

# **Practical Sustainability**

Dr Mehdi Shahbazpour, 2017

# Why should Businesses care?



# Threats

Legislation Spills

**Global Warming**

Environmental Watchdogs

**ETS** Levies

Trade Barriers

# Climate change information

New Zealand

[newzealand.govt.nz](http://newzealand.govt.nz)

[Home](#) [Science](#) [Physical impacts and adaptation](#) [NZ greenhouse gas reports](#) [Doing our fair share](#) [Emissions trading](#)

## Participating in the ETS

### ▼ Agriculture

▶ Obligations

▶ Allocation

▶ Energy

▶ Fishing

▶ Forestry

▶ Industry

▶ Liquid fossil fuels

▶ Synthetic gases

▶ Waste

You are here: [Emissions trading](#) > [Participating](#) >



## Agriculture in the Emissions Trading Scheme

### How is agriculture affected by the ETS?

Participants in the New Zealand Emissions Trading Scheme (NZ ETS) for agriculture will have to report activities and surrender [New Zealand Units \(NZUs\)](#) to account for agricultural emissions. They will receive allocations of NZUs to help offset the cost of this.

Compulsory reporting begins in 2012 but the requirement to surrender NZUs begins only in 2015. Voluntary reporting begins in 2011.

Like all New Zealanders, farmers and growers are likely to notice a small increase in energy prices due to the ETS. For more information on these effects and how to reduce your energy costs, please see [What does the ETS mean for me?](#)

### Participants

With some exceptions, participants for agriculture are meat and dairy processors, exporters of live animals, fertiliser importers and manufacturers, and egg producers.

Farmers and growers do not need to register and directly participate in the NZ ETS.

### Obligations

Agricultural participants will face an obligation to surrender NZUs for agricultural emissions.

## Related links

-  [Agriculture in the NZ ETS \(Ministry of Agriculture and Forestry\)](#)
-  [FAQs – Agriculture and the ETS \(Ministry of Agriculture and Forestry\)](#)



## Fear of green trade barrier from Europe

Monday, 04/10/2010

Australian agriculture will be among the biggest losers if Europe introduces new environmental trade barriers.

Federal Trade Minister Craig Emerson is warning that the issue of climate change could be used by some countries as an excuse to increase charges on imports.

Trade consultant Peter Gallagher says it's a worrying development that threatens Australian farmers.

"Agriculture in particular would be hard hit by this, because it's very hard to assess the undesirable carbon content of agricultural production in a way that is transparent."



Trade Minister Craig Emerson (Lateline Business)

## More FM Slammed For "Hypocrisy" Over Earth Hour

Friday, 27 March 2009, 11:18 am  
Press Release: Kent Duston

Wellington, Friday 27 March 2009

MoreFM and parent company Mediaworks promotion of Earth Hour.

"This is the worst kind of corporate hypocrisy - pulling out all the stops to promote their corporate SUVs"

The vehicles used by MoreFM 2.5 tonne 4WDs are among the most polluting in the New Zealand market. According to the Ministry of Transport, they emit 354 grams per kilometre.

 iJournal

[Search latest Positions \\$1](#)

for blatant hypocrisy over their

MoreFM



The screenshot shows the homepage of the news website stuff.co.nz. At the top, there are navigation tabs for Technology, Sport, Entertainment, Life & Style, Travel, and Blogs. A large banner for 'ONE 30-DAY CHALLENGE' is visible, featuring a star and the text 'Take the 30-Day Challenge'. Below the banner, there are links for 'Stuff Home' and 'Business'. A navigation bar includes links for Industries, World, Farming, Market Data, Personal Finance, Budget 2010, Blogs, Small Business, Videos, and Business Tools. A search bar is located on the right side of the page.

### \$150,000 fine for chemical dumping

IZPIA  
Last updated 21:06 26/05/2010

Christchurch businessman has been ordered to pay more than nearly \$150,000 in fines and costs for illegally dumping electroplating chemicals in North Canterbury.

Stephen Graham Knight, a company director, pleaded guilty in Christchurch District Court to charges of recharging the chemicals onto land which may have entered water.

Environment Canterbury said it was told that several 200-litre drums of washed down copper sulphate and hydrogen peroxide had been left on a property near Parnassius, North Canterbury, in September 2008. The previous owner of the property was Knight.

#### Business Headlines

- Cough up top rate, or pay the penalty
- Call for alternative Kiwibank future - as a co-operative
- Premium rises all round despite IRD's tax tactics
- 'Catastrophe' cover to relieve health premium pain
- Old-fashioned set-up has last laugh when the tough times hit
- Co-ops fight to retain share assets
- Chinese energy illustrates the scale of the

# Opportunities

Competitive Advantage

Clean Green NZ

**100% Pure**

**LOHAS**

Dog's Head Vineyard, Marlborough



**100% PURE NEW ZEALAND**

[newzealand.com](http://newzealand.com)





# ECOMANIACS INVITED

JOIN ADRIAN GRENIER AND HIS TEAM OF ECO-FRIENDLIES IN A NEW SHOW ABOUT LIVING GREEN WITH STYLE.



Darren Moore  
Green builder extraordinaire

Adrian Grenier  
Actor and eco-team leader

Boise Thomas  
Green guru and activist

Julius  
Musician and Philanthropist

Angela Lindvall  
Super model and eco-stylist

Lifestyles Of Health And Sustainability

## MY LOHAS

生活誌

體驗真實自在的生活

2009 Mar. No. 17

NT.69

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月刊化  
每月2日出版!!!



COVER FACE [陳綺貞]

### 拜訪 農夫市集!

台灣地產地銷的食物尋寶

疼痛Bye Bye!!  
按摩穴道DIY

COLUMN

褚士英、劉克襄、李慶文、林鴻鍊  
陳映如、阿銀哥、米力

LOHAS NEWS

紐約綠色辦公室、體驗德國綠色生活  
挪威奧斯陸的公車零碳排放計畫

ISSN 1991-4671



# VANITY FAIR

SPECIAL  
[GREEN  
ISSUE]

A THREAT  
GRAVER THAN  
TERRORISM:  
GLOBAL WARMING  
How much of New York,  
Washington,  
and other  
American  
cities will be  
eaten?

GEORGE CLOONEY,  
JULIA ROBERTS,  
ROBERT F. KENNEDY JR., AND AL GORE  
and the call for  
A NEW AMERICAN  
REVOLUTION

PLUS  
EXCLUSIVE BOOK EXCERPT!  
THE BOSTON STRANGLER  
MY MOTHER'S BRUSH WITH DEATH BY SEBASTIAN JUNGER

The growing importance of sustainability as a market driver in some of New Zealand's food and beverage export markets has led the Ministry of Foreign Affairs and Trade and New Zealand Trade and Enterprise to prepare a quarterly report for business people highlighting trends and issues in key markets.

The screenshot shows the New Zealand Trade & Enterprise website. The main navigation bar includes 'GET READY TO EXPORT', 'DEVELOP KNOWLEDGE & EXPERTISE', 'ACCESS INTERNATIONAL NETWORKS', 'EXPLORE EXPORT MARKETS', and 'FIND ASSISTANCE'. The breadcrumb trail is 'Home > Explore Export Markets > Market research by industry > Food and beverage'. The left sidebar lists various industry categories, with 'Food and beverage' selected. The main content area is titled 'Food and beverage' and includes a sub-section 'ON THIS PAGE' with links to 'Food and beverage general', 'Food and beverage sustainability', 'Meat, dairy and seafood', 'Wine', and 'Functional foods and organics'. Below this, there are three article teasers: 'Food and beverage in the hotel, restaurant and institutions market in Southeast Asia' (1 May 2009), 'Food and beverage market in Australia' (1 November 2008), and 'Food and beverage market in Germany' (1 August 2008). A fourth article, 'Food and beverage market in Hong Kong', is partially visible at the bottom.

## UNITED KINGDOM

### SUMMARY:

- Environmental and social issues remain important to consumers: 73 percent of UK consumers say that environmental and social issues remain important, despite the recession. Locally produced food, Fairtrade and animal welfare are highlighted as key areas of concern for consumers.
- UK retailer Marks & Spencer announces the next phase of its 'Plan A' sustainability commitments: New commitments contribute to an overall goal to be the 'most sustainable major retailer in the world by 2015'. Key areas of focus include sustainable agriculture, traceability, and ethical and sustainable sourcing, with implications for all M&S suppliers (including in New Zealand).
- Tesco opens first zero-carbon store and stocks carbon footprint labelled oranges: These developments support the retailer's targets for emissions reductions in both its own operations and its supply chains.
- Packaging and waste reduction initiatives announced: Phase 2 targets of the Courtauld Commitment by major retailers and brand owners focus on reducing the impact of grocery packaging, reducing household food and drink waste, and reducing supply chain packaging and waste.
- Provenance issues remain in the spotlight: BPEX, the industry body representing British pig levy payers, is trialling a technique to determine the country of origin of specific meat products based on isotope analysis. The Food Standards Authority has published new research on country of origin labelling, noting an increase in the number of products carrying these voluntary labels but suggesting that price and food safety remain higher priorities for consumers. The Conservative Party continues to promote country of origin labelling among other food and agriculture policies in the lead up to the general election.
- Food policy on the UK Government's agenda: *Food 2030* policy documents outlining the Government's strategy for a sustainable and secure food system were published in January. Key issues include encouraging people to eat a healthy and sustainable diet, increasing food production sustainably and reducing waste.

# What's holding us back?



# Complexity

- Uncertainty
- Time-delay
- Distant Problem
- Conflicting interests
- Different motivations
- Social phenomenon



# Complexity



# Multiple Stakeholders

- Public (current and future generations)
- National government
- Local government
- Tax payers
- Rate payers
- Businesses
- Customers
- Investors
- Consultants
- Certifying bodies
- Accreditation bodies
- International Organisations
- Lobby Groups



Mehdi Shahbazpour, 2017

# Management Attitude



- It' all a load of ...
- Got more important issues to deal with
- It's important and I am doing what I can
- “It’s how we do things around here” and we encourage others to do the same
- Nothing is as important than this
- Oh my God, the world is coming to an end!



# Lack of know-how



# Environmental Management System

A system for planning, implementing, reviewing and improving the actions an organization takes to meet its environmental obligations.



# Practical Guide #1

## Be Holistic

Include all aspects of your business in the system

# Practical Guide #2

## Be Systematic

Break the system into manageable segments

# Practical Guide #3

## Be Inclusive

Delegate responsibility of each segment to its main stakeholders

# Practical Guide #4

## Manage Projects

Treat each segment as a project and break it down to manageable objectives

# Practical Guide #5

## Be Transparent

Communicate to all stakeholders regularly and provide them with access to all the information required

# Practical Guide #6

## Match International Standards

Work towards and acquire international standards that matter to your industry and customers



# Practical Guide #7

## Tell everyone

Communicate your programme objectives and your achievements to all your stakeholders

# Some Tools

## Aspects and Impacts

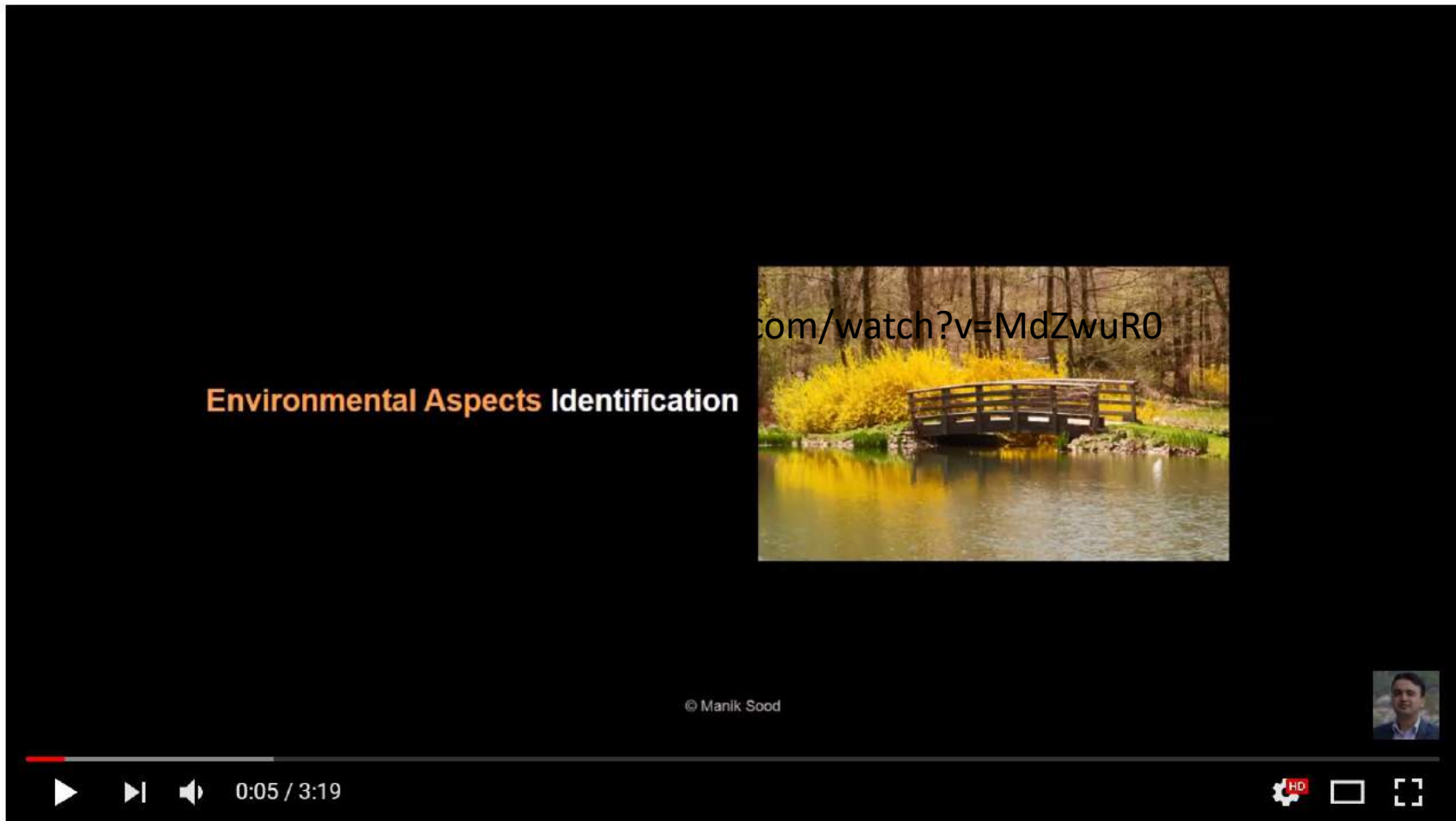
The starting point of any sustainability assessment is the identification of Aspects and Impacts

Aspects : activity or aspect of an activity that has an impact on society or the environment

Impact : positive/negative, direct/indirect impact of an activity on society or the environment

<https://www.youtube.com/watch?v=MdZwuR0daso>

**Environmental Aspects Identification**

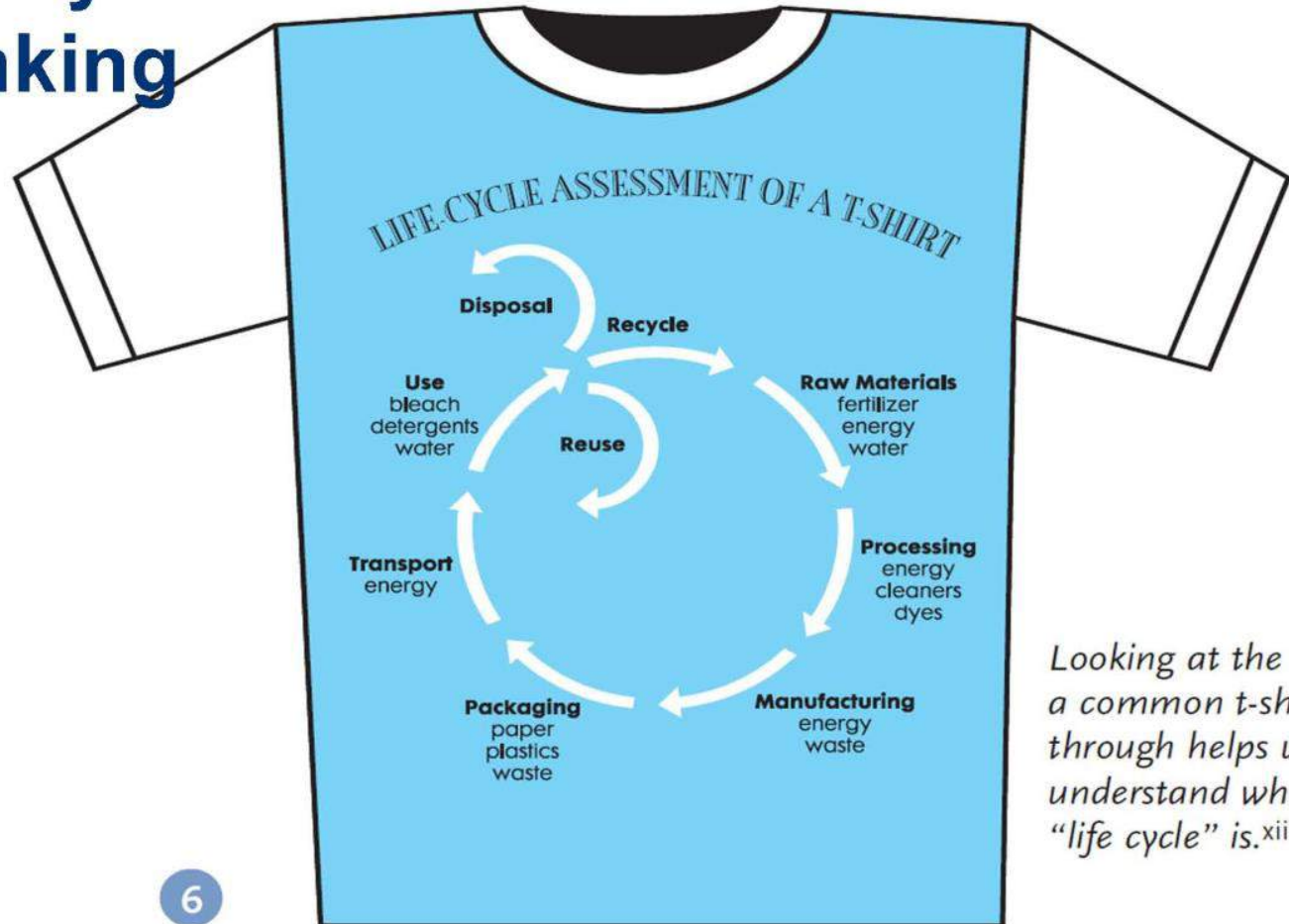


© Manik Sood

0:05 / 3:19

HD

# Life Cycle Thinking



*Looking at the stages a common t-shirt goes through helps us understand what a “life cycle” is.<sup>xii</sup>*

6

[https://www.youtube.com/watch?v=cYOC8\\_jJcII](https://www.youtube.com/watch?v=cYOC8_jJcII)



Life Cycle Assessment

# Life Cycle Assessment (LCA)

- Step 1: Goal Definition & Scope (ISO 14040)
- Step 2: Inventory Analysis (ISO 14041)
- Step 3: Impact Assessment (ISO 14042)
- Step 4: Improvement Assessment / Interpretation (ISO 14043)

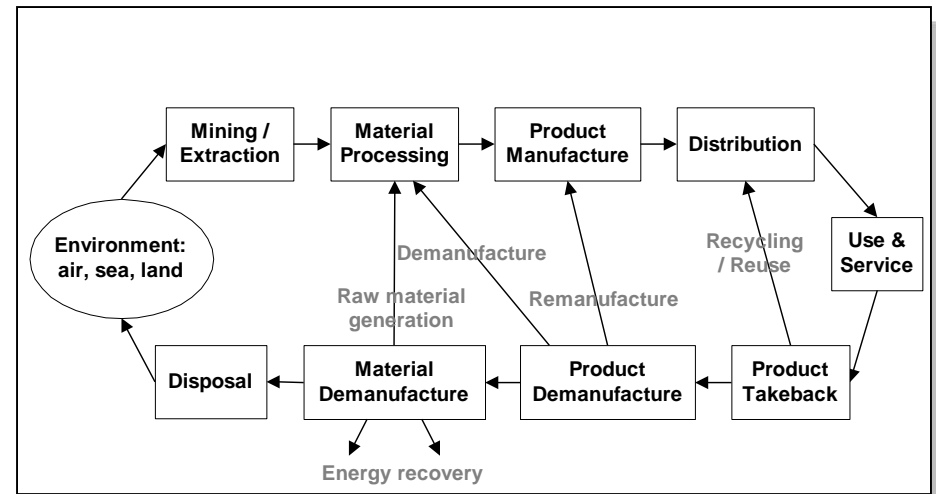
# Domestic Coffee Maker Example



Source: <http://home.howstuffworks.com/coffee-maker.htm>

# Step 1: Goal Definition & Scope

- Establish purpose & goal
- Define decision criteria, function & functional unit
- Define system boundaries
  - Life cycle stages
  - Time
  - Place
- Determine required data quality





# Step 1: Coffee Maker

- Purpose of LCA?
  - Determine how to improve the environmental performance of a coffee maker
- Decision criteria?
  - Total energy consumed, equivalent CO<sub>2</sub> produced, **eco-indicator 99 score**
- Function of coffee maker? Functional units?
  - Cups of coffee poured, Time coffee is warmed
- System boundaries?
  - Five years of use, Europe, production, use & end-of-life stages

# Difficulties & Limitations of Step 1

- How do you compare **different products** that provide **similar functions** or services?
- How do you compare similar products that provide **multiple functions** or services?
- How do you define more **abstract functional units** such as entertainment from toys or higher self-esteem?
- Where do you stop **drawing the bounds** to your system?



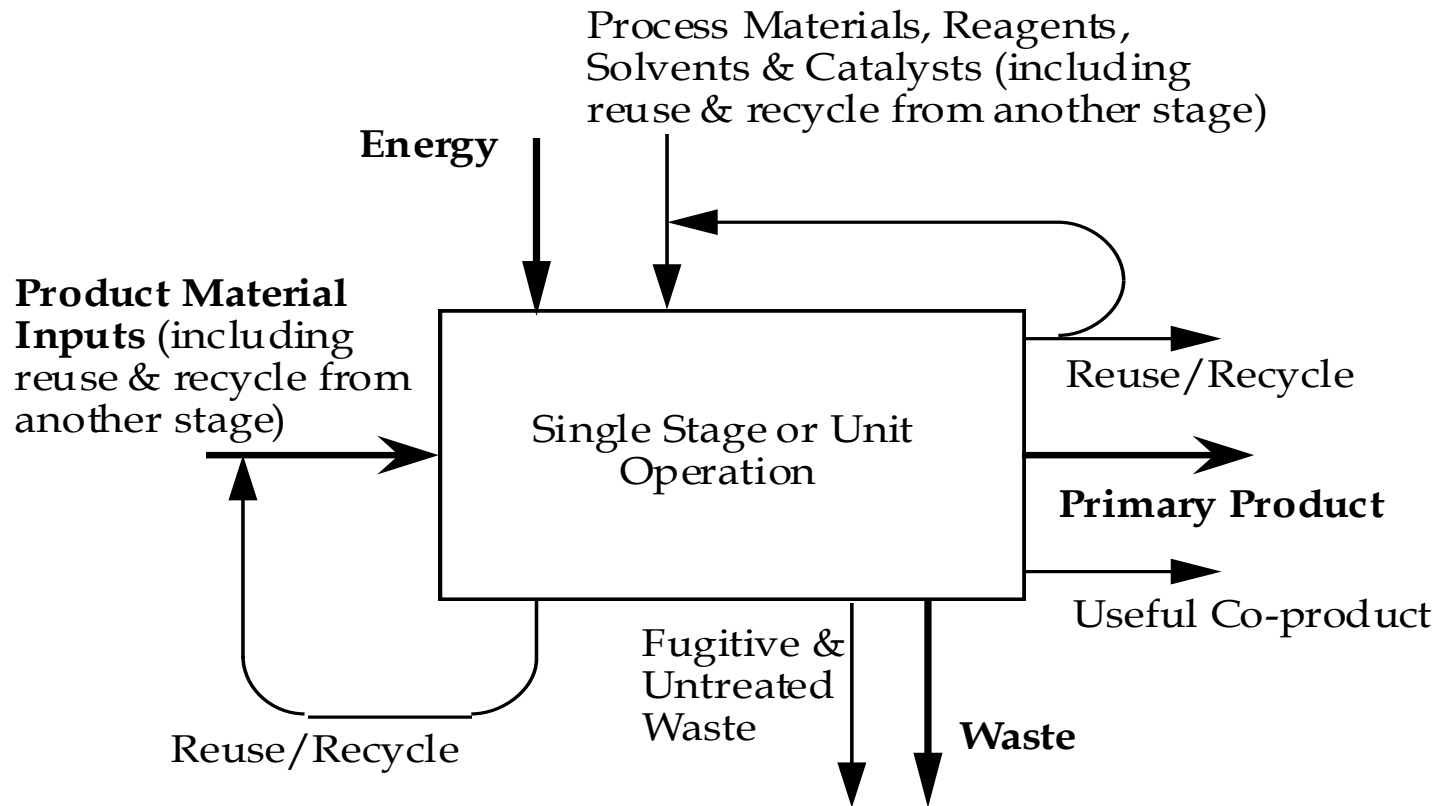
(CNN)

# Step 2: Inventory Analysis

1. Make process tree or flow chart classifying events in a product's life cycle
2. Determine all mass and energy inputs and outputs
3. Collect relevant data
4. Make assumptions for missing data
5. Establish (correct) material and energy balance(s) for each stage and event

# Step 2: Inventory Analysis (cont.)

Input/output diagram for single stage or unit operation



Source: EPA Life-Cycle Design Guidance Manual, EPA Report no. EPA/600/R-92/226, p. 104.

# Step 2: Coffee Maker

Understand the product components & materials first



Good View



Top (internal) View



Rested (bottom) View



Heater View

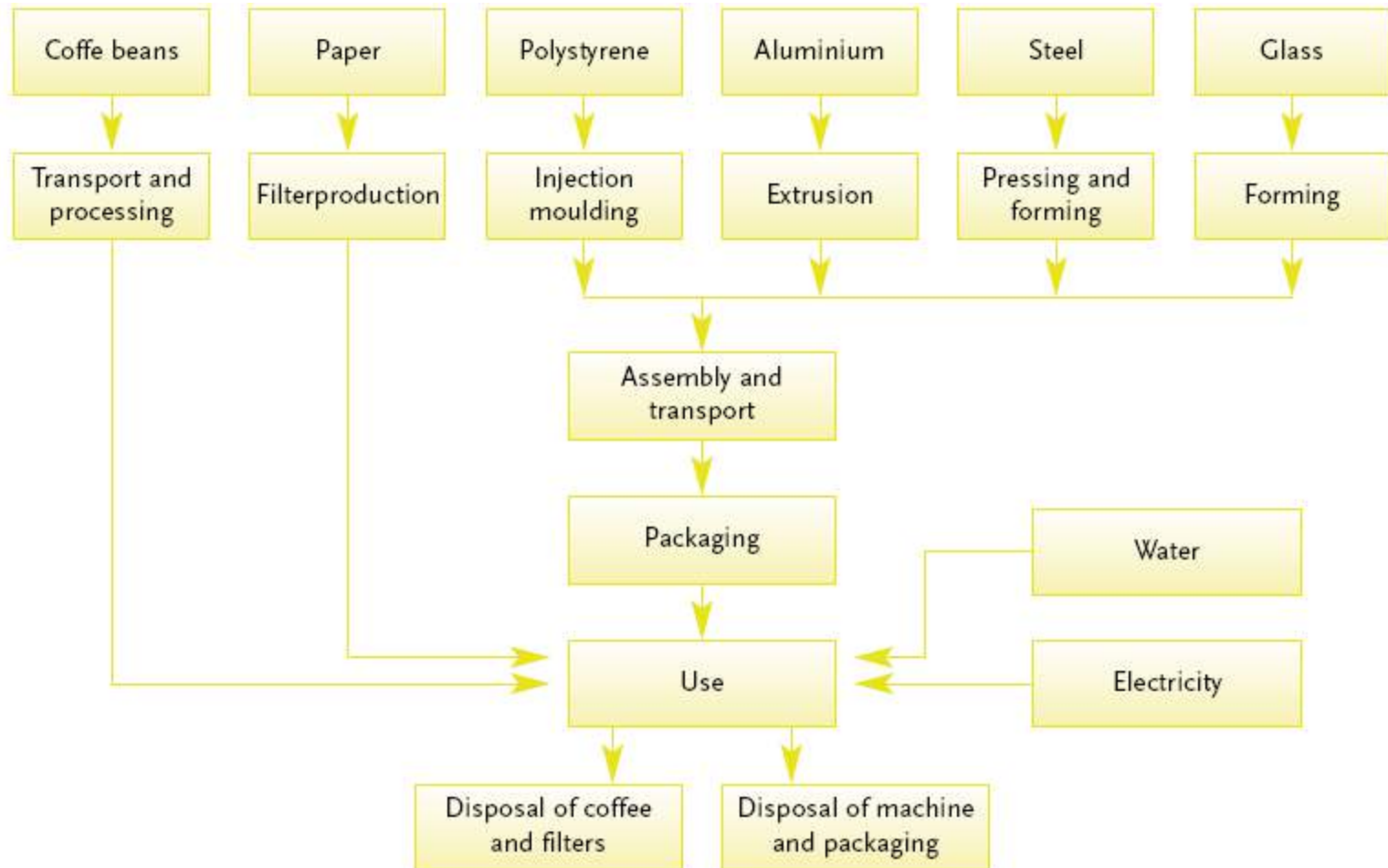


Bottom (internal) View

Source: <http://home.howstuffworks.com/coffee-maker.htm>

# Step 2: Coffee Maker

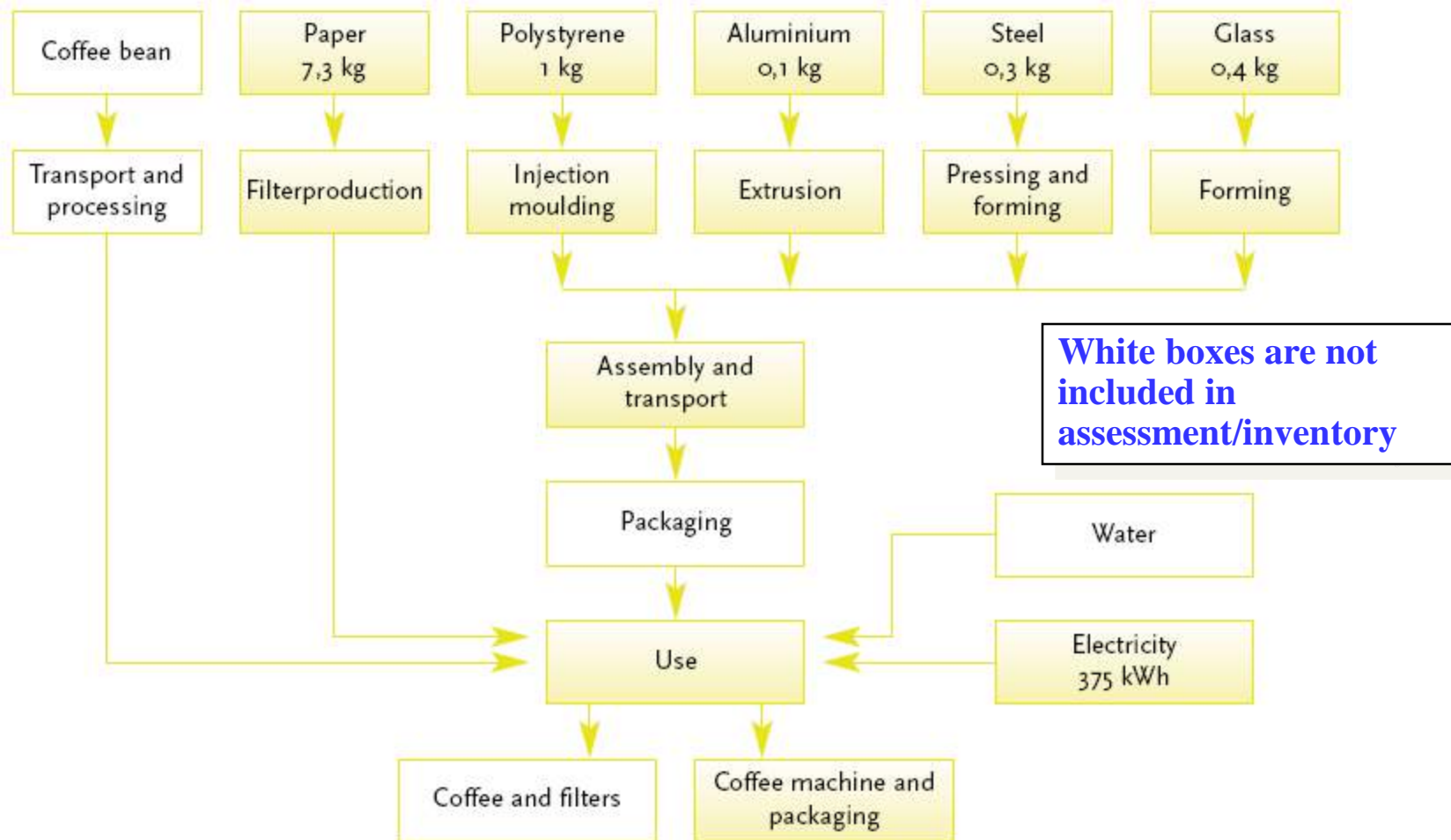
Simplified process tree for coffee maker



Source: [http://www.pre.nl/download/EI99\\_Manual.pdf](http://www.pre.nl/download/EI99_Manual.pdf)

# Step 2: Coffee Maker (cont.)

## Lifecycle inventory for coffee maker



Source: [http://www.pre.nl/download/EI99\\_Manual.pdf](http://www.pre.nl/download/EI99_Manual.pdf)

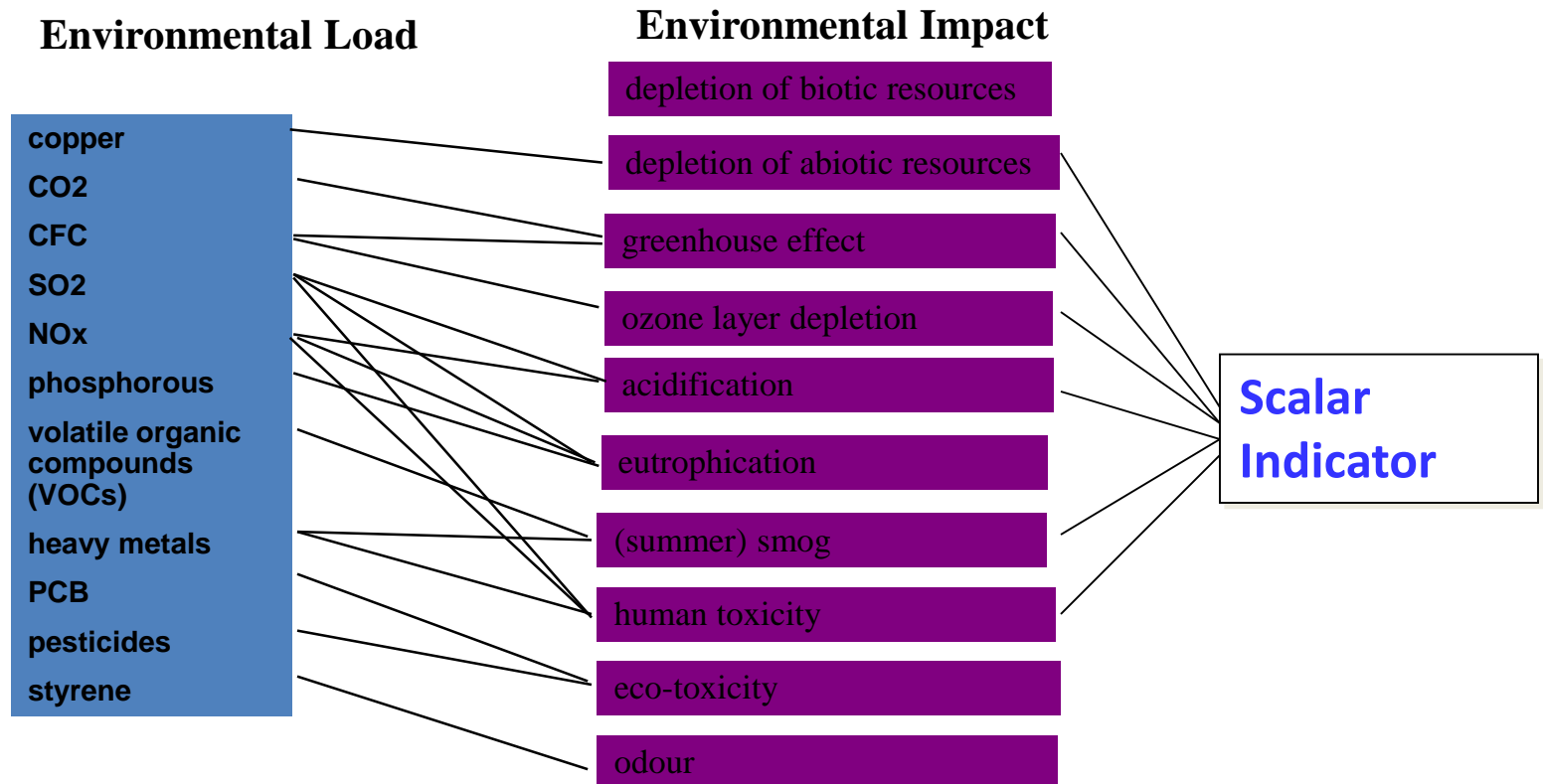
# Difficulties & Limitations of Step 2

- Finding data is hard and usually very time-consuming
  - Published data on material loads exists, but is often inconsistent and/or not directly applicable
- Obtained data is usually discrete, static and linear (makes many simplifying assumptions)
  - Mistakes are easily made in quantification
  - Mass and energy balances may not be correct
  - Results can be generalized improperly



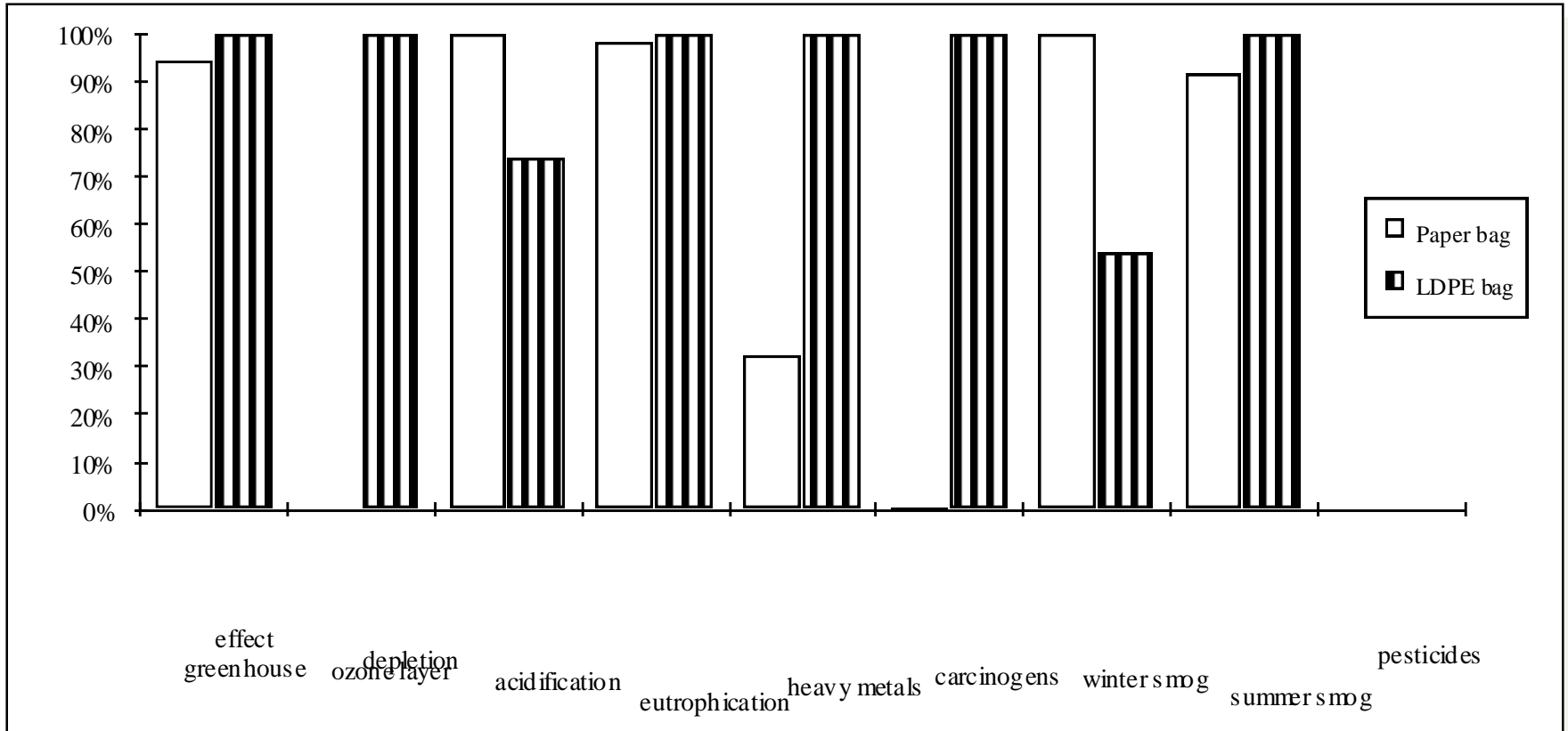
# Step 3: Impact Analysis

1. Define impact categories
2. Determine which loads affect different impact categories
3. Assign indicators to impact categories
4. Weigh importance of each category



# Step 3: Paper or Plastic?

Which is better?...



This is one reason why some folks prefer scalar vectors...

# Step 3: Coffee Maker

<b>Production</b> (Materials, treatments, transport and extra energy)			
material or process	amount	indicator	result
polystyrene	1 kg	360	360
injection moulding PS	1 kg	21	21
aluminium	0,1 kg	780	78

<b>Use</b> (Transport, energy and possible auxiliary materials)			
process	amount	indicator	result
electricity low-voltage	375 kWh	37	13.875

<b>Disposal</b> (Disposal processes for each material type)			
material and type of processing	amount	indicator	result
municipal waste, PS	1 kg	2	2
municipal waste, ferrous	0,4 kg	-5,9	-2,4
household waste, glass	0,4 kg	-6,9	-2,8
municipal waste, paper	7,3 kg	0,71	5,2
Total [mPt]			2
<b>Total [mPt] (all phases)</b>			<b>15.114</b>

Source: [http://www.pre.nl/download/EI99\\_Manual.pdf](http://www.pre.nl/download/EI99_Manual.pdf)

# Difficulties & Limitations of Step 3

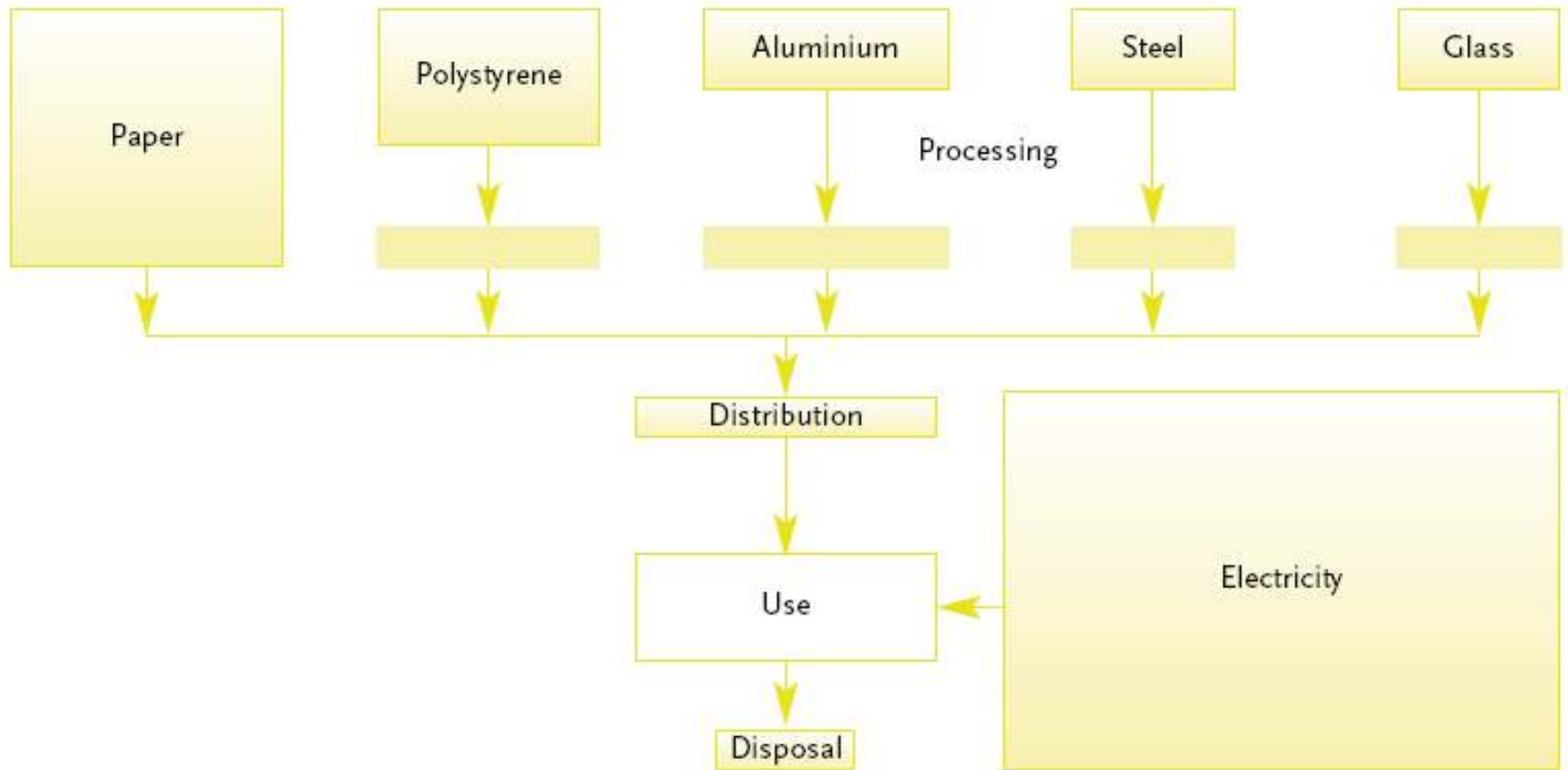
- **Subjective**, subjective, subjective
  - Impact categories chosen
  - Indicators chosen for impact categories
  - How metrics / load affect impact indicators
  - Weightings used for impact categories
- **Where** are the impacts **occurring**?
  - U.S., Europe, Brazil?
- Is there **damage already** in the area being impacted?
- **How much** can that area take before it breaks down? Or can it handle it without any problems?
- How are managers and engineers supposed to know the effects of every load on the different impacts?

# Step 4: Improvement Analysis

1. Identify areas & opportunities for improvement
2. Evaluate wrt original goal definition
3. Target lifecycle areas/processes/events with large impacts
  - Large amounts w/ low hazard
  - Small amounts w/ high hazard
4. Ask yourself:
  - What are the resources required and risks involved?

# Step 4: Coffee Maker

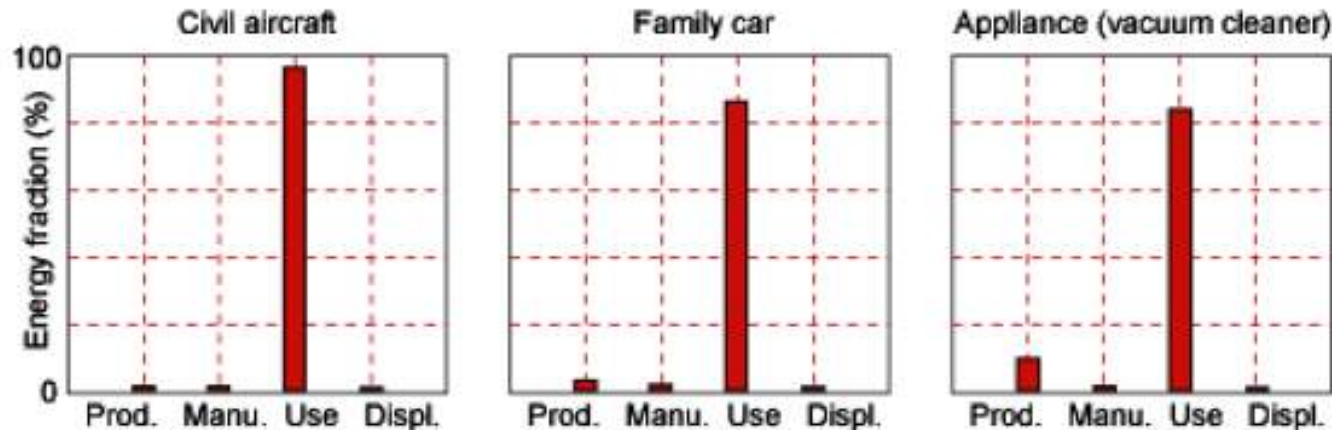
How to improve coffee maker? Where should we focus?



Source: [http://www.pre.nl/download/EI99\\_Manual.pdf](http://www.pre.nl/download/EI99_Manual.pdf)

# General Comments

- Domestic coffee maker is simple product
  - How would it be different from a commercial coffee maker (Starbucks)?
- It is fairly representative of appliances - main impact is use phase
  - What other products is their main impact the use phase?

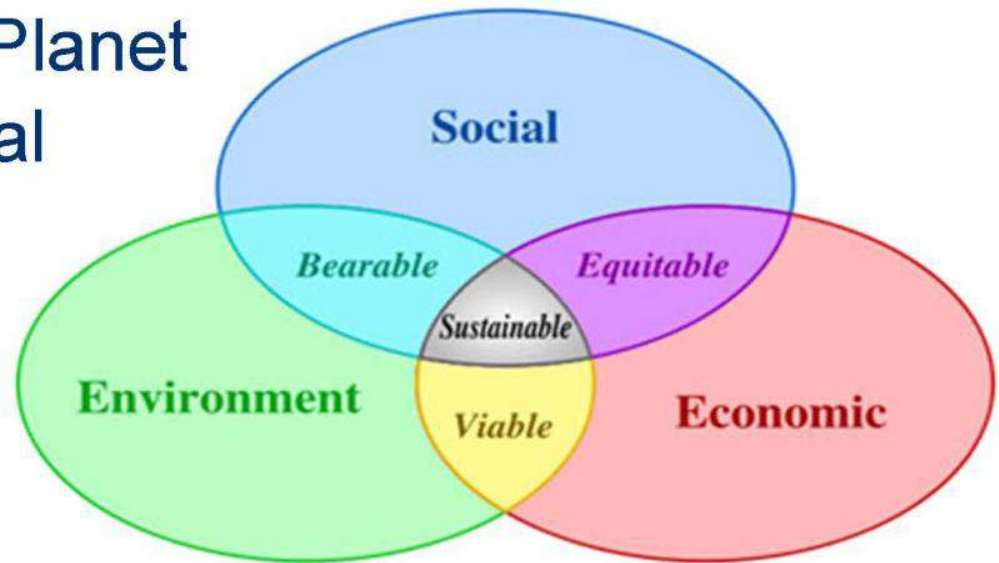


- Which products is their main impact the production or disposal phase?

**Table Source & Figures from 1<sup>st</sup> Slide:** Ashby and coauthors, 2004, "The CES Eco-Selector – background reading", 2<sup>nd</sup> edition, University of Cambridge and Granta Design, pp. 1-32.

# Triple Bottom Line

- Expanded criteria for organisational performance management
- People, Profit, Planet
- Corporate Social Responsibility





# Creating Shared Value

HBR.ORG  
**Harvard  
Business  
Review**

JANUARY-FEBRUARY 2011  
REPRINT R1101C

THE BIG IDEA

## Creating Shared Value

How to reinvent capitalism—and unleash a wave of innovation and growth by Michael E. Porter and Mark R. Kramer

**CSR** → **CSV**

- › Value: doing good
  - › Citizenship, philanthropy, sustainability
  - › Discretionary or in response to external pressure
  - › Separate from profit maximization
  - › Agenda is determined by external reporting and personal preferences
  - › Impact limited by corporate footprint and CSR budget
  - Example:** Fair trade purchasing
- › Value: economic and societal benefits relative to cost
  - › Joint company and community value creation
  - › Integral to competing
  - › Integral to profit maximization
  - › Agenda is company specific and internally generated
  - › Realigns the entire company budget
  - Example:** Transforming procurement to increase quality and yield

In both cases, compliance with laws and ethical standards and reducing harm from corporate activities are assumed.

Mehdi Shahbazpour, 2017

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**MICHAEL PORTER**

TED  
Talks

▶ ⏪ 🔊 0:13 / 16:28

📄 ⚙️ HD 📺 🗉

<https://www.youtube.com/watch?v=0ilh5YYDR2o>

# THE 7 SINS OF GREEN- WASHING



- 1 SIN OF THE HIDDEN TRADE-OFF:** committed by suggesting a product is "green" based on an unreasonably narrow set of attributes without attention to other important environmental issues. Paper, for example, is not necessarily environmentally-preferable just because it comes from a sustainably-harvested forest. Other important environmental issues in the paper-making process, including energy, greenhouse gas emissions, and water and air pollution, may be equally or more significant.
- 2 SIN OF NO PROOF:** committed by an environmental claim that cannot be substantiated by easily accessible supporting information or by a reliable third-party certification. Common examples are tissue products that claim various percentages of post-consumer recycled content without providing any evidence.
- 3 SIN OF VAGUENESS:** committed by every claim that is so poorly defined or broad that its real meaning is likely to be misunderstood by the consumer. "All-natural" is an example. Arsenic, uranium, mercury, and formaldehyde are all naturally occurring, and poisonous. "All natural" isn't necessarily "green".
- 4 SIN OF IRRELEVANCE:** committed by making an environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products. "CFC-free" is a common example, since it is a frequent claim despite the fact that CFCs are banned by law.
- 5 SIN OF LESSER OF TWO EVILS:** committed by claims that may be true within the product category, but that risk distracting the consumer from the greater environmental impacts of the category as a whole. Organic cigarettes might be an example of this category, as might be fuel-efficient sport-utility vehicles.
- 6 SIN OF FIBBING:** the least frequent Sin, is committed by making environmental claims that are simply false. The most common examples were products falsely claiming to be Energy Star certified or registered.
- 7 SIN OF WORSHIPING FALSE LABELS:** The Sin of Worshiping False Labels is committed by a product that, through either words or images, gives the impression of third-party endorsement where no such endorsement actually exists; fake labels, in other words.