Our efforts must be linked to the development of cleaner and more resource efficient technologies for a life cycle economy”. (Ministers of Environment in the Malmö Declaration, 2000)

“We must develop production and consumption policies to improve the products and services provided, while reducing environmental and health impacts, using, where appropriate, science based approaches, such as life cycle analysis”. (Plan of implementation of the World Summit on Sustainable Development, 2002)

“The Governing Council requests the Executive Director to strengthen existing eco-efficiency, cleaner production and sustainable consumption programmes, such as its partnership with Society of Environmental Toxicology and Chemistry (SETAC)”. (UNEP, Governing Council, 2003)
Using life cycle approaches contributes to environmental protection and sustainable development, helping to overcome global challenges.

- Concentrations of the greenhouse gases like carbon dioxide and methane continue to grow.
- Toxic substances (particularly some heavy metals like mercury and Persistent Organic Pollutants (POP) such as chlordane, dieldrin and DDT) continue to accumulate in polar and other sensitive ecosystems.
- The Millennium Development Goals state as targets for 2015 to halve the proportion of people living on less than one dollar a day, and to reduce by half the proportion of people without access to safe drinking water.
- Recent projections of the World Bank show that it is possible to achieve the poverty reduction goal in most regions if growth per capita income accelerates to an average of 3.6 percent a year.
- The average annual petrol consumption rose from 21 to 43 kg per capita in the developing countries, but fell from 554 to 500 kg per capita in the industrialised countries between 1975 and 1993. During the same period, the number of cars per 1,000 people in the developing countries rose from 8 to 16 and from 289 to 405 in the industrialised countries.
- The improvement in efficiency per unit of production has been offset by an increase in the volume of goods and services consumed and discarded.
- At current patterns of consumption and population growth, by 2100, we will need the resources of four planets to sustain us at decent living conditions.

In 2002, at the World Summit on Sustainable Development (WSSD), Governments called for decisive action to reverse these critical social and environmental trends. Doing so will require addressing underlying unsustainable patterns of consumption and production, as recognised in the third chapter of the WSSD plan of implementation. Thus governments were asked to promote:

- "fundamental changes in the way societies produce and consume (...); indispensable for achieving global sustainable development",
- "the development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production patterns that will promote social and economic development within the carrying capacity of ecosystems."

The work on sustainable consumption and production is a direct continuation of UNEP’s activities in the Cleaner Production Programme that have been generally considered as playing a key role in the implementation of cleaner production around the world. Today, there are more than 25 countries with Cleaner Production Centres.
The broader concept of LIFE CYCLE THINKING integrates the existing consumption and production strategies, preventing a piece-meal approach. Life cycle perspectives avoid problem shifting from one stage to another, from one geographic area to another and from one environmental medium to another. Human needs should be met by providing functions of products and services, such as food, shelter and mobility, through optimised consumption and production systems that are contained within the capacity of the ecosystem.

Based on diagram of Natural Resources Canada

“Everyone in the whole chain of a product’s life cycle, from cradle to grave, has a responsibility and a role to play, taking into account all the relevant external effects. The impacts of all life cycle stages need to be considered comprehensively when taking informed decisions on production and consumption patterns, policies and management strategies”.

Klaus Töpfer, UNEP’s Executive Director

Life Cycle Management (LCM) has been developed as an integrated concept for managing the total life cycle of products and services towards more sustainable consumption and production patterns. LCM uses procedural and analytical tools and integrates economic, social and environmental aspects into an institutional context. LCM is applicable for industrial and other organizations demanding a system-oriented platform for implementation of a preventive and sustainability driven management approach for products and services.

Life Cycle Assessment (LCA) is an analytical tool for the systematic evaluation of the environmental aspects of a product or service system through all stages of its life cycle. LCA provides an adequate instrument for environmental decision support. A reliable LCA performance is crucial for a life cycle economy. The International Organisation for Standardisation (ISO) completed a whole series of Life Cycle Assessment standards in 2002, the 14040 series.

Examples of OECD Countries using Life Cycle Thinking*

Australia, Belgium, Canada, Denmark, Finland, France, Germany, Japan, Korea, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States of America

* This list is not exclusive. You can contact us to be on the list.
Benefits of Life Cycle Approaches


For Industries, the challenge is:

- To secure and increase market share;
- To protect and expand business values including shareholder value;
- To look for competitive advantage that goes beyond legal compliance and short-term cost savings.

By integrating the life-cycle perspective in overall management and bringing product and process development in a more sustainable direction, the organisation can harvest the benefits of environmental, occupational health and safety, risk and quality management, as well as developing and applying cleaner process and product options. Incorporating life cycle and sustainability management will improve image and brand value for both world market players as well as smaller suppliers and producers.

For governments, the challenge is:

- To set the framework and conditions for production and consumption patterns;
- To stimulate markets for greener products;
- To establish a sustainable procurement system.

Governmental initiatives will not only secure and strengthen the position of the industrial and service sectors in regional and global markets, but also ensure overall environmental benefits to society balanced with economic and social aspects. By engaging in supportive programmes and initiatives to promote the implementation of life-cycle approaches, governments can show global responsibility and governance by sharing and disseminating sustainability options worldwide.

For Consumers, the challenge is:

- To make sustainable choices of products and services;
- To understand life cycle information.

Life-cycle approaches will help point consumption in a more sustainable direction by offering better transport systems, energy sources, and information for purchasing (i.e., related product information schemes), to guide consumers. It offers a platform for multi-stakeholder dialogue and public involvement with industries and governments, going from local agenda to national and international strategies for sustainable development.

“Life cycle thinking forms the basis of Nokia’s environmental activities. The goal is to reduce adverse environmental effects during our product life cycles by managing our own operations and supplier network and by incorporating Design for Environment principles into every stage”. www.nokia.com

At UNEP’s 22nd Governing Council Ministerial Meeting in 2003, Environment Minister Xie of China noted that sustainable consumption is a common challenge for all countries. He emphasized the need to build a life cycle economy and society. He also noted the importance of science and technology, the need to use resources efficiently, and the role of cleaner production.

Ana Quiros, from EcoGlobal in Costa Rica addressed the importance of adopting LCA and LCM globally, at the International Forum on LCM. She emphasised the urgency for this knowledge in developing countries. She said that our aspiration is to have all stakeholders of every sectors in all world regions introduced to the life cycle frame of thought. The challenge is to bring life cycle thinking “global standing or stature”.
Why the Life Cycle Initiative?

Emergence of the Initiative

What are the remaining challenges for life cycle approaches?

<table>
<thead>
<tr>
<th>LCA (Life Cycle Assessment)</th>
<th>LCM (Life Cycle Management)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Further increase of access to Life Cycle Inventory data on processes, materials and products at the international level</td>
<td>• Further incorporation of life cycle approaches in organisations</td>
</tr>
<tr>
<td>• Further incorporation of scientific knowledge and guidance in Life Cycle Impact Assessment methods</td>
<td>• Further coherence between different tools and concepts including social and economic information</td>
</tr>
<tr>
<td>• Further promotion of Life Cycle Assessment results to decision makers and consumers</td>
<td>• Further building of capacity to increase use of life cycle approaches among North/South and Small and Medium Sized Enterprises</td>
</tr>
</tbody>
</table>

The added value of the initiative

• Providing reliable information in an accessible format – this improves communication and contributes to awareness raising and more informed decisions by consumers, governments and industry.

• Preparing industry for increasingly aware consumers – it facilitates more efficient communication strategies and stakeholder involvement to be implemented by both the public and the private sector.

• Supporting good business practices – life-cycle approaches assist stakeholders to “think out of the box” and can provide an important contribution to “leap-frogging” both within and among regions (North and South), countries, and industries.

• Contributing to continuous improvement – the adjustment of currently existing methods to the triple bottom line (including socio-economic aspects) fosters a truly holistic way of thinking and creates efficient structures for improvement.

• Ensuring worldwide applicability and dissemination – the developed tools adapted to the application context are promoted around the world, preventing duplication of work.

“Yes we have made progress, yes there is some application of life cycle thinking today, and yes, there is much more to do. But if we all work together [in this initiative], we can move along the journey towards a life cycle economy and a sustainable future”. (Jim Fava, Vice Chair of the ILCP)
Mission, Objectives and Structure

Our Mission

To develop and disseminate practical tools for evaluating the opportunities, risks, and trade-offs associated with products and services over their whole life cycle.

Our Objectives

- Collect and disseminate information on successful applications of life cycle thinking
- Provide a basis for capacity building
- Share knowledge about the interface between Life Cycle Assessment and other tools
- Identify best practice indicators and communication strategies for life cycle management
- Expand the availability of sound LCA data and methods
- Facilitate the use of life cycle based information and methods

Our Structure

The organisational structure of the Life Cycle Initiative has been designed to ensure long-term commitment to Life Cycle Thinking. At the strategic level, the ILCP is the highest authority of the initiative. Together with Partners, the ILCP is crucial to the success of the initiative. The Secretariat based at UNEP DTIE in Paris plans, oversees and manages the general organisation of the Life Cycle Initiative. The Director of Programmes works under the direct guidance of the ILCP and is assisted by managers for each programme. At the science-oriented working level, the Working Groups serve as a pool of experts particularly in task forces and review groups. Task Forces are responsible for sharing experiences and carrying out projects on specific topics, and Peer Review Groups are in charge of quality control of the proposed outcomes.

Case 1. Employees training to ensure life cycle optimisation

In 1998, Nokia launched a global environmental program for its employees. The program aims among other things to ensure that all employees minimise the environmental impact of its products throughout their life cycle.
The programmes aim at putting life cycle thinking into practice and at improving the supporting tools through better data and indicators.

**Life Cycle Management (LCM)**

The LCM programme is oriented to the application of life cycle approaches. How can LCA and life cycle thinking be integrated in business practice as well as in policy decision-making?

The LCM programme creates awareness and improves skills of decision-makers by producing information materials, establishing forums for best practice, and carrying out training programmes in all parts of the world. The long-term deliverables consist of:

- The integration of existing tools and concepts for decision-making on more sustainable products and services in a Life Cycle Management framework;
- Strategies for communication of life cycle information to relevant stakeholders;
- Training modules for SMEs and developing countries.

**Life Cycle Inventory (LCI)**

The LCI programme aims to increase the access to and quality of LCI databases. What are the requirements for LCI databases and how can data be shared?

The LCI programme improves global access to transparent, high quality life cycle data by hosting and facilitating expert groups whose work is shared through (web-based) information systems. The long-term deliverables consist of:

- An information system for easy access to peer reviewed Life Cycle Inventory databases;
- A compilation of life cycle studies to identify best practice in different industry sectors and world regions;
- Manuals for simplified tools and practical applications.

**Life Cycle Impact Assessment (LCIA)**

The LCIA programme deals with the evaluation of environmental impacts, (e.g. climate change and toxicity) of products and services over their whole life cycle. What are the impacts to consider and how should this be done?

The LCIA programme increases the quality and global reach of the life cycle indicators by promoting the exchange of views among experts whose work results in a set of widely accepted recommendations. The long-term deliverables consist of:

- Recommended available Life Cycle Impact Assessment methods, models and factors;
- Guidance for benchmarking in business practice.
Who should participate in the Initiative?

**Industries** should participate because:

- They will be able to identify **cost-effective, sustainable solutions** along the whole life cycle;
- Their **voice will be heard** in multi-stakeholder activities;
- They will increase their **competitive advantage** by developing and selling more sustainable products and services.

**Governments** should participate because:

- They will be able to **link their national initiatives to the global life cycle initiative** in the field of LCM and LCA;
- They will be **among the outstanding countries/regions** in promoting a life cycle economy;
- They will provide **better access to training** for producers and consumers in their country and worldwide.

**Research Centres and Institutes** should participate because:

- They can **address new issues** related to life cycle approaches and sustainability not yet examined in the initiative;
- Their expertise can directly contribute to **changing unsustainable consumption and production patterns**;
- They can **share their knowledge** in the fields of LCM, LCI and LCIA methods.

**Consumer Organisations and NGOs** should participate because:

- The initiative can increase their awareness and therefore, **facilitate more sustainable consumer behaviour**;
- They will have a global forum to **inform people** all over the world about the benefits of a life cycle economy;
- They can **address poverty alleviation and North/South inequalities** and other issues.

**Foundations** should participate because the initiative can:

- **Achieve and sustain a healthy planet and livelihood**;
- **Promote change** in sustainable policies;
- **Facilitate progressive social change** by addressing the underlying conditions of environmental problems.

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**Case 2. Saving by life cycle reviews**

At Bristol-Myers Squibb, a health and personal care company, product life cycle reviews helped identify environmental impacts for each step in a product’s life cycle. These reviews have typically resulted in improvements half of the time and achieved average savings of US-$340,000 per review.
**Benefits for Partnership**

Join as a **company**,  
- To play a **significant role** in the initiative planning;  
- To receive **key documents** and proposed strategies for your consideration;  
- To **participate in meetings** with the Life Cycle Initiative’s leaders;  
- To get **easy access** to best practice experience and methods for further application in your company;  
- To **share activities** in diverse publications and on the website of the Initiative;  
- To globally show your support for the **promotion of sustainable production and consumption** towards a life cycle economy.

Join as a **government**,  
- To **provide guidance** to the direction of the programme and to be part of the global network including world class experts;  
- To get **up to date tools**, for the implementation of the sustainable development;  
- To be able to **link national databases and methodologies** with other countries/regions;  
- To show worldwide your **engagement and responsibility** for achieving a life cycle economy;  
- To **address sector issues** particularly relevant for your country/region;  
- To contribute, through the initiative, to UNEP’s work for the **development of a ten-year framework of programmes on sustainable consumption and production**.

Join as a **researcher**,  
- To get **access to the network** of world wide leading institutes;  
- To **draft and review documents** in the task forces and peer review groups;  
- To participate and **organise workshops** with us.

Join as a **consumer organisation or an NGO**,  
- To learn more about and take part in the **promotion of consumer information tools** that are based on life cycle thinking;  
- To have **access to continuous information** on the latest development in the field of life cycle approaches;  
- To have the possibility to attend and **organise UNEP/SETAC events** with us.

<table>
<thead>
<tr>
<th>Examples of companies using Life Cycle Approaches*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automotive Industry</strong>: BMW, Daimler-Chrysler, Delphi, Dow Automotive, Fiat, Ford Motor Company, General Motors, Honda, Lear, PSA Peugeot Citroën, Toyota Motor Co., Volkswagen, Volvo</td>
</tr>
<tr>
<td><strong>Packaging Industry</strong>: Assidomän, Elopak, International Paper, Korsnäs, MeadWestvaco, Potlatch, SIG Combibloc, StoraEnso, TetraPak, Weyerhaeuser</td>
</tr>
<tr>
<td><strong>Chemicals and Consumer Products Industry</strong>: 3M, BASF, Bayer, Black &amp; Decker, Bristol-Myers Squibb, British Petroleum, CIBA, Dow Chemicals, DuPont, Henkel, Johnson &amp; Johnson, Nordisk, Novo, Procter &amp; Gamble, SC Johnson, Unilever</td>
</tr>
<tr>
<td><strong>Communication and Electronics Industry</strong>: ABB, AT&amp;T, Electrolux, Ericsson, JohnsonDiversey, Lucent Technologies, Motorola, Nokia, Nortel Networks, Philips Electronics, Xerox</td>
</tr>
<tr>
<td><strong>Others</strong>: Airbus, Boeing, Bombardier, EDF, Hydro-Québec, IKEA, Shell, United Technologies Corporation, Vattenfall</td>
</tr>
</tbody>
</table>

* This list is not exclusive. You can contact us to be on the list.
How to become a Sponsor?

There are two majors ways an organisation can become involved with the UNEP / SETAC Life Cycle Initiative.

**Partners** are organisations of particular relevance for the initiative including general sponsors who support the whole Initiative. There are three levels of partnership available, each with its own set of benefits: Silver, Gold and Platinum sponsorship. The table on the presents an overview of benefits for different stakeholder groups. Partners can actively participate in the strategic decision making process. Moreover, they can receive key documentation on the initiative’s development. If interested, they can also take part in conference calls at the strategic level. Finally, they get publicity in all kinds of publications and on the website of the initiative.

<table>
<thead>
<tr>
<th>Partner Possibilities</th>
<th>Platinum</th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partner Contribution</strong> (1000 US$ per year)</td>
<td>50</td>
<td>25</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Partner Benefits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant role in the Initiative planning</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to <strong>actively participate</strong> in scheduled meetings with Initiative leaders</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to <strong>listen in</strong> on scheduled conference calls with Initiative leaders</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Receive copies of <strong>minutes and preliminary reports</strong> of the working groups and events</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Receive prepublication <strong>copies of official reports</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Logo placement inside Life Cycle Initiative reports, brochures, workshop materials</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Logo placement on Initiative web site</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Link to organization web site</strong> on Initiative site</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Organization <strong>name</strong> included in Life Cycle Initiative press releases</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Organization <strong>name</strong> mentioned in press interviews surrounding the Life Cycle Initiative</td>
<td>X</td>
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</table>

**Activity Sponsors** support a specific event or action. For example, an organisation may want their funds restricted for use for a specific workshop. For an Activity Sponsor, the level of supports depends upon the funds needed for that activity. The Activity Sponsors would receive logo placement and copies of documents pertaining to the activity.

An example of activity sponsorship is the first workshop of the initiative that took place in April 2002, in Montreal co-ordinated by UNEP and SETAC with the support of the International Council of Mining and Metals, the Asia Pacific Economic Cooperation and National Resources Canada.

For more information about the list of partners and activity sponsors, and for more examples of activities, go to [http://www.uneptie.org/sustain/lcinitiative](http://www.uneptie.org/sustain/lcinitiative)
The Society of Environmental Toxicology and Chemistry (SETAC) is a professional society - in the form of a non-profit association - established to promote the use of a multi-disciplinary approach to solving problems of the impact of chemicals and technology on the environment. Environmental problems often require a combination of expertise from chemistry, toxicology and a range of other disciplines to develop effective solutions. SETAC provides a neutral meeting ground for scientists working in universities, governments and industry. They meet, as private persons not bound to defend positions, but simply to use the best science available.

Three activities of broad interest have been initiated by SETAC. A group on ecological risk assessment has the mission to advance the science, practice and application of ecological risk assessment. Another group focuses on pesticides and soil microbiology. Thirdly, SETAC has taken a leading role in the development of the methodology of Life-Cycle Assessment (LCA). The organisation is often quoted as a reference on LCA matters.

More information about SETAC you can find at http://www.setac.org/

The United Nations Environment Programme (UNEP) mission is 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 is in a unique position to influence activities on business and sustainable consumption issues around the world. UNEP works closely with stakeholders to provide a common information and knowledge bases, which assists government business and industry.

The mission of the UNEP Division of Technology, Industry and Economics is to help decision-makers in government, local authorities, and industry develop and adopt policies and practices that:

- are cleaner and safer;
- make efficient use of natural resources;
- reduce pollution and risks for humans and the environment.

UNEP DTIE activities focus on raising awareness, improving the transfer of information, building capacity, fostering technology co-operation, partnerships and transfer, improving understanding of environmental impacts of trade issues, promoting integration of environmental considerations into economic policies, and catalysing global chemical safety.

The Life Cycle Initiative builds upon and provides support to the ongoing work of UNEP on sustainable consumption and production, such as Industry Outreach, Industrial Pollution Management, Sustainable Consumption, Cleaner and Safer Production, Global Reporting Initiative (GRI), Global Compact, UN Consumer Guidelines, Tourism, Advertising, Eco-design and Product Service Systems.

More information about UNEP DTIE you can find at http://www.unptie.org/