

Topic 7: Product as source of competitive advantage

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Environmental market and marketing

Main challenges by identification of eco, green, sustainable, friendly products

- ❑ What is environmental friendly, green, eco sustainable?
- ❑ How to identify environmental attributes by products?
- ❑ How declare environmentally preferred attributes trustworthy?

Ecoprinciples of product

- ❑ Every product causes pollution and damage for environment from product view
- ❑ Every waste and pollution can be used as source for other activities
- ❑ All „eco“ products are only friendlier
- ❑ The competitive situation of more friendly products depends on how to declare environmentally preferred attributes trustworthy?

Problems of identification of attributes

- ❑ Time relevance – How long should the product be used
- ❑ Place relevance – What are local resources and what impact has the movement of goods
- ❑ Efficiency aspect – How much use of the product is appropriate?

What is Life Cycle Analysis ?

- The **Life Cycle Assessment** is an objective process to evaluate the environmental burdens associated with a product, process or activity by:
 - identifying energy, materials and benefits
 - assess the impact of the energy and materials
 - evaluate and implement improvement plans
- Society of Environmental Toxicology and Chemistry**

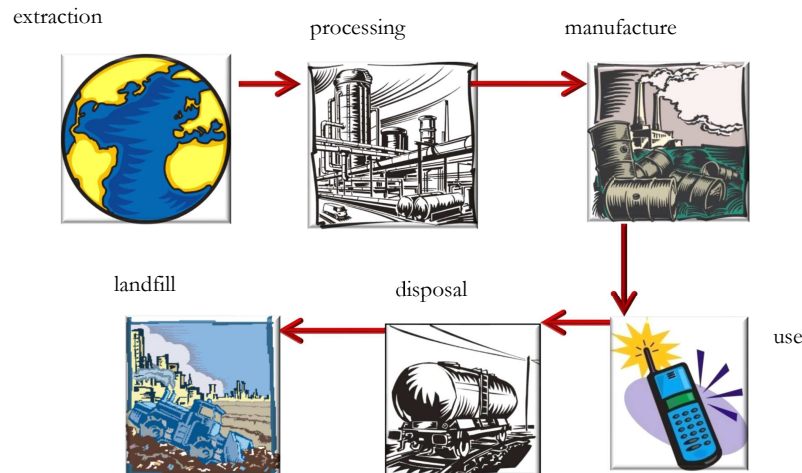
Life Cycle Assessment

- “The evaluation of the relevant environmental, economic and technological implications of a product, process or system from *cradle to grave*”.

LCA Stages

- material extraction and processing
- manufacturing
- transportation and distribution
- use
- end of life management

Product Life Cycle Stages



LCA Framework

- Developed by the Society of Environmental Toxicology and Chemistry (SETAC) in 1990.
- Several workshops in the Netherlands and the United States gave birth to LCA as we know it today.
- Comprises three fundamental stages: inventory, impact and improvement.

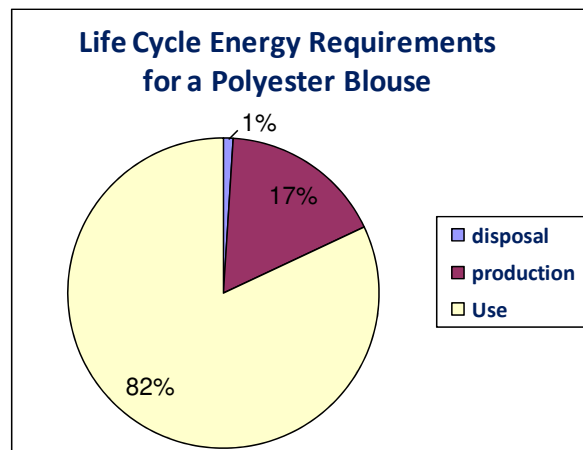
LCA: An Environmental Decision-Making Tool

- Good environmental decision-making tool.
- Possesses two unique attributes:
 - Considers whole life-cycle of a product or service; avoids problem shifting.
 - Allocates all environmental burdens to the functional unit, making easier value/impact assessments.

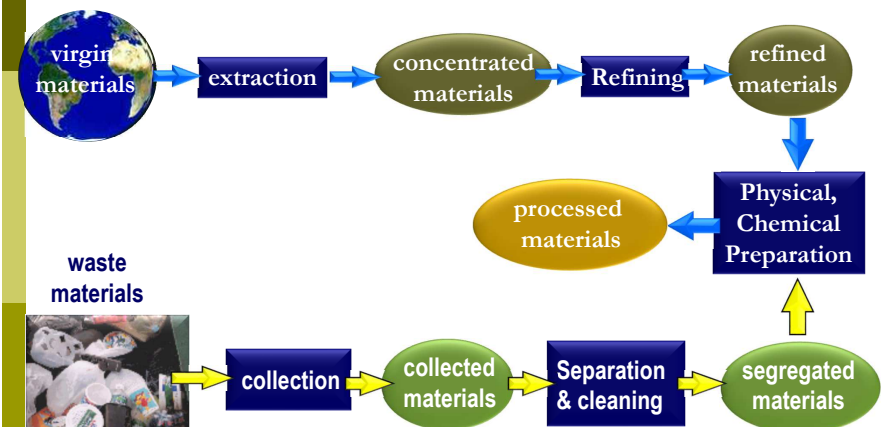
Application of LCA Studies

- Identify major contributors to environmental impact
- Compare options based on environmental impact
- System Environmental Strategic Planning
- Evaluate resource effects of existing and new systems

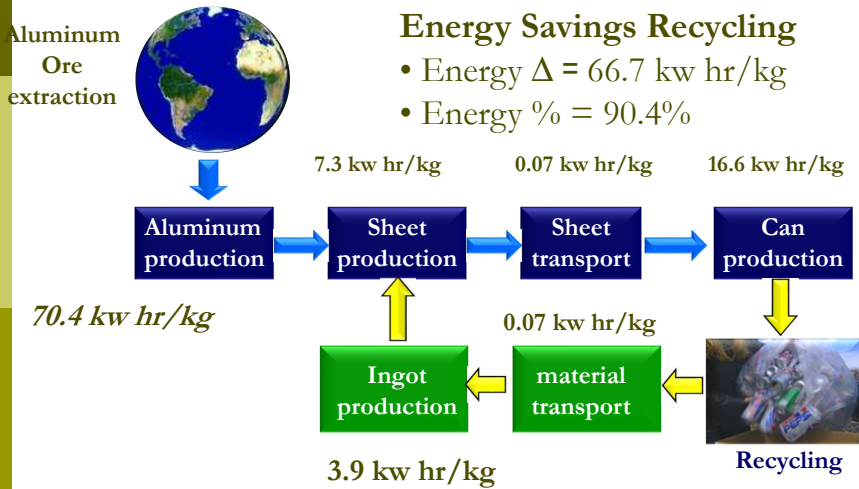
Examples of LCA Studies



Material Processing

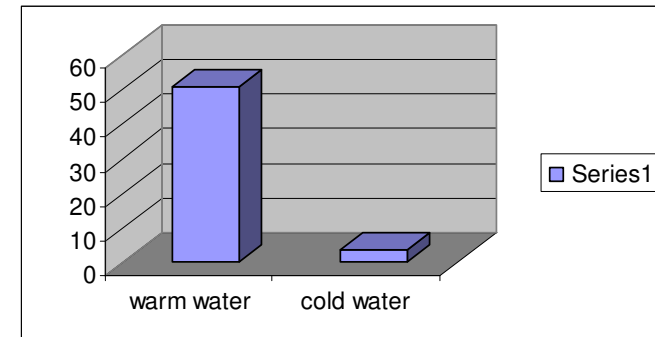


Aluminum Can Production



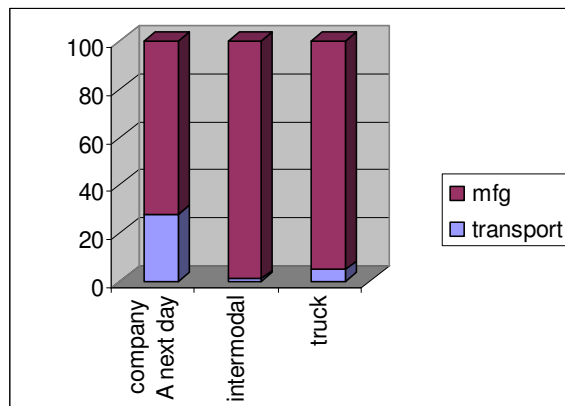
Examples of LCA Studies

Energy used to wash and dry a Polyester Blouse



Examples of LCA Studies

Transportation Energy for Mail Order Business



Examples of LCA Studies

Liquid Detergent Packaging – energy & waste reduction

strategies	Pkg	Trans	Solid waste
25% recycled plastic	3	0	9
25% consumer recycling	3	2	11
Triple concentrate	55	53	55
Product soft pouch	3	18	85
3X in soft pouch	68	73	95
3X in carton box	53	58	91
25% composting	53	58	92

Examples of LCA Studies

Disposable vs Cloth Diapers

Impact	Wash Home	Dispose	Wash Comm.
Energy	1.0	0.5	0.55
Solid waste	1.0	4.1	1.0
Water waste	1.0	0.14	0.95
Water required	1.0	0.27	1.3

The *REAL* environmental impact of driving

Material	Automobile	Total US use	Automobile %
Aluminum	1.3 Tg	6.8 Tg	18.9
Copper	0.3 Tg	3.0 Tg	10.0
Cotton	4.8 Tg	2.2 Tg	0.2
Iron	16.8 Tg	48.6 Tg	34.5
Lead	0.86 Tg	1.24 Tg	69.5
Plastic	1.0 Tg	30.7 Tg	3.2
Platinum	26.4 Tg	63.7 Tg	41.4
Rubber	1.80 Tg	2.86 Tg	62.9
Steel	11.3 Tg	83.6 Tg	13.5
Zinc	0.3 Tg	1.2 Tg	23.0

The *REAL* environmental impact of driving

characteristic	1950's Auto (kg)	1990's Auto (kg)
Plastics	0	101
Aluminum	0	68
Copper	25	22
Lead	23	15
Zinc	25	10
Iron	220	207
Steels	1290	793
Glass	54	38
Rubber	85	61
Fluids	96	81
Other	83	38
TOTALS	1901	1434

Standards for Life cycle assessment

ISO 14040 : 2006	Environmental management. Life cycle assessment - Principles and framework
ISO 14041 : 1998 Zrušená	Environmental management – Life cycle assessment - Goal and scope definition and inventory analysis
ISO 14042 :2000 Zrušená	Environmental management – Life cycle assessment - Life cycle impact assessment
ISO 14043 : 2000 Zrušená	•Environmental management – Life cycle assessment - Life cycle interpretation

Normy posudzovania životného cyklu podľa ISO 1404x

ISO 14044 : 2006	Environmental management. Life cycle assessment. Requirements and guidelines
ISO/TR 14047 : 2003	Environmental management. Life cycle impact assessment . Examples of application of ISO 14042
ISO/TS 14048 : 2002	Environmental management. Life cycle assessment. Data documentation format
ISO/TR 14049 : 2000	Environmental management. Life cycle assessment. Examples of application of ISO 14041 to goal and scope definition and inventory analysis