UNEP/ SETAC Life Cycle Initiative

Life Cycle Management of Chemicals

Side event at ICCM2, 11 May 2009

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Overview

SAICM, SCP/RE and life cycle thinking

Approaches to Life Cycle Management of Chemicals

Case Studies illustrating life cycle based Chemical Management

Life Cycle Assessments and the USEtox Model

The Life Cycle Initiative and the Way Forward
UN Environment Programme

Thematic priorities

- Climate change
- Disasters and conflicts
- Ecosystem management
- Environmental governance
- Harmful substances and hazardous waste
- Resource Efficiency/ Sustainable Consumption and Production
International Chemicals Management

- **Chemicals are integral to modern life:** their management is a **key aspect of sustainable development.** Along with vast societal benefits, some chemicals pose ecosystem and human health risks.
- Many developing economies have inadequate technical and institutional capacities or legal frameworks to fully manage chemicals or chemicals in products throughout their life cycles, which can have serious consequences related to uncontrolled treatment, handling or disposal.
- Many governments, organizations, businesses and individuals support the **need for more comprehensive international chemicals management**, such as that provided by the **SAICM process**.
SAICM objectives

• Paragraph 13 of SAICM’s overarching policy asserts: “the overall objective of the Strategic Approach is to achieve the sound management of chemicals throughout their life cycle so that, by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment.

• SAICM’s strategic approach to promote sustainable development targets agricultural and industrial chemicals (including chemicals within products) at all stages of their life cycle; specific SAICM objectives include:
  ➢ Reduce life cycle risks to human health and the environment,
  ➢ Ensure adequate information on chemicals is available for stakeholders, and
  ➢ Improve capacity for sound management of chemicals throughout the life cycle.
Sustainable Consumption and Production

What are we talking about?

Consuming and producing more efficiently and differently ...

... and sharing resources between the rich and the poor.
Resource Efficiency defined...

Efficiency at economic level + Environmental dimension

= Resource efficiency
  (energy, materials, water, chemicals)

By producing more wellbeing with less resource consumption, enhancing the means to meet human needs while respecting the ecological carrying capacity of the Earth.

+ Reducing the environmental impact
  of consumption and production
  of goods and services over their full life cycles
The life cycle of a product ...
Meeting the sustainability challenge can present businesses with tremendous opportunities. As we look at ways to address issues of sustainability, new business models will emerge that will help businesses achieve more success in a resource-constrained world with more stringent stakeholder expectations.
Scopes Across a Value Chain

- **Scope 3**
  - Upstream
- **Scopes 1 & 2**
  - Own operations
- **Scope 3**
  - Downstream

Source: CSCP
What sustainability approaches can companies use?

Approaches to sustainable consumption can be grouped into three broad categories:

1. **Innovation** – business processes for the development of new and improved goods and services; business are shifting to incorporate provisions for maximizing societal value and minimizing environmental impacts.

2. **Choice influencing** – the use of marketing and awareness-raising campaigns to enable and encourage customers and consumers to choose and use goods and services more efficiently and sustainable.

3. **Choice editing** – the removal of “unsustainable” goods and services from the marketplace in partnership with other actors (e.g. retailers) in society or plainly via market mechanisms.
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Life Cycle Management for broad array of chemical substances and issues

- Individual chemicals
- Chemical mixtures or formulations
- Chemicals embedded in articles
- Chemicals not embedded in end product such as catalysts or ancillary substances like solvents used in manufacturing process
The crucial role of Life Cycle Management (LCM)

LCM is a business approach that goes beyond short-term success and aims at long-term value creation.

How goods are manufactured and distributed is complex – designers, producers, their suppliers and consumers, retailers, etc. all use interlinked processes that both affect each other and the global environment.

LCM is an approach that can be used to address and manage these interlinkages and networks.
Objectives of Life Cycle Management

- to minimize environmental burdens and maximize socioeconomic value associated with an organization’s product or product portfolio during its entire life cycle

- make life cycle thinking and product sustainability operational for businesses through the continuous improvements of product systems

- support the business assimilation of policies (e.g. SAICM and SCP policies)
Implementing LCM for organizations involved in chemicals management

- Means to capture information about chemicals and make it available to various stakeholders
- Tools to identify and manage environmental risks from the chemicals across product life cycles
LCM approaches and tools useful for chemicals management

- Eco Efficiency, Cleaner Production Strategies & Concepts
- Systems & Processes Certification, Extended Producer Responsibility
- LCM approaches and tools useful
  - Life Cycle Assessment, Substance Flow Analysis, Environmental Risk Assessment, Total Cost Analysis
  - Life Cycle Management of Chemicals
  - Data Information & Models Databases, Best Practice Benchmarks
  - Eco-Design, Communication, Supply Chain Management
  - Programmes Tools & Techniques
Advantages of life cycle thinking and management approaches

• Short-term snapshots vs. long-term pictures
• Understanding of cross-boundary issues and how responsibilities shift
• Avoid catch-up costs
• New opportunities
• Do more with less
• Reduce total costs
  → Avoid burden-shifting from one life cycle stage, from region and from one impact category to the other
To promote life cycle assessment and management approaches within SAICM on a global basis

A successful project must address the broad life cycle challenge within national and regional economies and respond to the particular problems and issues created within economic sectors.

Real need to convey life cycle knowledge for capability development.
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3M uses LCM to manage all aspects of a product from idea through use and disposal.

3M CEO: “a commitment we must embrace to maintain our environmental leadership and to strengthen our competitive position.”

- 3M uses a matrix to identify the impact of products or processes over their entire life cycle.
Case Study 2

“Socio-Eco-Efficiency Analysis” (SEEbalance®)

LCM Success factors at BASF:

- Top level commitment
- Combination of LCA, LCC and social aspects.
- Quantitative results with a clear assessment.
- Simple and impressive illustration of results
- Possibility of scenario- and sensitivity analysis
- Short timeframe (2 month) and low costs for the analysis (<30,000 €).
Case Study 3

Making Informed Environmental Choices: Greenlist™

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Legend:
- EC=0
- Acceptable, EC=1
- Better, EC=2
- Best, EC=3

Base Year FY02/03 FY03/04 FY04/05 FY05/06
Case Study 4

Materials Stewardship: Eco-efficiency and Product Stewardship

- **Added Business Value**
  - Competition and market access
  - Reputation
  - Regulatory Compliance
  - Cost Savings
  - Market development

- **Guidance**
  - Taking a Systems Perspective
  - Building new and strengthening existing Relationships
  - Optimizing the production and application of minerals and metals
  - Contributing to a robust, accessible base of information to support decision making
Case Studies of WBCSD Companies

- 3M
- Alcan Packaging
- Dow Chemicals
- Eskom
- Ford
- United Technologies Corporation (UTC)
- Veolia Environnement
Current and upcoming Publications on LCM

Life Cycle Management
A Business Guide to Sustainability

The Sustainable Value Chain
Life Cycle Management to enhance sustainability – business success stories
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- The Life Cycle Initiative and the Way Forward
UNEP/SETAC International Life Cycle Initiative (ILCII)

• Business, Academic, and Governments working together to:

  • To bring science-based life cycle approaches into practice worldwide

  • Over 1000 individuals collaborating globally
Sponsors

- ACC, PWMI & Plastics Europe
- ICMM
- Germany
- Switzerland
- Belgium
- Canada
- CIRAIG and 13 companies
- ESCI, Spain
- PRe Consultants
Regional and National Life Cycle Conferences with training co-organised by the UNEP/SETAC Life Cycle Initiative in 2008/9
The Way Forward (1)

- **Sustainable development** is not only about ethical behavior and social responsibility – *it is also about developing a core business operation* that will thrive in the emerging global economic environment.

- **Successful companies** in the future will be those that use strategies and methods that help *address sound management of chemicals throughout their life cycle* as one of the world’s major challenges.

- **Need for key principles and criteria for sustainable products** and life styles from a life cycle perspective are needed to support consumers’ decisions towards the selection of more sustainable products and services.
In particular for companies:

- Look for your success story
- Build awareness and advocate for life cycle approaches
- Consider the key people along the value chain and plan their involvement
- Monitor progress
- Find the right partners
- Use and promote USEtox and other adequate tools
The Way Forward (3)

With regard to capability development:

• A SAICM life cycle project might encompass:
  – Bring together key actors (governments, business associations and academic life cycle experts) on a national level from a number of developing countries
  – Countries with relevance for emerging issues
  – Workshop in 2009/10

• Using existing regional life cycle networks
For more information:

Secretariat

• SCP Branch, UNEP DTIE, Paris

http://lcinitiative.unep.fr

• Email: ilci@unep.org
4th International Conference on Life Cycle Management

6-9 September 2009
Cape Town, South Africa

For more details:
www.lcm2009.org

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