

UNEP Water Accounting Stocktaking Water and LCA in Argentina. Case Study: Western arid region



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Motivation

1. Since 2004: working on LCIA methods for regional impact categories: Acidification, Terrestrial Eutrophication and Land Use.
2. 2007: we proposed a land use impact model for arid lands, which main product was the proposal of including Desertification as a new impact category for arid lands (Civit and Arena, 2007; Civit, 2009; Nuñez et al, 2009)
3. Conclusion of the previous work (2008):

In Argentina, the 75% of the territory has arid or semiarid lands. Desertification is the most relevant environmental problem and human activities are conditioned by **water availability**. In arid lands, **water availability** and **use** is the main limitation of social, industrial and economical development.

Within the LCA framework, it is required to include **Water Use as a regional/local impact category in LCA studies** performed in arid lands.



Objectives

- ➡ To continue the researching on a Life Cycle Impact Assessment model which includes impacts caused by water use (specially in arid lands).
- ➡ To obtain characterization factors for water use impact category according to ecosystems vulnerability
- To continue the application of the proposed and developed methodology to different case studies, such as building, mining, agriculture, etc.



Building the impact model...

LCI:

What kind of information is needed to collect in LCI?

How must data be collected in LCI?

How should be expressed water use impacts?

LCIA:

Which is the environmental intervention in water use impact category?

Which is the environmental mechanism?

What are the observable impacts and the consequences of them?

Which are the midpoints involved?

What is the best indicator for water use impact category?

Which are the affected endpoints?

What type of characterization model is needed for this impact category?



Data and case studies

Type and source of data

Spatial variables and statistical data (main from private sources)
Basins, water volumes, water consumption by products, services, quality of water, etc.
Government, NGO, own measurements, others

The use of GIS (Civit and Arena, 2007)

GIS integrates spatial variables with mathematical methods. GIS has several capabilities that allow databases management, mapping, image processing and statistical analysis to obtain a vulnerability factor.

Case Studies (ongoing)

Brick manufacture



Rapeseed cultivation*



(*Civit, 2009; De Giovanneti, 2008; Silva Colomer, 2008)



THANK YOU

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