



## UNESCO CHAIR IN LIFE CYCLE AND CLIMATE CHANGE

Dr. Pere Fullana i Palmer  
Barcelona, 20<sup>th</sup> June 2013

Director of UNESCO Chair in Life Cycle and Climate Change  
Chief Executive Officer of Cyclus Vitae Solutions, S.L.



Observatorio  
Punto Verde  
del ciclo de vida  
de envases



Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura



Cátedra UNESCO  
de Ciclo de Vida  
y Cambio Climático



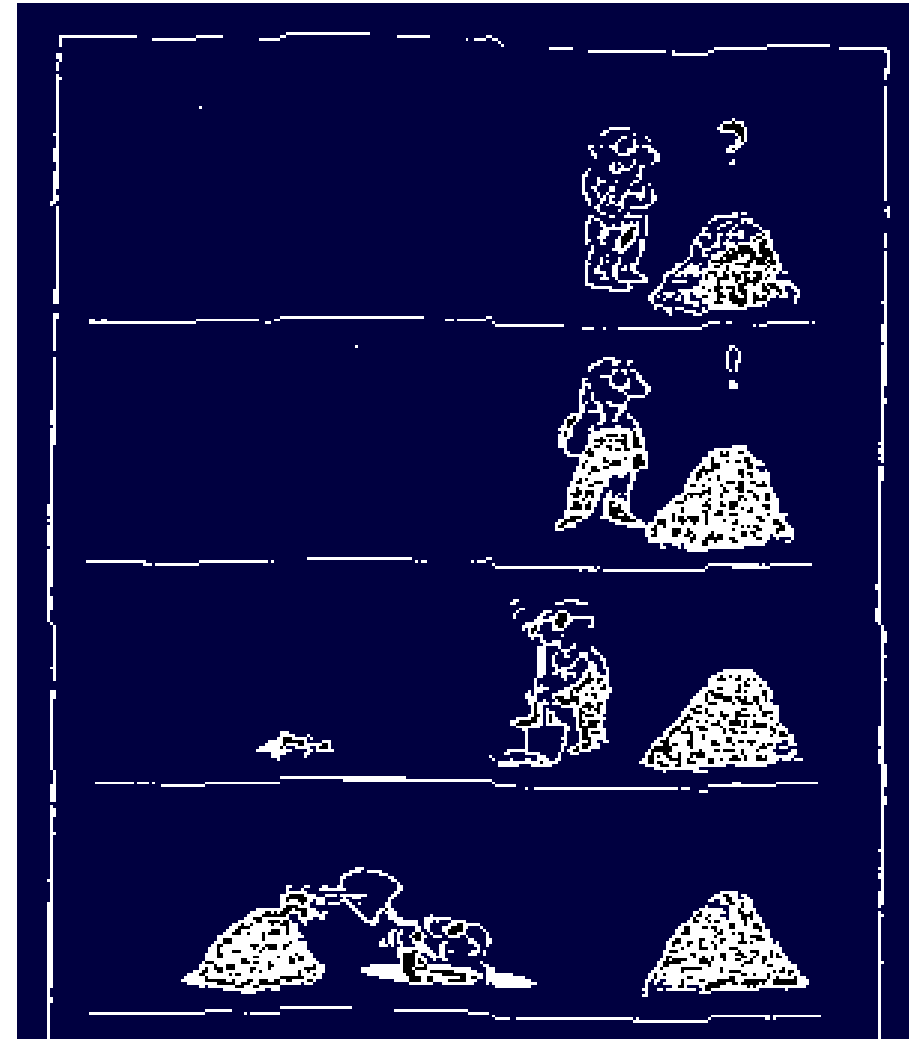
## Life Cycle Thinking

- Responds to the problem but avoids creating a new problem

Ex. Biofuels and tortitas

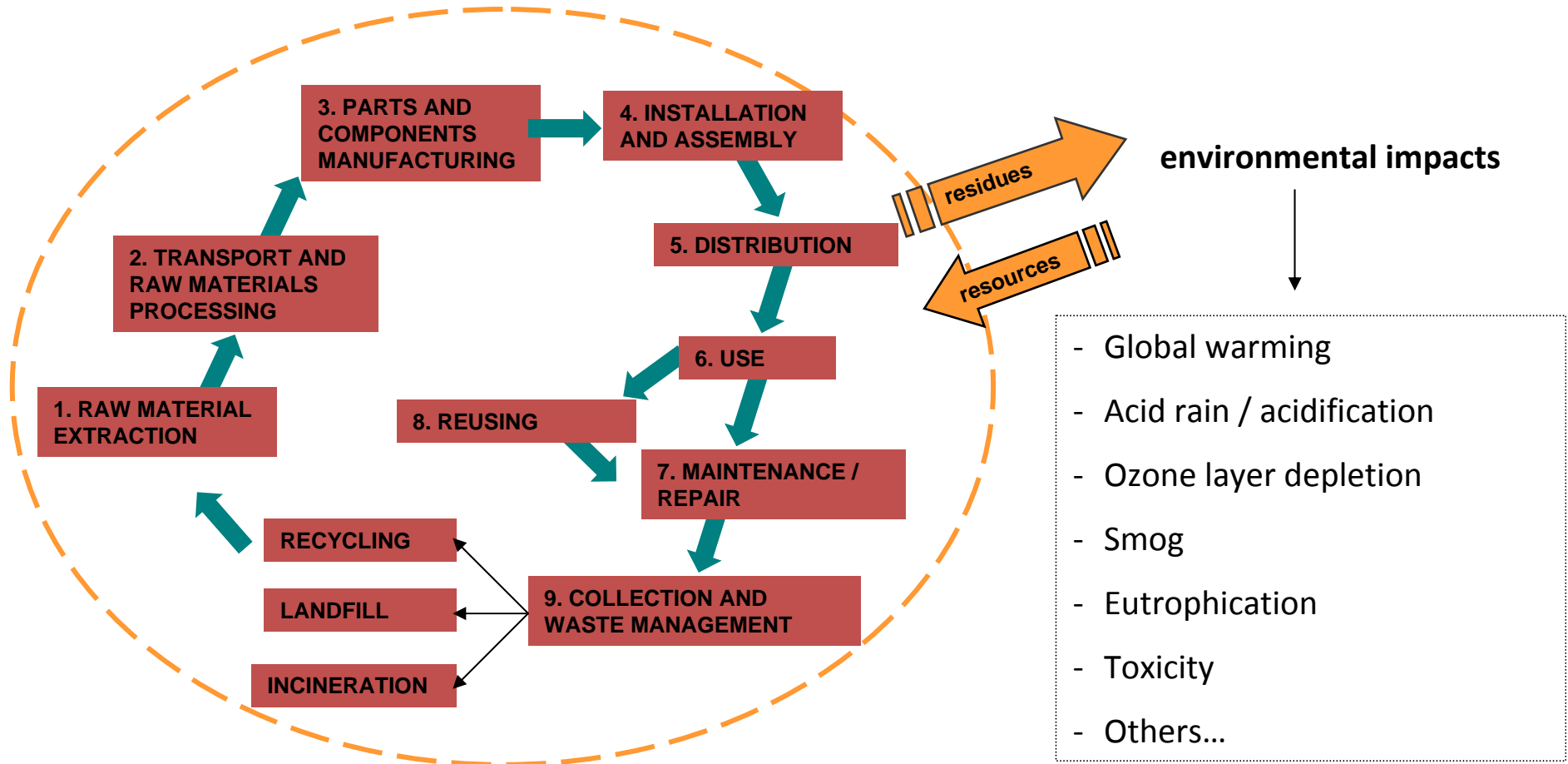
- Addresses the challenge of the exponential growth of environmental impact because of both C and P

Ex. Increasing number of products (12% yearly)



# INTRODUCTION TO LCA

## Integrated assessment of environmental problems (Point to Plane)



# INTRODUCTION TO LCA

## Integrated Product Policy →

- Life Cycle Perspective
- Stakeholder communication
- Instruments: LCA, Ecodesign, Ecolabelling

## Sustainable Consumption and Production Policy

- Follow-up of IPP
- Importance of Consumption
- Production chains work together
- From LCA to LCM

## Life Cycle Management: Life Cycle Thinking into Practice

- Life Cycle Perspective part of the Mainstreaming
- Life Cycle Management principles
- From environmental to sustainability issues
- Methodologies, instruments and actors at the same level

# LCA part of the mainstreaming?

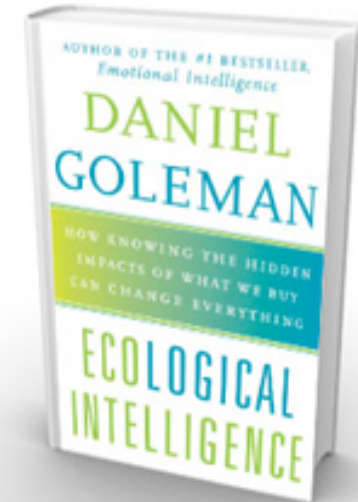
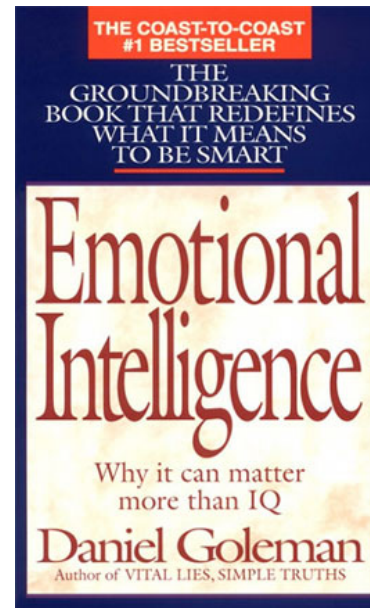


After his best sellers Emotional Intelligence and Social Intelligence, **Daniel Goleman** introduces the concept of *Ecological Intelligence*, based on life cycle thinking.



## TIME magazine

"10 ideas changing the World right now" Una 100% Organic cotton T-shirt → 10.000 litres of water, ink  
Industrial ecologists → LCA



**Gregory Norris** gives a one hour lecture to his Holiness, the **Dalai Lama**, about the importance of LCA to change consumption and production patterns to help for a better future of our planet .

## Some Life Cycle Management Principles

- The “3/3” principle
- The “Good enough is best” principle
- The “Consensus beats reality” principle
- The “Trust beats certainty” principle

**MOST SIGNIFICANT SCIENTIFIC CONTRIBUTION AWARD**  
**Life Cycle Management World Congress, Cape Town 2009**



# Sustainable Technology for the EC?

## Life Cycle and Sustainability

## Practicity!!!

The overall goal of the SAT research call is to develop and test in **real case studies** a framework methodology, operational methods and tools for the assessment of the sustainability of existing and future technologies. A **conditio sine qua non** identified by **DG RTD** is that both the framework methodology and its derived methods and tools shall be based on a **Life Cycle Thinking** approach that takes into adequate consideration all the three pillars of sustainability (**economic, environmental, social**).

**Participation** is a cornerstone both for the development of the approaches and for the application in the case studies, closely interacting with **relevant business and government and society stakeholders groups**. This will be supported by working along an agreed set of criteria and indicators.

Sustainability is understood as a combination of social and environmental goals. Three column models, which distinguish between **ecological, social and economic dimensions of sustainability**, are dominating the international discussion. The assessment of the degree of sustainability of future technologies is complicated by a number of issues and **insecurities of the decision situation**.

Reflecting values and needs, assessment of sustainability cannot be done as a purely scientific task because values and needs cannot be defined in the scientific system but only in interaction between science and society. Participative procedures are an appropriate way to involve stakeholders and actors to yield accepted solutions.

## Product Panels

# APPLICATION OF LIFE CYCLE THINKING IN INDUSTRY: GRANIC CASE

**Granic**® develops low carbon footprint and recyclable plastic.  
**Granic**® products are mineral based plastic masterbatches

## Objectives?

- Reduce their CO<sub>2</sub> emissions.
- Give added value at final products.
- Help clients to reduce their contribution towards climate change and ask providers to come along.**
- Obtain a third party certification on the Carbon Footprint of their products.

## Methodology

- Using ISO Standards 14040 and 14044 for LCA and PAS 2050:2008 for Carbon Footprint.

## Results

- A robust independent assessment considering all phases and all impacts, including the Global Warming Potential (Carbon Footprint).
- Carbon Footprint calculations have been verified by ÜV Rheinland
- Obtaining a powerful communication tool to communicate their environmental performance to third parties and clients

## Carbon Footprint

**Calculation of the total greenhouse gas emissions that are caused directly or indirectly by an industrial activity or accumulate throughout a product's life cycle. The carbon footprint is measured in kg of CO<sub>2</sub> equivalent.**



# APPLICATION OF LIFE CYCLE THINKING IN INDUSTRY: MANGO CASE

**MANGO** is a worldwide retail company

## Objectives?

- Calculate the Carbon Footprint of value chain: from yarn to shop's gate
- Publication of guidelines to improve energy efficiency in clothing stores
- **Start with logistic system and continue until all chain is included**

## Methodology

- Using ISO Standards 14040 and 14044 for LCA
- Using PAS 2050:2008 and GHG Protocol and ISO 14064 for Carbon Footprint.

## Results

- Implement specific action to reduce their Carbon Footprint year after year
- Carbon Footprint calculations have been verified by ECODES
- Obtaining a powerful communication tool to communicate their environmental performance to third parties and clients

Guía de  
recomendaciones  
prácticas de  
eficiencia energética  
para tiendas de ropa  
y complementos



# APPLICATION OF LIFE CYCLE THINKING IN INDUSTRY: OTHER CASES WITH OUR COLLABORATION

## **CONSTRUCTION**

SAINT GOBAIN  
ROCKWOOL  
PORCELANOSA  
ROCA  
CERAMICAS FOIX  
URSA

## **CHEM. – PHAR. – PERF.**

KAO CORP.  
ALMIRALL  
URIACH  
ANTONIO PUIG  
MAGOM  
ARAGOFAR  
PLASTICOS YUSA  
CATOR  
AISE

## **FOOD AND BEVERAGE**

DANONE  
YOPLAIT  
NESTLÉ  
CODORNIU  
TORRES  
LA RIOJA GOV.  
SADA

## **CYTY FURNITURE**

JCDECAUX  
CEMUSA  
AVENIR

## **OTHERS**

LEATHER, ZINC,  
COPPER, PACKAGING,  
AUTOMOBILE, TOOLS.

## **ELECTRONICS**

TELEFÓNICA  
ECOTIC

## **TEXTILE**

INTERFACE  
CAEB

## **WASTE MANAGEMENT**

CICLOPLAST  
ECOEMBES - FENIX  
SPV  
GOV. CATALONIA – OIL  
TIRME  
REBALIM  
GESTAGUA  
ANFEVI  
ECOEMBALLAGES

# THANK YOU!!

## UNESCO Chair in Life Cycle and Climate Change



[pere.fullana@esci.upf.edu](mailto:pere.fullana@esci.upf.edu)

**Dr. Pere Fullana i Palmer**  
**Director**

Tel.: +34 93 295 4710 ext.325  
Fax: +34 93 295 4720  
[pere.fullana@esci.es](mailto:pere.fullana@esci.es)  
[www.giga.cat](http://www.giga.cat)  
[www.unescochair.esci.es](http://www.unescochair.esci.es)  
Passeig Pujades, 1  
E-08003 Barcelona

<http://unescochair.esci.es/>

**ESCI**   
International Business



Observatorio  
Punto Verde  
del ciclo de vida  
de envases



Life Cycle  
Initiative  
Spanish partner



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Chair in  
Life Cycle and  
Climate Change

[www.cyclusvitae.com](http://www.cyclusvitae.com)

# MOLTES GRÀCIES – THANKS A LOT FOR YOUR ATTENTION!!!