Seminario Nacional del Observatorio del Agua: La huella hídrica como instrumento para la planificación hidrológica y reducción de conflictos
22 de junio de 2015

La huella hídrica en las industrias. La norma ISO 14046

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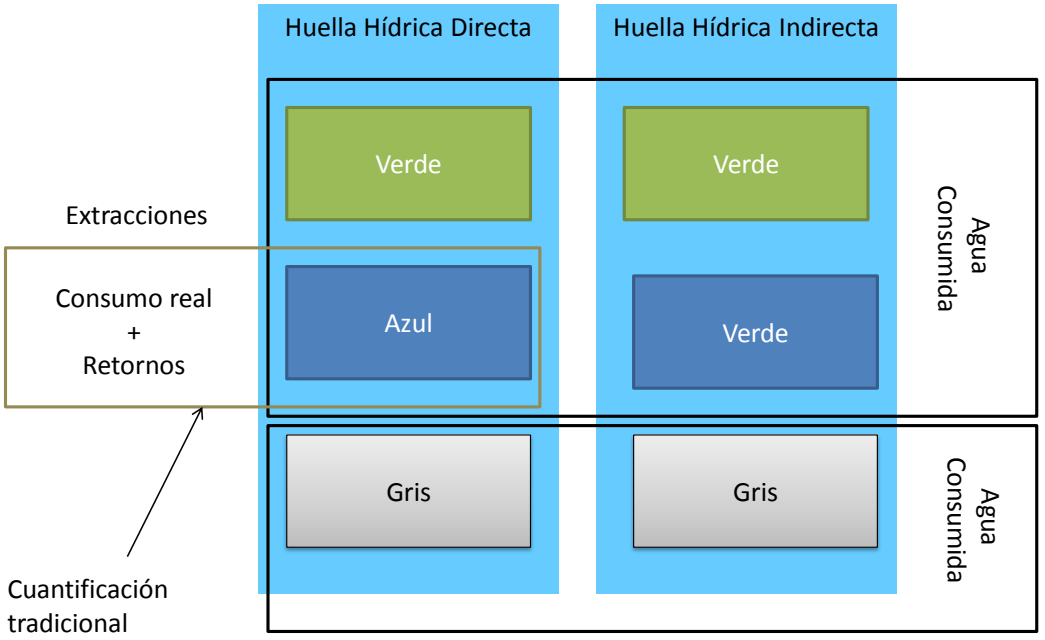
Ideas

1. Origen del concepto (WFA)
2. Motivaciones
3. Principales debilidades
4. El enfoque norma ISO 14046
5. Reporte

1. Origen del concepto (WFA)

- **Calcular el nivel de apropriación humana de agua para producir un bien es el camino para emplearla eficientemente.**

- **Contempla toda la cadena de valor y todos los procesos**



1. Origen del concepto (WFA)

- **Verde**: agua de lluvia que se almacena en el suelo
- **Azul**: agua extraída de una fuente y aplicada artificialmente (regadío)
- **Gris**: agua necesaria para diluir los contaminantes de las aguas de retorno o de la contaminación del proceso productivo

"Los colores del agua" del Prof. Llamas

1. Origen del concepto (WFA)

- **En 2007-08**, empezó el boom de los estudios de HH
  - Textil
  - Energía
  - Pizzas
  - Tomates
  - Países
  - Comercio de agua virtual
  - …

- **En 2011**

2. Motivaciones(WFA)

- **Grandes aspiraciones**
  - Mejorar la sostenibilidad del recurso, llegando al ámbito de la gestión
  - Lograr un uso sostenible del agua en todo el mundo
- **Consecuencias / Posibilidades**
  - Benchmarking
  - Comparaciones entre países
  - Certificaciones
  - Barreras al comercio

Discussion

Inherent to the comprehensive nature of this study, it has a number of limitations. One limitation is that the origin of products has been traced only by one step. If a product is imported from

in a global study, tracing back more than one step would create the problem of circularity in the calculations.

The gray WF estimates in this study are to be considered as conservative. In the case of agricultural production, the gray WF

2. Motivaciones

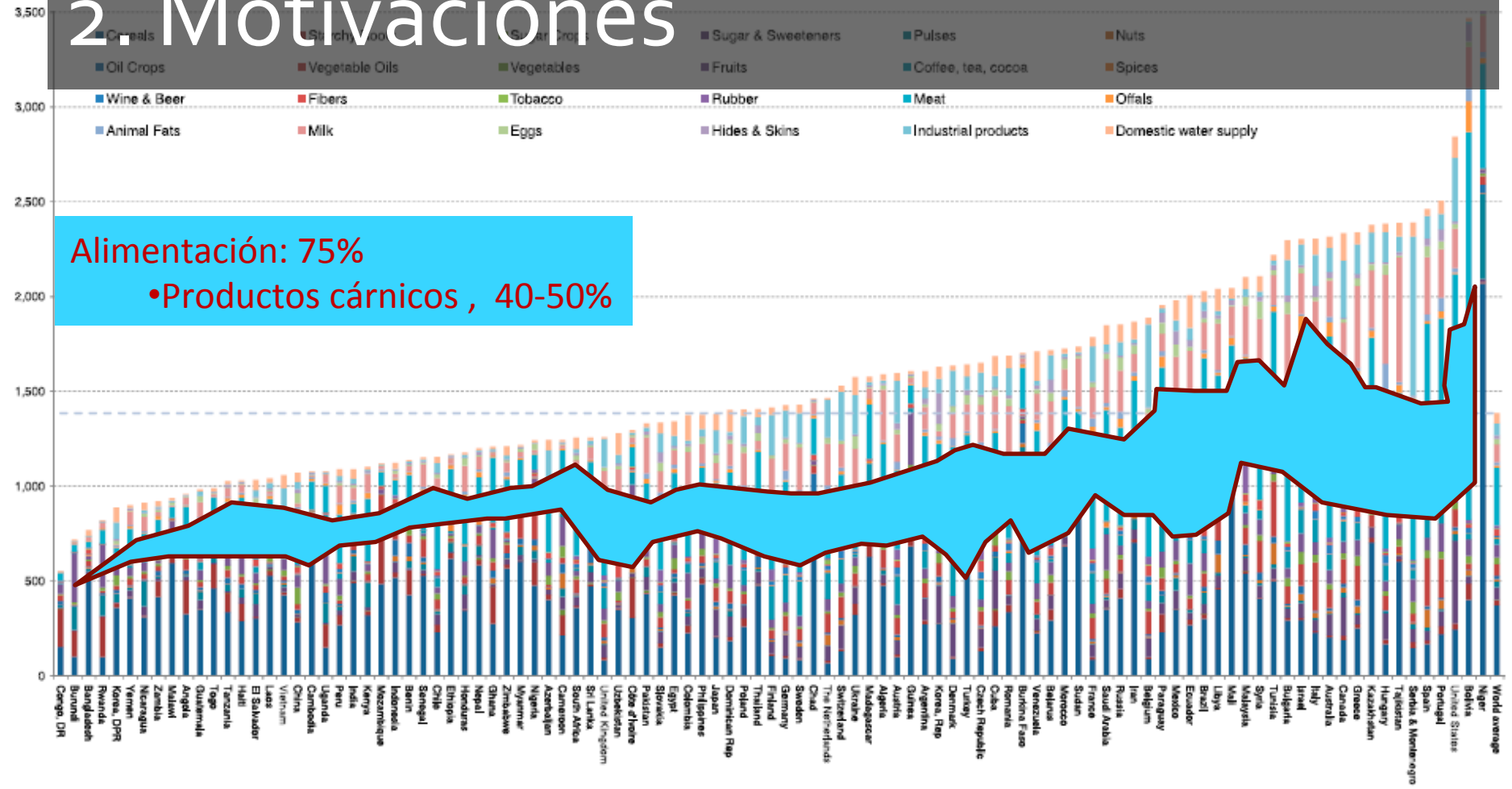


Fig. 3. Water footprint of national consumption for countries with a population larger than 5 million, shown by product category (cubic meter per year per capita) (1996–2005).

Fuente: Hoekstra & Mekonnen (2011 http://www.pnas.org/content/suppl/2012/02/07/1109936109.DCSupplemental/pnas.1109936109_SI.pdf). PNAS

2. Motivaciones

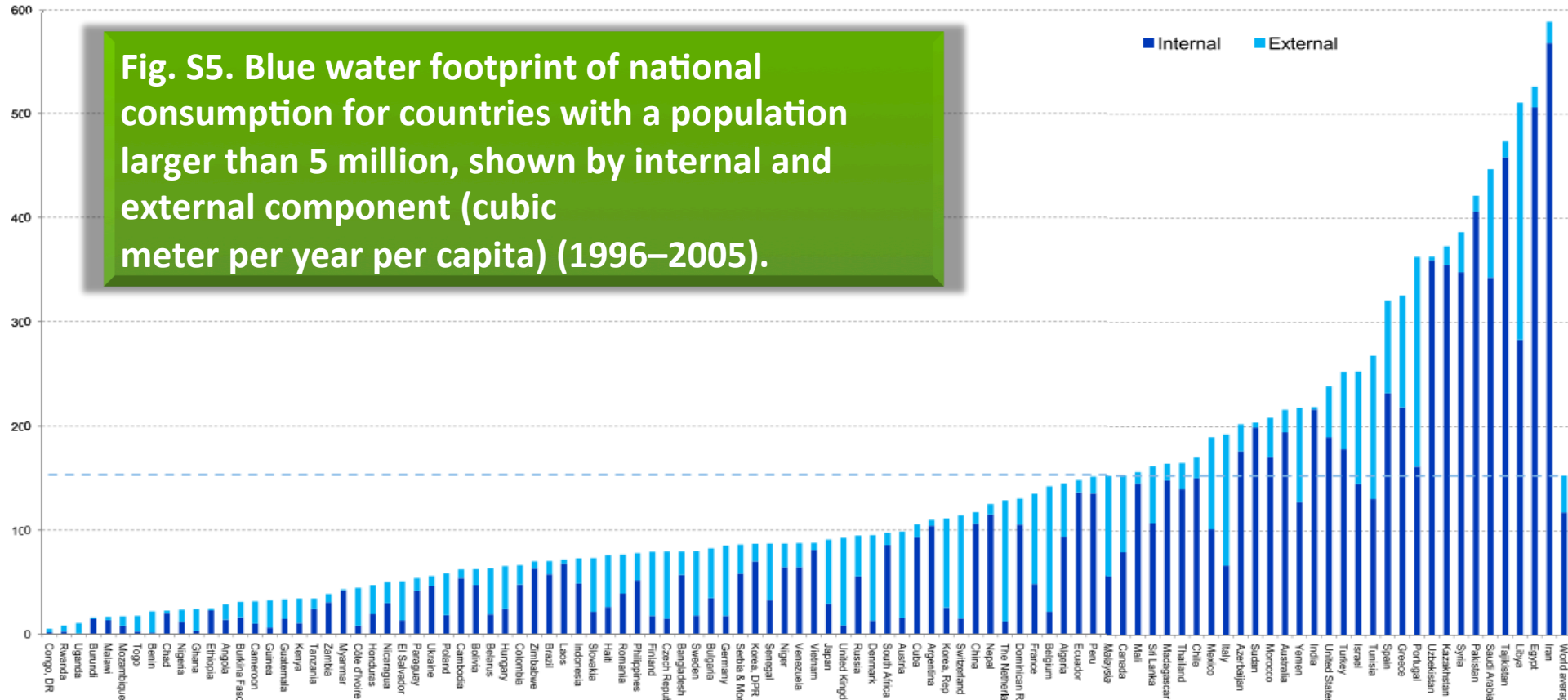


Fig. S5. Blue water footprint of national consumption for countries with a population larger than 5 million, shown by internal and external component (cubic meter per year per capita) (1996–2005).

Fuente: Hoekstra & Mekonnen (2011 http://www.pnas.org/content/suppl/2012/02/07/1109936109.DCSupplemental/pnas.1109936109_SI.pdf). PNAS

2.Motivaciones

www.nytimes.com/roomfordebate/2014/06/29/the-water-crisis-in-the-west/to-save-water-change-your-diet

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The Water Crisis in the West

What are the best ways to share water and ensure it lasts for the foreseeable future?

Read More »

DEBATERS

How We Should Pay For Water

ROBERT GLENNON, AUTHOR, "UNQUENCHABLE"

Recycled Water Is Crucial

MELISSA L. MEEKER, WATEREUSE

Allow Water Rights Trading

ELLEN HANAK, ECONOMIST

To Save Water, Change Your Diet

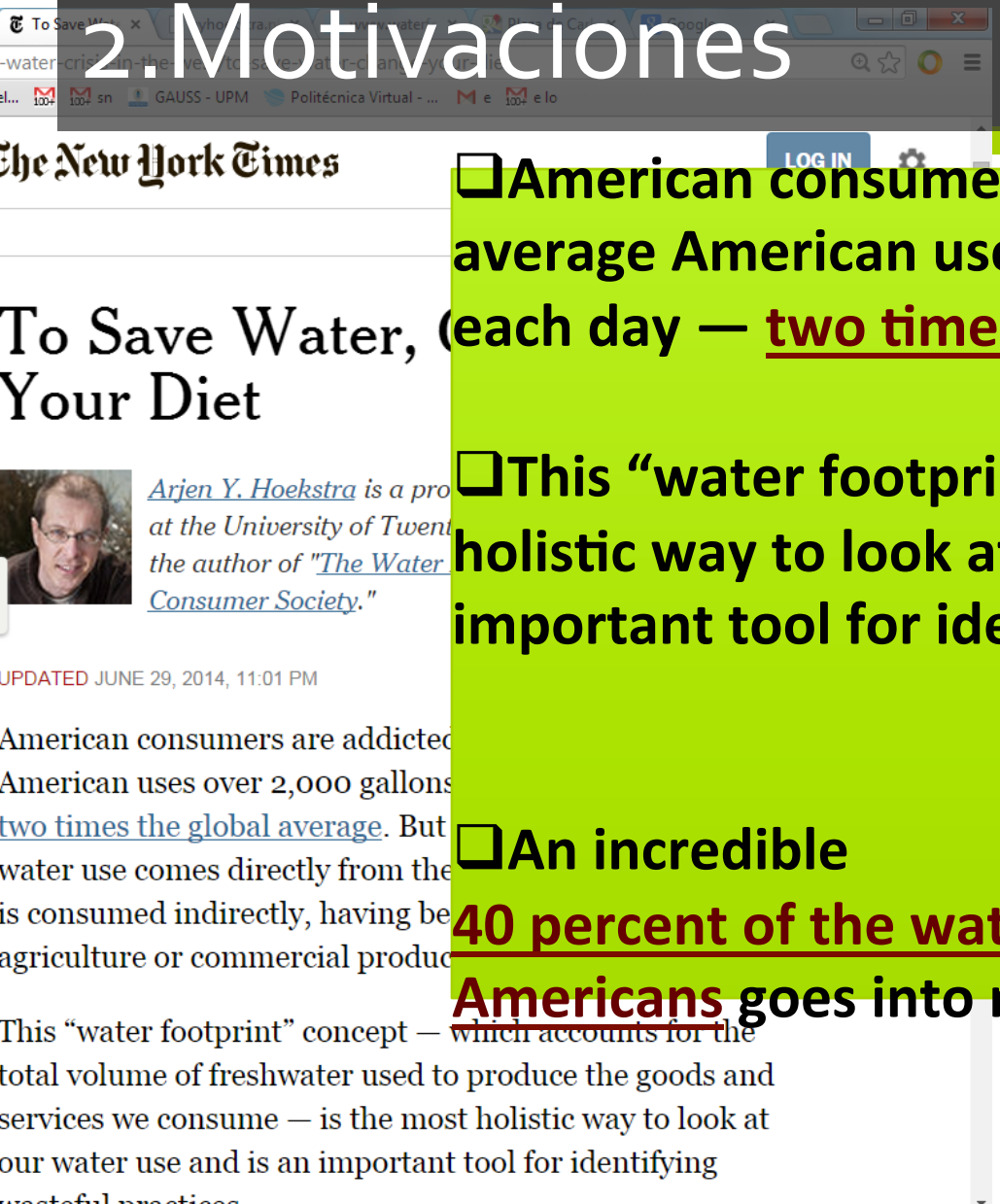
Arjen Y. Hoekstra is a professor of water management at the University of Twente in the Netherlands, and the author of "The Water Footprint of Modern Consumer Society."

UPDATED JUNE 29, 2014, 11:01 PM

American consumers are addicted to water. The average American uses over 2,000 gallons of water each day — two times the global average. But only a fraction of this water use comes directly from the tap. Most of the water is consumed indirectly, having been funneled into agriculture or commercial production.

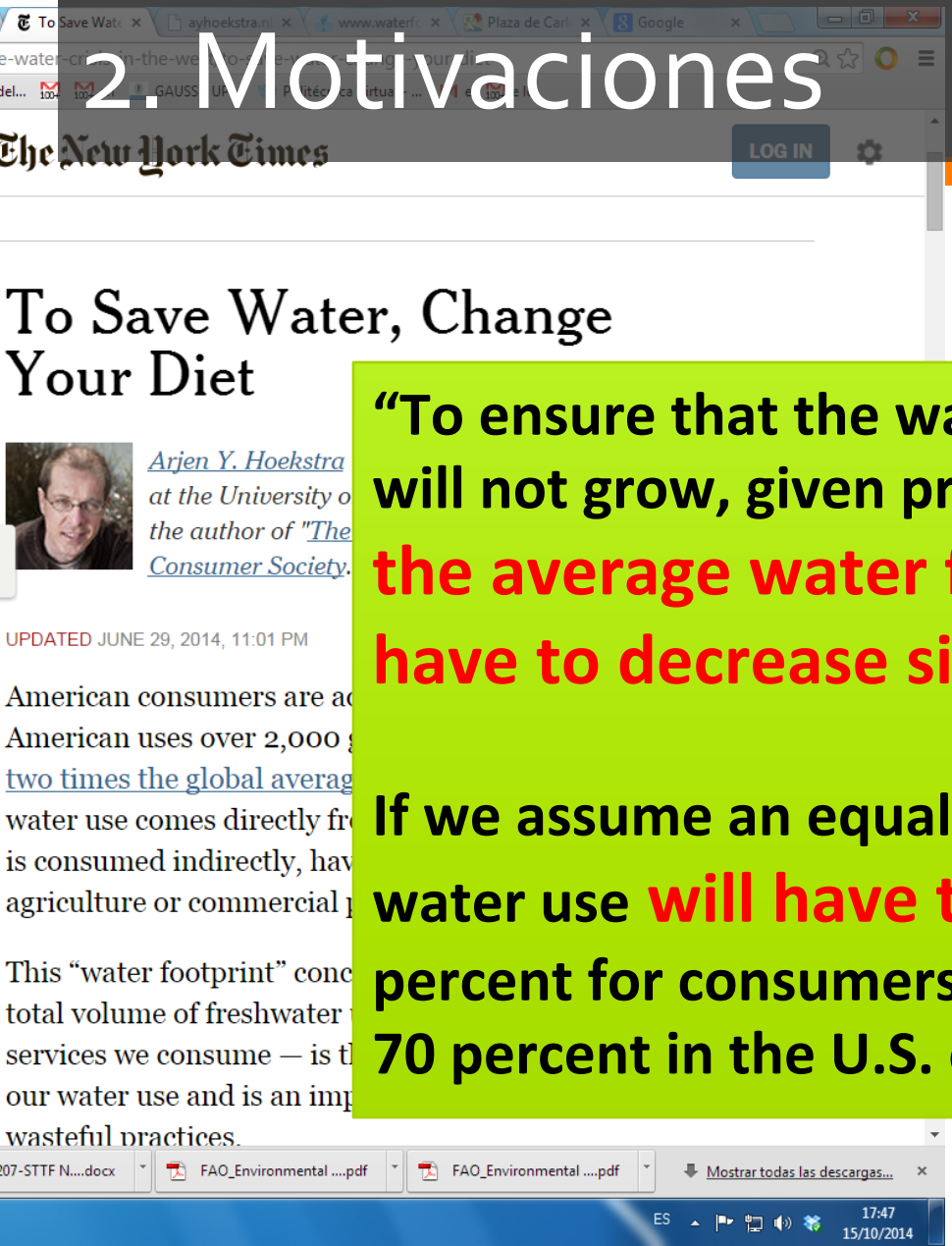
This "water footprint" concept — which accounts for the total volume of freshwater used to produce the goods and services we consume — is the most holistic way to look at

2.Motivaciones



- American consumers are addicted to water. The average American uses over 2,000 gallons of water each day — two times the global average….
- This "water footprint" concept … is the most holistic way to look at our water use and is an important tool for identifying wasteful practices.
- An incredible 40 percent of the water consumed by Americans goes into meat and dairy production.

2. Motivaciones


The New York Times

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To Save Water, Change Your Diet

Arjen Y. Hoekstra at the University o... the author of "The... Consumer Society.

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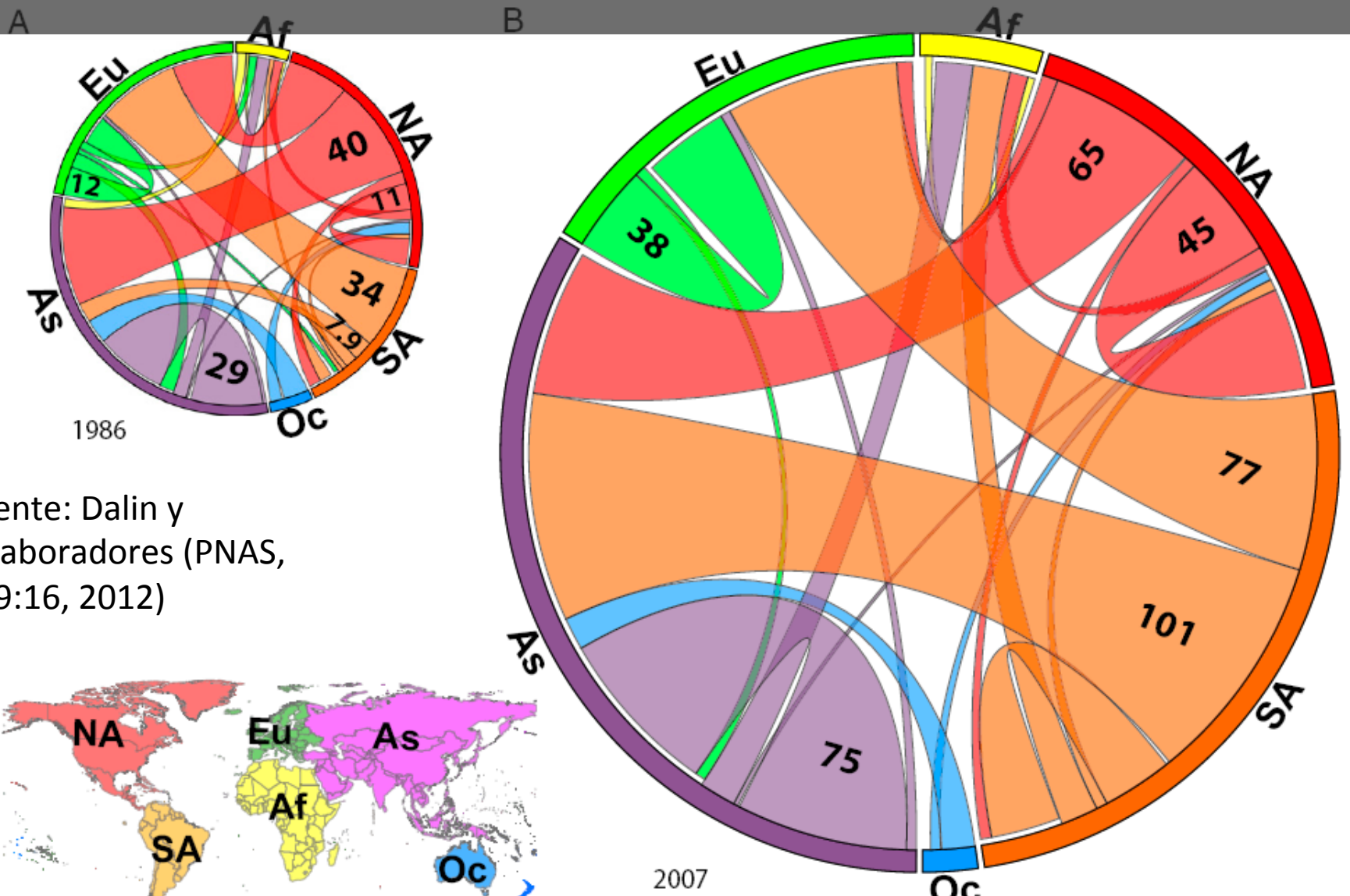
ES 17:47 15/10/2014

"To ensure that the water footprint of humanity will not grow, given projected population growth, the average water footprint per capita will have to decrease significantly.

If we assume an equal share for each global citizen, water use will have to be reduced by 22.5 percent for consumers in China and India, and by 70 percent in the U.S. over the next century."

2. oivaciones

2. Motivaciones



Fuente: Dalin y colaboradores (PNAS, 109:16, 2012)

3. Principales debilidades y…

- La HH no tiene en cuenta la productividad económica y social
- Las unidades (m3/kg)
- La estandarización de los datos (Hoekstra y Mekonnen, 2011)
- El agua gris
- Los aspectos geográficos temporales

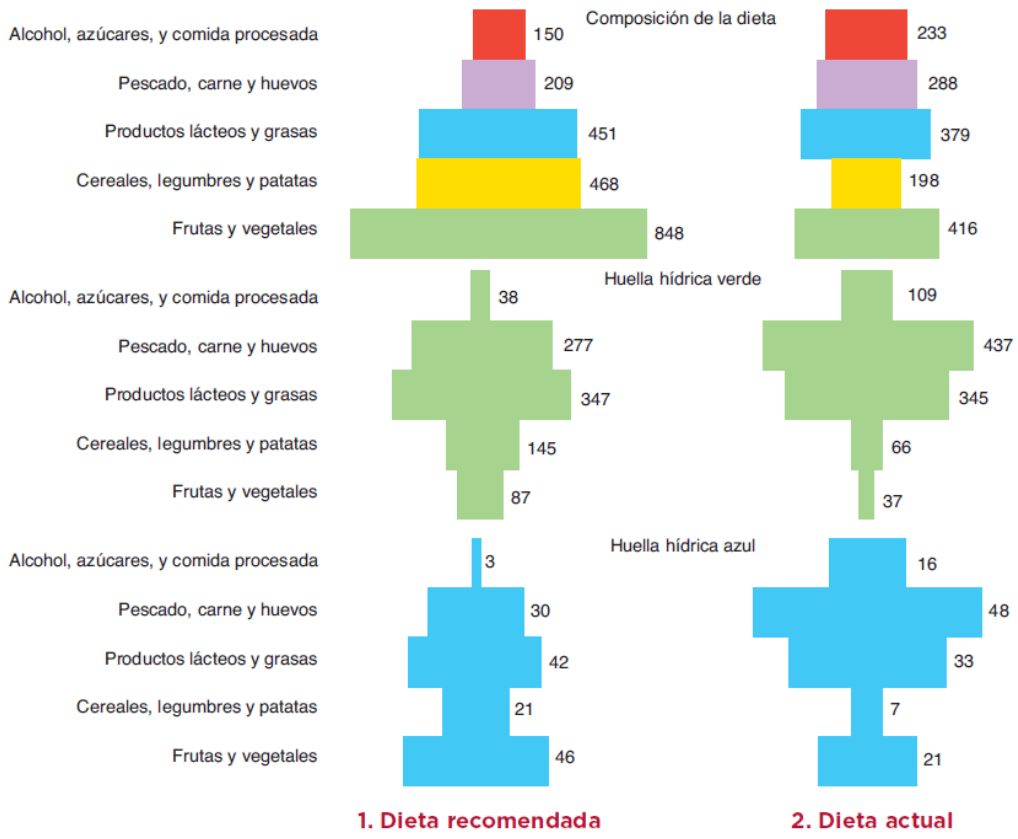
…. dos grandes fortalezas

- El potencial de comunicación
- Capacidad de innovación y liderazgo

3. Principales debilidades y…

- **La salud**

El cambio a dietas más saludables reduce más el consumo de agua que la reducción del desperdicio de alimentos



Fuente: López-Gunn et al. (en De Stefano y Llamas, 2013).

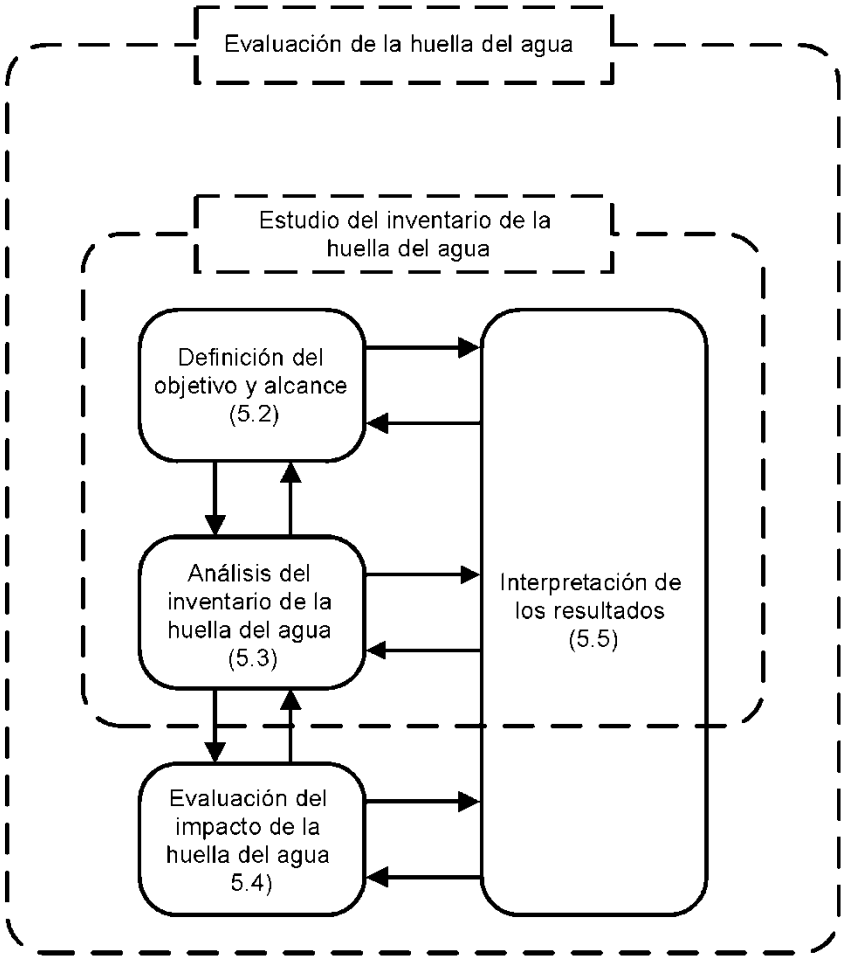
3. Principales debilidades y…

- La conciencia

La huella hídrica

4. El enfoque ISO 14046

- Enfoque ACV:
  - Inventario de HH
  - No HH verde
  - No HHs aditivas (no HH gris)



4. El enfoque ISO 14046

- **Enfoque Huella del Agua**

El término **huella del agua solo se debe utilizar** para describir el resultado de **una evaluación de cobertura amplia** de la huella del agua.

Si los impactos ambientales potenciales relacionados con el agua no se evalúan con cobertura amplia, entonces el término **huella del agua solo se debe utilizar con un calificativo**.

4. El enfoque ISO 14046

- **Huella del Agua según su disponibilidad**

  Si solo considera la cantidad del agua se debería **llamar huella del agua por escasez**.

  El cálculo debería realizarse **utilizando factores de caracterización derivados de los modelos de caracterización que se contabilizan por las diferencias locales en la escasez de agua**.

4. El enfoque ISO 14046

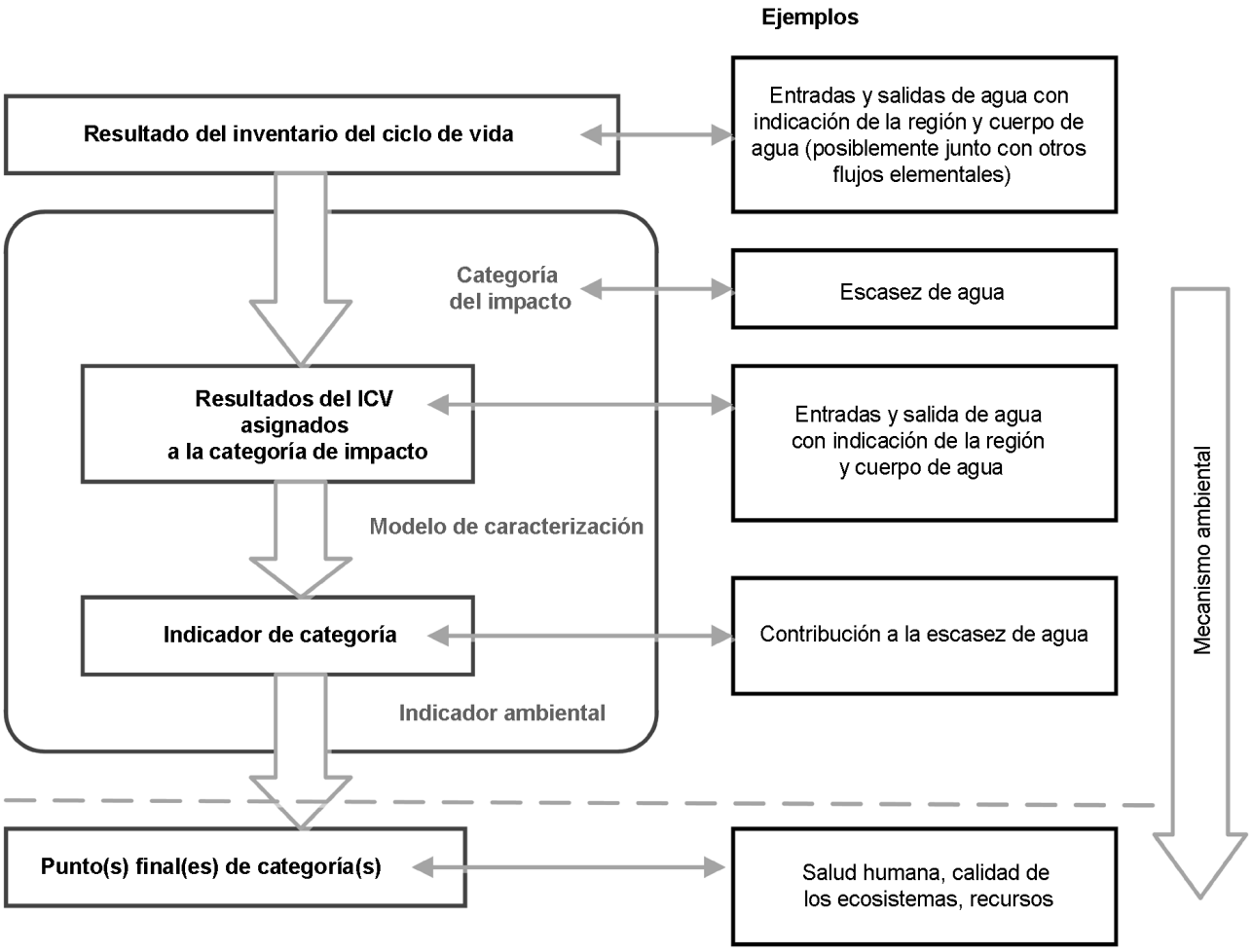
Huella del Agua que trata la degradación

El propósito es **ofrecer una evaluación de la contribución** de productos, procesos y/o organizaciones a los impactos ambientales potenciales relacionados con **la calidad del agua**.

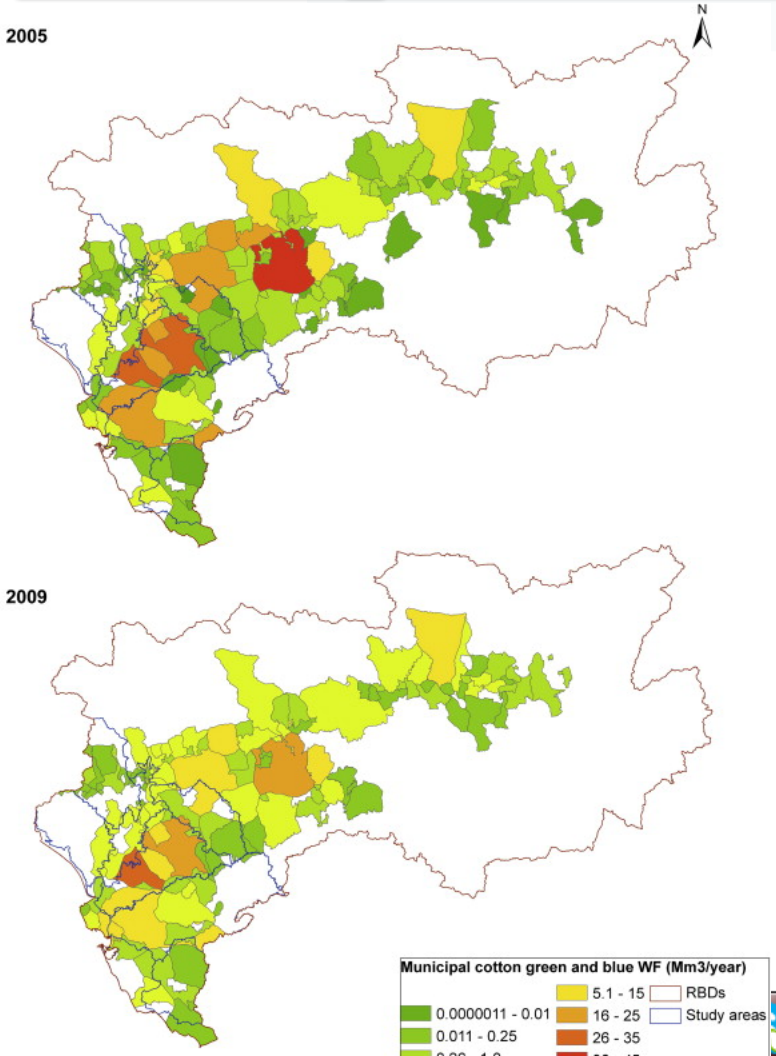
Descripción de: eutrofización acuática, acidificación acuática, eco-toxicidad acuática, contaminación térmica…

Identificación de las consecuencias

4. El enfoque ISO 14046



5. Reporte



Journal of Cleaner Production
Volume 57, 15 October 2013, Pages 238–248
ELSEVIER

A water footprint assessment of a pair of jeans: the influence of agricultural policies on the sustainability of consumer products

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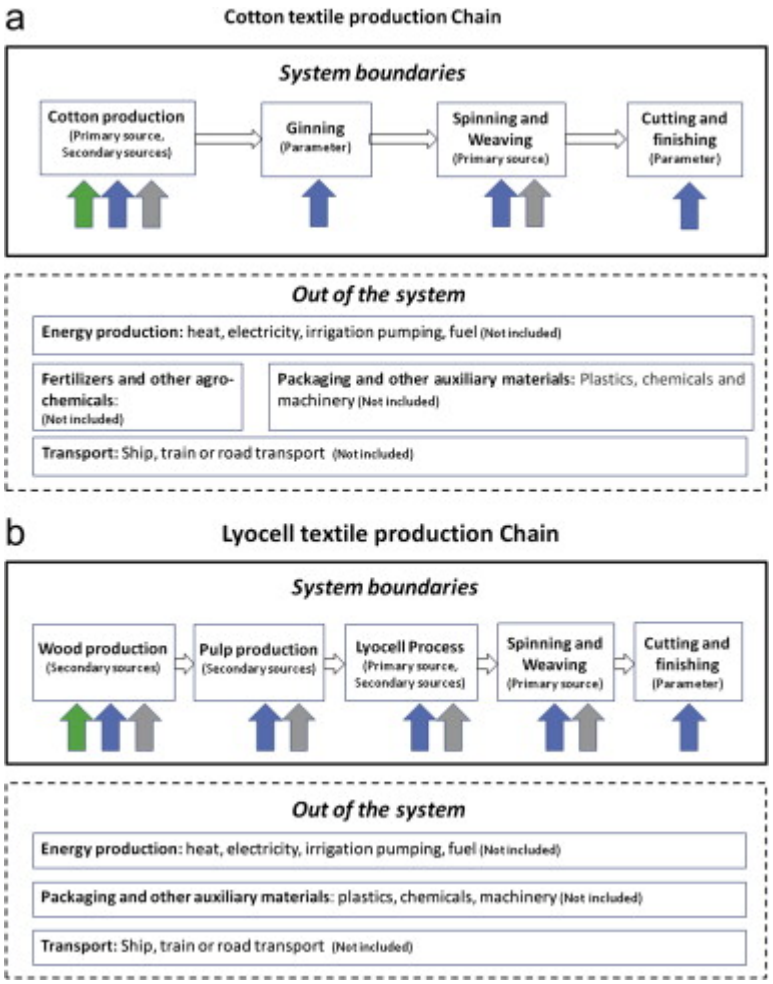
Abstract

This study reports the results of a water footprint (WF) assessment of five types of textiles commonly use for the production of jeans, including two different fibres (cotton and Lyocell fibre) and five correspondi production methods for spinning, dyeing and weaving. The results show that the fibre production is the stag with the highest water consumption, being cotton production particularly relevant. Therefore, the study pay particular attention to the water footprint of cotton production and analyses the effects of external facto influencing the water footprint of a product, in this case, the incentives provided by the EU Commo Agricultural Policy (CAP), and the relevance of agricultural practices to the water footprint of a product emphasised. An extensification of the crop production led to higher WF per unit, but a lower overall pressu on the basins' water resources. This study performs a sustainability assessment of the estimated cotto

5. Reporte


a
Cotton textile production Chain
System boundaries
Cotton production (Primary source, Secondary sources)
Ginning (Parameter)
Spinning and Weaving (Primary source)
Cutting and finishing (Parameter)
Out of the system
Energy production: heat, electricity, irrigation pumping, fuel (Not included)
Fertilizers and other agro-chemicals: (Not included)
Packaging and other auxiliary materials: Plastics, chemicals and machinery (Not included)
Transport: Ship, train or road transport (Not included)
b
Lyocell textile production Chain
System boundaries
Wood production (Secondary sources)
Pulp production (Secondary sources)
Lyocell Process (Primary source, Secondary sources)
Spinning and Weaving (Primary source)
Cutting and finishing (Parameter)
Out of the system
Energy production: heat, electricity, irrigation pumping, fuel (Not included)
Packaging and other auxiliary materials: plastics, chemicals, machinery (Not included)
Transport: Ship, train or road transport (Not included)

5. Conclusiones

- **La ISO 14046 desideologiza la HH**
- **La ISO 14046 se aleja de la gestión del recurso y la política del agua**
- **La WFN mantiene el liderazgo en**
  - Estudios de impacto
  - Metodologías
  - Impactos del comercio
  - Influencia en la política del agua

Gracias

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