

ENVIRONMENTAL SUPPLY CHAIN MANAGEMENT

A GUIDE TO DANISH COMPANIES



Danish Ministry of the Environment
Environmental Protection Agency



DIEH
Danish Ethical Trading Initiative


ENVIRONMENTAL SUPPLY CHAIN MANAGEMENT
- A GUIDE TO DANISH COMPANIES

The guide is prepared by the Danish Ethical Trading Initiative (DIEH) in cooperation with COWI and the Danish Federation of Small and Medium-Sized Enterprises.

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FOREWORD

Environmental supply chain management has found its way to the international agenda. As we see it - environmental responsibility is one of the cornerstones in the voluntary action taken by companies.

The most significant impacts on the environment and society from the operation of companies occur in the supply chains. It is therefore more important now than ever that companies extend their commitment to responsible business practices by integrating fair working conditions and good environmental practices throughout the supply chains.

The best way to ensure development of sustainable products is to look at a product's environmental impact in the entire life cycle - and take action where the environmental pressures are greatest. Therefore, environmental supply chain management means engaging with suppliers by applying the precautionary approach, promoting greater environmental responsibility and by using clean technologies. It is not only about environmental legal compliance, but also strategic and continuous environmental improvements in the supply chain.

This guide outlines practical steps companies can take to implement environmental supply chain management, for example through use of existing environmental tools, such as ecolabelling and environmental management systems - and the use of guidelines on responsible supply chain management.

We hope to encourage more and more companies to address the environmental impacts in their supply chains and thereby contribute to a sustainable long-term development.



A handwritten signature in cursive script, appearing to read 'Karen Ellemann'.

Karen Ellemann
Danish Minister of the Environment



A handwritten signature in cursive script, appearing to read 'Judith Kyst'.

Judith Kyst
Chairman of Danish Ethical Trading Initiative

WHY ENVIRONMENTAL SUPPLY CHAIN MANAGEMENT?

Environmental supply chain management is a key part of a sustainable business strategy. It covers management of all significant environmental impacts from your company's supply chain throughout the life-cycles of products or services. The most significant environmental impact is often caused by activities outside your own company in Denmark. Therefore, it is of great importance to look at environmental improvements in the supply chain.

Working with environmental supply chain management can not only improve your company's environmental impact, but also provide a number of business advantages and possibilities such as:

- Improved business & public image
- Reduced risk of legal non-compliance
- Attraction of environmentally aware customers
- Improved productivity and efficiencies
- Improved quality
- Reduced number of defaults
- Improved environmental management
- More sustainable products



BUSINESS DRIVERS

»One cannot underestimate the importance of environmental management in the complex textile supply chain. Environmentally responsible products are becoming a legal as well as a consumer demand.

We have experienced that the companies that take environmental responsibility and seriously engage in environmental management throughout the supply chain have gained market shares, strengthened their brand and are more attractive to both consumers, employees, business partners and investors«.

Pia Odgaard, CSR Consultant,

Dansk Mode & Textil



Environmental impacts from supply chains can include toxic waste, water pollution, loss of biodiversity, deforestation, long-term damage to ecosystems, hazardous air emissions as well as greenhouse gas emissions and energy use.



Wastewater from
textile dyeing plant in
Rajasthan in India
Photo: Lotte la Cour

HOW TO GET STARTED?

Environmental responsibility is an integrated part of responsible supply chain management and involves several steps.

EXAMPLES OF STEPS

- development of a strategy
- risk assessment
- establishing dialogue with suppliers
- communication to costumers, consumers and other stakeholders

See more in the guidelines for responsible supply chain management by the Danish Council on CSR

→ www.raadetforsamfundsansvar.dk

Improving environmental performance in the supply chain is an ongoing process. A good starting point is dialogue and collaboration with suppliers and sub-suppliers on continuous improvements of the environmental performance of products and services. Moreover, on selected issues, it can be an advantage to co-operate with local or international stakeholders, such as non-governmental organisations as e.g. WWF, multistakeholder initiatives as e.g. Danish Ethical Trading Initiative (DIEH), authorities and local business organisations. This stakeholder approach is important to ensure lasting improvements, local ownership and capacity building.

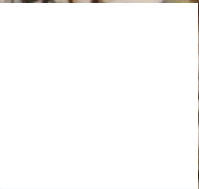


QUICK WINS

»Our starting point is to link quality and environmental improvements with increased profits. Thereby, the suppliers become motivated to continue their work with CSR issues in general.

Quick wins like switching of the light when not in use or fixing a water leak, will save both energy and water. At the same time it will reduce cost, and give the management inspiration to continue improvements«.

**Jette Machon, Buyer & CSR Manager,
Sourcing House**



“

ENGAGING WITH STAKEHOLDERS

»WWF and IFC (a member of the World Bank Group) have identified cotton as one of the most environmentally damaging agricultural commodities. Based on this knowledge, WWF and IFC initiated the roundtable on cotton, which resulted in the Better Cotton Initiative (BCI). BCI exists in order to respond to the current impacts of cotton production worldwide . BCI aims to promote measurable improvements in the key environmental and social impacts of cotton cultivation worldwide to make it more economically, environmentally, and socially sustainable. BCI is working with organisations from across the cotton supply chain and interested stakeholders to facilitate a solution for the mainstream cotton sector«.

Lasse Juul-Olsen, Head of Section, WWF

ENVIRONMENTAL PRINCIPLES & STANDARDS

Different national and international frameworks and tools guide companies in their work with sustainability and environmental supply chain management. UN's Global Compact is one of the main international frameworks. To get an overview of the variety of tools, take a look in the toolbox at p 26-29.

UN GLOBAL COMPACT

The UN Global Compact includes ten universally accepted principles in the areas of human and labour rights, environment and anti-corruption. According to the environmental principles in Global Compact, companies should engage with suppliers to improve environmental impacts by applying the precautionary approach to environmental challenges, promoting greater environmental responsibility and encouraging the development and diffusion of environmentally friendly technologies. See more in the table below.

UN GLOBAL COMPACT – ENVIRONMENTAL PRINCIPLES

- Businesses should support a precautionary approach to environmental challenges
- Businesses should undertake initiatives to promote environmental responsibility
- Businesses should encourage the development and diffusion of environmentally friendly technologies

EXAMPLES OF IMPLICATIONS IN THE SUPPLY CHAIN

- Work with suppliers to identify sources of pollution and waste and implement measures to prevent pollution and waste
- Work with suppliers to improve environmental performance, extending responsibility in the supply chain
- Encourage suppliers to use cost-efficient cleaner production (CP) and pollution prevention (PP) and eco-efficient technologies

HOW TO PRIORITISE YOUR EFFORTS?

Which environmental impacts to focus on will vary among companies. It depends on the products and services in question and can relate to the use of natural resources, the process and the waste, the transport and the product itself until final disposal. It is essential to identify the most important topics and issues in the supply chain. Moreover, it is needed to define expectations and develop guidelines to provide direction to suppliers and internal colleagues. Environmental impacts and challenges may relate to one or several environmental topics.

AIR

ENERGY

WATER

RESOURCES

CHEMICALS

WASTE

→ HOW TO PRIORITISE YOUR EFFORTS?

MAP YOUR SUPPLY CHAIN

Environmental supply chain management starts by mapping the supply chain and assessing the environmental impact of products and services with a life cycle approach. For companies with many suppliers and sub-suppliers in many different countries it may be a challenge to get an overview of the supply chains. Different steps are recommended to identify and prioritise key suppliers and sub-suppliers in the supply chain (see box). A complete overview of all suppliers and their environmental performances will seldom be possible.

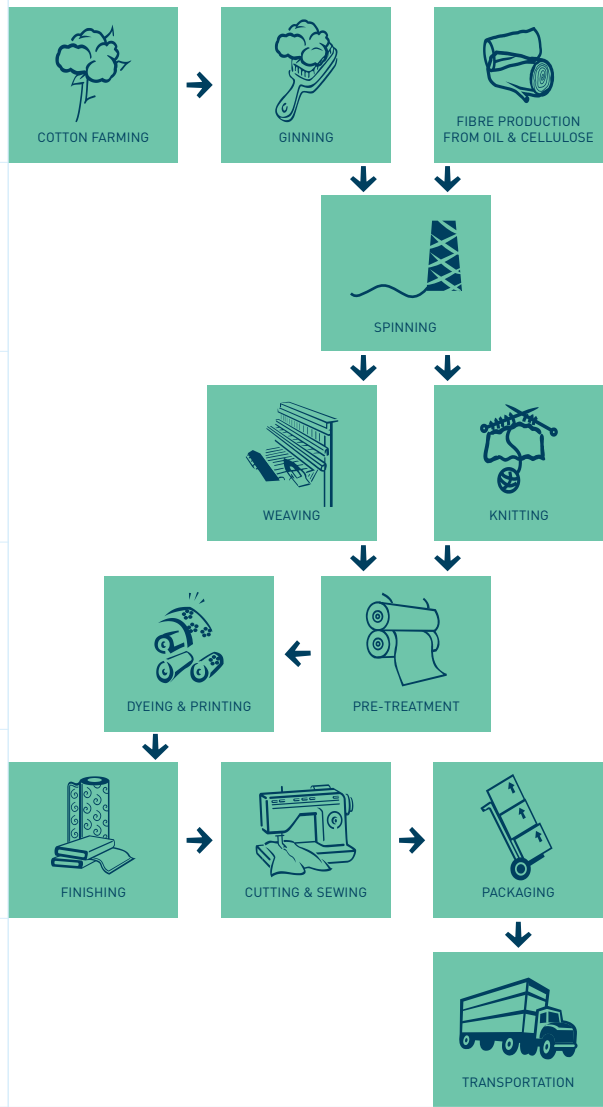
SUPPLY CHAIN MAPPING – RECOMMENDED STEPS

- Start making an overview of all phases in the life cycle (see example on flow diagram for textile)
- Make an overview of suppliers and sub-suppliers
- Group suppliers into life cycle phases
- Use available data and information and assign significant environmental impacts and opportunities for each phase
- Screen and prioritise according to own strategy, the environmental impacts and opportunities of suppliers and/or sphere of influence





SUPPLY CHAIN FOR TEXTILE PRODUCTION



FIND FOCUS AREAS

Ecolabel criteria can be helpful when prioritising where to focus in the supply chain. The ecolabel criteria for a specific product are based on a life cycle approach. In the textile production, the most considerable environmental impacts are in the fibre production phase (cotton fields or synthetic fibres from oil) and in the textile wet processing phase, especially dyeing. Hence, the primary opportunities for gaining positive environmental results lie within these phases.

→ HOW TO PRIORITISE YOUR EFFORTS?

EXAMPLE: ECOLABEL CRITERIA FOR TEXTILES

The ecolabel for textiles include several criteria, for example chemicals used in the production, wastewater treatment in dye houses and the quality of the finished products. It is also a requirement that the manufacturer must disclose energy and water consumption figures for wet processing. Furthermore, in the Nordic Ecolabel the Swan, the manufacturer is required to have a plan in place for reducing consumption per production unit, use natural fibres that has been organically grown and publish a plan for ethical production (code of conduct).



Chemical storage in Turkey.



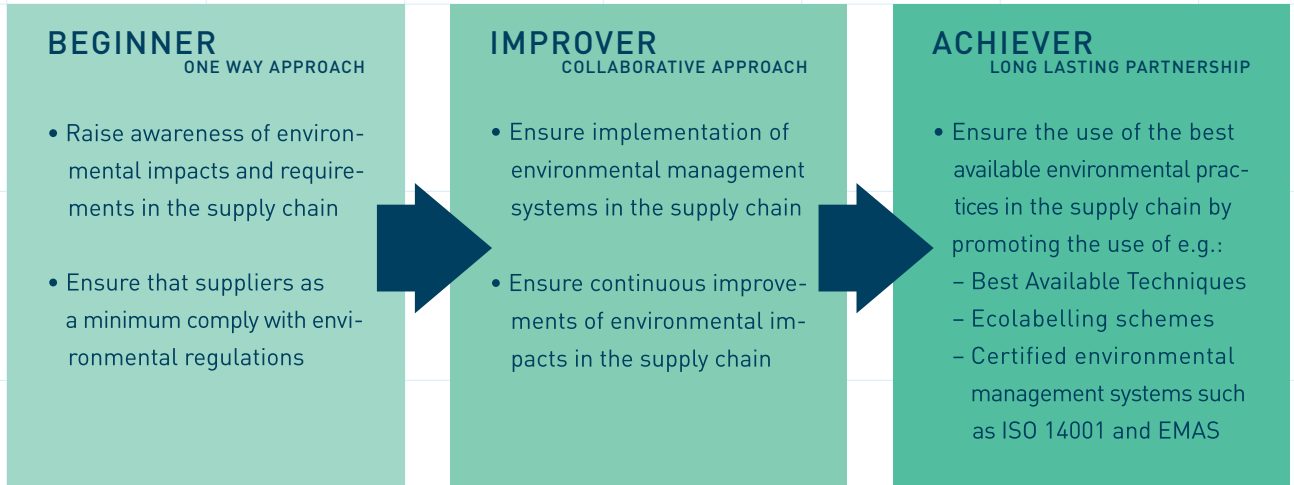
PRIORITISING EFFORTS BASED ON RISK ASSESSMENT

»Based on an environmental risk assessment and due to our large number of garment suppliers – about 375 - we chose to focus our initial environmental supply chain work on the chemicals used during production and on waste water treatment. Forbidden and restricted chemicals can potentially be used at all production stages but primarily in the dyeing, printing and wet finishing of garments, and it is therefore especially important that suppliers have strict control over these parts of their production network ... We must protect our customers and the environment, as well as our businesses, by controlling key production stages carefully«.

Søren Ellebæk Laursen, Environmental Coordinator, Bestseller

HOW TO ACHIEVE GOOD ENVIRONMENTAL PRACTICES?

The journey towards implementing good environmental practices among selected and prioritised suppliers can be long and diverse depending on the products and processes in question. The recommendations below, for the three levels: beginner, improver and achiever, can be used as inspiration to push for continuous and strategic environmental improvements at your suppliers.

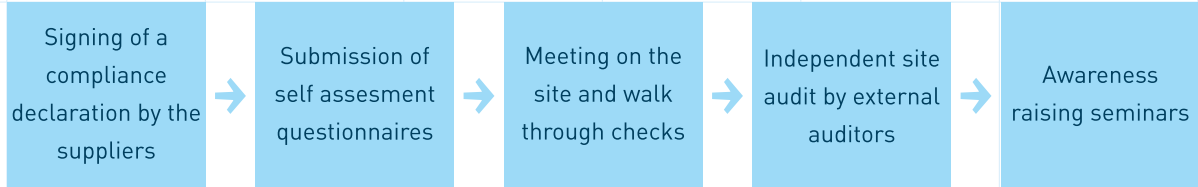


→ HOW TO ACHIEVE GOOD ENVIRONMENTAL PRACTICES?

BEGINNER – AWARENESS AND LEGAL COMPLIANCE

The beginner level includes awareness-raising among suppliers in terms of environmental impacts and requirements as well as ensuring compliance with local environmental regulations.

The following steps can be taken to check or control the legal compliance of the suppliers and raise awareness of environmental impacts and requirements in the supply chains.



Companies can get inspiration on how to make self assessment questionnaires, check lists for supplier visits and audit lists from the CSR Compass → www.csrkompasset.dk.

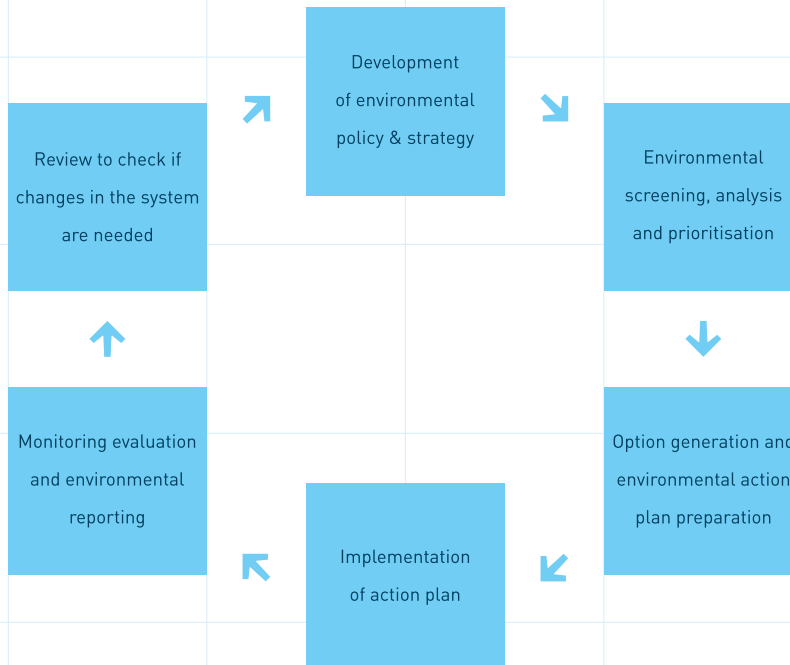


→ HOW TO ACHIEVE GOOD ENVIRONMENTAL PRACTICES?

IMPROVER

- PROACTIVE ENVIRONMENTAL MANAGEMENT AND CONTINUOUS IMPROVEMENTS

Suppliers at the improver level show proactive environmental management and continuous environmental improvements. This requires a systematic approach, for example the implementation of an environmental management system (EMS) which, like other management systems, works with cycles that create continuous improvements from each cycle passed.



An environmental management system - certified or not - makes it easier for both suppliers and buyers to document their environmental performance. This helps to ensure continuous environmental improvements and compliance with legal requirements. Thus, an EMS makes it easier for the company to work with environmental improvements on a strategic level.

An action plan is the central tool of an environmental management system. When developing an action plan companies should be aware of the difference between costly pollution control measures and more cost-effective pollution prevention (cleaner production) options. → www.unep.fr/scp/cp/.



USE OF ENVIRONMENTAL MANAGEMENT SYSTEMS

»We have chosen ISO 14001 as our environmental management system because it is aligned with our quality management system ISO 9001 and therefore ensures that quality and environmental responsibility are coherent and integrated parts of our organisation and management practices. By adopting these internationally well-recognized systems we also present ourselves as front-runners toward our suppliers. This improves the foundation for knowledge-sharing and inspires our suppliers in adopting the same systems. We have experienced that because of our sincere interest in our suppliers – without being supercilious – they are very willing and committed to allocate the right resources and personnel to continually improve their environmental performance«.

Birgitte Vendel, Project Manager Sourcing, Beirholm

ISO 14001 AND EMAS

The standards ISO 14001 and EMAS help to verify that the suppliers are making continuous environmental improvements and that they are in compliance with environmental laws. ISO 14001 relates to national environmental laws, and EMAS relates to both national and European environmental regulations.

→ HOW TO ACHIEVE GOOD ENVIRONMENTAL PRACTICES? IMPROVER

CLEANER PRODUCTION

Several methods can be used within the cleaner production approach to use resources more efficiently. One of them is substitution on the input side by using alternative chemicals. Other cleaner production methods include better process control throughout manufacture, equipment modifications and upgrades and technology switches. Substitution of chemicals is one of the most cost-effective cleaner production solutions.

Today the approach to environmental improvements in many supplier countries is pollution control and end-of-pipe solutions, for example the establishment of costly wastewater treatment plants and equipment to clean air emissions. To change this trend it is important to engage in dialogue with the suppliers to ensure that pollution prevention options are considered.



USE OF LIFE CYCLE ASSESSMENT, LCA

»We have used LCA since 2004. LCAs show that impact on environment is reduced in many industries when enzymes replace chemicals. Sustainability is an important parameter in our business relations and LCA results are used to increase interest in our products and solutions«.

Per Henning Nielsen, Senior Manager, Novozymes

EXAMPLE: USE OF ENZYMES

The use of extra enzymes in laundry washing can allow the washing to take place at lower temperatures and hereby saving energy. Extra enzymes can also be used in different industrial sectors, for example in textile and leather production. Water and chemical use can be reduced, which will additionally improve the quality of the wastewater. LCA can be used to document that this alternative method is more environmentally sustainable than the conventional solution.



ACHIEVER – BEST PRACTICES AND USE OF ENVIRONMENTALLY EFFICIENT TECHNOLOGIES

Suppliers at the achiever level are applying the best available environmental practices and the most environmentally efficient techniques, and will be among the first to test and use new technologies. To use the “best environmental practice” means to apply the most appropriate and competitive combination of measures and encourage and assist suppliers to apply the same measures. A central part of the measures are certified environmental management schemes such as EMAS or ISO 14001.

Suppliers following recommendations in the EU BAT documents will be using the best available techniques and will be working at the EU environmental compliance level. They will comply with recommended or set emission values for the given sector, with lowest possible impacts on the environment → <http://eippcb.jrc.es/reference/>.

BEST AVAILABLE TECHNIQUES (BAT)

BAT documents give information on a specific sector within the EU, techniques and processes used in this sector, current emission and consumption levels, techniques to consider in the determination of the best available techniques, BAT and some emerging technologies.

BAT is seen as the best available technique to ensure lowest possible emissions and impact on the environment under economically and technically viable conditions. The BAT documents are also available for companies outside the EU and can be used for inspiration and benchmarking of activities globally.

“BAT: Zero waste water dye- and print house in south India. About 90% recycling of waste water from dyeing/washing and recovery of salt to be reused for processing. Combined membrane-filtration and evaporation system”.



→ HOW TO ACHIEVE GOOD ENVIRONMENTAL PRACTICES? ACHIEVER

ECOLABELLING AND GREENING THE SUPPLY CHAIN

Ecolabelling schemes are also important instruments for suppliers at the achiever level. There are two ways to promote ecolabelling schemes – either by encouraging suppliers to get their own products ecolabelled, or inviting suppliers to be part of an ecolabelling program and thereby contributing with some selected components to an ecolabelled product. The latter requires engaging in close collaboration and dialogue with suppliers on how to comply with the ecolabel criteria. Companies could also inspire suppliers to seek inspiration in the environmental criteria of certain ecolabels, for example the Nordic Ecolabel or the EU Ecolabel, and make a step by step implementation of the criteria → www.ecolabel.dk.

Environmental supply chain management at the achiever level means redefining the design of products and promoting cleaner production in the supply chain. In this context, the cradle to cradle (C2C) vision could be used as inspiration.

In general, companies at the achiever level are drivers for sustainable production and consumption, and are capable of gaining a competitive advantage of this position.



USE OF ECOLABELS

»Application of ISO 14001, the Flower and OEKO-Tex entail a two-fold advantage. First of all it provides us with widely acknowledged environmental management and compliance -monitoring systems. This gives us the best possible assurance for high quality and environmental responsibility throughout the life cycle of our products. Secondly, the labels are a means of communication. They ensure our customers that they can trust our products. Not only in relation to quality and environmental responsibility, but also that our products do not carry any known substances harmful to the human body«.

Birgitte Vendel, Project Manager Sourcing, Beirholm

IT STARTS BY DESIGN...

80 % of a product's environmental impacts are determined in the design phase – according to general LCA studies. Decisions taken during development and design of new products determine the selection of materials, life-time of products, resource consumption during the use of the product, and the potentials for recycling the product. Danish companies have a great opportunity to reduce the environmental footprint of a product by redefining the design.

Cradle to Cradle (C2C) is a relatively new design concept, where the focus is to design products which can enter into new product cycles and become input for future generations of products and raw materials. Ways to achieve this include avoiding undesirable substances, reducing input of non-renewable raw materials, developing products that can be reused, and by using renewable energy during production.

ENVIRONMENTAL EFFORTS IN THE SUPPLY CHAIN

In the table you can find suggested environmental efforts in the supply chain for different environmental parameters.

ENERGY

- Substitution of fossil energy
- Reduction of greenhouse gas emissions
- Energy savings

MATERIAL

- Use of renewable materials
- Packaging optimization
- Reduction of solid waste
- More efficient use of resources

WATER

- Water savings
- Segregation, recycling and reuse of water streams
- Wastewater treatment

CHEMICALS

- Substitution
- Reduction of consumption of chemicals
- Reduction and safe handling of hazardous waste

OTHER FACTORS

- Minimizing soil contamination
- Reduction of noise and odour emissions
- Others

ACTIONS AT THE DIFFERENT PERFORMANCE LEVELS

Actions to be taken at the different performance levels (beginner, improver and achiever) are shown for water and energy as examples. Further inspiration on actions to be taken at the three performance levels for different environmental topics can be found in the Global Social Compliance Programme, GSCP: Reference Requirements and Guidelines for Implementation
→ www.gscpnet.com.

WATER

- Record water consumption
- Derive water balance

BEGINNER

- Reduce water consumption

IMPROVER

- Produce with low water factor
- Use of recycled water
- Use environmentally efficient technologies (e.g. BAT)

ACHIEVER

ENERGY

- Record energy consumption
- Derive energy balance

BEGINNER

- Reduce energy consumption
- Reduce CO₂ emission

IMPROVER

- Produce with low energy factor
- Use non-fossil fuel
- Use energy efficient technologies (e.g. BAT)

ACHIEVER

TOOLBOX

- WHICH ENVIRONMENTAL TOOLS CAN BE USED?

Several environmental tools exist for companies to use when implementing environmental responsibility in their supply chains. Below is listed some of the key national and international environmental tools.

UN'S GLOBAL COMPACT

Global Compact has developed several tools including A Practical Guide for Continuous Improvement to assist companies in implementing the Global Compact principles throughout the supply chains and integrate sustainability into procurement strategies → www.unglobalcompact.org. For more information on Global Compact, see p. 10.

ISO 26000

ISO 26000 is an international guidance standard on social responsibility which covers the environment as one of six core subjects on social responsibility. ISO 26000 gives guidance on prevention of pollution, sustainable resource use, climate change mitigation and adaptation and protection and restoration of the natural environment → www.iso.org. ISO 26000 may become a useful tool for companies to advance universal environmental principles in their supply chains integrated with other responsibility aspects such as labour rights.

GSCP ENVIRONMENTAL MODULE

To get inspiration on environmental requirements and implementation guidelines for suppliers take a look at the Environmental Module of the Global Social Compliance Programme, GSCP → www.gscpnet.com. The GSCP seeks to form a common understanding of what good environmental practice looks like and has defined environmental requirements at employment site level across geographies and sectors.

LIFE CYCLE ASSESSMENT

Life Cycle Assessment, LCA, is a generally accepted method for assessing environmental impact of different processes throughout the entire lifecycle of a given product and service - all the way from raw material to production, consumption and waste disposal. An LCA provides the basis for choosing the most attractive process from a number of alternative processes providing the same benefit → www.lca-center.dk. Companies can seek inspiration in the booklet An Introduction to Life-Cycle Thinking and Management → www.mst.dk.

Two international standards, ISO 14040 and ISO 14044, are related to the framework for life cycle assessment → www.iso.org.



ENVIRONMENTAL MANAGEMENT SYSTEMS

More than 800 Danish companies are certified according to an environmental management system (EMS). Many more companies are following the procedures in an EMS without being certified. The two commonly used standards are the international ISO 14001 → www.iso.org and the EU Eco-Management and Audit Scheme, EMAS

→ <http://ec.europa.eu/environment/emas>.

The latter is now open for companies outside the EU.

An EMAS Scheme guarantees a validation by a third party. Moreover, the environmental performance is measured according to environmental performance indicators. Organisations outside EU wanting to become EMAS registered shall make reference to the EU legal requirements. Through this requirement companies outside the EU will be familiar with and aware of the requirements to companies and organisations within the EU. Promoting EMAS in the supply chain means making sure that suppliers follow the same environmental standards as the company itself.

ECOLABELS

During the last years an increasing number of Danish companies have taken part in environmental labelling schemes to document their efforts to produce more environmentally friendly products and services. Ecolabelling is a useful tool to prioritise efforts in the supply chain. Today, a number of different ecolabels exist and the number of ecolabelled products has already exceeded 5,000. The most widely spread are the Flower (EU Ecolabel) and the Swan (Nordic Ecolabel) administrated by Ecolabelling Denmark → www.ecolabel.dk. The purpose of ecolabelling is to minimise impacts on the environment and our health from products and services. Criteria are developed for specific products and services. The setting of criteria is based on an assessment of impacts during the whole life-cycle.

GUIDANCE DOCUMENTS ON GREEN PROCUREMENT

Do you need a quick guidance on green procurement of everything from textiles to IT and office equipment, then take a look at → www.miljovejledninger.dk. The Danish Environmental Protection Agency has developed environmental guidance documents for 46 products. The guidance documents relate to large and small procurement processes and are based on life cycle analyses.



ENVIRONMENTAL CONSIDERATION IN THE DESIGN OF PRODUCTS

To get inspiration on how to consider environmental impacts in the design phase, see the List of Undesirable Substances and the guide on Environmental improvement through product development developed by the Confederation of Danish Industries and the Danish Environmental Protection Agency → www.mst.dk.

**Danish Ministry of the Environment
Environmental Protection Agency**

Strandgade 29

DK-1401 Copenhagen K

Phone +45 7254 4000

mst@mst.dk

www.mst.dk

Danish Ethical Trading Initiative

Bredgade 26, 2nd floor

Postboks 9042

DK-1022 Copenhagen K

Phone +45 9942 1453

info@dieh.dk

www.dieh.dk