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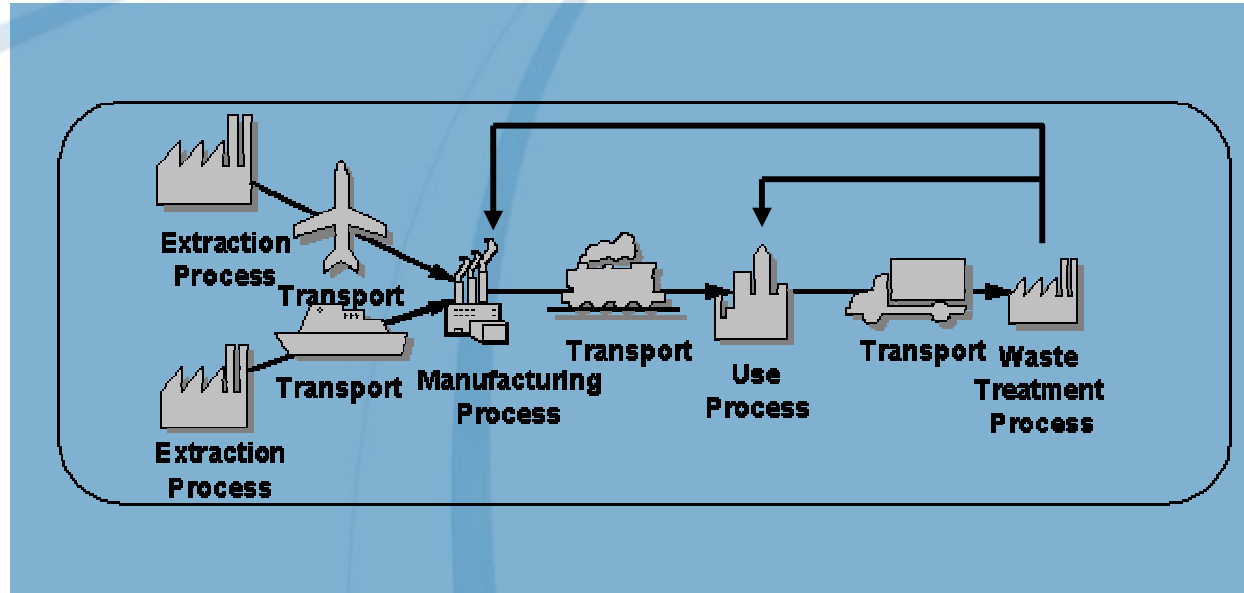
Community research

Life Cycle Thinking in European Policy

Present situation and research perspectives

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Core Theme in:

- Waste Framework Directive – Proposed Changes (2009 ?)
- Strategy for Prevention and Recycling of Waste (2006)
- Strategy for Sustainable Use of Natural Resources (2006)
- Energy using Products (EuP) Directive (2005)
- Environmental Technology Action Plan (2004)
- Integrated Product Policy Communication (2003)
- Strategic Environmental Assessment Directive (2001)



Integrated Product Policy (IPP)

PRINCIPLES – IPP COMMUNICATION (2003)

- Advocate **life-cycle thinking** for goods and services taking action where it is most effective
- **Market approach** – setting incentives
- **Flexible** as to the type of policy measure to be used (e.g. economic measures, standards and labelling, and voluntary agreements, but also mandatory measures)
- Encourage full **stakeholder involvement** (industry, retailers, consumers, authorities)
- **Continuous** improvement



IPP Pilot Products Exercise

This exercise aims to demonstrate how IPP can work in practice by establishing two voluntary pilot projects: on **mobile phones** and on a **tropical wooden garden chair**.

1. **Analysis** of the environmental impacts of the products throughout their life cycle based on available information;
2. **Identification** of options to improve the environmental impact of the products;
3. **Analysis** of the potential social and economic effects of the improvement options identified;
4. **Selection** of the viable options for improvement and different participants making commitments to implement some of the solutions identified;
5. **Implementation** of the commitments made by stakeholders and monitoring of commitments in a year's time.



IPP related Projects and actions

1. Study to identify products with **greatest environmental impact** from a life cycle perspective (**EIPRO**) – JRC-IPTS (2006)
 - food – transportation – buildings
 - further methodology and data development
2. Study to identify **potential for improvement** (**IMPRO**) JRC-IPTS (2007)
 - meat and dairy
 - car transportation
 - housing



Thematic Strategy on Sustainable Use of Natural Resources

- Adopted December 2005. **Long-term** framework – 25 years
- The **whole life cycle** of resource use, avoiding environmental impacts are shifted from one phase to another / other countries
- Creating more value - increasing **resource productivity**
- Reducing overall impact – increasing **eco-efficiency**
- Substituting used resources with better alternatives
- Integration, including into national and sectoral policies

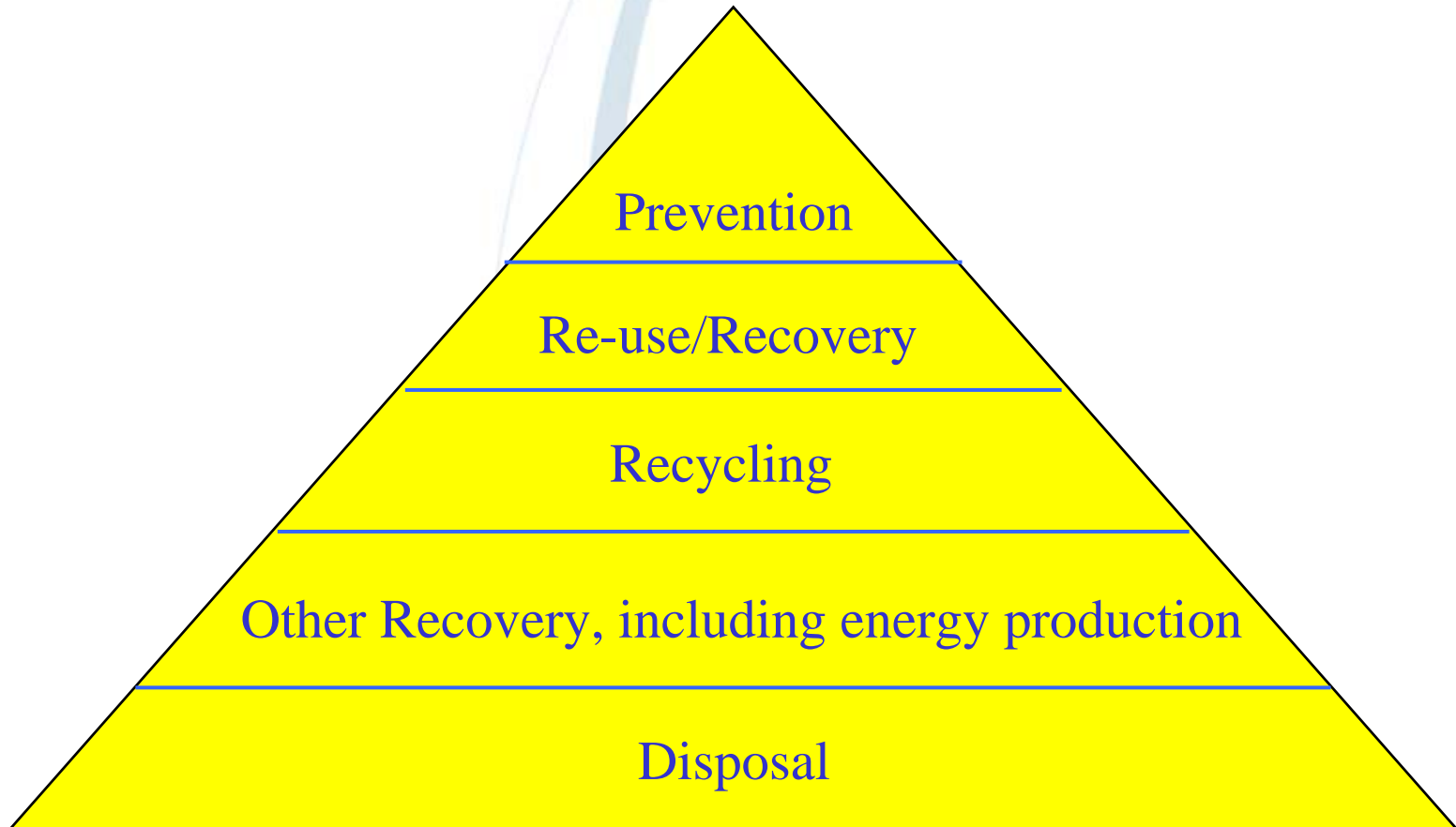


Thematic Strategy on Prevention and Recycling of Waste

- Adopted December 2005
- Revision of main legislation to incorporate life cycle thinking – e.g. the **Waste Framework Directive** to reduce environmental impact taking into account full life cycle of resources
- Action at national and probably sub-national levels – **mandatory** national waste prevention programmes
- **Targets and indicators** at appropriate level
- Improve science and knowledge useful for waste prevention
- Environmental potential of prevention actions



The Waste Hierarchy*



* According to the latest Presidency Proposal



Towards a more flexible Hierarchy

Within the first calls of FP7, most of the waste-technologies research projects will have also to provide (mandatory requirements):

- a ISO 14040 conform **LCA**,
- a **LCC/externality** study
- a **Life Cycle Social** Assessment study

The LCA studies shall be provided according to data format and quality requirements set up by the European Platform for LCA



European Platform on LCA: Summary

Project of the European Commission

Coordination: DG JRC, IES in close collaboration with DG Environment

Initial phase: September 2005 to August 2008

Key purpose: Improve credibility and acceptance of Life Cycle Assessment (LCA)

Key customers: European Business - EC services - Member states






Key deliverables:

- European Reference Life Cycle Data System (ELCD) with Life Cycle Inventory (LCI) data and recommended Life Cycle Impact Assessment (LCIA) factors
- Handbook of recommended LCA methods, guidance and review process
- LCA IPP information hub and communication platform
- (Training course on "life cycle thinking in policy making")
- (Guidance for life cycle based Ecodesign tools and link to EPDs)



ELCD core database

European industry associations and further sources:

- European Aluminium Association (EAA)  European aluminium association
- European Copper Institute (ECI) 
- European Confederation of Iron and Steel Industries (EUROFER) 
- Fédération Européenne des Fabricants de Carton Ondulé (FEFCO) 
- Association of Plastics Manufacturers (PlasticsEurope) 



Examples for benefits from a successful harmonisation

- Higher consistency and quality of LCA studies
- Greater acceptance of LCA studies among stakeholders
- Lower costs due to reduction in overlapping consultations among companies, associations, member states, EC
- Lower costs due to multiple use by industry of collected data
- Clearer research & development focus (e.g. 7th FP)

Σ = Increased awareness, acceptance, and application of Life Cycle Thinking and Life Cycle Assessment in industry and policy making



CALCAS

Co-ordination Action for innovation in Life-Cycle Analysis for Sustainability

Duration: 30 months (01/09/2006 – 31/03/2009)

Coordinator: Paolo Masoni – ENEA – Italy (paolo.masoni@bologna.enea.it)

Objectives:

- ✓ Drafting a “**schematic framework**” clarifying the definition and boundaries of life cycle analysis, and other models and tools for environmental sustainability analysis
- ✓ Setting up an “**analytical framework**” for broadened and deepened LCA
- ✓ A focus on **improvement options** of LCA as: optimisation models, Cost benefit analysis, GEM-E3 models, partial equilibrium models, hybrid LCA
- ✓ Analyses of the use of **LCA as a knowledge base** for sustainable governance
- ✓ **Critical review** of the current state of the art of ISO-LCA
- ✓ Integration of **research needs** into clusters and, based on that, drafting of a research strategy, main research lines, and exemplary research programmes
- ✓ In parallel to traditional dissemination activities, promotion of a specific **European network on LCA**, in collaboration with the already existing international networks on LCA (UNEP/SETAC LCI, EPLCA, IEG, SETAC, etc.)



Environmental Technologies Action Plan (ETAP)

Performance Target scheme (PT):

- agree on ambitious long-term environmental PT for key products
- compete - encourage uptake by business and consumers
- based on voluntary agreement – may become legally binding
- project defining performance targets in the framework of IPP
- trigger innovation, move the market, reward **front-runners**
- synthesis paper in ETAP Report in 2007 – scheme 2008



Why to perform research on an Environmental Technology Assessment?

- Clearly identify which technologies are "**clean**" and which is the term of comparison, providing information based on comprehensive and non-biased scientific knowledge
- This methodology could support and complement the efforts already made within ETAP in order to set performance targets for existing technologies (**level 1**)
- There is the necessity to work on a methodology that could better define the environmental impacts of future technologies through a **Life Cycle Thinking** approach (**level 2**)



What to assess and How ?

“Environmental Technologies include both integrated technologies that prevent pollutants being generated during the production process, and end-of-pipe technologies that reduce the release into the environment of any pollutants that are reduced. They can also include new materials, energy, and resource-efficient production processes”

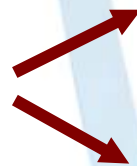
A methodology based on **Life Cycle Assessment (LCA)**. The goal is to identify, in a systematic and transparent manner, both the resources demands and environmental pressures generated by a technology, and then determine the likely implications for the environment



Which data ?

- For the assessed technology itself, detailed inventory data (**foreground data**) shall be used
- All **background data** should come from the European Commission's reference database ELCD. If some data are not available, then data from other databases could be used; in any case these data should be reported in the ELCD data format and according to the rules for data quality established within the Commission's European Platform on LCA project

Alternative: Hybrid LCA



LCI for foreground data

Environmental Input-Output (EIO) for background data



Some open questions

- Data quality and availability
- Which Functional Unit?
- Attributional or Consequential LCA ?
- Rebound effects
- Identification of the marginal technology
- Transformations of the overall background system
- Benchmarking – environmental performance targets
- Economic and Social aspects



Thank you for your attention!

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