgroup
  - Ecosystem subgroup
  - Stress subgroup
- Updates:
  - activities, publications, website, press release

PRESENTATION OF PARTICIPANTS

Name
Organisation
Type of member

1- Introduction to WULCA

WULCA Working group

Water Use in LCA - International initiative for LCA (2007)

Goal

- Guide the scientific development of a **consensual and operational method** which shall be in line with both the **ISO Water Footprint Standard** and the **LCA principles**
- Provide **guidance to practitioners** and **researchers** in their understanding of comprehensive water footprinting.
- **Represent the scientific voice on water footprinting**
  - Provide scientific support and guidance to the ISO 14046 TR
  - Influence international initiatives, present in conferences and trainings

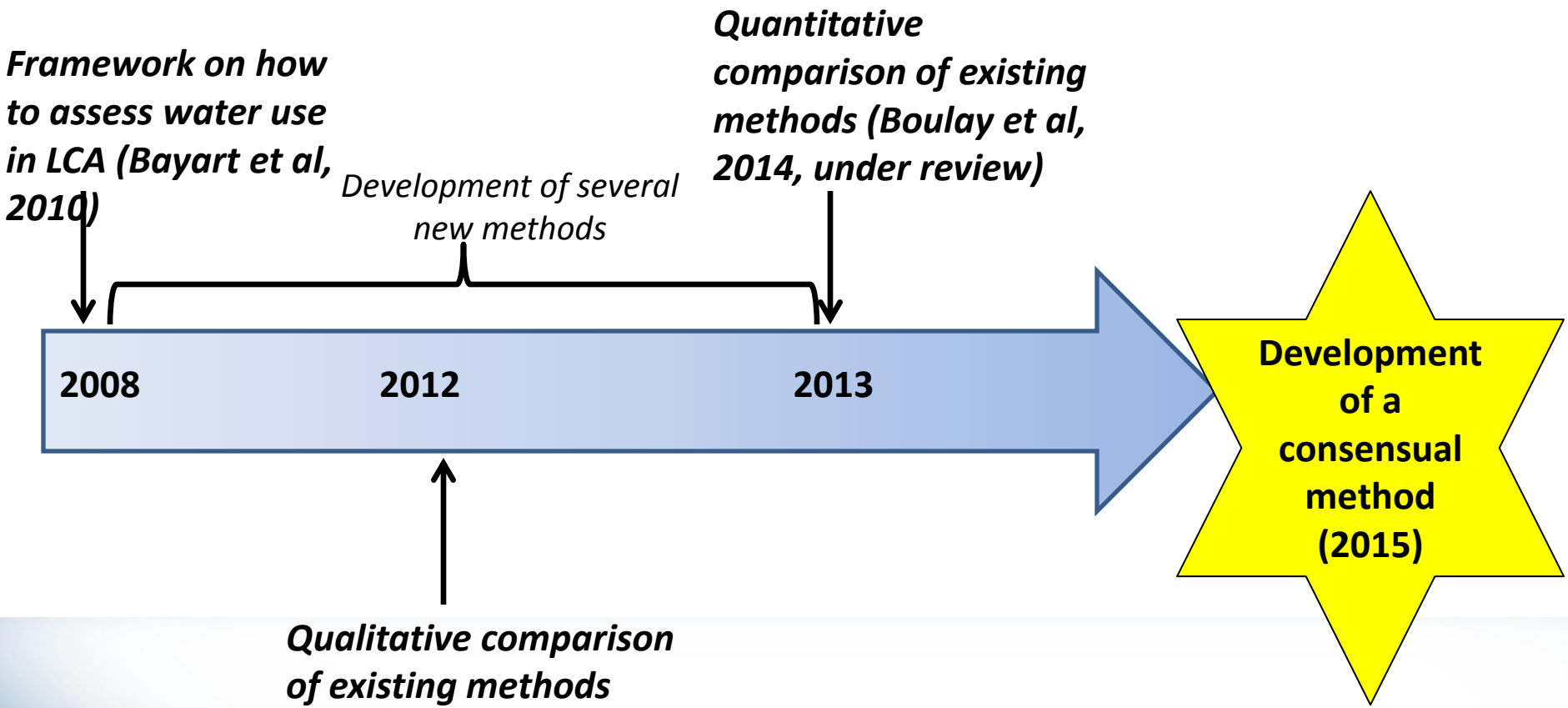
WULCA Working group

Water Use in LCA

Specific Task for the Flagship Project on LCIA Guidance on indicators:

Develop a consensual method for a subset of impact pathways assessing ***water use in LCA*** with priority to midpoint indicators and an area of protection showing sufficient scientific maturity.

Timeline and progress of work



WULCA Phase 3

- Transition into Phase 3 and official acceptance from Life Cycle Initiative in Spring 2013
- Identified in Glasgow as a Flagship category from the Global Guidance Flagship categories from UNEP SETAC Life Initiative

Anne-Marie Boulay
Project Manager, Chair

Stephan Pfister
Deputy Manager, Co-Chair

www.wulca-waterlca.org

Membership

Active (~25 members) approx. 1 day/month

- Involved in water-related methodology development or plan to be
- Contribute to the outcome and deliverables of the working group
- Included in all communications with respect to on-going work and progress

Expert (~35 members) approx. ½ day/month

- Knowledgeable on the topic of water and LCA
- Contribute their expert judgment to the outcome of the working group
- Included on communications that are relevant for their expertise

Observer (~ 35 members) no time investment

- Not necessarily an expert or do not have enough time to invest
- Kept informed of the progress of this working group and its deliverables

Sponsors (8-9 sponsoring companies)

- Provide 10’000 USD/yr for 2 years
- Individual from sponsoring companies can act as an active, expert or observer member

SPONSORS

Cascades
GREEN BY NATURE™

Cotton Incorporated

DANONE

ExxonMobil

GDF SUEZ

Hydro Québec

Unilever

VEOLIA

Mitacs

Sponsorship serve in financing industrial contribution to Mitacs (for fellowship), organize workshop, dissemination, WULCA participation to conference and events (e.g. SETAC, World Water Week, etc) and other operational costs (website, softwares, etc).

Link with ISO water footprint process

There is no official link between ISO DIS 14046 on Water footprint and WULCA, however:

-The convener and several delegates of the ISO working group are members of WULCA

- The work of WULCA has served as a basis in the development of the DIS

-The current DIS does not propose one specific method, but rather Principles, Requirements and Guidelines

- **WULCA can propose this method as the result of a consensus** which could be integrated in the next review of the standard

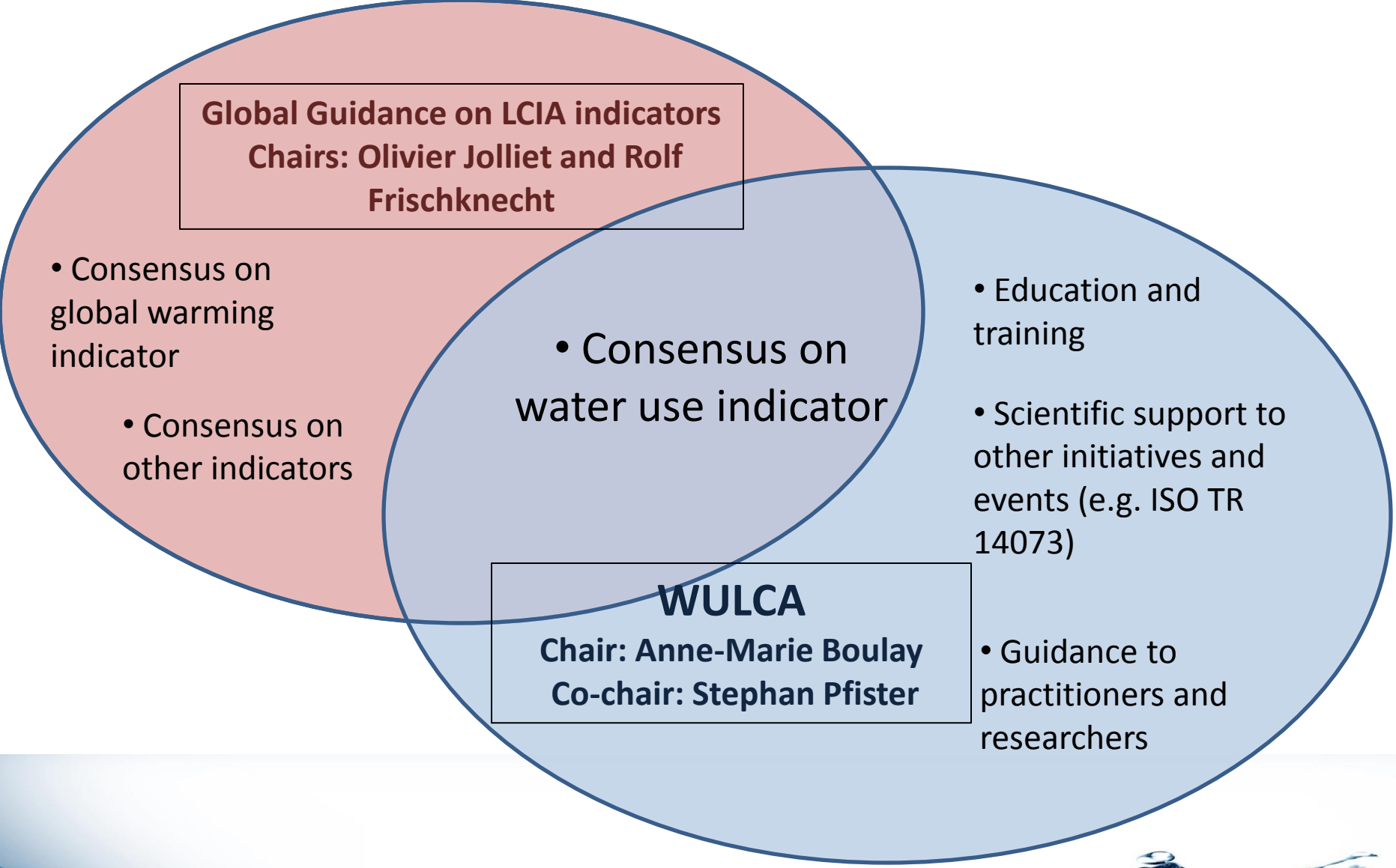
Link with LCIA global guidance flagship project

Goal of the flagship project

- Establish a consensual set of environmental impact category indicators
- For use in
  - Environmental product information schemes
  - Corporate reporting of multinational companies
  - International and/or national environmental policies
  - Common LCA work commissioned by governments and companies

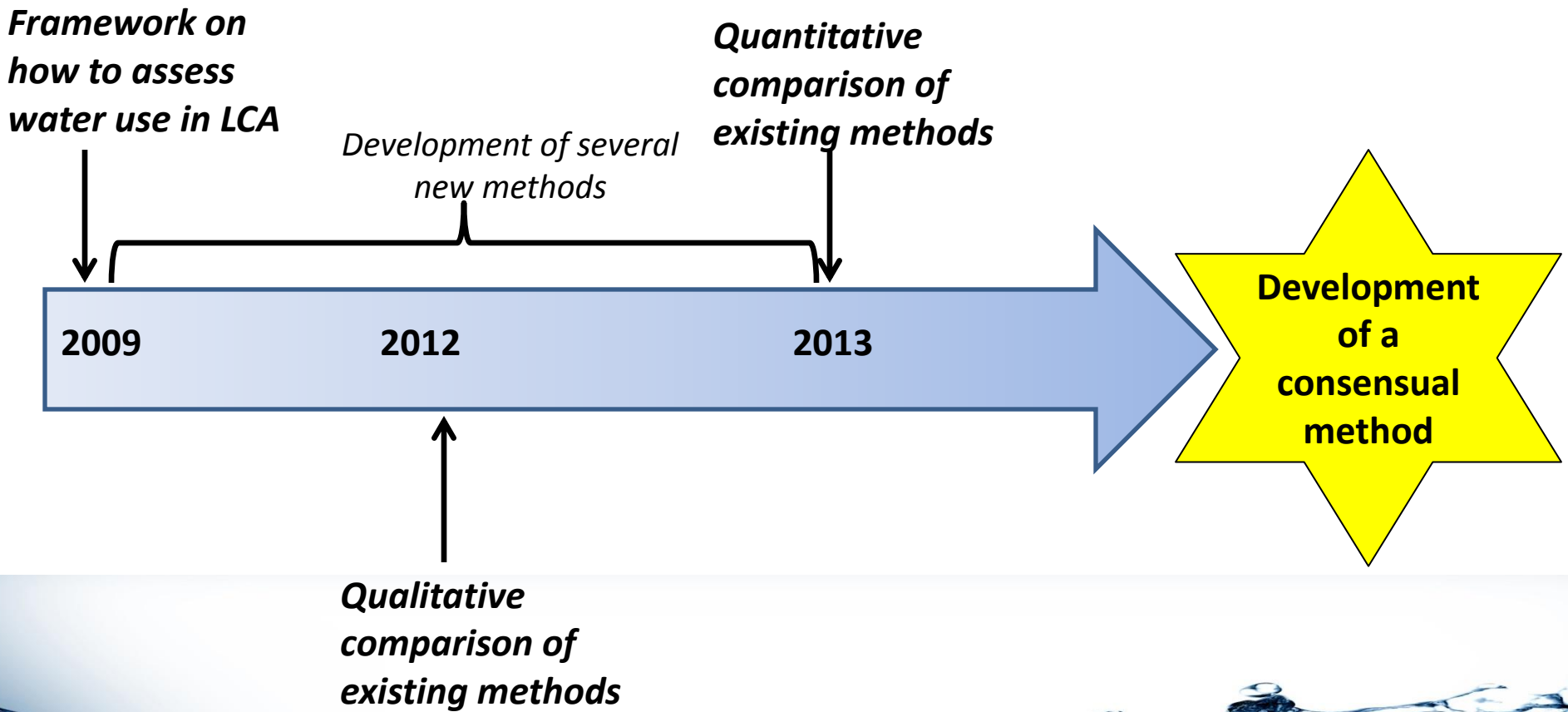
General outline

- **Task 1: Scoping phase** (2012-2013)
  Establish short list of impact category indicators and themes for first and second stage
  → Yokohama 2012 & Glasgow 2013 scoping workshops
  → Stakeholder feedback at events worldwide
- **Task 2: Consensus finding**, stage 1 (2013-2015)
  → Pellston workshop 1 (with output being an agreement)
- **Task 3: Consensus finding**, stage 2 (2015-2017)
  → Pellston workshop 2
- **Task 4: Dissemination** (2018)


Global Guidance on LCIA indicators
Chairs: Olivier Jolliet and Rolf Frischknecht
• Consensus on global warming indicator
• Consensus on other indicators
• Consensus on water use indicator
• Education and training
• Scientific support to other initiatives and events (e.g. ISO TR 14073)
WULCA
Chair: Anne-Marie Boulay
Co-chair: Stephan Pfister
• Guidance to practitioners and researchers

Consensual indicator Project

Laying the ground work



Consensual method: Methodology

Step 1: Agree on which point of the impact pathway to focus on and on its position in the midpoint-endpoint framework (midpoint, endpoint, AoP -specific or generic)

→ ***Write Goal and Scope document****
→ ***Write agreement and disagreements document****

Step 2: Using a review and comparison of existing models, develop a list of assessment elements and aspects to be considered in the resulting consensual model.

* Required from the Global Guidance on Indicator Project

Consensual method: Methodology

Step 3: For each element, identify which are mature for consensus and which ones require further research. For each of these categories, a decision is made on the preferred way to address these aspects.

→ ***Consult with experts****

Step 4: Build a model prototype and calculate preliminary characterization factors worldwide.

Step 5: Evaluate the method prototype based on correlation with reported data, comparison with previous models and its application to selected case studies.

* Required from the Global Guidance on Indicator Project

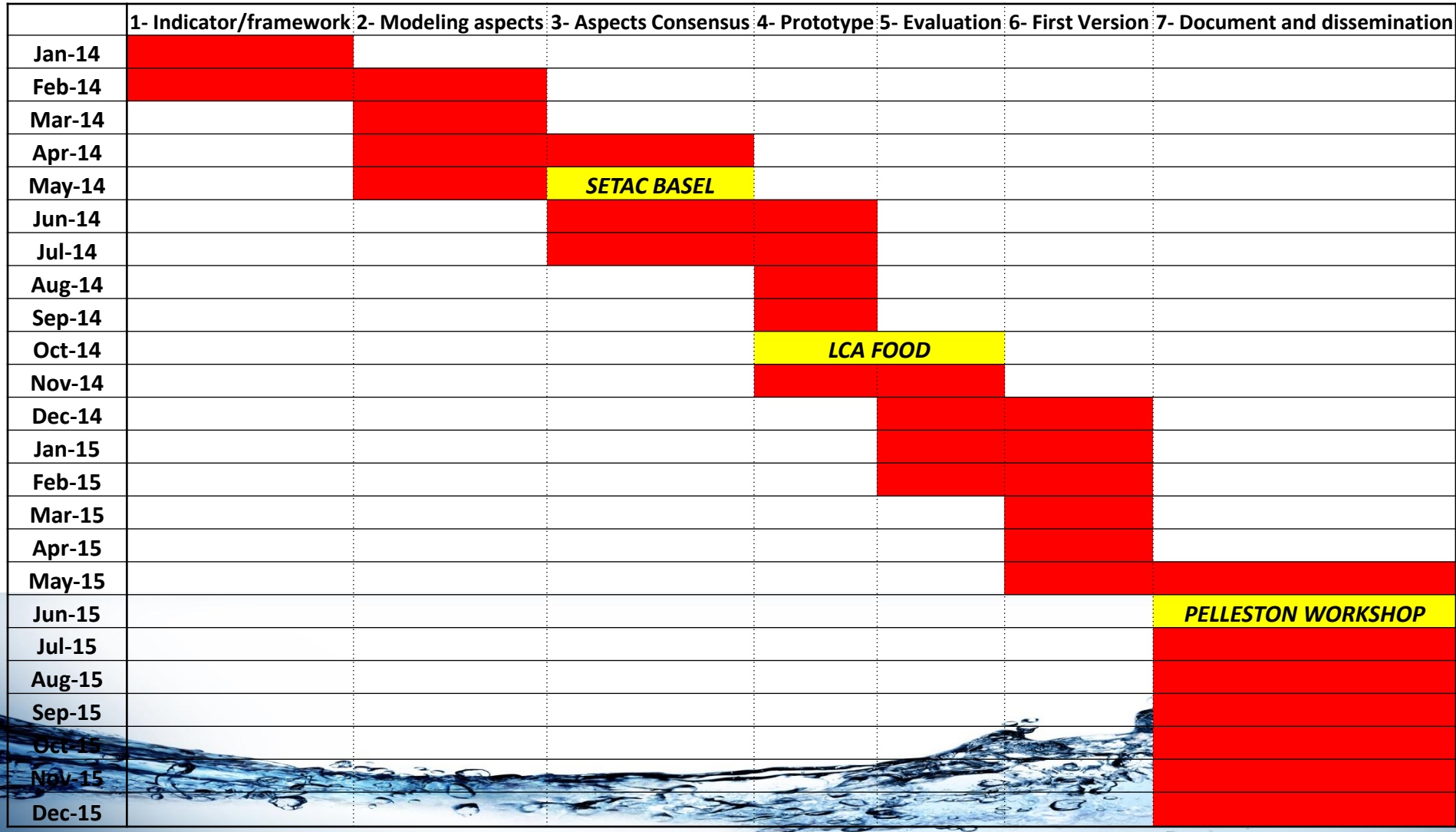
Consensual method: Methodology

Step 6: Elaborate the version 1.0 of the model
→ Present to Pellston Workshop*

Step 7: Elaborate Guidance document intended for practitioners and disseminate the results

* Required from the Global Guidance on Indicator Project

Time Planning



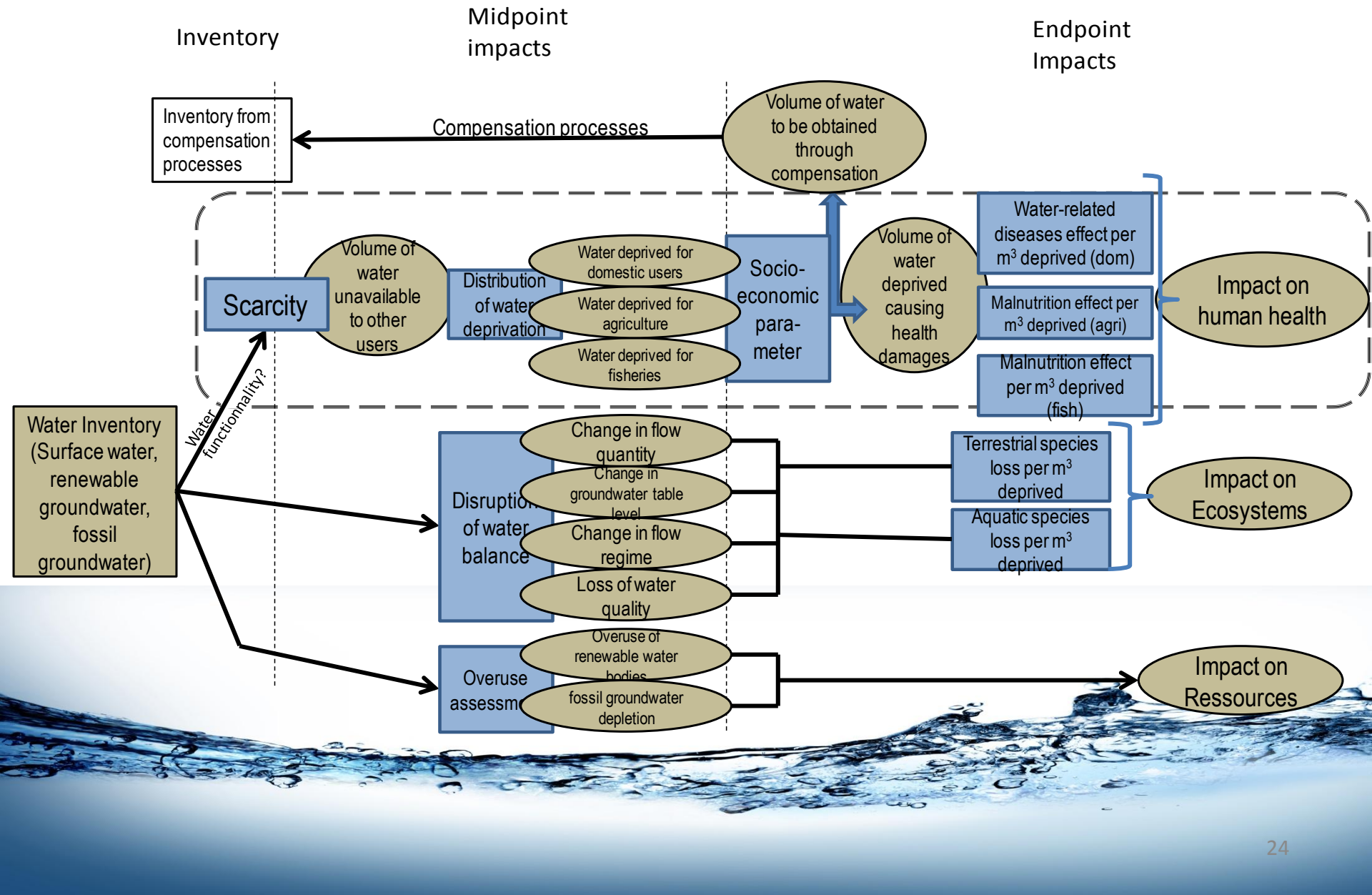
Working process

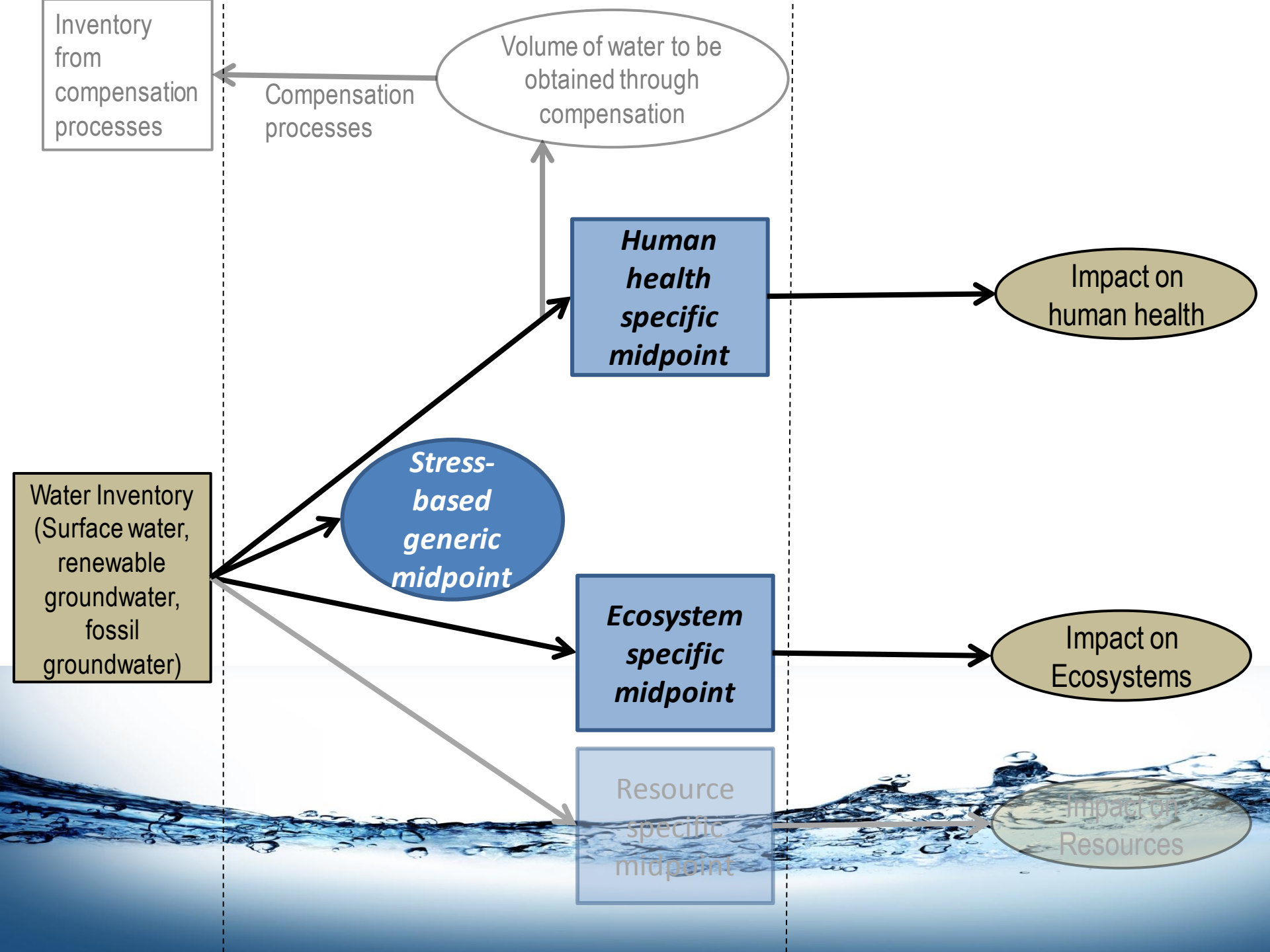
- MEETINGS:
  -One working meeting with all active members every month
  -Sub-group meetings with specific task groups
  -Minutes, videos and presentations available on the website

- DECISION MAKING
  -Performed during the meetings and registered in the minute
  - If an absent member disagrees, an email needs to be sent to the chairs and the topic may be re-opened no later than the following meeting (with notice in advance)

Work Progress

Current General Framework




Inventory from compensation processes
Compensation processes
Volume of water to be obtained through compensation
Human health specific midpoint
Impact on human health
Water Inventory (Surface water, renewable groundwater, fossil groundwater)
Stress-based generic midpoint
Ecosystem specific midpoint
Impact on Ecosystems
Resource specific midpoint
Impact on Resources

Generic stress-based midpoint

- No true common midpoint for human health and ecosystems

- It is not possible to obtain a midpoint indicator that provides a consistent (proportional) result with the endpoint indicators
  → Regionalization affects both midpoint and endpoint models

- Desire to develop a stress-based indicator
  →not necessarily correlated to HH and EQ,
  →Provides a simple single indicator to support decision
  → In compliance with ISO 14046

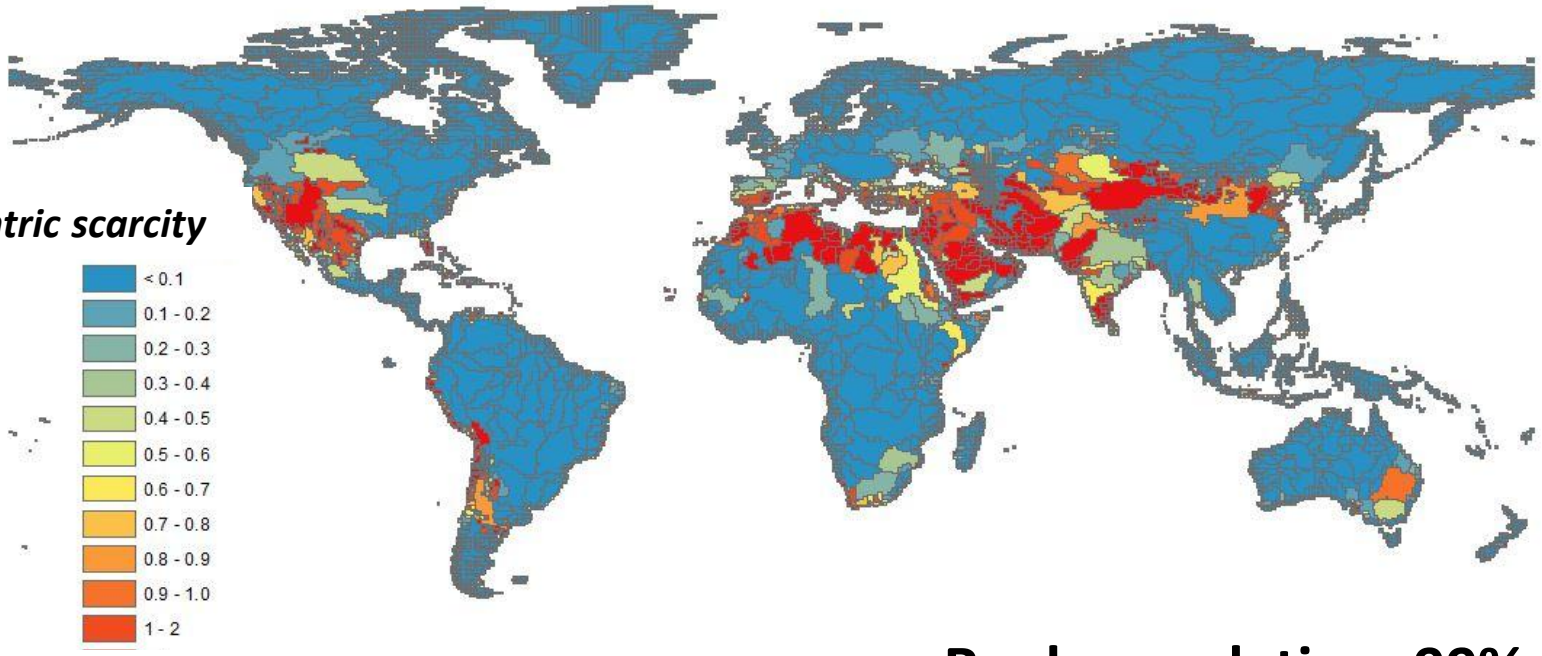
Update on progress from this group presented at LCA Food, San Francisco, October 2014

Generic stress-based midpoint

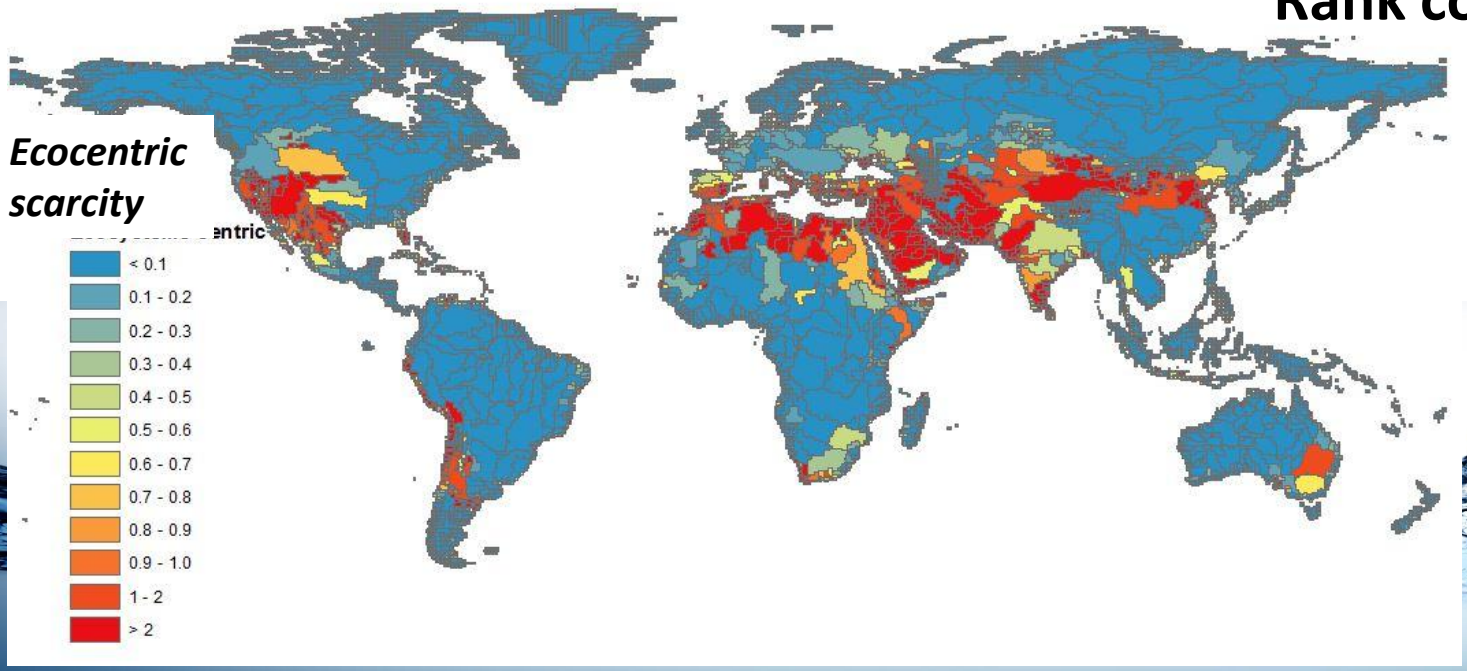
$$Scarcity_{Anthropocentric} = Fn\left(\frac{human\ water\ use}{water\ availability}\right)$$

$$Scarcity_{Ecocentric} = Fn\left(\frac{human\ water\ use}{water\ availability - ecosystem\ water\ requirement}\right)$$

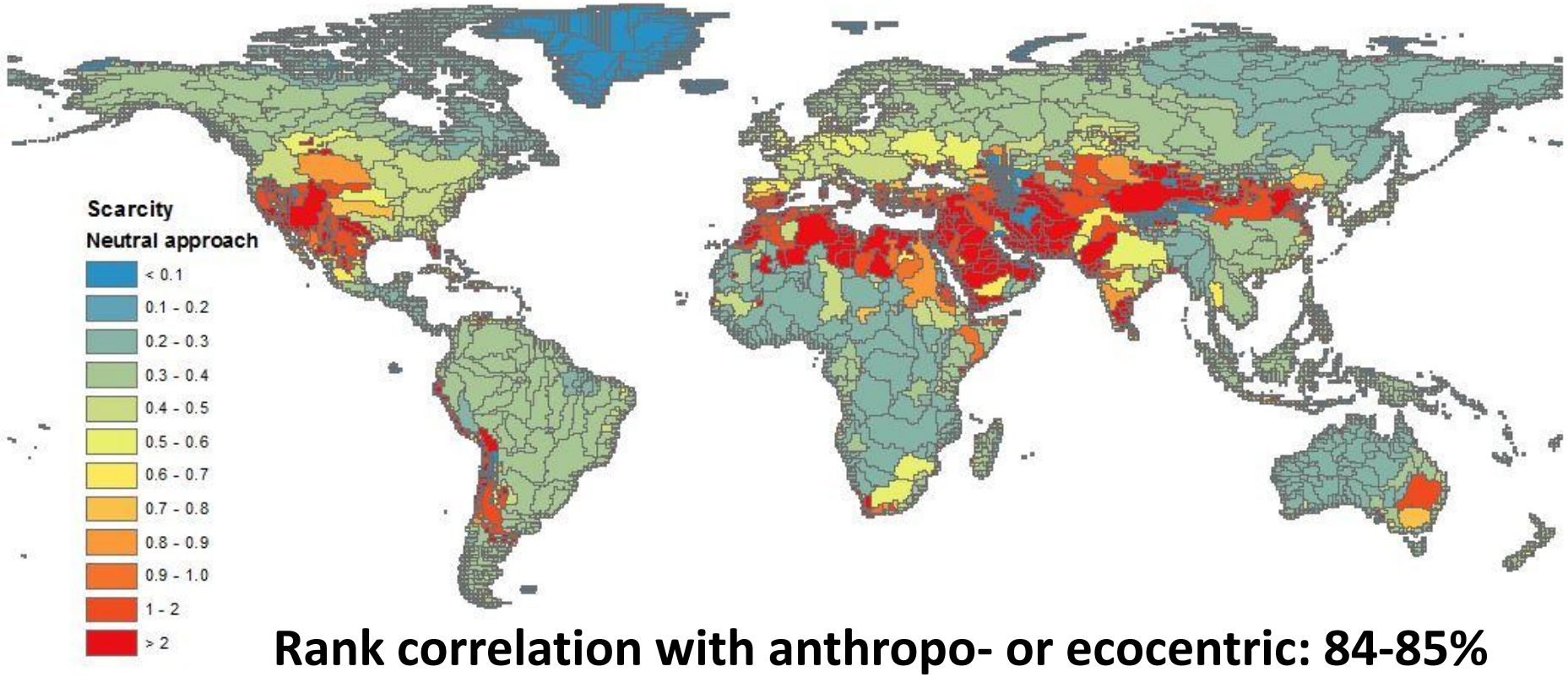
$$Scarcity_{hydrocentric} = Fn\left(\frac{Total\ water\ demand}{Renewable\ water\ availability}\right)$$



Rank correlation: 99%



Hydrocentric scarcity approach



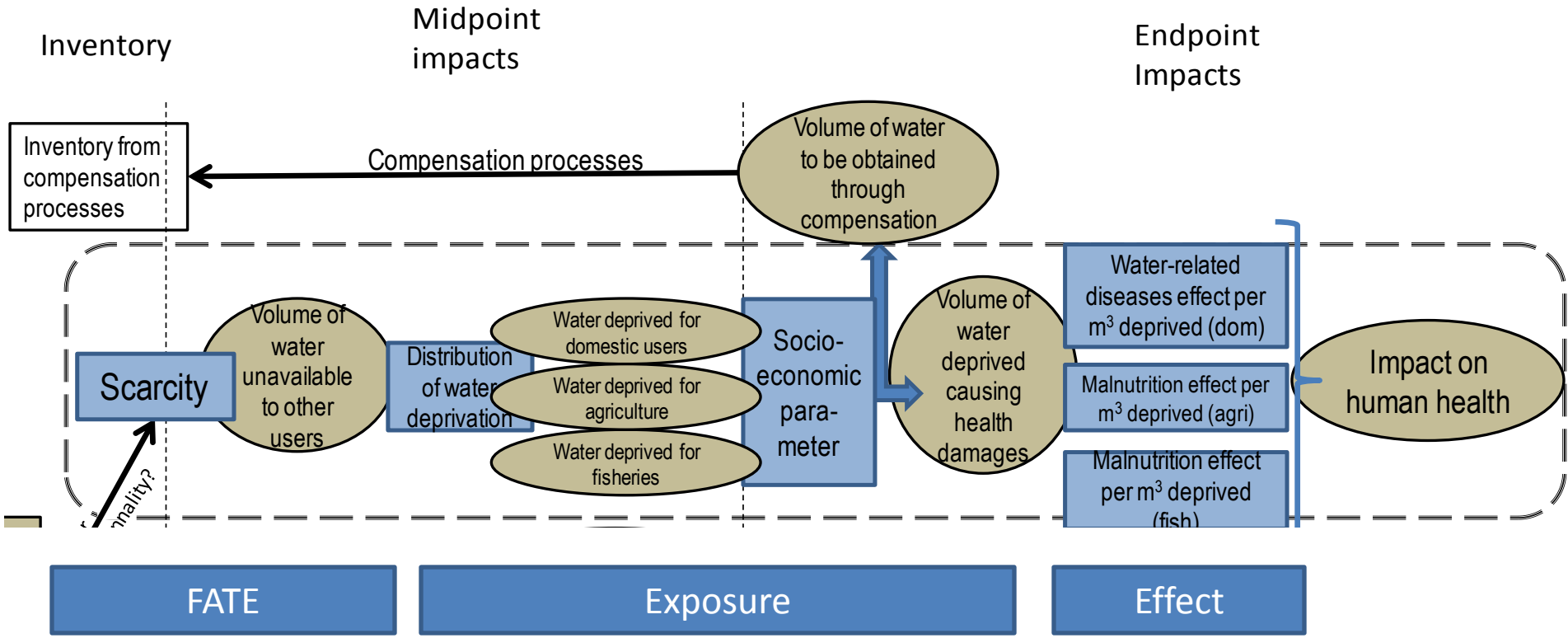
Rank correlation with anthropo- or ecocentric: 84-85%

Generic stress-based midpoint

- Work to be pursued:
  - Research on better data source for Ecosystem water demand (aquatic and terrestrial)
  - Possible inclusion of green water
  - Neutrality between human demand and ecosystem demand (actual? pristine?)
  - Modeling function, limits and thresholds
  - Temporal and geographical resolution

Questions, comments, feedbacks on these preliminary results?

Human Health



Human Health

- List of modeling aspects and choices

	Fate (Scarcity)
1	use to availability ratio
2	indicator modeling
3	upper and lower values
4	Surface and groundwater
5	Quality integration
6	Geographical resolution
7	Temporal resolution
8	Source of data

	Exposure
9	Domestic user deprivation
10	Agricultural water deprivation
11	Fisheries water deprivation
12	Socio-economic parameter
13	Trade effect
14	Source of Data for user distribution

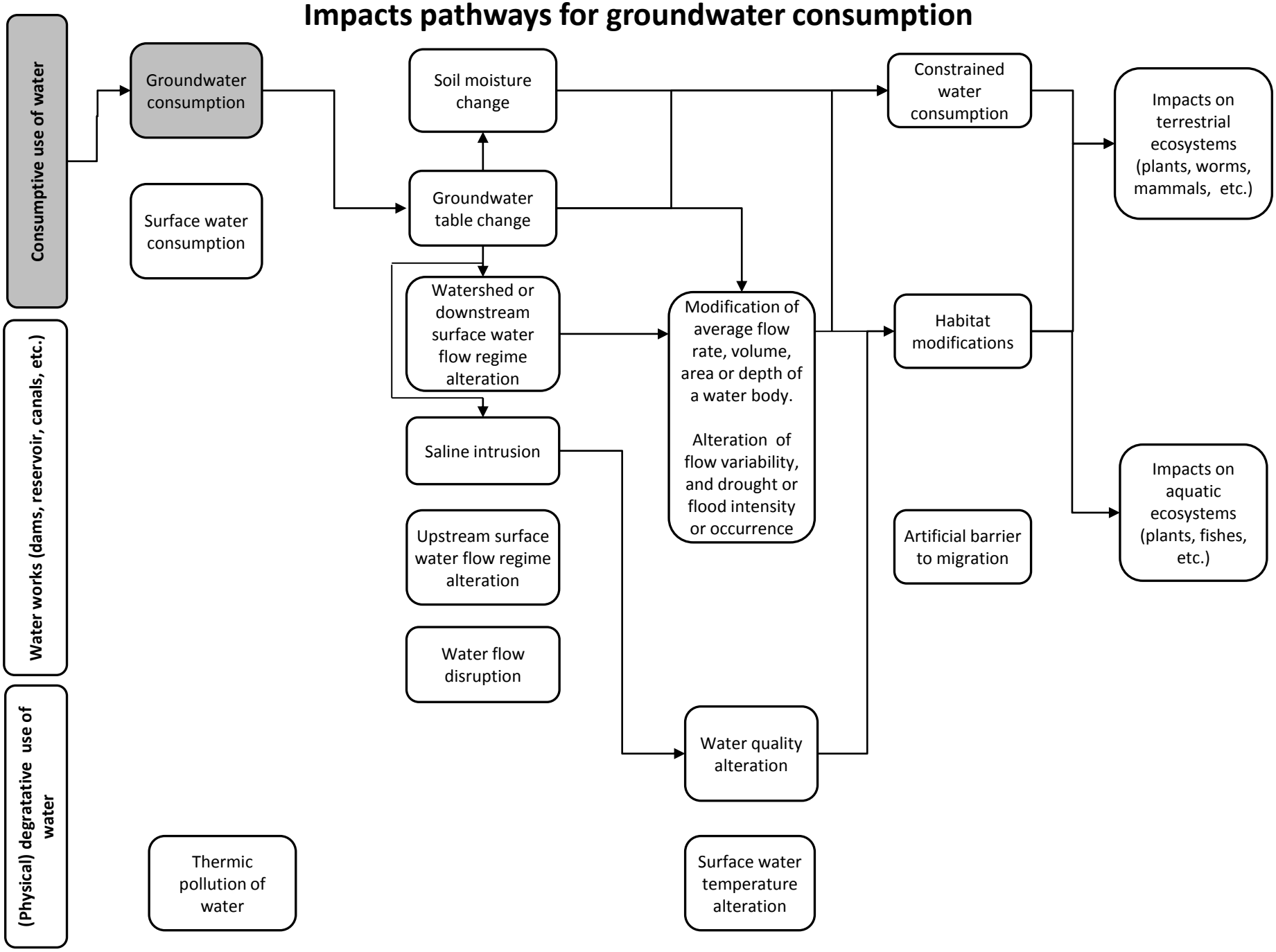
	Effect
15	Malnutrition
16	Water-related diseases

Questions, comments, feedbacks on human health modeling?

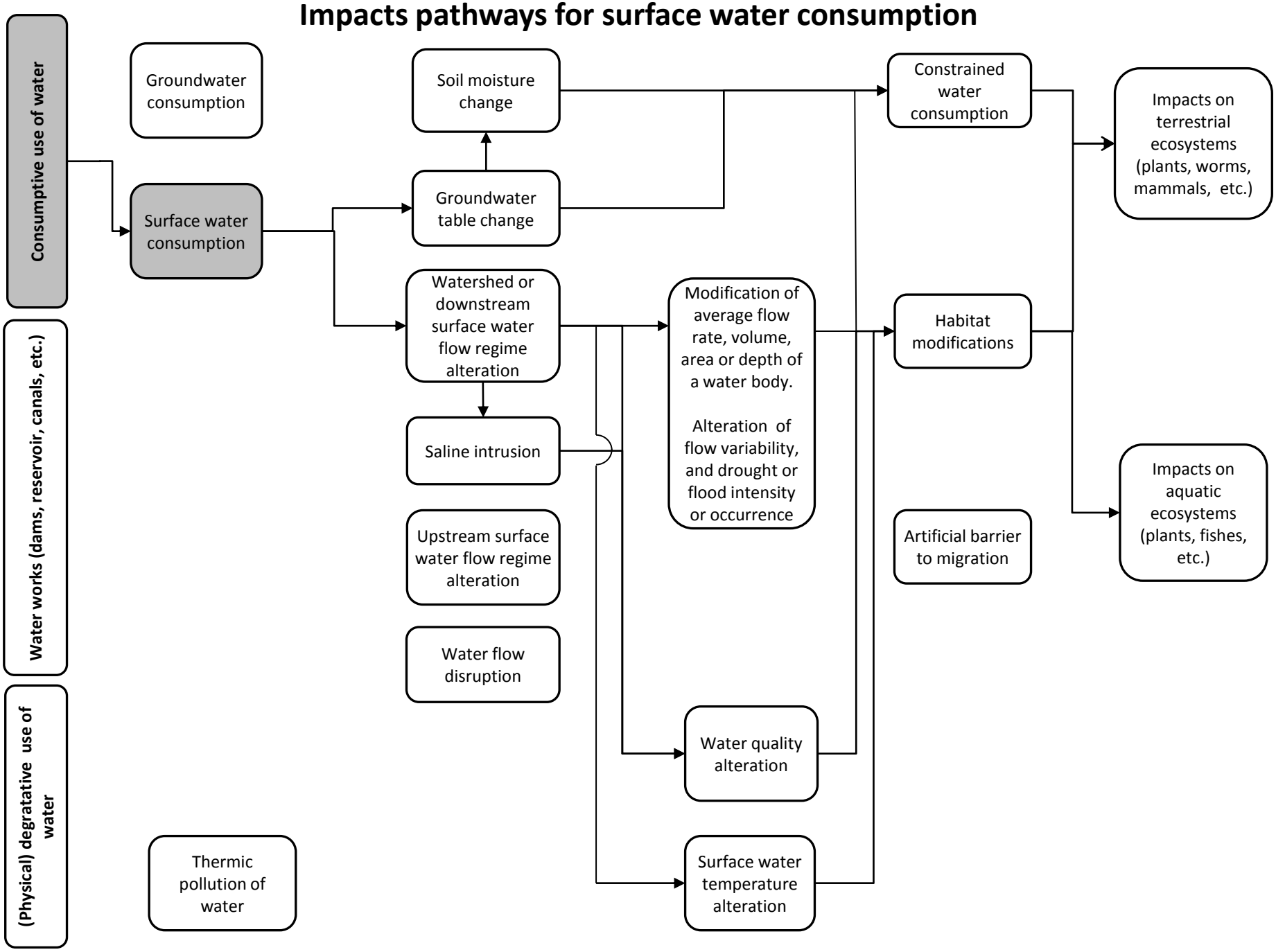
Ecosystems (Manuele Margni)

- Identification of the impact pathways leading to Ecosystem Quality within a consistent framework
- Ongoing work on overlaying existing methods, identifying gaps, and proposing characterisation structure
- Set the mathematical framework through consistent intermediary parameters
- In depth comparison of identified model with quantitative results

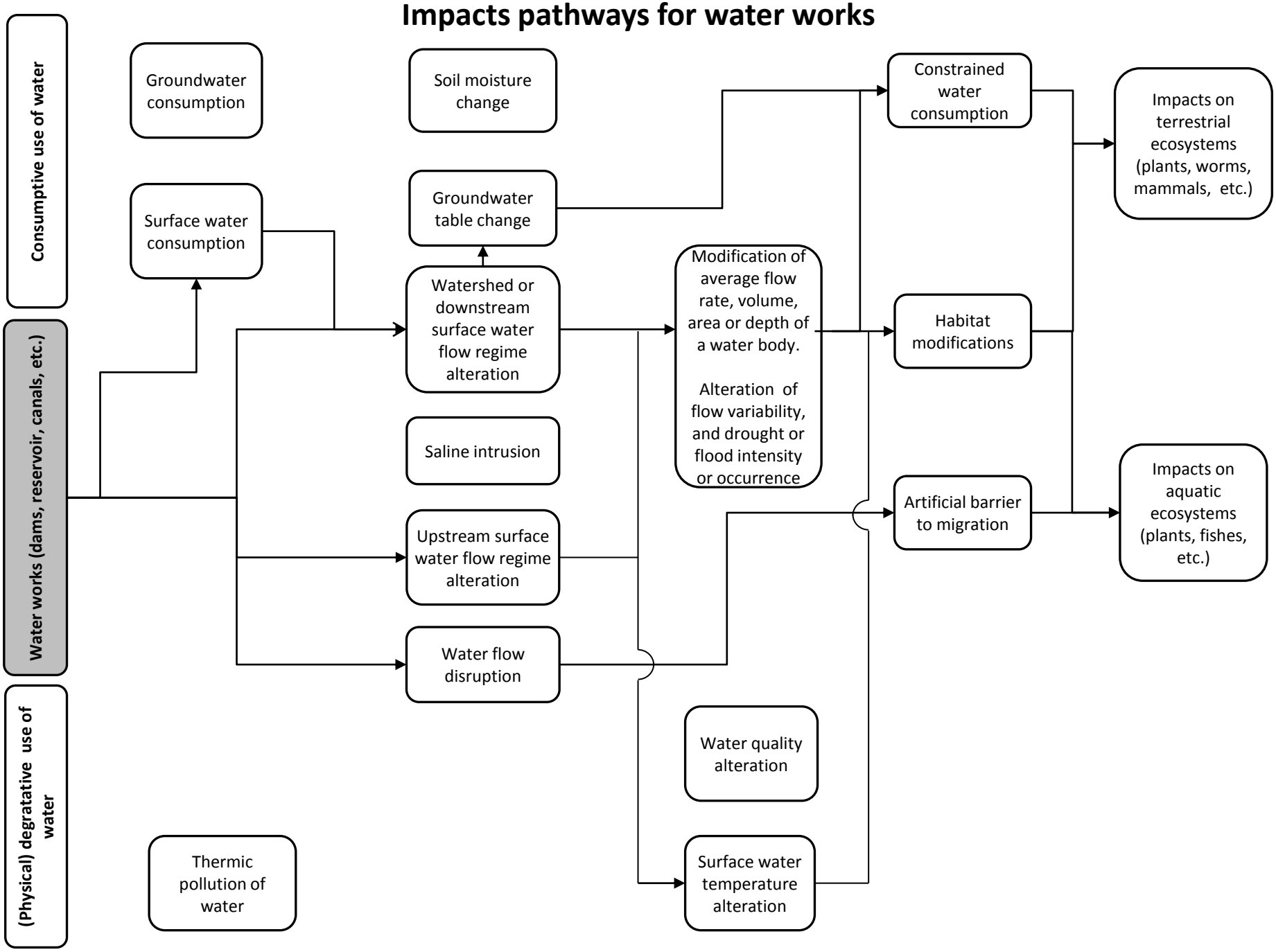
Impacts pathways for groundwater consumption



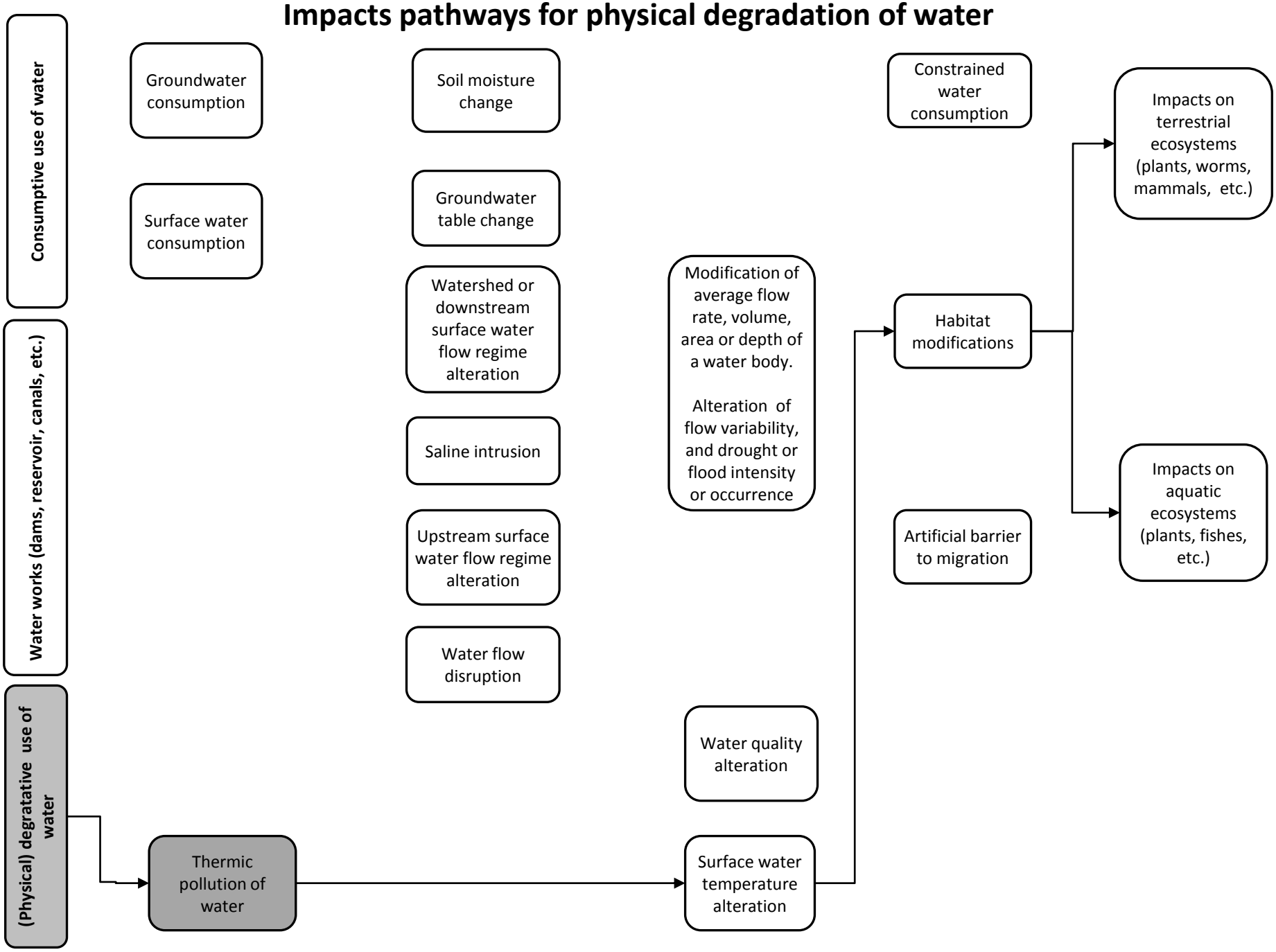
Impacts pathways for surface water consumption



Impacts pathways for water works



Impacts pathways for physical degradation of water



Questions, comments, feedbacks on ecosystem impact pathways?

Updates: Activities

- Recent
  - UNEP Water Footprint training events (Botswana, Malaysia, South Africa)
- Up-coming
  - Hydro-Vision (July, Nashville)
  - World Water Week (September, Stockholm)
  - LCA Food & LCA XIV (October, San Francisco)

Updates: Publications

- Publications
  - Quantitative comparison papers (A and B) re-submitted: under review
  - LCA Food 2014: Progress paper on scarcity indicator

Updates

- Website and intranet
  - New Design, go visit: www.wulca-waterlca.org
- Press release – April 28th
  - Canadian news feed and Sponsors networks

Eight industry leaders partner with WULCA experts to develop a consensual method to assess water use in life cycle assessment

MONTRÉAL, April 28, 2014 /CNW Telbec/ - Water use and freshwater depletion are key global issues. The United Nations Water Programme reports that water scarcity already affects almost every continent and over 40 percent of the people on Earth. Clear and consensual methods to quantify water footprints are needed to meet this global challenge. WULCA experts and eight industry leaders have therefore joined forces to develop a consistent approach to address the potential environmental impacts of water use throughout the life cycle of products and processes, taking into account resource extraction, processing, manufacturing, transportation, use and final disposal or treatment.

WULCA is an international working group that brings together one hundred experts from 21 countries focused on water use impact assessment from a life cycle perspective. Founded in August 2007 under the auspices of the United Nations Environment Programme (UNEP)/Society for Environmental Toxicology and Chemistry (SETAC)'s Life Cycle Initiative, WULCA's main goal is to provide practitioners from industry and academia with a consensual and harmonized framework to assess, compare and disclose the environmental performances of products and operations as they relate to freshwater use. Key method developers and stakeholders have been called upon to take part in this international collaborative effort.

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THANK YOU FOR YOUR PARTICIPATION