



**4<sup>th</sup> International Conference on:  
Life Cycle Assessment in the Agri-food sector  
Bygholm Park Hotel, Horsens, Denmark, October 6-8, 2003**



**Life Cycle Thinking for Food Industry  
Sectors – a Global Perspective**

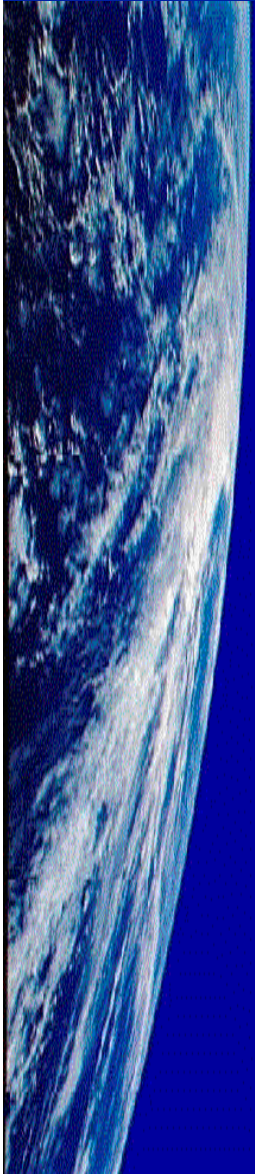
*by Anne Solgaard  
UNEP DTIE*

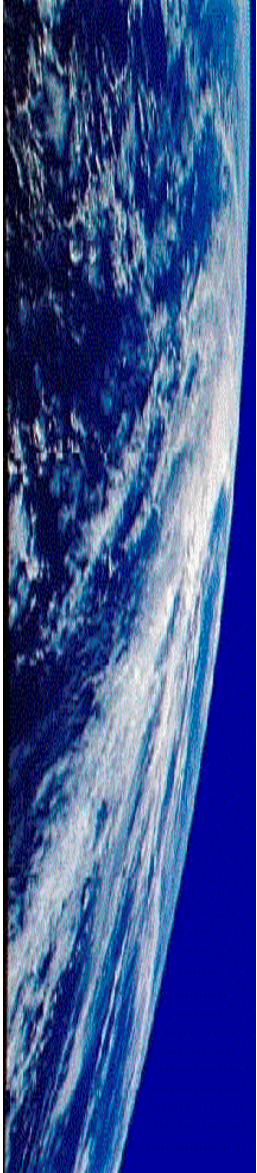




# overview

- ✓ *UNEP – who we are and what we do*
- ✓ *Sustainable Development – a challenge for all*
- ✓ *Sustainable consumption and production(SCP)*
- ✓ *Agri-food & LC approaches (LCM)*
- ✓ *UNEP SETAC Life Cycle Initiative*
- ✓ *Information to leverage change*
- ✓ *Summary*





# did you know?

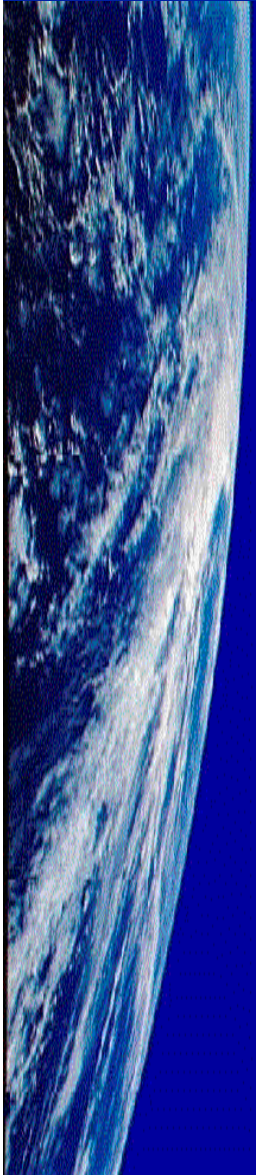
- That if we continue to consume as much food, other goods and services as we do, two out of every three persons on Earth will live in water-stressed regions by the year 2025?
- That the volume of goods and services we consume and discard is offsetting any improvements in production efficiency that Europeans and North Americans made over the past 20 years?
- That exposure to hazardous chemicals from the manufacture, use and disposal of products has been linked to birth defects and cancer in humans?
- That every year, the use of pesticides results in 3.5 to 5 million acute poisonings around the world?
- That toxic substances like mercury and pollutants such as chlordane and DDT are still accumulating in human tissues, in our planet's polar regions and other sensitive ecosystems?
- That in 1999, the average persons used 2.3 hectares of productive land and sea – considerably more than 1.9 hectares, which is the earth's carrying capacity?
- Our population and our consumption are growing at such a rate that we'll need 4 planets to sustain us by the year 2100.





# UNEP - Mission

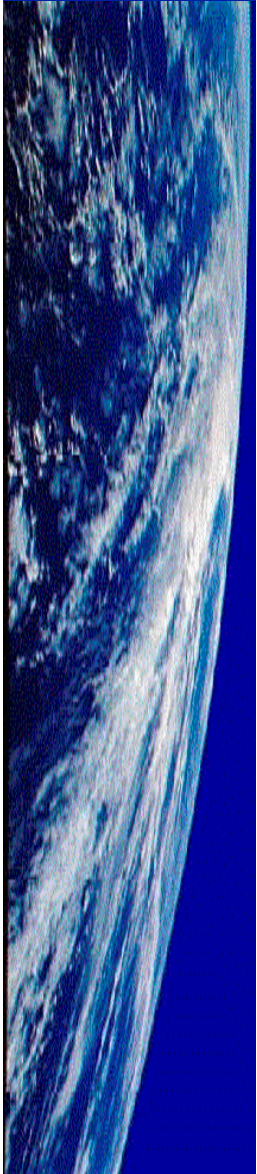
*To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.*





# UNEP - 3 roles

- Assess the State of the World's Environment & Understand Env. Challenges (GEO);
- Stimulate solutions to environmental problems
  - ✓ Promoting International Environmental Law
  - ✓ Voluntary Initiatives
- Build capacity and networks to enable implementing solutions





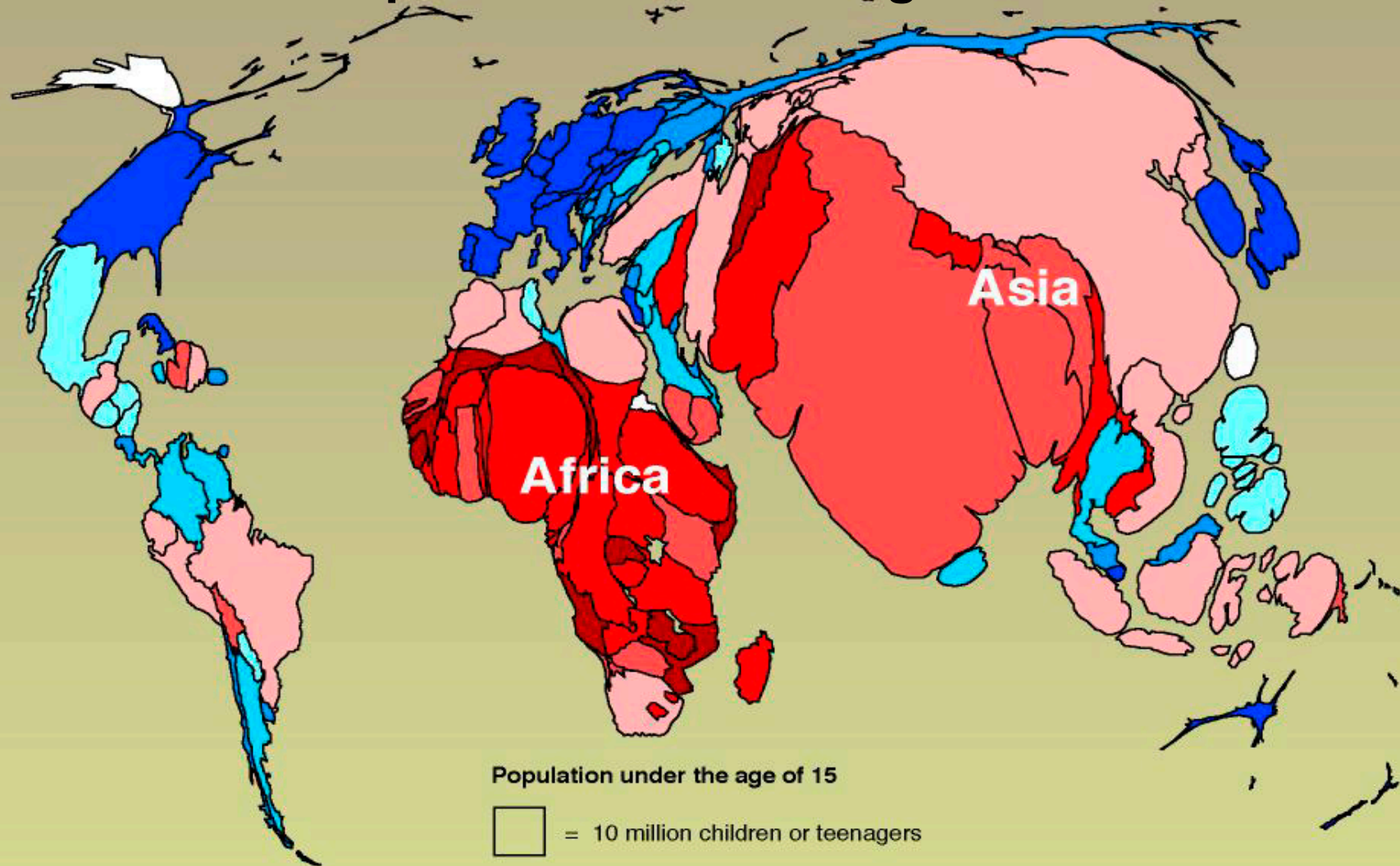
# promoting sustainability: a challenge for all

*“Our biggest challenge in this new century is to take an idea that seems abstract - sustainable development - and turn it into a daily reality for all the world’s people.”*


*Kofi Annan, UN Secretary General, March 2001*



# Population under the age of 15



## Population under the age of 15

 = 10 million children or teenagers

## Infant mortality rate (infant deaths per 1 000 live birth)

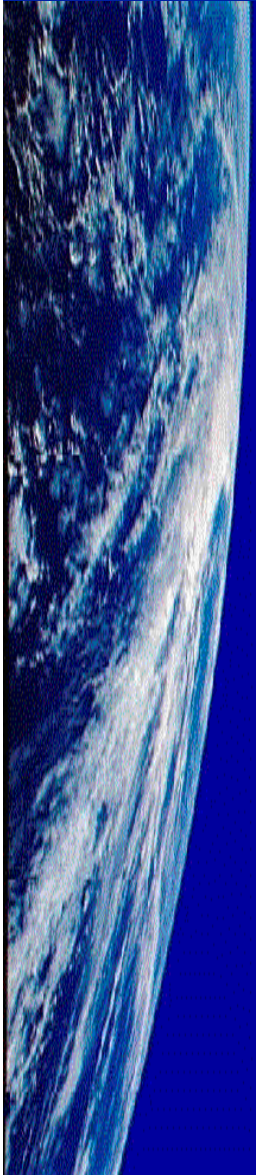






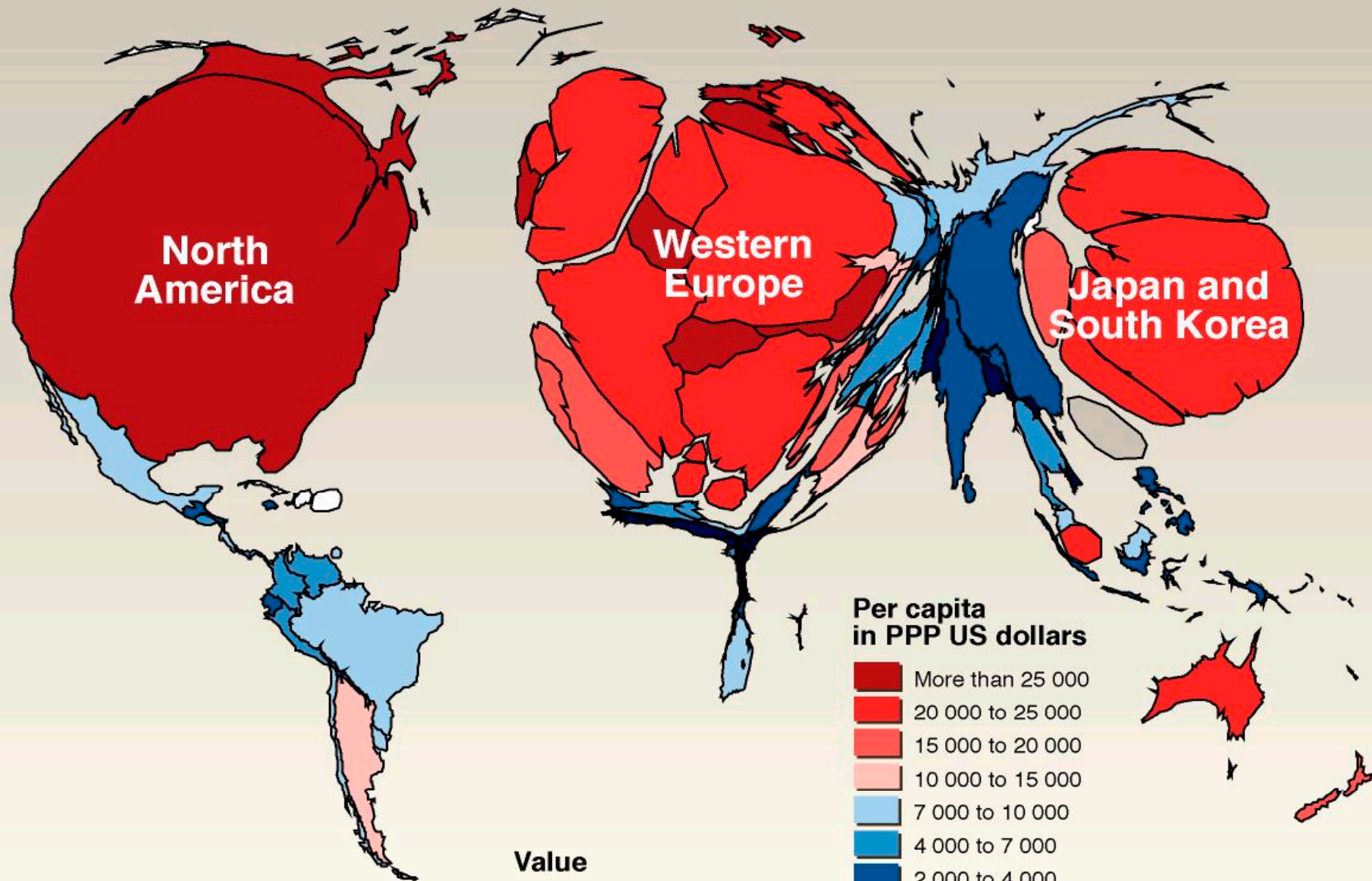
# inequalities in consumption

- ◆ 1.3 billion people live on less than 1 US dollar a day.
- ◆ The overall consumption of the richest fifth of the world's population is 16 times that of the poorest fifth;
- ◆ Nearly 160 million children are malnourished.
- ◆ More than 880 million people lack access to health services
- ◆ 1.5 billion lack access to sanitation and clean water.





# Gross Domestic Product

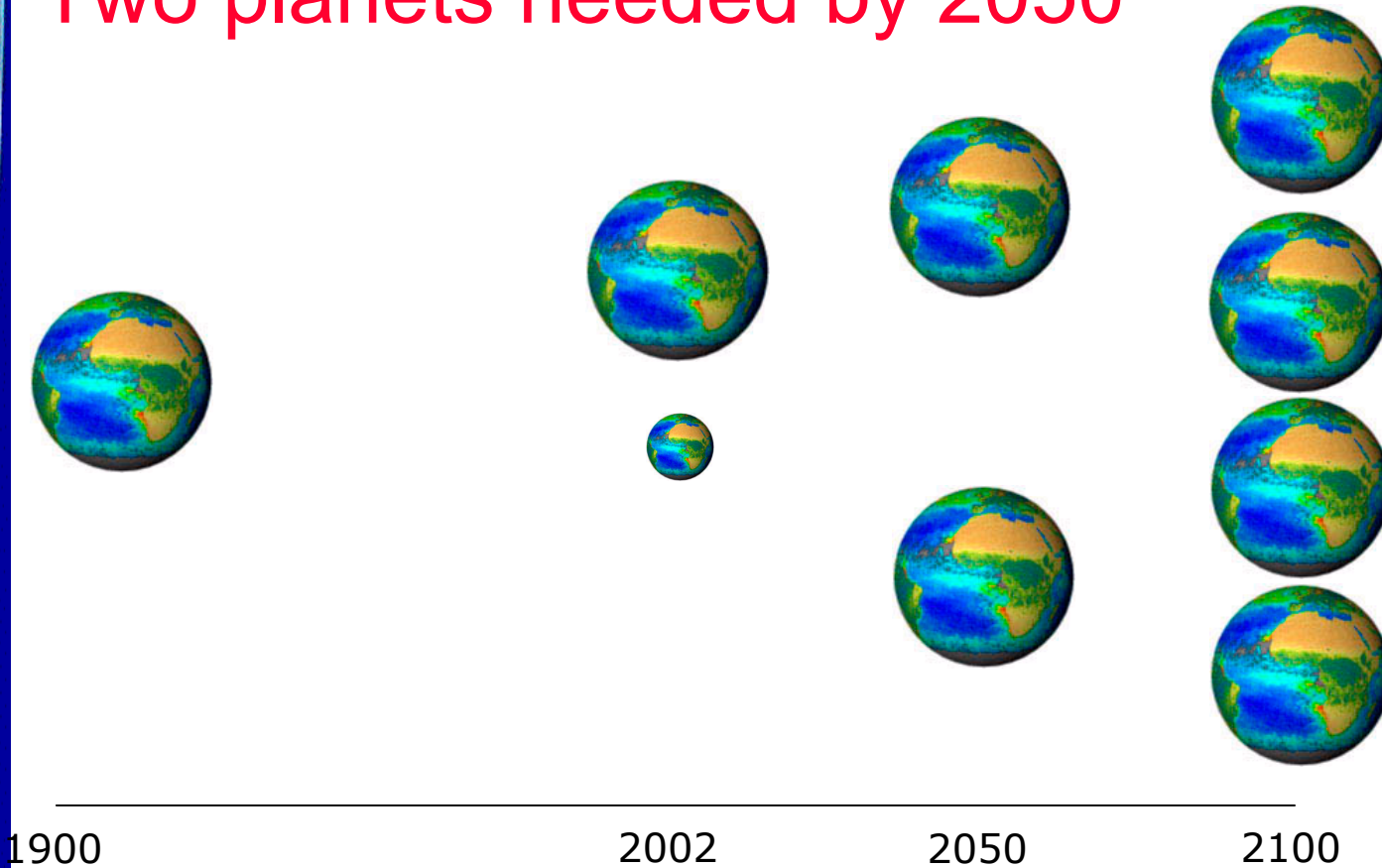




# sustainable development, a long-term issue (1)

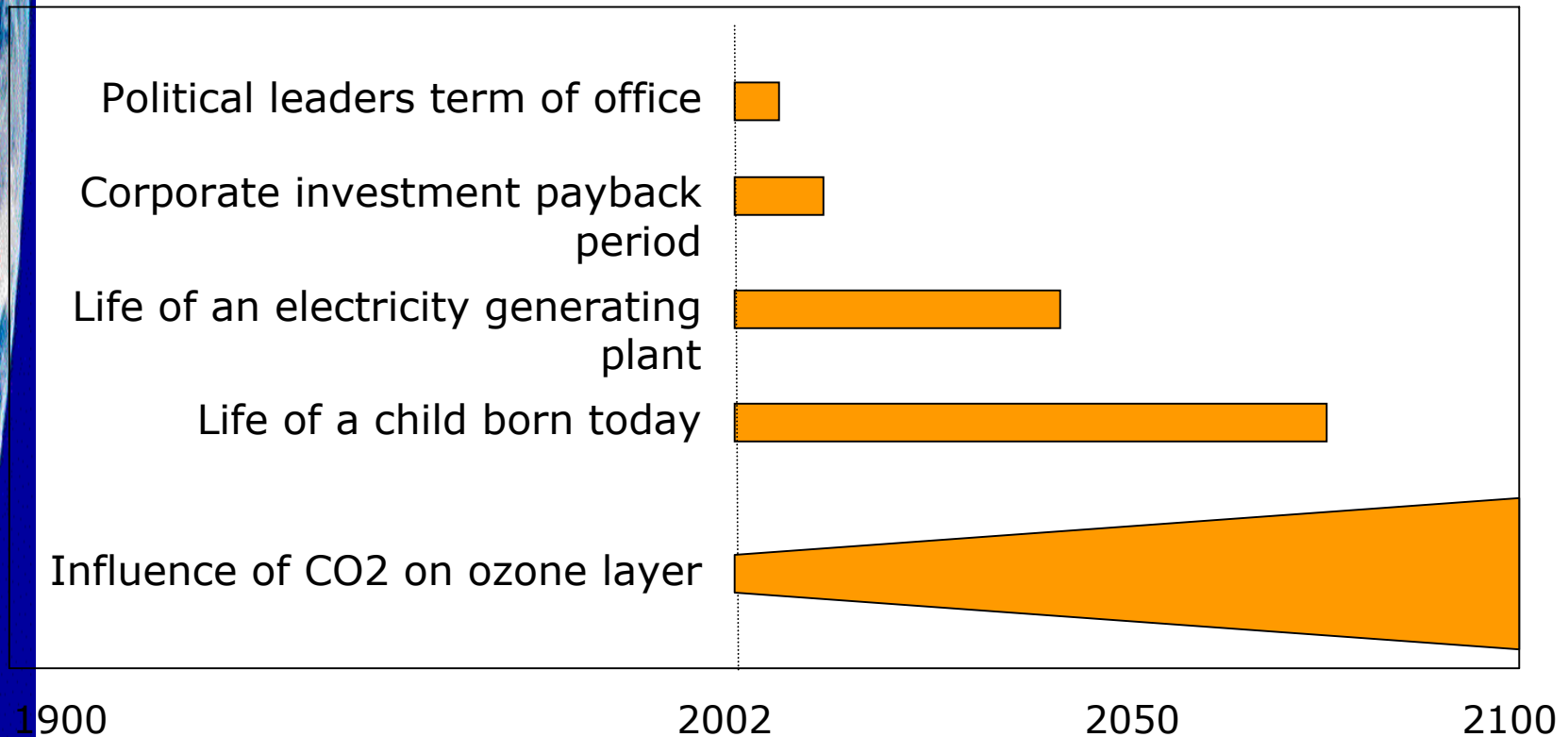
If we go on with current production and consumption patterns,

**Two planets needed by 2050**





# sustainable development, a long-term issue (2)

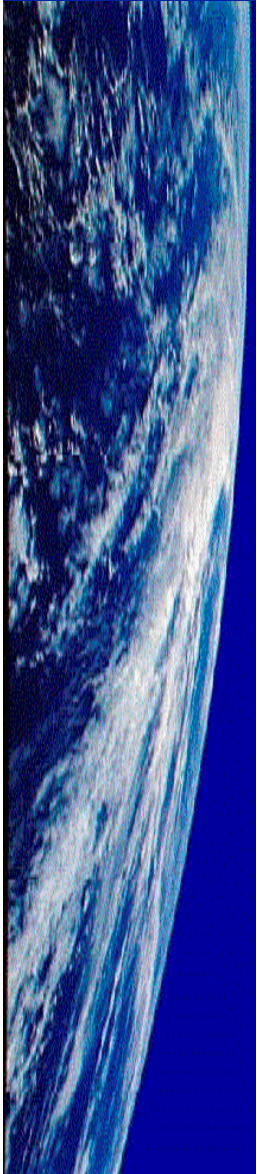






# renewed support - a call for action!

- Sept. 2002: Johannesburg plan of implementation.
  - Feb. 2003: UNEP Global Environment Ministers Forum & Governing Council
  - March - June 2003: Various Global & Regional meetings on SCP.
  - June 2003: Global expert meeting in Marrakech.
- ✓ ***Aim: Framework of programmes on SCP***

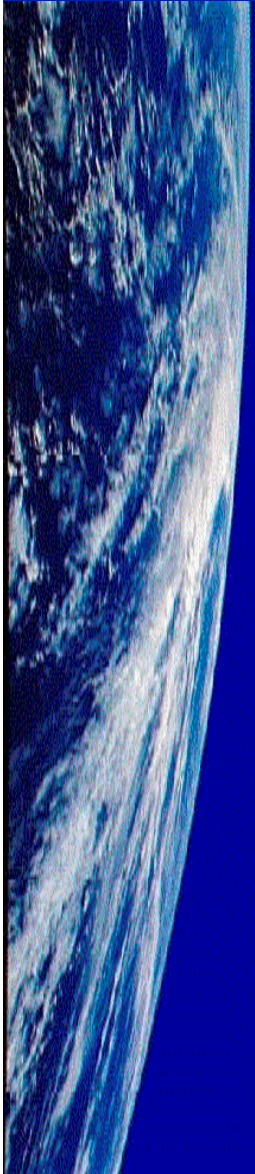
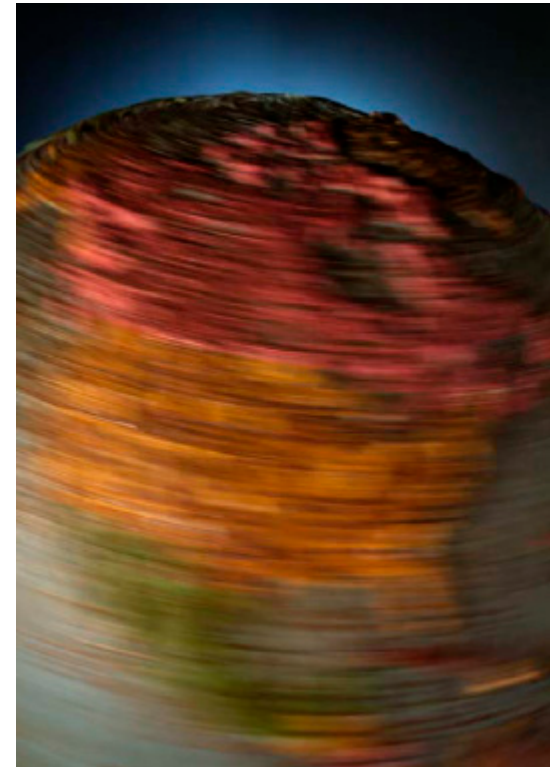


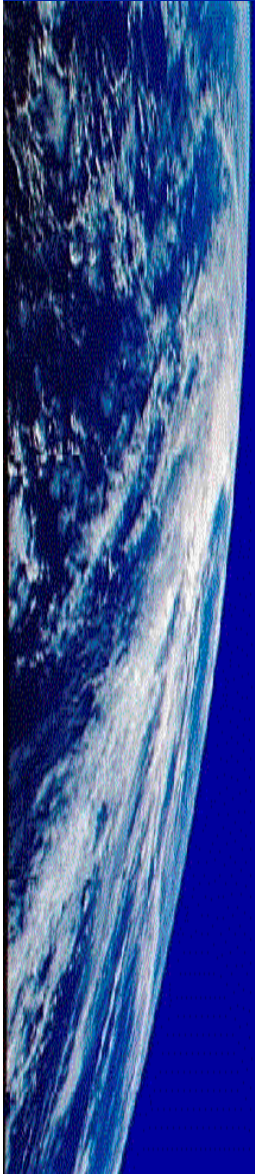


# from cleaner production to sustainable consumption

“Fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development. All countries should **promote sustainable consumption and production patterns**, with the developed countries taking the lead and with all countries benefiting from the process...”  
apply **“science-based approaches, such as life-cycle analysis...”**

Ch. 3 of plan of implementation from  
WSSD





***“Human needs should be met by products and services that are aimed at specific ‘functions’ such as food, shelter and mobility, and that are provided through optimized consumption and production systems that do not exceed the capacity of the ecosystem.”***

***Life Cycle Initiative Brochure,  
UNEP SETAC, ‘International  
Partnership’, 2003.***



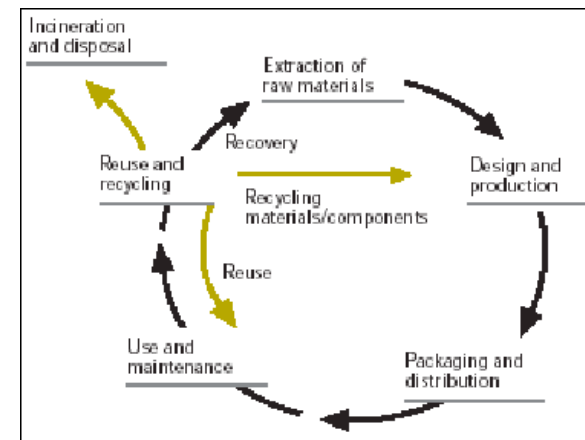


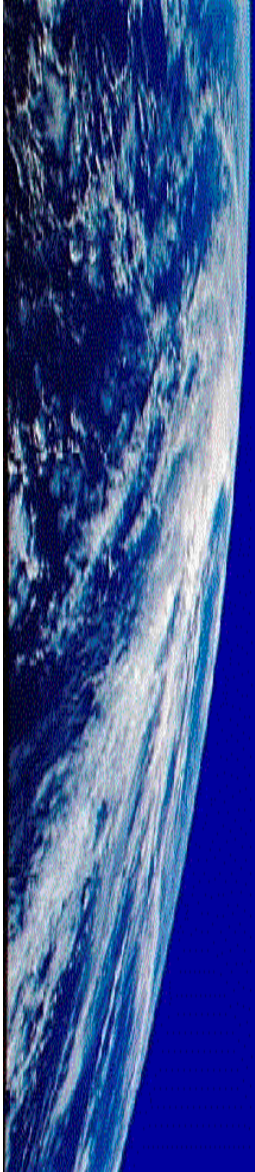


## a life cycle approach helps us:

- make choices that **generate** economic value, improve our natural environments and strengthen our social systems;
- recognize **how our choices** – such as buying milk, bread and shrimp – are one part of a whole system of events;
- recognize how our choices **influence each of these stages**, so we can choose to make positive impacts on the economy, the environment and society.

**A life cycle starts with raw materials and energy generation, then includes manufacturing and transport, use (baking & cooking) and eventually final disposal or recycling.**





# current situation: a quick assessment

- Productivity/efficiency gains being overtaken by production increases (rebound effects)
- Problems of production process understood but those of the use and disposal of a product still largely unknown
- New developing sectors posing increasing threats (e.g. gmo's, tourism)
- Environmental concerns not integrated into economic and social programmes and vice versa (link and de-link)



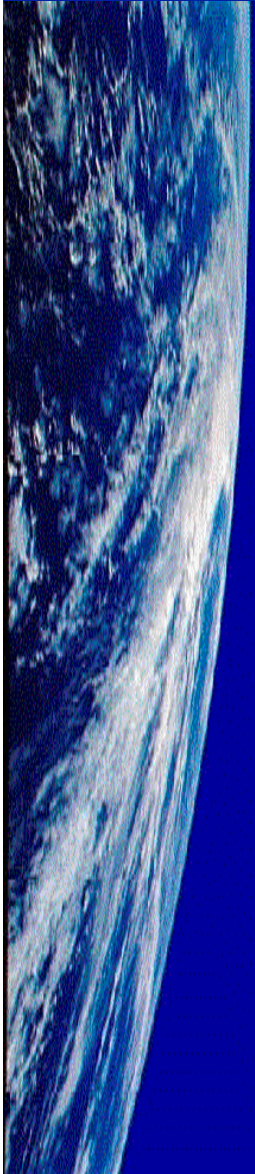
# why life-cycle management ?

## From business point of view:

- tap **additional gains** in productivity/eco-efficiency
- improve product/service design and **foster product innovation**
- **manage supply chain** more effectively
- respond to the rising-bars of **governmental regulations** and reduce comply costs

## From government point of view:

- **prevent pollution** and responsibilities being shifted along the product life-cycle (e.g. pollution during consumption)
- integrate **environmental policy** into sector policy systems
- identify the **key intervention** points and maximize environmental gain
- **communicate effectively** with both producers and consumers



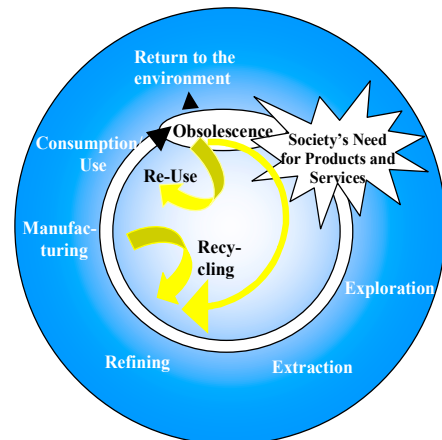




# what is UNEP doing on LCM? (1)

## UNEP/SETAC LC initiative

- **Life Cycle Management Programme** (*Focusing on the practical application of life cycle based tools*)
- **Life Cycle Inventory Programme** (*improve availability, quality, transparency and the use of data*)
- **Life Cycle Impacts Assessment programme** (*methodology development for impact evaluation*)



Life Cycle  
Initiative

The logo for the Life Cycle Initiative, featuring a stylized circular design with four curved segments in green, red, yellow, and blue, arranged in a clockwise spiral.



## what is UNEP doing on LCM? (2)

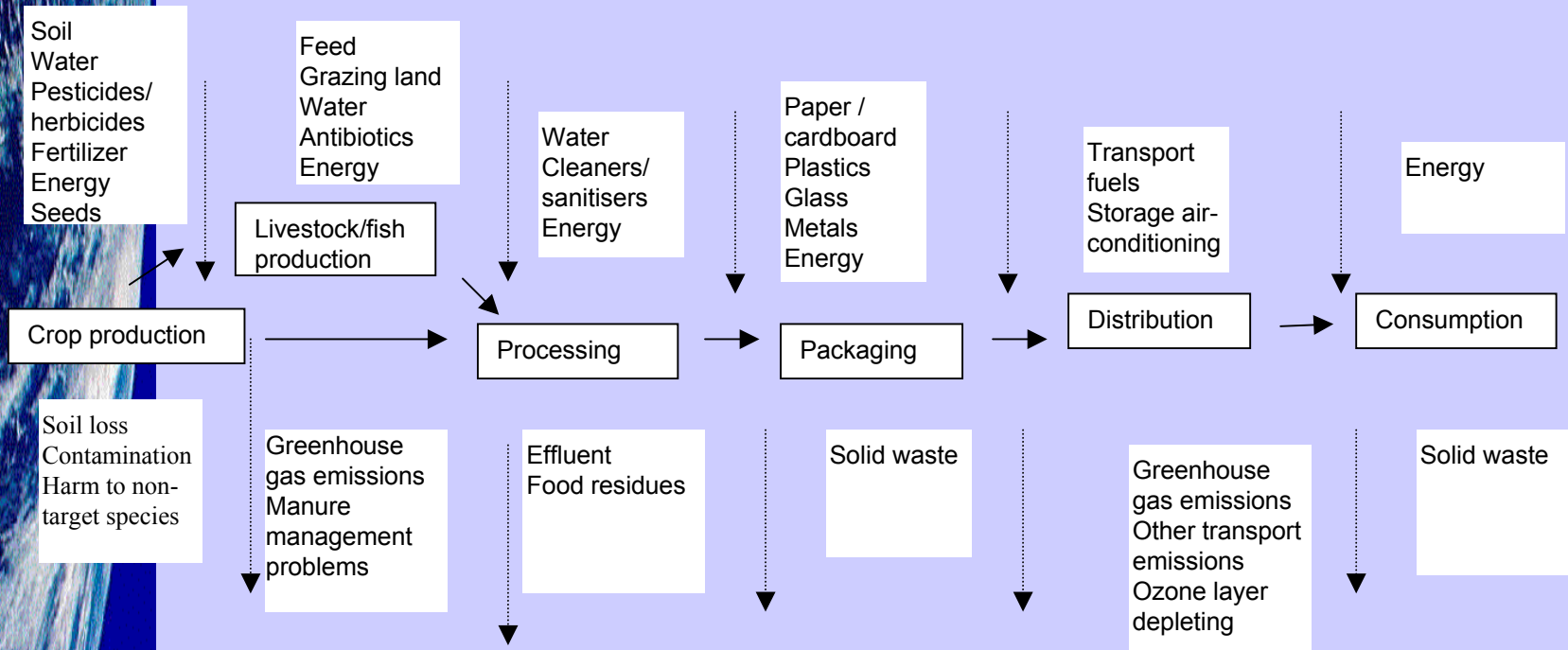
**Promoting the use of LCM in business practices and policy making by:**

- *providing information on environmental impacts of product life-cycle (e.g. agri-food);*
- *developing communication materials on life-cycle approach;*
- *developing case studies on application of life-cycle thinking in policy making.*





# life-cycle approach in agri-food

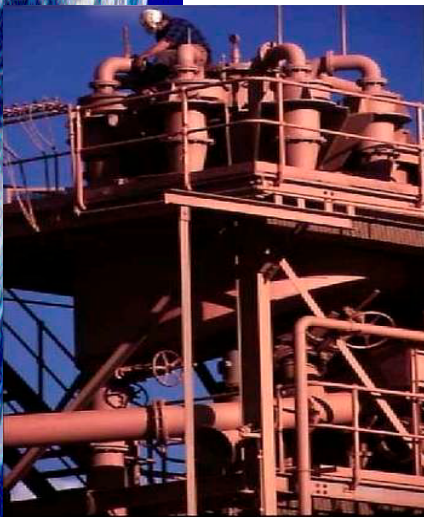
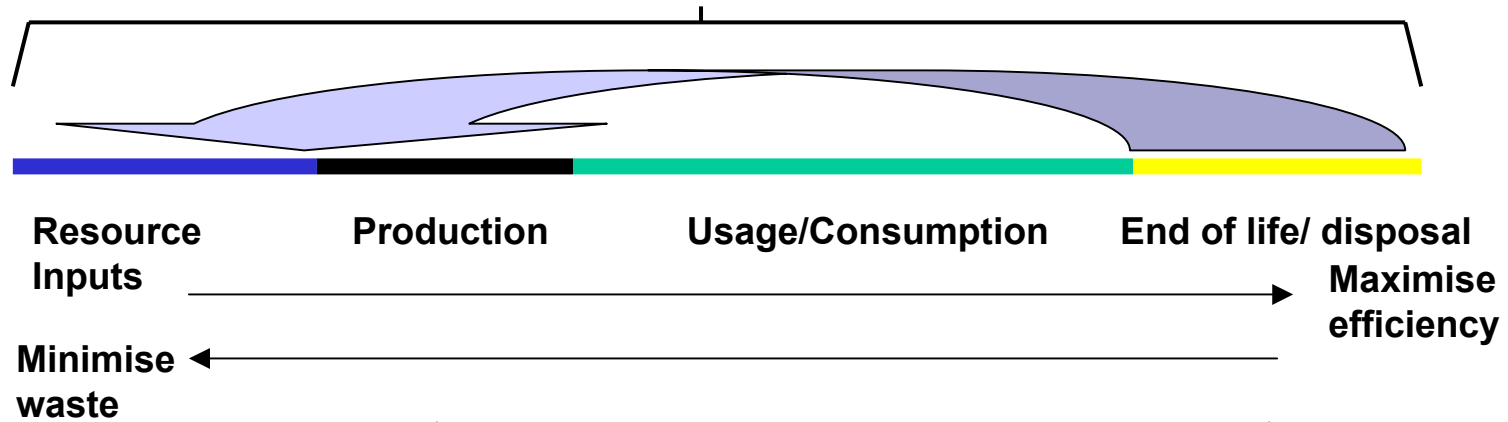




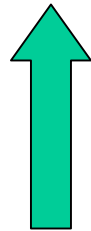


# “life cycle view” of policy

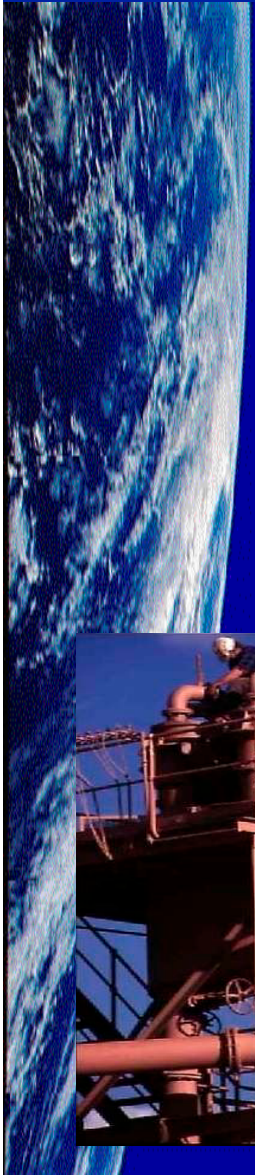
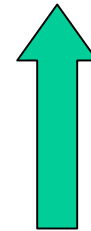
Whole of Life Cycle Focus = Sustainability Covenants



Trad. focus of governments



Trad. focus of governments





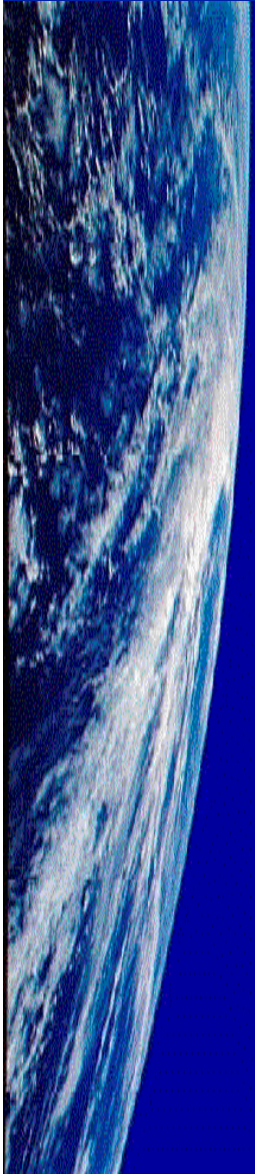
# findings of policy case studies

- The life cycle based thinking and tools are gradually taking up by government in policy making (e.g. IPP)
- Life cycle thinking has helped government to target environmental efforts better (e.g. energy consumption in food production and consumption)
- Life cycle assessment has helped governments to base policies on sound scientific knowledge (e.g. refined packaging taxation scheme)
- Life cycle approach facilitates the integration of environmental consideration into sector policies (e.g. EU's EEE directive)

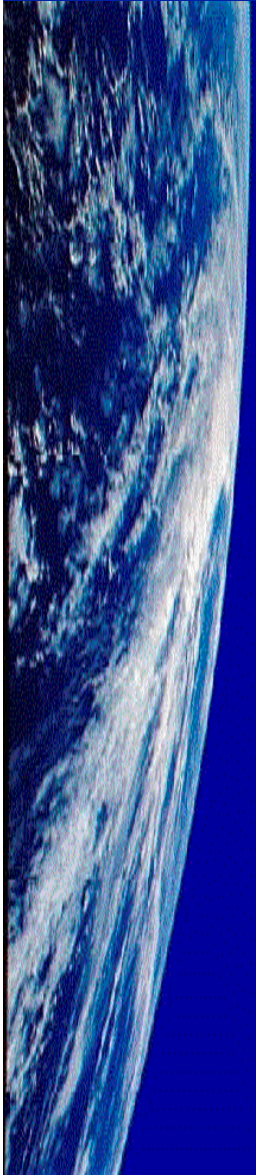


# life cycle approach to pesticides in Costa Rican policy

- Focused on **pesticides used** to grow bananas, strawberries, ferns and flowers.
- **Costa Rican Controller's office** carried out a project in 2002 to bring a scientific, **life cycle based approach** to understanding pesticide use and its consequences on health and the environment in Costa Rica.
- **Twenty-five of the active ingredients** most used in pesticides in Costa Rica in 1998 were analyzed.
- The project found that **5 of the active ingredients** were responsible for roughly **95%** of the impact on **human health**, while 3 of the active ingredients were accountable for **90%** of the impacts on the **environment**.
- This became a powerful tool to **advise other regulatory agencies** (ministry of Agriculture, ministry of Environment, etc.) regarding applications for these significant active ingredients.







*“... It is time to leave behind this piecemeal approach to environment and, to pursue a broader more holistic view of sustainable development through a life cycle approach in our policy making...”*

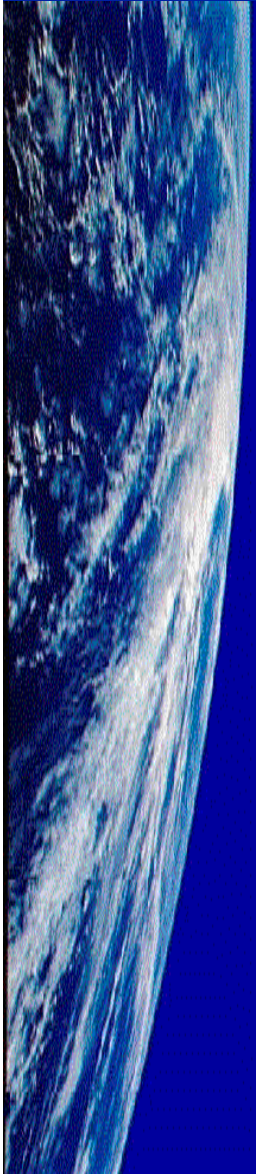
*Federico Malavassi, Vice-President of Costa Rica's Congress,  
opposing a proposed Constitutional Amendment on Environmental  
Matters, May 2002*



# a life cycle approach is not about right or wrong decisions...

*It simply helps us make decisions in context, knowing all stages of the life cycle*

*It is about looking for unintentional impacts of our actions (such as causing irreversible damage to a natural eco-system or supporting un-fair labor conditions and wages) and taking responsibility to prevent those impacts (such as purchasing a wine that is “eco-labeled” or coffee that is certified “fair-trade” or organic).*





## the aim ...

Information and a coherent framework as a 'driver' for sustainable production *and* consumption



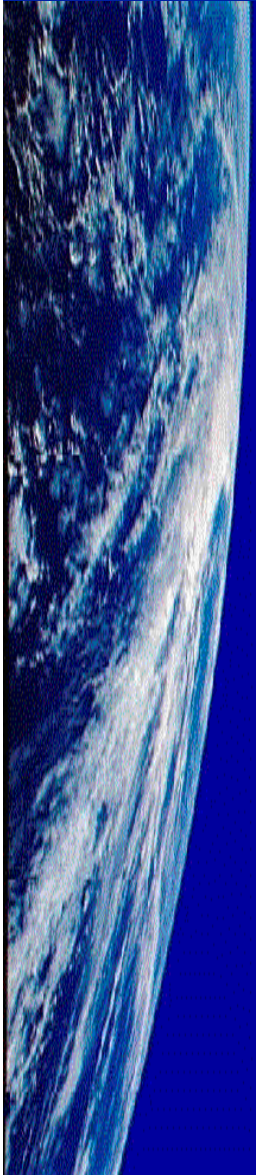
- A well-informed market - policy framework should push the environment harder into the marketplace
- A much bigger quantity of information along the *whole supply chain*
- A proper level of quality - information that is *relevant* (to key impacts) and *accurate* (can be verified)
- Real value for users - information tools that have a *usefulness* for all parties





## in practice – information as a ‘driver’ for sustainable production and consumption

- A well-informed market - policy should push environment harder into the marketplace ➔ ‘stronger’ intervention
- A much bigger quantity of information along the *whole supply chain* ➔ more information
- A proper level of quality - information that is *relevant* (to key impacts) and *accurate* (verified) ➔ better information
- Real value for users - information to a *usefulness* for all parties ➔ should help both sellers and buyers





# environmental management evolutionary “ladder”

Anticipate & prevent

GOAL

Sustainable Development

cleaner production;  
sustainable consumption

Prevent

Control

recycling; treatment

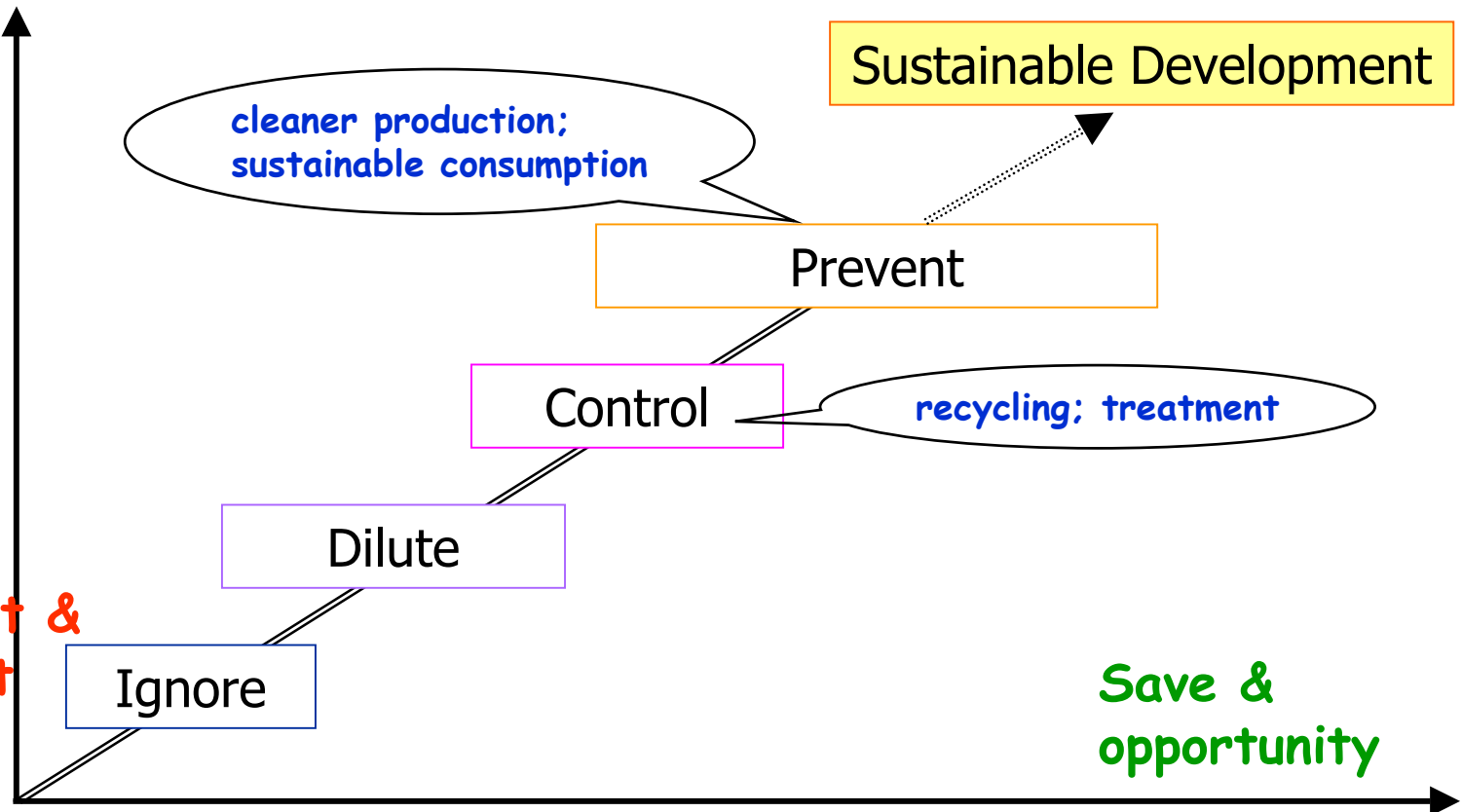
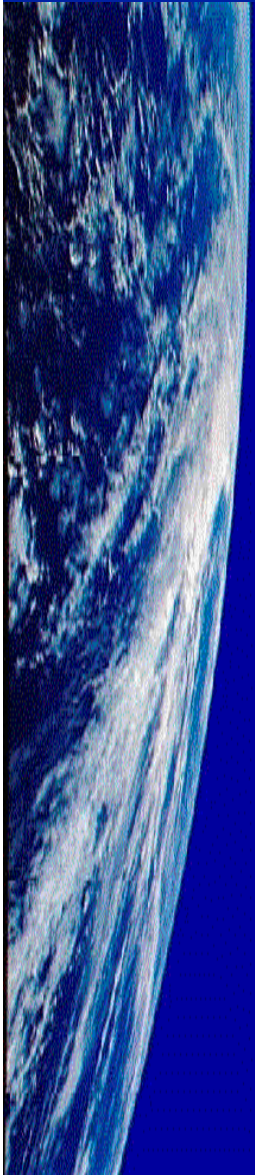
Dilute

React & treat

Ignore

Save & opportunity

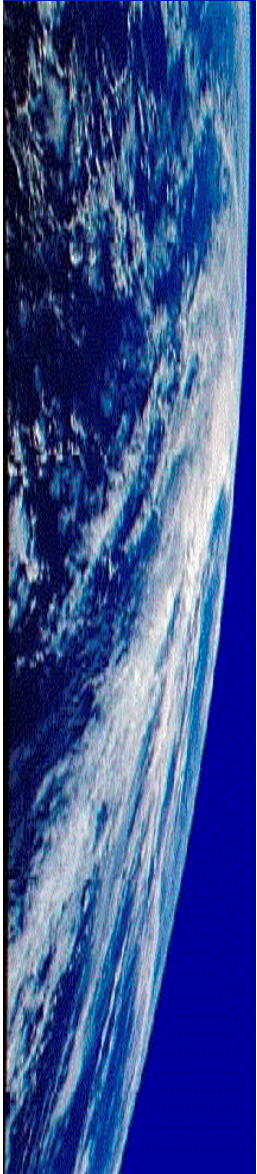
Cost & liability





## UNEP objectives for work on LCA with the agri-food sector

- Promoting life cycle management for the agri-food sector for the benefits of environment and business profit
- Improving eco-efficiency in the sector in all countries
- Encourage life cycle thinking in government policy making
- Encourage scientific work that is easily applicable within government and industry







# how to reach us?

[www.uneptie.org](http://www.uneptie.org)

[www.uneptie.org/pc/agri-food](http://www.uneptie.org/pc/agri-food)

[uneptie@unep.fr](mailto:uneptie@unep.fr) or [asolgaard@unep.fr](mailto:asolgaard@unep.fr)

