ecomapping®

A visual, simple and practical tool to analyse , manage and communicate the environmental per formance of craft and small companies her e and in developing economies

Public policy is using more market tool like green labels, procurement and standards.
International markets start to take environmental issues into account and are demanding EMAS and ISO 14001 in their supply chain.
But environmental management poses specific problems for SMEs and micro-enterprises
Tools exist but they are often over-complicated
Visual, simple and practical tools are needed to enable small companies to participate

Ecomapping is creative and helps small SME's to implement environmental management systems like ISO 14001 and EMAS
It is:

- an inventory of environmental practices and problems
- a systematic method of conducting an on-site environmental review and audit
- a tool that allows employee involvement and participation
- a support for training and awareness, and to assist with internal and external communication
- an easy way to document and track environmental improvements

It allows third world SME's and micro companies to be part of sustainable trade

One picture tells you more more than a thousand words...

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An initiative supported by the International Network for Environmental Management

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Business of tomorrow is not about products and processes but about the way business is done

Sustainability and fairness in the marketplace :
Environmental management and information «light» for small and micro-companies.

Micro-enterprise and small to medium-sized enterprise (SMEs) are the backbone of most national economies.
Among the 75 million businesses globally, SMEs account for 90% of the industrial fabric and contribute in a significant way to economic growth, social cohesion, employment, regional and local development.
Today, globalization is driving the trend to adopt standards in products, processes, management and information to create common ground and recreate the feeling of excitement of the market square.
Global sourcing of goods and services imposes labels, standards, management tools and control systems. Greening of government programmes and cooperative green purchasing schemes underpin this trend.
Radical changes are occurring as the world marketplace becomes one. SMEs need to be able to play alongside multinationals using the same rules and measures, intelligently applied.
In the global marketplace and the world-wide supply-chain this will impact directly the day to day reality of small SMEs.
SMEs must demonstrate today, or in the very near future, a credible track record of consistent, good environmental management, even in developing economies. Furthermore, the quality of worker health and safety, and the impact of a business on community and social issues are the subject of growing public scrutiny by consumers worldwide. Multinationals companies in production, services and retailing are starting to requireconfirmation of international standards (such as ISO 14001, EMAS, GRI, SA8000, ISO 9000...) as a way to streamline their supply base and reduce risk.
But the traditional means of confirming quality or environmental management standards are often too expensive or too complex given the re s o u rces and day-to-day realities of a micro-enterprise (<10 employees). The goal is to lower the barriers to success without lowering the value and credibility of these important business
tools. Innovative and resource appropriate means are needed to foster adoption, instil confidence with recognition in the marketplace. These tools have to be simple, empowering and participatory, without requiring expensive consultancy expertise.
They must be able to function in a 2$ a day economy and be recognized as credible by a 1000$ a day economy. Shareware management tools like Ecomapping could be part of such a challenge.

Heinz Werner Engel
EcoMapping Network
Brussels Septembre 2002

What is eco-mapping or eco-maps ?

Eco-mapping is a visual and easy-to-use toolbox which gets employees involved in good environmental practise . It is the first step towards integrating environmental considerations into the day-to-day activities of small SME's . Ecomapping is useful for the implementation of ISO 14001, EMAS regulation or for green productivity.

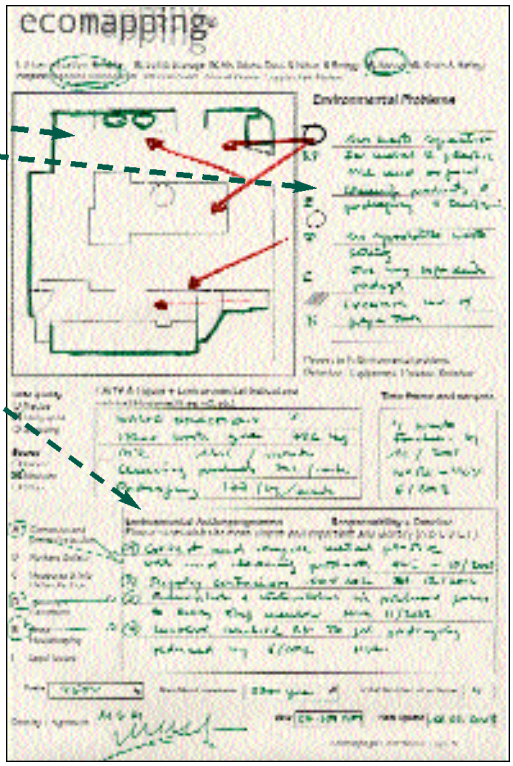
Ecomapping is :
- an inventory of environmental practices and problems
- a systematic method of conducting an on-site environmental review
- a collection of information which shows the current situation using visual language and a sketch from your workplace
- an adult learning and awareness-raising tool
- a tool which allows employee involvement and participation

Eco-mapping is environmental management « light »

- which helps in learning about and collecting data
- a support for training and communicationand internal audits
- the basis of environmental documentation for your company
- everyone in your company can use it as a support for their work and training
- everyone in your company can participate without having written heavy procedures and instructions
- a method which allows your small company to define and prioritise problems

Environmental management components on a glance
Environmental aspects identification
Significance of problems
Environmental performance indicators
Environmental targets
Appreciation of information quality
Environmental action programme
Root cause analysis
Costs and benefits
Date lines and responsibilities
Internal audit date
EMS documentation

The development of eco-maps on water, soil, air, waste management, etc. is not a goal in itself. The main interest lies in the fact that it is a participatory learning process which brings immediate positive action and results.



(N.B. The eco-maps presented here are from a kitchen.)

Ecomapping toolbox

Ecomapping is a step by step process to gather useful information and to trigger off immediately environmental action. As 80 % of environmental information is location based Ecomaps of your shop floor are useful. They show what is happen and where in terms of environmental protection.
Ecomapping is a toolbox and its ten working steps are leading into - and enriching the next one. The Work is partly done in the office, mainly on the shop floor..
Ecomapping is easy : it helps and assists you in understanding environmental problems, materials flows ,opinions , facts and figures.

Ten steps :

1	The Urban map and your sector specific ID
2	Your material flows and a rough evaluation what is going in and out
3	Workers opinion pool and implication
4-5-6-7-8-9	Ecomapping
10	Integration and Micro reporting

1. Site in the city : the urban situation

Make a map of the site, seen from above, including car parks, access areas, roads and the surrounding environment. What is the big picture ?

2 What is going in and out ?

Get an idea of your material flows and their very nature and this will help you to pay more attention later in the work to some aspects like storage, health risk ressource use .

3 What do they think and how do they feel

Workers are adults with experience ,opinions and ideas. Get them involved now and do a 120 second audit . This will influence the way you do your assesment on the shopfloor.

4-5-6-7-8-9 Map out the site - Observe and evaluate behaviour and equipments,

The Ecomaps should show the real situation - they should be simple, recognisable and in proportion. They should have a date, a name and a reference. You will have to integrate one or two significant objects which will enable you to orient yourself straight away in the site (e.g. machines, boilers, etc.). You may use the example in the documents as template as well

10 Organize , manage and communicate

During the process you will discover information deficits but also decide on envirionmental steps and actions to implement . Put all this relevant information in the aporbiate cases and files. Environmental indicators and very lean reporting will help you to keep you and your staff informed but as well be able to dialogue with all other stakeholdes like your marketplace or public administration.

ecomapping®

I. Urban situation II. Water III. Soil & Storage IV. Air, Odors, Dust & Noise V. Energy VI. Waste VII. Risks & Safety
Purpose Baseline Assessment Internal Audit Annual Review Supply chain Review

Environmental Problems

Please clarify Environmental problems
Behaviour Equipement Process Knowhow

Data quality
❍ Precise
❍ Fairly good
❍ Guessing

Source
❍ Invoice
❍ Measure
❍ Other.....

Facts & Figure + Environmental Indicators

metrics (kilograms, litres, m3, etc)

Time frame and targets

Environmental Actionprogramme Responsability + Dateline

Please start with the most urgent and important and identify (A B C D E F)

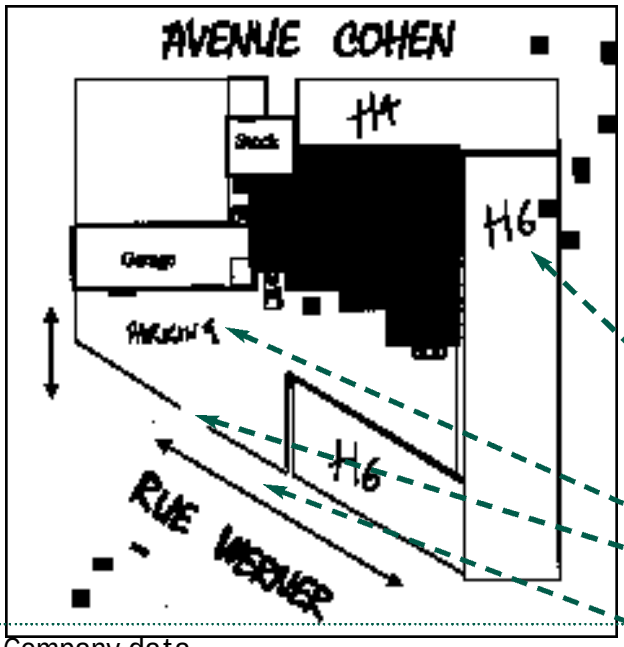
A Corrective and preventive action
B Workers Safety
C Measures & info Datacollection
D Training & Education
E Good Housekeeping
F Legal issues

Costs € Benefits of measures € Total Number of actions

Done by + signature..... date Next Update

Eco-map: urban situation

This map situates your site in its urban context.



- What are the areas of interaction between your site and its neighbours?
- What is the authorised use of the area covered (i.e. commercial, industrial)?
- What traffic is generated by your activities (car, train, truck, plane)?
- What is the situation of your company in the neighborhood?
- Are there rivers nearby?
- What kind of sewage system?

- Indicate the number of floors above ground (not including roofs) of the buildings around the company within a radius of 50 metres.
- Use of land (car park or building)
- Entrance and main points of access to the company
- Direction of traffic

Company data

Company name			
Contact person :			
Address : Street	n°	City	Post code
Phone	Fax	E-mail	
NACE code	VAT n°		
Sector ❒ Handcarft	❒ Industry	❒ Service	
Management system in place :	❒ HACCP	❒ ISO 9000	❒ Other :

Traffic in the city (Also see : http://www.iclei.org/iclei/co2calc.htm)

Assess the number of vehicles in relation to your activities and estimate their annual number of movements (cars, trucks, lorries, etc). The table below will help you to roughly calculate the pollution generated.

Emissions gr per km	Light vehicles, petrol	Light vehicles, diesel	Heavy vehicles, diesel
CO_2 (Carbon dioxide)	250	133	837
NOx (Nitrogen oxide)	2.53	0.55	19.2
SO_2 (Sulphur dioxide)	0.026	0.168	1.052

In your action programme, don't forget to work on transport and mobility problems

Observe

- Usage of neighbouring areas (residential, green areas, industrial)
- Roads and direction of traffic
- Problems with neighbours

Collect information

- Cadastral survey
- Sectorial environmental guidances
- License to operate
- Construction permit

Evaluate & Estimate

- Importance of traffic (cars, trucks, etc.)
- Parking areas available and used
- In-coming and outgoing movements (suppliers, bin-men, employees' and customers, etc.)

Indicators & reporting

- Surface in m^2
- Date of establishment
- Average number of employees a year
- Age of buildings
- Number of vehicle movements
- Turnover (€)

Material flows and resource use

Your company is a black box. Raw material, energy, auxiliairy products and packaging are entering the company. New products, services but also different types of waste (solid, liquid, airborne) are leaving the company.
A material flow will allow you in terms of Kg, T, m3 to get a clear picture of resources using, non productive output and a better understanding of the very nature of the products you use or dispose. Please use generally accepted international metrics (m3, kWh, Tons, Kg, etc.)

Decide which flows deserves the most attention

IN (per year)

Raw material	Consumption	Nature of product
Paints	.....kg	....
Solvants	.....kg	....
Auxiliairy products used		
Lubrification	.....litres	....
Detergeants	.....litres	....
Cleaners, salt	.....litres	....
Office supplies	.....kg	....
Computers and electronics	.....Units	....
Packaging		
Films	.....kg	....
Cans	.....kg	....
Water consumption		
Distribution water	.....m^3	....
Groundwater	.....m^3	....
Energy		
Heating Fuel	.....litres	....
Gaz	.....m^3	....
Electricity	.....kWh	....
Diesel & fuel for vehicules	.....litres	....
Renewable energy	.....kWh	....
Transport of goods		
road	.....km	....
train, water, air	.....km	....

OUT (per year)

Products and services	Production	Nature of product
Finished products	.....Units	....
Semi-finished products	.....Units	....
Service unit	.....Units	....
Waste		
Packaging waste	.....kg	....
Hazardous waste	.....kg	....
Non toxic waste	.....kg	....
Paper and card board	.....kg	....
Waste Water		
Estimate amount		
of pollutants in waste water	.....litres	....
Recycling of water in process	.....m^3	....
DBO	.....mgr/lit	....
CDO	.....mgr/lit	....
Emissions to Air		
CO_2	.....kg	....
SO_x	.....kg	....
NO_x	.....gr	....
Noise level		
Number of complaints	..complaints	....
Dust and odours		
Value of measures	.....ppm	....

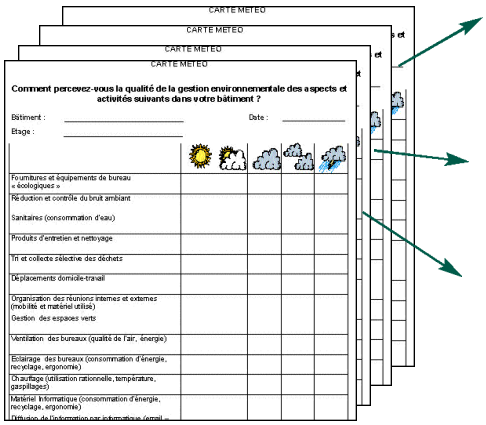
Please identify if possible the nature of the products :

1	2	3	4	5	6	7
						
Eco-labelled	Recycled	Corrosive	Dangerous for the environment	Flammable	Harmful	Toxic

Workers implication and opinion poll – the Environmental «Weather» Map

Before doing Ecomapping on the shopfloor, fine tune your preparation with an opinion poll among your staff. This will allow you to get the perception of your employees where environmental action is required. Ask them to give quick and intuitive responses - one cross per question in 120 seconds. The correspondence be tween the results of this quick « opinion poll » will help you to investigate the following steps and harvest interesting information.

Organise your own opinion poll in 3 steps :



Adapt the existing mini-audit to the activities and environmental aspects of your organisation if needed

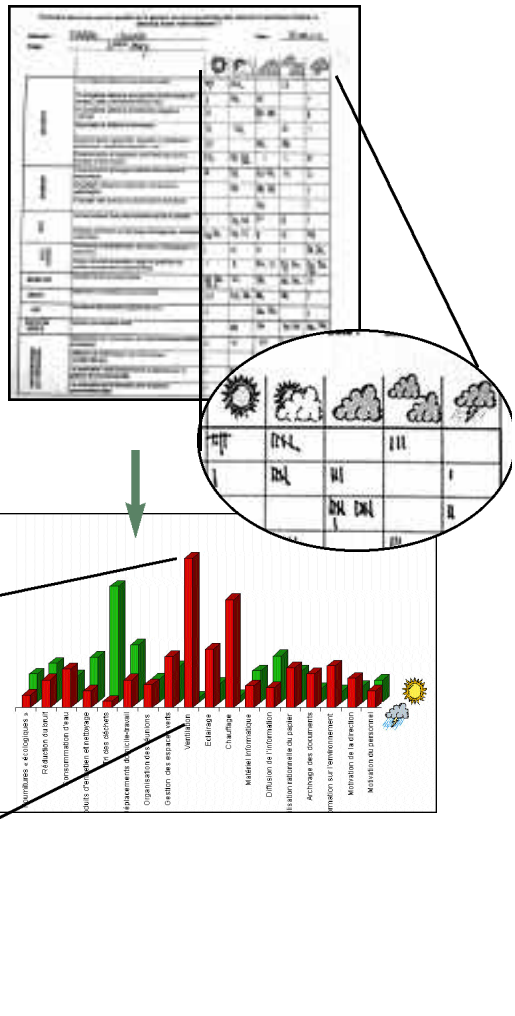
Distribute enough copies of the finalised mini-audit to all the employees

> *Tip : differentiate the management staff and the workers perception by using the mini-audit on 2 different collored papers*

Organise the mini-audit either per building, per zone or per activity

Collect and summarise the answers and visualise the results by integrating the results in a spreadsheet to get a graphical representation .

> Tip : print out 2 weather maps graphics : one stackled collumn graph which will indicate the different answers and one 3D collumn graph which will compare only the best (sun) and worst (storm) answers.



Communicate the results to the employees that have participated in the exercice and to the top management. Focalise on bad points, but point out also the sunny side !

Investigate into the activities and aspects rated as worst by the employees and follow up.

Take into account the opinions expressed and have a closer look in the respective areas when you walk around with your eco-maps on the shopfloor and do environmental reviews.

A 120 seconds Mini-audit :
The Environmental «Weather» Map

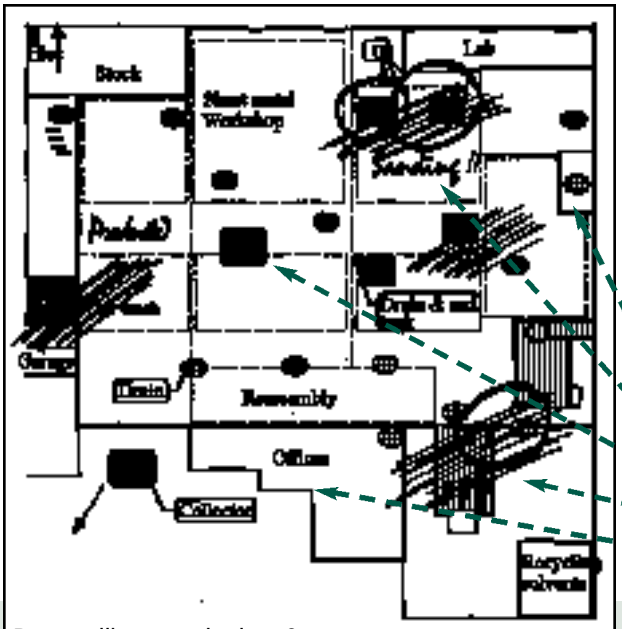
Location: ..... Date: ..... Name (facultative): .....

Help us to get a feeling of what is good and wrong with the environmental management of our company. Please tick (X) the zone which express your feeling

					
Use of raw materials, products and resources					
Use and choice of energy (fuel, gaz, electricity)					
Use of water and wastewater					
Prevention and reduction of waste stream					
Recycling and selective separation of waste					
Air pollution, dust and odours					
Reduction and control of noise and vibrations					
Storage of products					
Mobility and transport of employees and goods					
Green planning for products and services					
Health and safety in the workplace					
Prevention of environmental accidents					
Environmental information (internal and external)					
Communication with suppliers and subcontractors					
Neighbourhood (dialogue and implication)					
Motivation of managers					
Motivation of employees					
Environmental management practices					

Eco-map: water

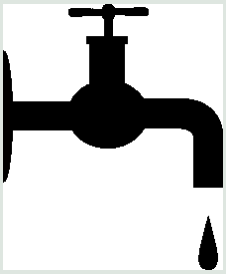
This eco-map looks at your consumption of water and discharge of wastewater.



- Where is there a high level of water consumption?
- Where are hazardous products poured into the sewer?
- Possibilities for product substitution
- Possible accidents
- Wastage and bad habits
- Areas of cost-savings
- Indentify major release of domestic, process, cooling water

- Drains
- Areas of bad practice
- Piping system
- STOP! unallowable
- Water leakage

Do you like to calculate?
Convert your water consumption in m3 into equivalent per inhabitant, keeping in mind tha t an average Belgian consumes 120 litres a day .



- Check for leaks!
- Measure consumption!
- Save water!

One drop of water takes from five to 25 years to go from a cloud to your tap. Water is a resource which must be protected and must not be wasted. One person con-sumes on average 70 litres of water a day. How much does your company consume per year in comparison with a normal person? Which areas of activities are dangerous in terms of water pollution, e.g. cabin for paint-ing or paint stripping? Check to see where all drains are situated. Don't forget that one drop of petrol products contaminates more than 5,000 litres of water.

Observe
- Areas where liquids are poured
- Piping and drainage system
- Treatment equipment
- Major areas of consumption (washing machines,...)
- Pumping of groundwater
- Use of rain water

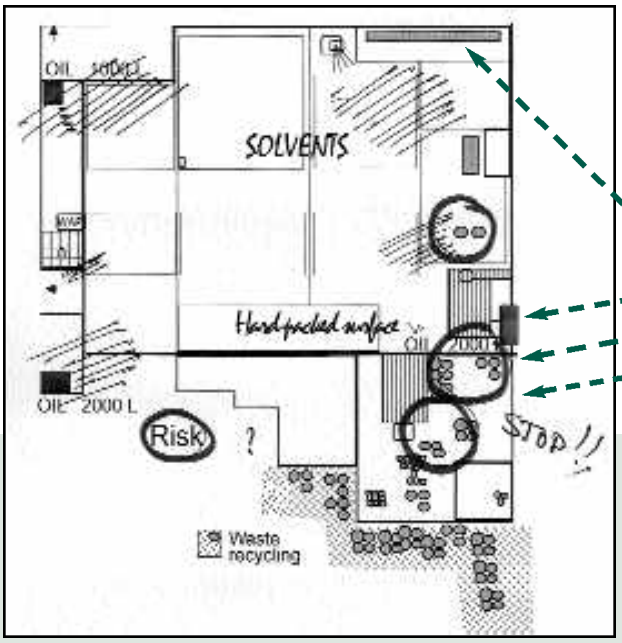
Collect information
- Annual water bills
- Permits for discharge of wastewater
- Permit for pumping of groundwater
- Plan of sewage system
- If treatment equipment is used, technical description from supplier

Evaluate & Estimate
- Wastage
- Activities which require water
- Water charges
- Bad practices
- Pollutants and impact of pollutants
- Measurements of discharges
- Proper functionning of watertreatment equipment

Indicators & reporting
- Major sources of consumption, % (domestic, process, cooling)
- Results of measurments of discharges (dbo, cbo…)
- Cost of water consumption in €
- Taxes of water discharges in €

Eco-map: soil and storage

This eco-map looks at the storage of inflammable, dangerous or hazardous products in relation to groundwater.



- Is there a threat to groundwater in the case of accidents?
- Where are your old oil tanks?
- Soil pollution?
- Procedures in the case of accidents?
- Do storage areas have concrete floors, are they partitioned off, are they ventilated?

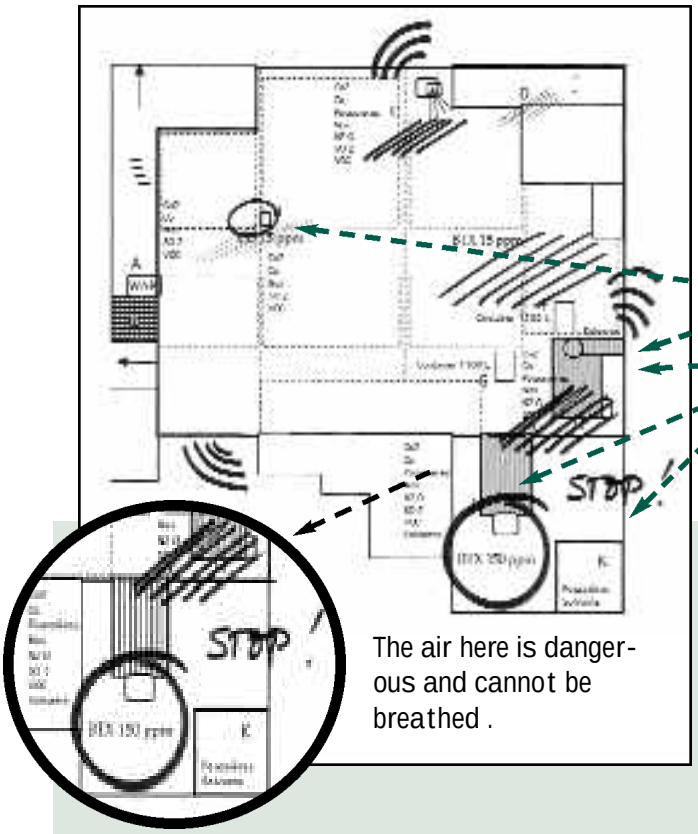
- Storage areas
- Oil tanks
- Drums and bins
- Areas of risk

1 litre of petrol which infiltrates the soil can contaminate 1,000 m^3 of groundwater.
For this reason it is very important to know the history of your site, the positioning of old oil tanks, ground surfacing materials, etc. Polluted soil will lower the value of your site. In certain European countries, when companies and the land upon which they are situated are being sold, lawyers require an attestation regarding soil quality. If the soil is polluted, it has to be decontaminated (costs at the moment average $138 per m^2).

Observe	Collect information	Evaluate & Estimate	Indicators & reporting
• Storage areas • Tanks • Drums, containers, "suspicious" pallets	• Data safety sheets on products • Analysis of basements • Layout of tanks • Areas of water collection • Permits for tanks above 3.000 liters • Watertight and security reports	• Analyse condition of old tanks • Impermeability of soil • Conditions of storage of hazardous products, finished goods and waste • Type of products stored in tanks and drums • Oil & chemicals leakages	• Watertight surfaces in m^2 • Permanent stock of inflammables and toxic material in litres • Capacity of tanks in litres • Number of leaking incidents per year

Eco-map: air, odours, noise, dust

This eco-map looks at all the points of emissions and the functioning of machinery.



The air here is dangerous and cannot be breathed .

- What is the air quality inside your company?
- Do you pay attention to sources of noise, complaints from local residents?
- Are filters replaced regularly?
- When was maintenance work last carried out on your boiler?

- Chimneys
- Extractors
- Noise
- Volatile products
- Areas of bad practice

If your company is located in an urban area you should pay particular attention to the problem of noise. Do a test. If at the edge of the site you can no longer have a conversation without raising your voice, you have exceeded 65 decibels.

Atmospheric emissions are mainly due to heating installations and generators. Make an estimate:

	Natural gas (g/m ^{3})	Heating oil (g/litre)
Greenhouse effect: CO_2	1,879	3,136.5
Photosmog: NO_X	3.01	3.35
Acid rain: SO_2	0.027	3.6

Do a total calculation of CO_2 by multiplying the total calculated for your eco-map urban situation by 5.

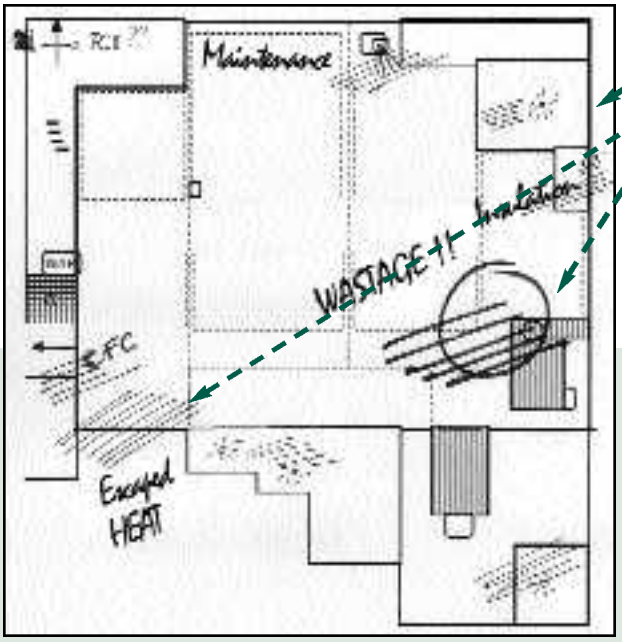
Make a comparison: a person living in a developing country generates 1.8 tonnes of CO_2 per year.

Observe	Collect information	Evaluate & Estimate	Indicators & reporting
• Openings in roofs and ventilators • Main points of emissions	• Certificates of maintenance • Technical instruction sheets • Product safety sheets • Measurement of air pollution report • Emission level of standards andl Norms	• Work procedures • Product quality • State of filters and pipes • Disturbing odours • Neighbourghs complaints about noise, air, dust and odours	• Volume of volatile pollutants, litres • Noise levels (dBa) inside and outside • Frequency of analysis and maintenance • Results of measurements (CO_2, NO_X, SO_X)

Eco-map: energy

This eco-map looks at your consumption of energy and the impacts which it has.

- Where are areas of wastage?
- Compliant electrical installations
- Where do heat losses occur?



- Aggressive lighting
- Loss of energy
- Oversized machinery

Convert your energy consumption into kWh

Resources consumed	*Energy generated (kWh)*
Fuel: 1 litre	*10*
Gas: 1 m3	*11.28*
Propane: 1 tonne	*12,880*
Coal: 1 tonne	*8,500*
Wood (broad-leafed tree): 1 stere	*1.56*

Visualise the equivalent quantity of resources necessary to generate this energy.

Resources necessary to generate 1000 kWh	
• Brown coal	*1,300 kg*
• Low energy-value waste	*3,500 kg*
• Solar panels	*12,500 m²*
• Uranium (Nuclear power)	*0.022 gr*
• Natural gas	*270 m³*
• Water (dam of 10m height)	*43,200 m³*

Observe
- Location of machinery
- Useless lighting
- Areas of heat loss

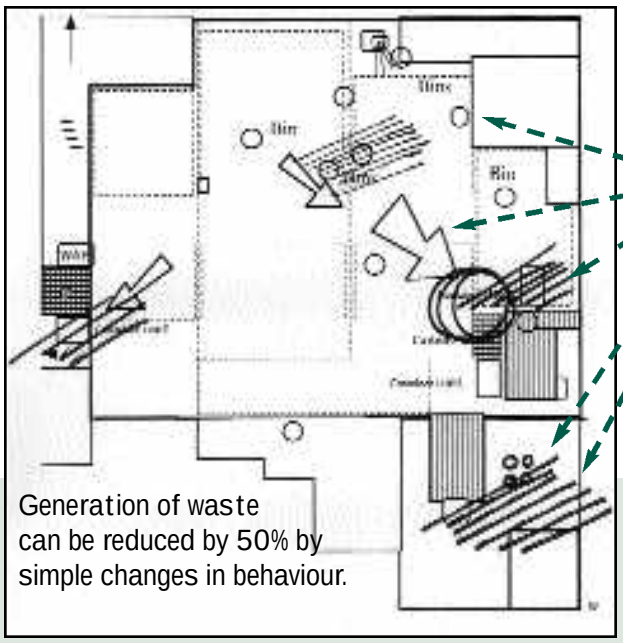
Collect information
- Maintenance certificatesof heating systems and machinery
- Technical instruction sheets for machinery
- Bills

Evaluate & Estimate
- Type and use of energy
- Insulation
- Energy efficiency (good / ok / bad)
- Oversized machinery
- Heating installation efficiency

Indicators & reporting
- Consumption kWh (computing and administration, lights, cooling and heating, process and machinery)
- Cost of Electricity, Gaz and Fuel consumption in €
- Cos phi

Eco-map: waste

This eco-map looks at management and prevention of waste.



Generation of waste can be reduced by 50% by simple changes in behaviour.

- What is the level of recycling?
- What preventative measures have been taken?
- Are your suppliers obliged to take back materials?

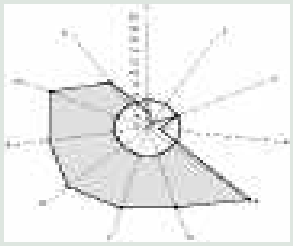
- Bins
- Direction of disposal
- Mix of household/non-hazardous waste and toxic/hazardous waste
- Areas of bad practice
- Containers and storage of waste

Evaluate the level of waste management

1 to 5: more or less good management
6 to 10: no management
11 to 15: lack of management is the source of problems
16 to 20: lack of management is the source of serious problems

Example

1	Paper and cardboard for packaging	3
2	Tyres	1
3	Non-metallic car body parts	5
4	Batteries	2
5	Waste from recycling	20
6	Empty oil filters	15
7	Aerosols	15
8	Packaging chemical products	16
9	Empty paint tins	15
10	Cabin filters	16
11	Scrap	10



Scoring from 0 to 20 takes different criteria into account. Dangerousness of products, potential of finding alternative solutions (recycling and others). Fill your figures into a table. Make a radar graph and the areas of poor or no management will be visualised immediately! (Put this up in the area of work in your company for everyone to see!). See the example given.

Observe
- Bins and containers
- Direction of waste flows
- Areas of bad practice
- Locations of waste production and storage

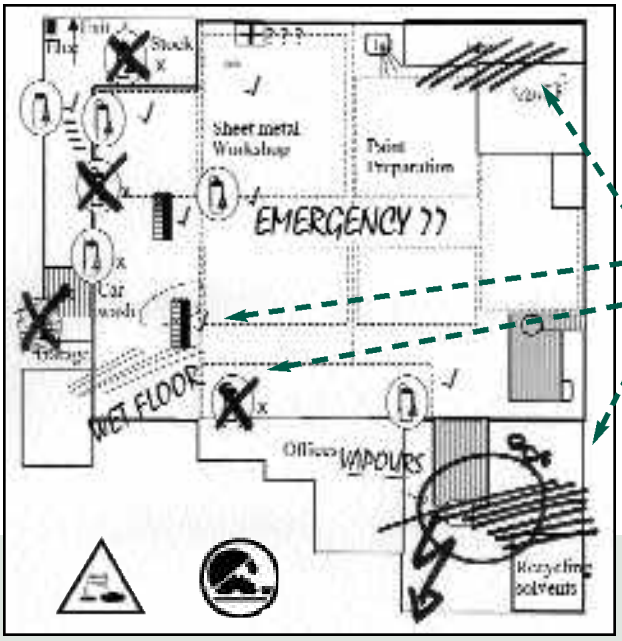
Collect information
- Recycling certificate from transporters
- Annual bills
- Assessment and development of flows

Evaluate & Estimate
- Type of wastes
- Level of recycling
- Prevention measures
- Categories of waste

Indicators & reporting
- kg of Waste disposed / category / year (paper, toner, hazardous, plastic, metal, etc.)
- Taxes paid on waste in €
- Number of different sorted waste

Eco-map: risks

This eco-map identifies risks of accidents and pollution.



- Accessible and clearly identified emergency exits
- Known emergency procedures
- Dangerous situations
- Where do you use products which are carcinogenic, cause allergic reactions, etc.?

- Accidental spillage
- Problems with falls
- Non-compliance
- Solvent clouds and risk of explosion

Risks related to health, e.g. inhalation and absorption of dangerous products or accidents which cause bodily harm.

Risks related to the environment, e.g. leakage of products, accidental spillage and usage of toxic products

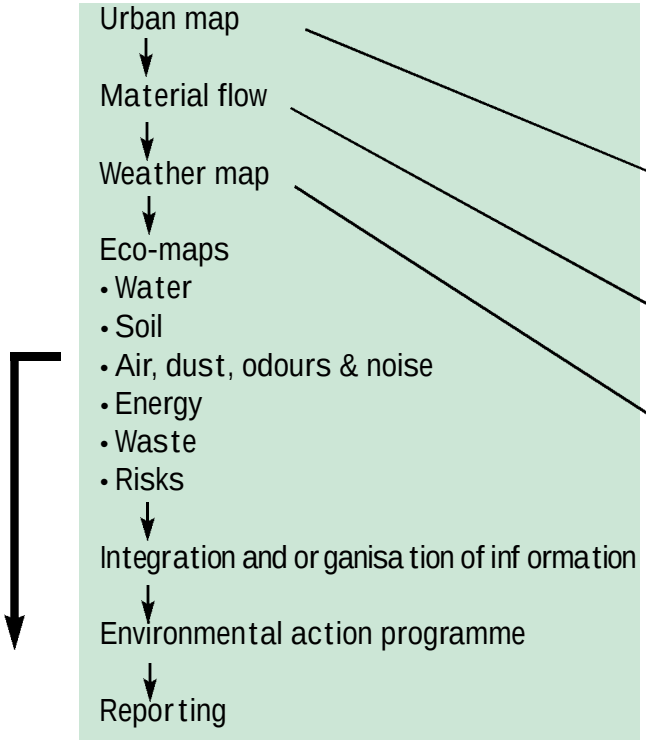
Risk related to fire, e.g. explosions and dispersion of toxic products

You must be prepared and know emergency procedures and telephone numbers

Observe	Collect information	Evaluate & Estimate	Indicators & reporting
• Location of extinguishers • Emergency exits • Areas of risk	• Toxicology sheets • Emergency procedures • Authorisations • Fire services reports • Accident reports • Electricity services reports	• State of machinery • Emergency facilities • State of ground • Categories of toxic products (corrosive, flamable, harmful, toxic)	• Number of accidents / year • Hours of training for employees / year • % of dangerous and toxic products in stock

Your environmental information system

Building up information with ecomapping



Your environmental management system logbook

of the year .....

	Number of
New environmental ideas	( )
Correctives actions applied	( )
Internal audits	( )
Spotchecks	( )
Hours of training	( )
Publications	( )
Internal meetings	( )
Complaints from neighbours	( )
Actions realised	( )
Actions with suppliers	( )
Legal requirements met	( )
Environmental benefits in €	( )
Environmental costs in €	( )

Smart filling for environmental information (Example)

General data
- Data on the company (address, NACE code,....)
- Historical development
- Marketing information
- Construction plans

Impact on the environmental quality of the surroundings
- Urban map
- Geological underground of the site
- Mobility and transport statistics
- Relationship with local residents

Company operations
- Material and energy flows in physical terms
- Technical documents of equipment
- Production processes
- Choice of products and raw materials
- Weather map - workers implication and trainings
- Subcontractors & purchasing criteria

A. Water and Wastewater
- Ecomap of water
- Quantity and quality of wastewater
- Management and Treatment of wastewater
- Sewage system (plans)
- Taxes and charges paid for wastewater discharged

B. Soil and groundwater
- Ecomap of soil
- Storage of chemical products
- Storage systems
- Soil analysis

C. Air, Dust, Noise and vibrations
- Ecomap of air, dust, noise and vibrations
- Points of emissions to air
- Airborne emissions and odours
- Sources of noise and measurements
- Maintainance certification

D. Energy
- Ecomap of energy
- Toxicology sheets
- Maintenance certificates of heating system

E. Waste
- Ecomap of waste
- Origin of waste
- Storage of waste
- Elimination of waste
- Waste management
- Recycling of waste

F. Risks
- Ecomap of risks
- Toxicology sheets
- Emergency procedures
- Accident reports

Environmental costs
(bills, investment, taxes, charges, insurance, fines)

Legal information
- Permits and licences
- Relationship with authorities
- Insurance policies

Your environmental action plans

Your Environmental reports

Your Environmental indicators

ecomapping® Environmental indicators of the year …

Environmental performance indicators

Resource use
Total chemicals use per unit . . . . . .
Total solvants use per unit . . . . . .
Industrial textiles . . . . . .
Auxiliary products . . . . . .
Material costs in € . . . . . .

Water
Domestic water per employee . . . . . .
Total water use per unit . . . . . .
Costs of water in € . . . . . .

Energy
Electricity in kWh per unit . . . . . .
Total fuel for heating . . . . . .
Total fuel for trucks and cars . . . . . .
Energy costs in € . . . . . .

Risks
Total number ofaccidents . . . . . .
Nr of safety inspections . . . . . .

Waste
Total waste . . . . . .
Total toxic waste . . . . . .
Total of non-toxic waste . . . . . .
Paper / card board . . . . . .
Level of recycling . . . . . .
Number of sorted fractions . . . . . .
Associated costs in € . . . . . .

Wastewater
Water analysis above levels . . . . . .
Wastewater Taxes in € . . . . . .

Soil and Storage
Permanent stock of fuel in cuves . . . . . .
Number of spillages in ground . . . . . .
M2 of surface sealed . . . . . .

Air, dust, odours & noise
Calculated emission of CO2 per unit . . . . . .
Evaporation of solvants per unit . . . . . .

Environmental management indicators

Goodhousekeeping
Number of actions realised . . . . . .
Number of new ideas . . . . . .
Financial benefits realised . . . . . .

Training
Nr of training hours per worker . . . . . .
Total hours of training per year . . . . . .

Purchasing & Subcontracting
% green criteria . . . . . .
dialogues with suppliers . . . . . .
Transport of goods . . . . . .

Legal issues and market place
Nr of legal checks . . . . . .
Nr of enquiries to subcontractors . . . . . .

Environmental management system
Nbr of internal audits . . . . . .
Nbr of spotchecks . . . . . .
Corrective actions closed . . . . . .
% of targets achieved . . . . . .

Social issues
Insertion of unemployed workers . . . . . .
Apprentites . . . . . .

Eco-efficiency indica tors
. . . . . Kg of toxic waste / 1000 € turnover
. . . . . Kg of non-toxic waste / 1000 € turnover
. . . . . m^3 of water consumption / 1000 € turnover
. . . . . kWh of electricity / 1000 € turnover
. . . . . litres of fuel / 1000 € turnover

Environmental targets of the year
Water . . . . . .
Waste . . . . . .
Energy . . . . . .
Purchasing . . . . . .
Trainings . . . . . .

Rating of information and data sources

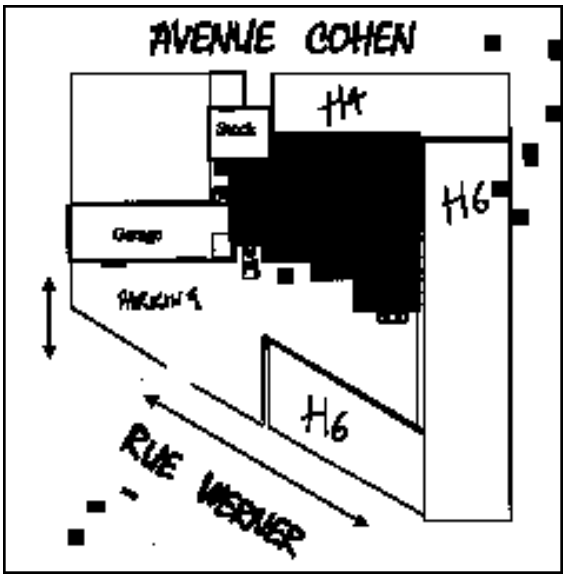
	Precise	Fairly good	Guessing	Bookeeping	Measurements	Quality system
1. Resource use	❍	❍	❍	❍	❍	❍
2. Water and wastewater	❍	❍	❍	❍	❍	❍
3. Soil and storage	❍	❍	❍	❍	❍	❍
4. Air, Dust, Noise	❍	❍	❍	❍	❍	❍
5. Energy	❍	❍	❍	❍	❍	❍
6. Waste	❍	❍	❍	❍	❍	❍
7. Risks	❍	❍	❍	❍	❍	❍
8.Neighbourghood	❍	❍	❍	❍	❍	❍
9.Goodhousekeeping	❍	❍	❍	❍	❍	❍
10.Subcontractors	❍	❍	❍	❍	❍	❍
11.Purchasing	❍	❍	❍	❍	❍	❍
12.Legal issues	❍	❍	❍	❍	❍	❍

ecomapping® Micro environmental report and declaration

Done by + signature..... Date .....

Company name			Established in
Contact person :		E-mail	
Address : Street	n°	City	Post code
Phone	Fax		Website :
NACE code	VAT n°		Turnover (€)
Average number of employees a year		Surface in m^2	
Sector :	Size	❒ Handcarft ❒ Industry	❒ Service
Management system in place :	❒ HACCP	❒ ISO 9000	❒ Other :
Urban setting :	❒ Residential	❒ Industry	

Environmental policy statement
Our company commits itself to act towards environmental protection and pollution prevention, doing better than legal compliance. We will sustain a process of continious improvement, and realise the below environmental action programme.



Ranking and significancy of environmental aspects	Nbr of obser vations		
... 1. Resource use			
... 2. Water and wastewater			
... 3. Soil and storage			
... 4. Air, Dust, Noise			
... 5. Energy			
... 6. Waste			
... 7. Risks			
... 8. Neighbourghood			
... 9. Goodhousekeeping			
... 10. Subcontractors			
... 11. Purchasing			
... 12. Legal issues			
TOTAL			

Total number of identified problems due to

Behaviour ( )

Equipment ( )

Process ( )

Know How ( )

umber of environ-ental actions

A Corrective and preventive action
B Workers Safety
C Measures & info Datacollection
D Training & Education
E Good Housekeeping
F Legal issues

Extract of our priority action programme

❒ Self declared ❒ Verfified declaration by ..... Next Report

Ecomapping – Strategy, vision, principles and recognition

The first generation of Eco-mapping is a shareware version. It has proven to be an efficient, smart tool and very usefull to SMEs as evidenced by the number of users worldwide. The shareware is offered at no charge, but its use carries the obligation to provide feedback to its creator, Heinz Werner Engel, whether you download it from INEM or The Registry; acquired a hard copy in any of the languages it now appears in (English, French, Danish, Hungarian, Arabic, Czech, Italian...); or received it from a third party. It's not a big price to pay for such a valuable tool. Since 1998 over 20.000 copies have been downloaded and over 40.000 French copies were distributed by the Belgian Walloon Region. The opportunity to help micro-enterprise apply intelligent management to environmental issues appropriate to their level of resources results in better business and benefits to the broader community. This was the original objective of H.W. Engel in 1996; a growing number of users from around the world are showing the adaptability of Ecomapping to any economic region.

Case studies

On the Ecomapping website you will find a full page description of various ecomappings uses from oraound the world :

- Ecomapping is used as a tool for goodhousekeeping and awareness-raising of local multipliers and companies in Mashrek & Maghreb countries
- Ecomapping to improve environmental protection in old state russian factories
- Ecomapping, an adult learning and training tool to involve SME's workers in environmental management
- Ecomapping, an adult learning and training tool for eco-counsellors
- Ecomapping a tool to help public environmental coordinators implementing greening of government programmes
- Ecomapping as an initial environmental assement tool for schools
- Ecomapping is used for internal and external audit support of ISO 14001
- Ecomapping as a dynamic 'GIS' tool to manage industrial estates
- Ecomapping can assist in improving environmental performance in very small companies
- Ecomapping is used as a tool for baseline assement to implement step by step ISO 14001 and EMAS in 250 companies
- Ecomapping is used as an on-line training tool in a environmental awareness raising programme for the english petrol industry
- Ecomapping is used in Green Productivity, a programme to enhance productivity and environmental performance for overall socio-economic performance
- Ecomapping and Recognition Systems©, a candadian initiative providing smart access to the market place via internet

Shareware users are encouraged to forward their case histories to ecomapping@skynet.be now to be included in a report on progress, performance and ways to overcome problems.

Promotion & Distribution

Ecomapping is exclusively promoted and distributed by the International Network for Environmental Management on his website www.inem.org
The European Union is referring to Ecomapping as a successful tool to help SME's implementing EMAS on its EMAS helpdesk server
http://europa.eu.int/comm/environment/emas

Conditions of use

Eco-mapping is a copyrighted tool developed by Heinz-Werner Engel and distributed in the framework of the INEM project, "EMAS Toolkit for SMEs." Mr. Engel and INEM have decided to make Eco-mapping available free of charge to any interested individuals, companies, organisations and local authorities for personal or individual use. The Eco-mapping tool may NOT be repackaged for profit-making purposes without the express written consent of Mr. Engel. Furthermore, organisations shall report on their experience with the Eco-mapping tool to feed experience into the loop of continuous improvement for the Eco-mapping tool. By downloading the Eco-mapping tool I agree to the above conditions.

EcoMapping Training

A two days training seminar is available for professional counsellors upon request.
This 12 hour training programme is be deliverd by members of the Ecomapping network.
Info : ecomapping@skynet.be

In Europe, Ecomapping is empowering micro-enterprises and SMEs to adopt ISO 14001, conform to the EMAS regulation and participate in regional green labelling programmes. Ecomapping challenges the user to think differently to solve problems. It also helps the marketplace accept staged progress from small business, recognizing the external benefits brought by these improvements.

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