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Water footprinting, life cycle assessment, and standardisation

Update on ISO activities on water footprinting

Session 5: Status of Standardization and Harmonization: ISO

Consultative Workshop on
Water Footprint, Neutrality and Efficiency
Osaka, Japan
1- 3 June 2010

Sebastien Humbert, Scientific director & ISO convener

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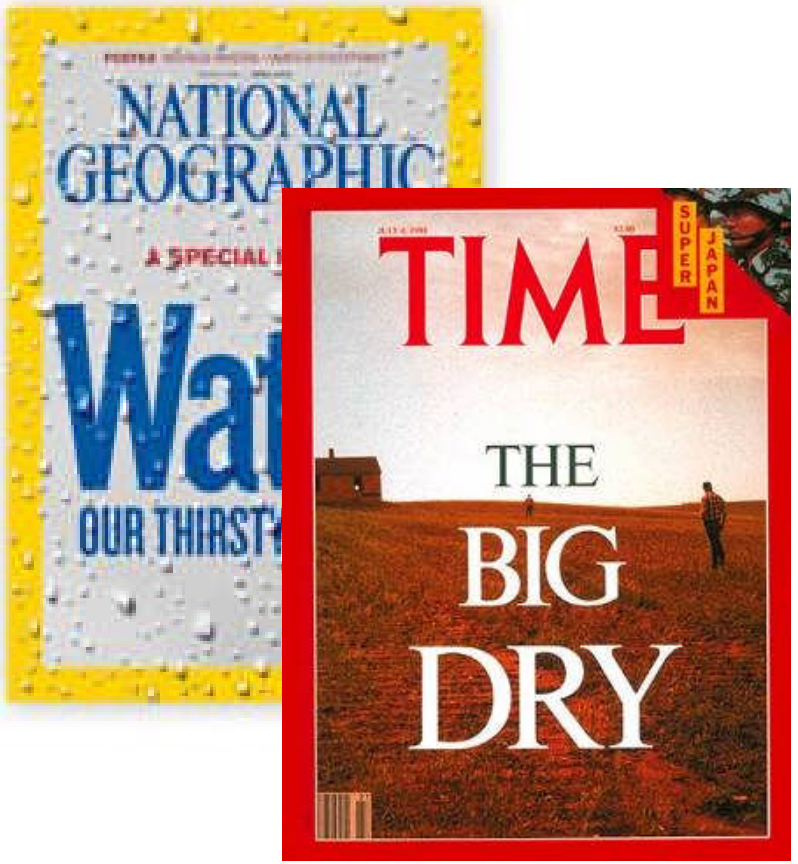
“global warming” … “global drying”



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Introduction:
Examples of water footprint results

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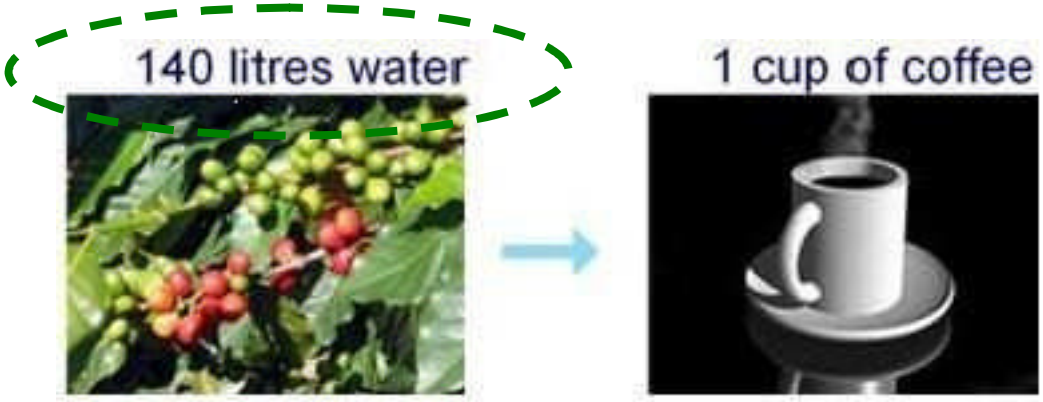
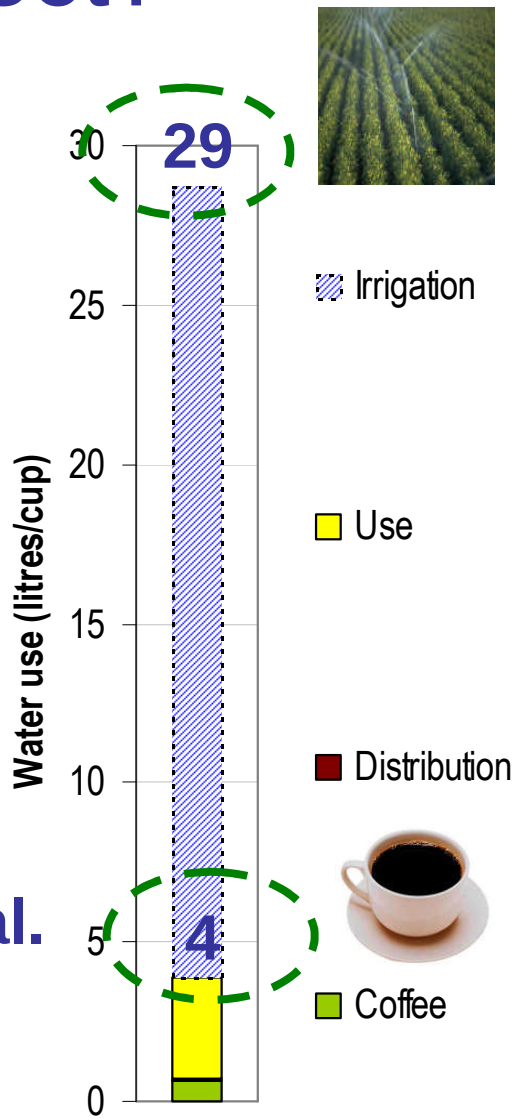
Which value is correct?



Chapagain and Hoekstra

Humbert et al.



→ Difference?

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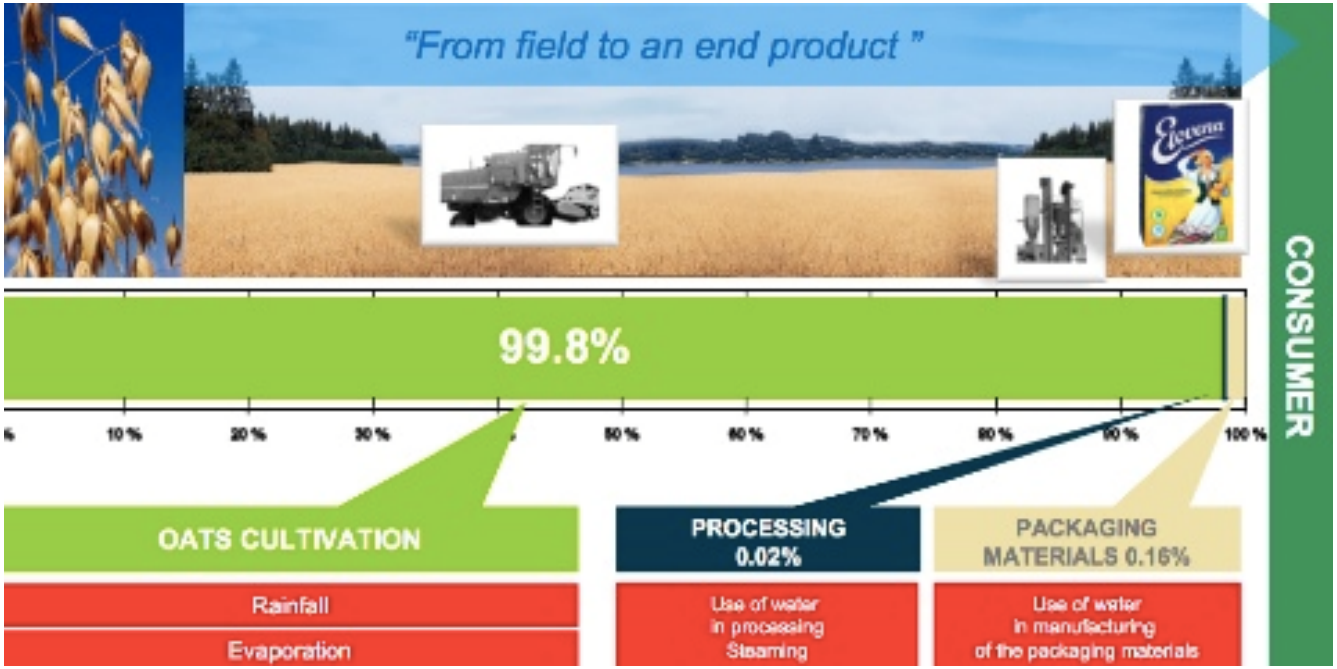
Elovena (Raisio, FI)

100 liters/100 g
0.2 liters/100 g (excluding green water)

Carbon footprint: 80 gCO_{2eq}/100 g



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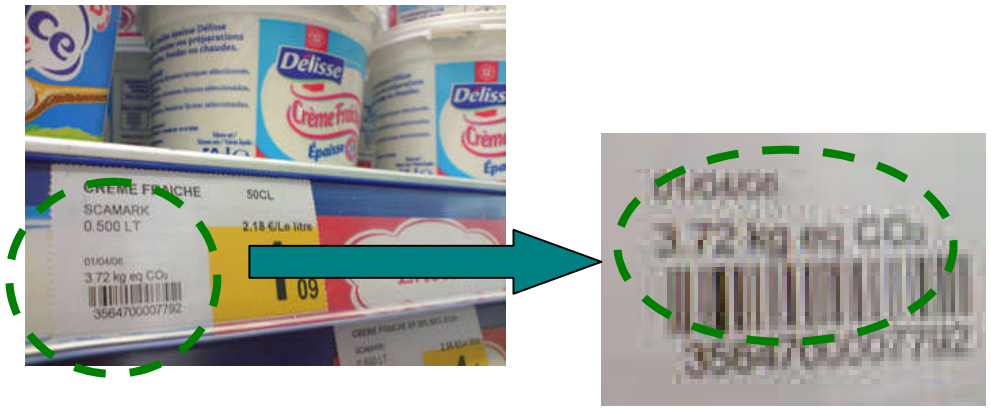
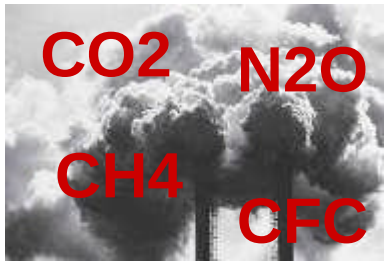
Environmental product declaration

- Carbon footprint



ADEME

afnor GROUPE



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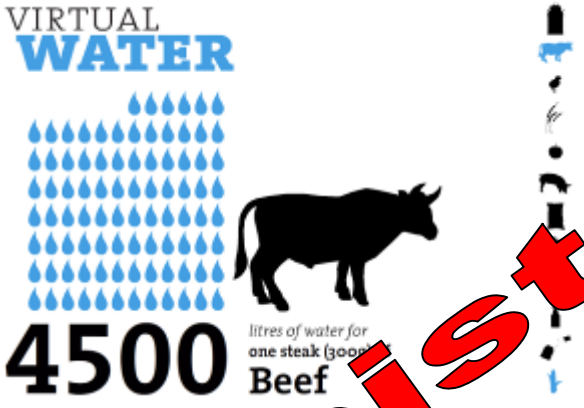
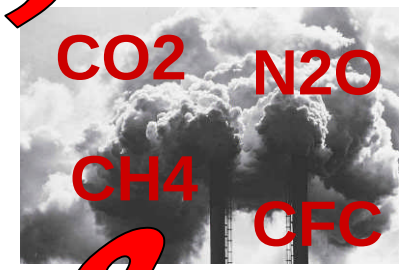
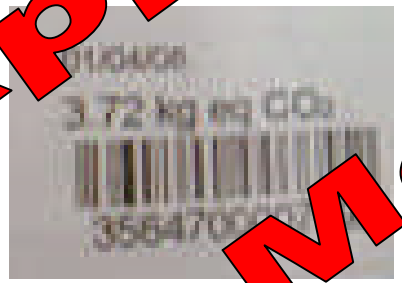




140 litre water → 1 cup of coffee



Consistency?
Applicability?
Meaning?
...
...

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Initiatives in water footprinting

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Examples of water related initiatives

Consistency?
Applicability?
Meaning?

!Non exhaustive list!

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History of water footprinting

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Water in life cycle assessment

- Few developments until 5 years ago
- Assessed mainly through water inventory/accounting
- Recognized by LCA community:
  - « … urgent need for methodological solutions to properly account for water-use related to environmental impacts of a product's life cycle and globalised value chains, many of which exhibit unsustainable use of water resources. »
    - International Journal of LCA (Koehler 2008)

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ISO:
Towards an international standard for water footprinting

ISO: In summary

- "**Water Footprint: Principles, Requirements and Guidances**"
- International standard for water footprinting
  - ***This International Standard specifies requirements and guidelines to assess and report water footprint based on LCA***
    - Terminology, communication
    - Important stages to consider
    - Consistency with carbon footprinting and other LCA impact categories
      - Scope, system boundary
    - Review/Validation
    - Reporting

International Organization for Standardization

- Began 2009, end 2011
- Towards industry and practitioners

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NWIP accepted in Cairo (June 2009)

The proposed International Standard will deliver

principles, requirements and guidelines

for a water footprint metric of

products, processes and organisations,

based on the guidance of

impact assessment as given in **ISO 14044**.

It will define how the different types of water sources (for example ground, surface, lake, river, green, blue, gray, etc.) should be considered, how the different types of water releases should be considered, and how the local environmental conditions (dry areas, wet areas) should be treated.

For products, it will apply the life cycle approach and will be based on the same product system as specified in ISO 14040 and ISO 14044.

At the organisation level, it will consider the guidance given by ISO 14064 for greenhouse gases.

The standard will also address the

communication issues linked to the water footprint

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Planning

- Past events
  - 09.Mar.2009: Circulated in ISO/TC 207/SC 5
  - 09.Jun.2009: Submitted to vote
  - 26.Jun.2009: Cairo: Accepted as a Preliminary Working Item (PWI)
  - 25+.Sep.2009: List of P and O participants

- Working meetings
  - 19-21.Nov.2009: First **working meeting**
    - (Stockholm, Sweden)
    - Title, Scope
    - Draft structure
  - 11-18.Jul.2010: Second **working meeting**
    - (Leon, Mexico)
    - Detailed sections
  - Nov(TBC).2010: Third **working meeting**
    - (Location TBC)
    - Finalization of draft
  - Mar/Apr(TBC).2011: Fourth **working meeting**
    - (Location TBC)
    - Finalization of public consultation?
  - Jun/Jul/Aug/Sep(TBC).2011: Fifth **working meeting**
    - (Russia)
    - Finalization?

- Vote on the PWI draft to advance it to Advance WI: Date TBD

Organization

- WG 8, part of ISO / TC 207 / SC 5
  - ISO 14046
- Contact:
  - Proposer & Secretariat:
    - SNV, Swiss Association for Standardization
    - Marcel Schulze, marcel.schulze@snv.ch
  - Convener:
    - Sebastien Humbert, Quantis, Lausanne, Switzerland, sebastien.humbert@quantis-intl.com, +41-79-754-7566
  - Co-convener:
    - Nydia Suppen Reynaga, Centro de analisis de cyclo de vida y diseno sustentable, Mexico, nsuppen@centroacv.com.mx
- List P and O members
  - App. 40 members
- To participate
  - As a national delegation or liaison member to TC207/SC5

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Life cycle assessment and water footprinting

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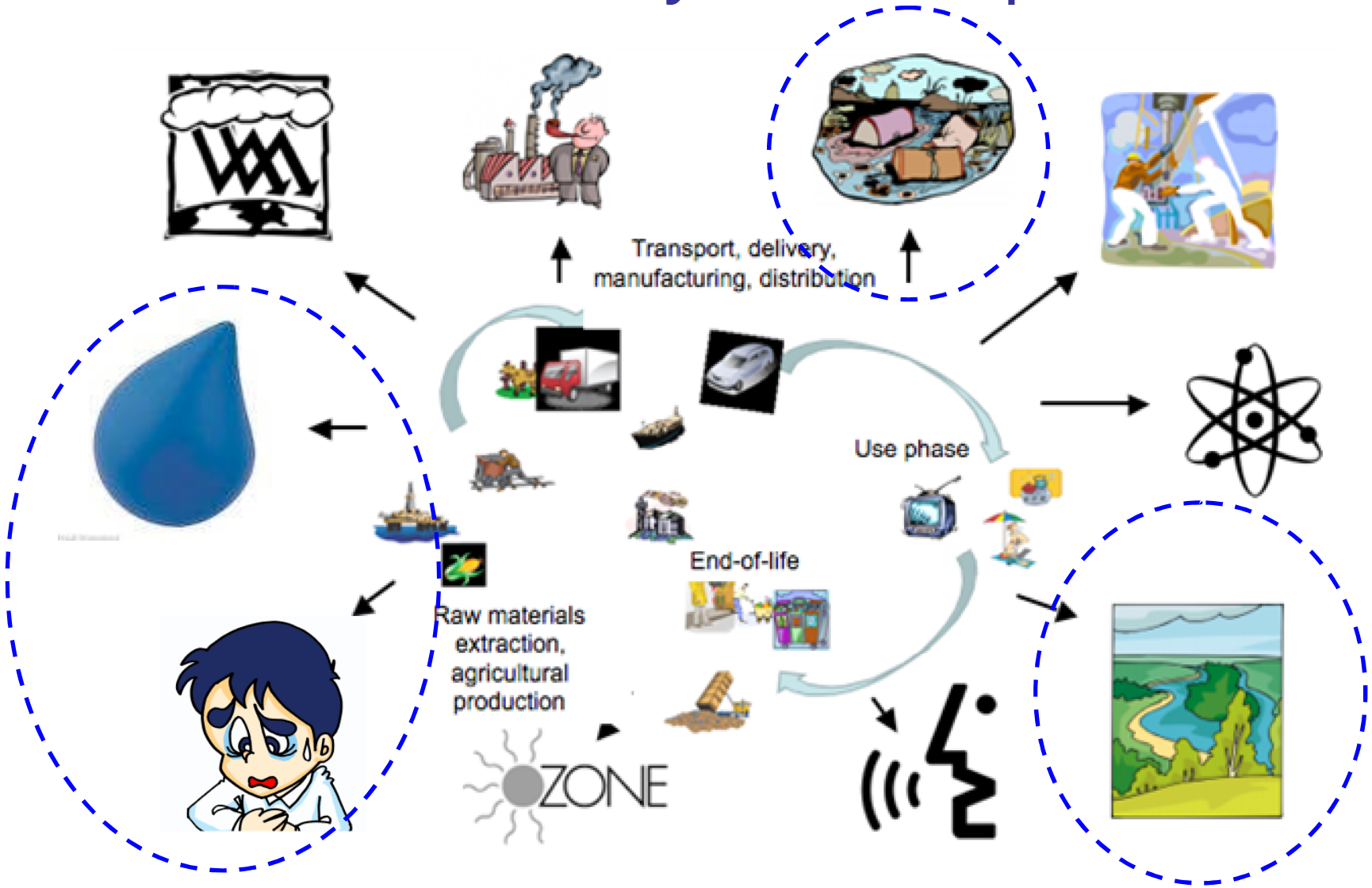
The life cycle concept



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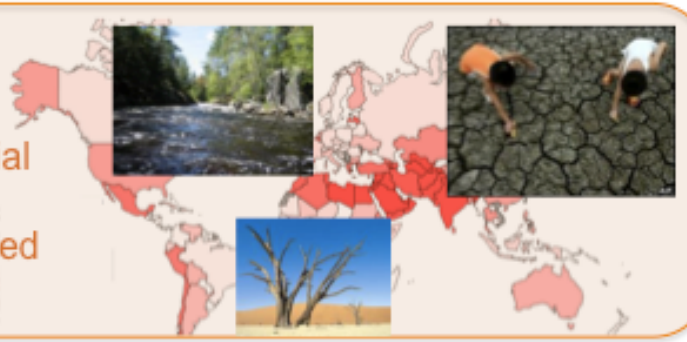
Inventory

« What ? »
« Where ? »
« How much ? »

Midpoint

« Is it a potential problem ? »
« Water stressed area ? »



Endpoint (Damage)

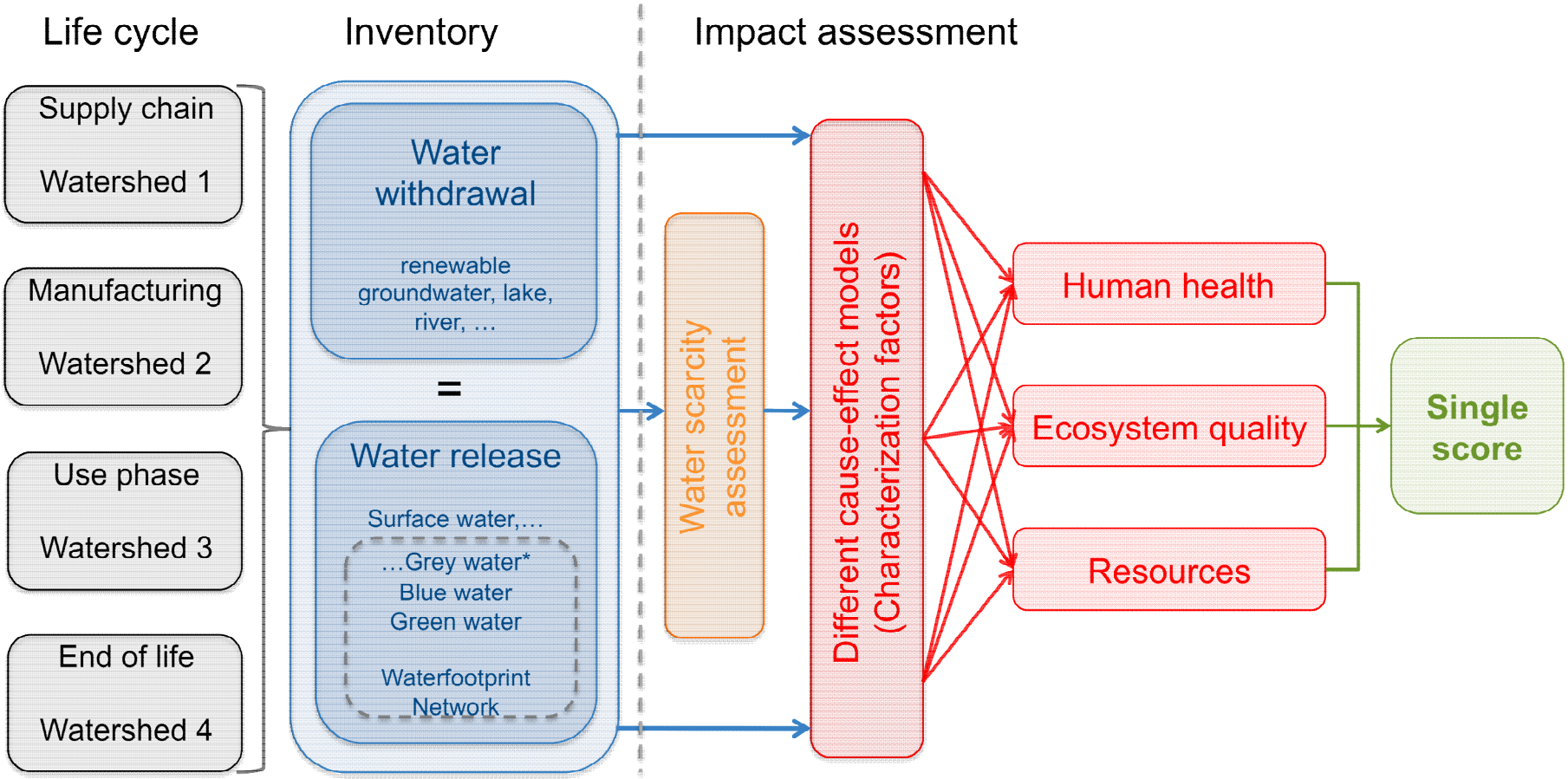
« Impact on humans, ecosystems and resources ? »

Reporting & Communication

« Single score in litres equivalent ? »

Impact assessment perspective

In practice!


Life cycle
Inventory
Impact assessment
Supply chain
Watershed 1
Manufacturing
Watershed 2
Use phase
Watershed 3
End of life
Watershed 4
Water withdrawal
renewable groundwater, lake, river, …
=
Water release
Surface water,…
…Grey water*
Blue water
Green water
Waterfootprint Network
Water scarcity assessment
Different cause-effect models (Characterization factors)
Human health
Ecosystem quality
Resources
Single score

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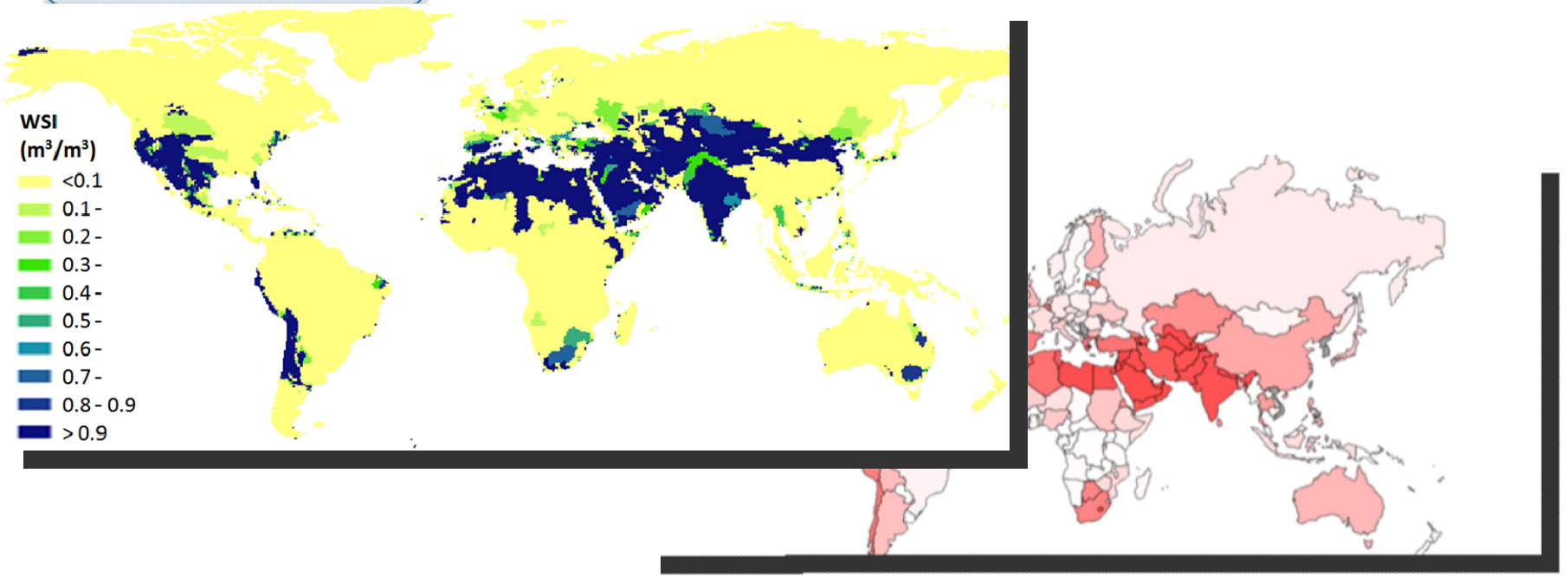
Water scarcity assessment

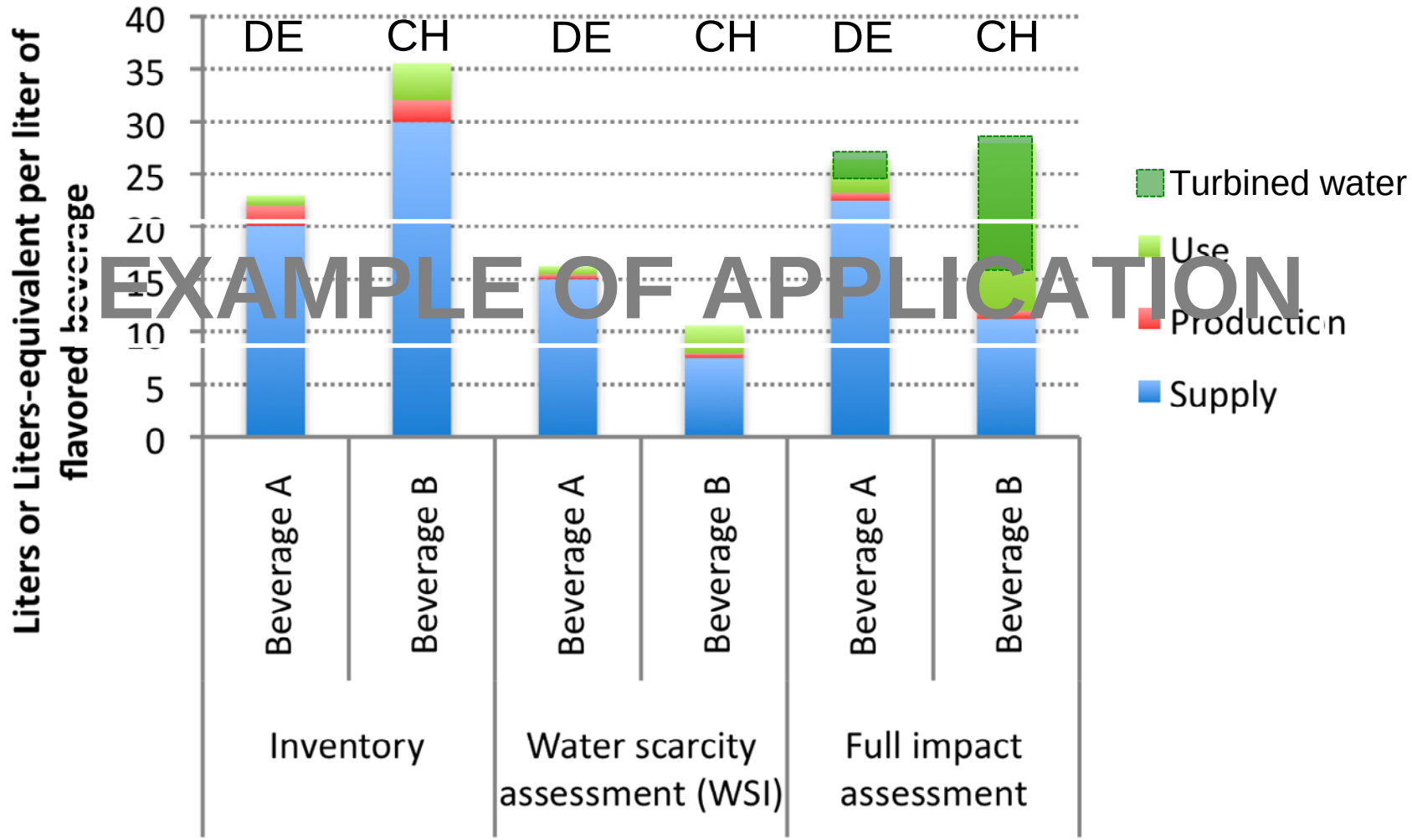
(«Screening assessment » using Water stress index, WSI)

Blue water
+
Grey water
+
5% withdrawal

→ WSI (Ridoutt and Pfister 2009) → Weighted inventory (m^3 – equivalent)



Water scarcity vs full assessment



EXAMPLE OF APPLICATION

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Questions?