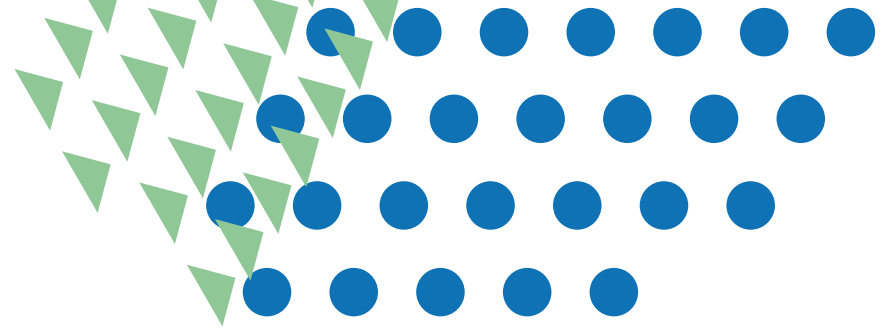




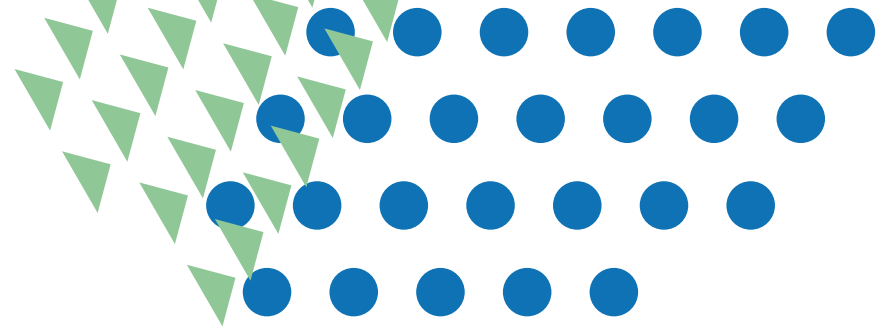
Good Morning!



**CENTRAL
EUROPE**
COOPERATING FOR SUCCESS.



EUROPEAN UNION
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Case Study Dairy

For training in Prague

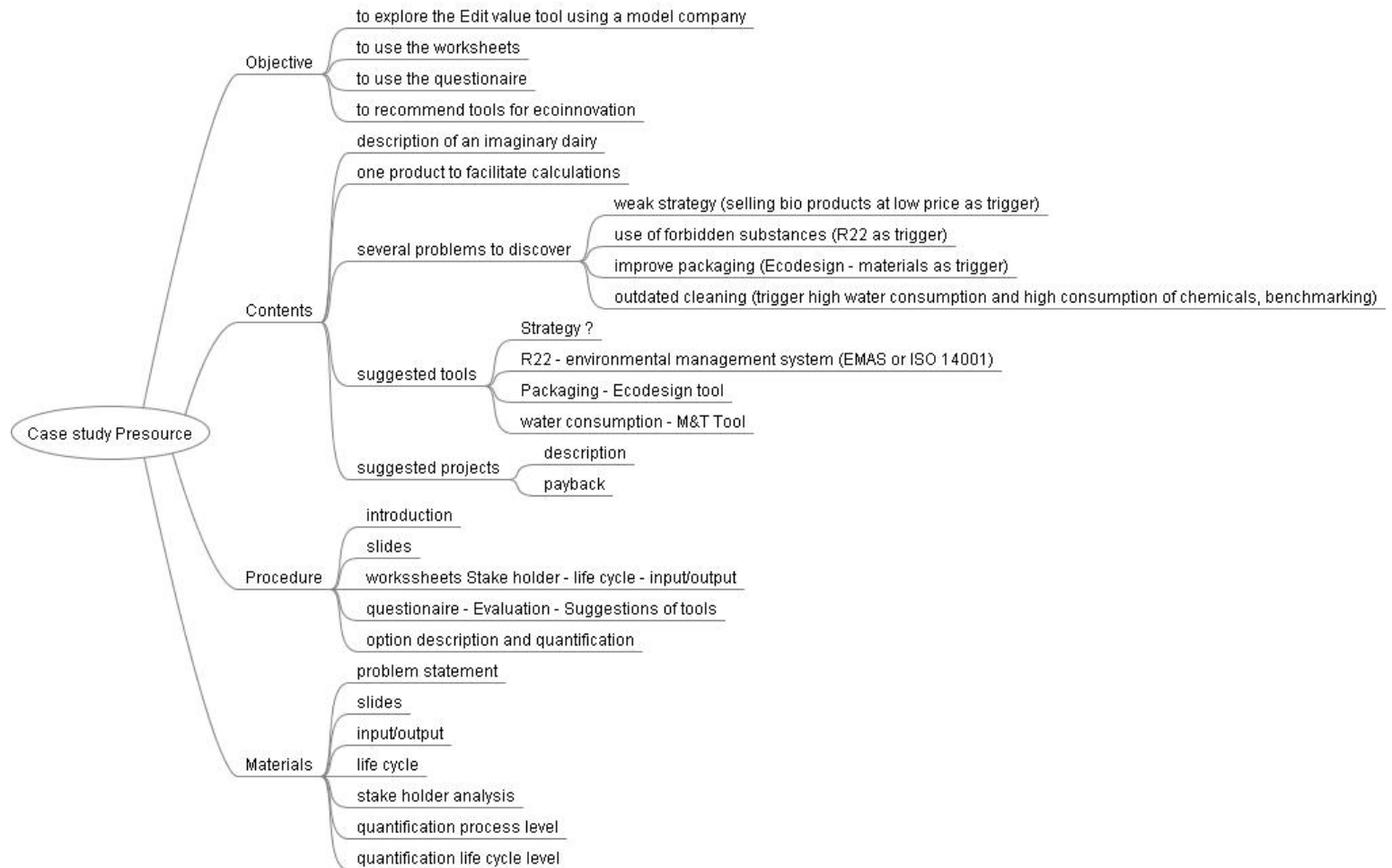


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PRESOURCE



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PRESURCE The dairy Resmilk

- Is a cooperative of dairy farmers located in the northern part of Southland
- It employs 100 people
- Works 350 days per year
- Processes milk to drinking milk
- Has a waste water treatment plant
- Has no environmental management system

PRESOURCE The management team



PRESOURCE Resmilk strategic priorities

- Further improve product quality
- Decrease production costs
- Extend the market
- Improve access to capital
- Extend enterprise facility



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PRESOURCE Awards

- Was awarded a „cheese oskar“ on the international cheese exhibition the last three years



PRESOURCE Happy cows



PRESOURCE Organisational units

- Management
- Administration
- Consulting farmers
- Production
- Logistics
- Utilities (boiler, chiller)
- Waste management

PRESOURCE Products

Product		Annual quantity	unit
Milk		68.000	t
	conventional	83,3	%
	bio	11,5	%
	industrial	5,2	%

PRESOURCE Inputs

1	Water	175.000	m ³
	From well	100.000	m ³
	From city	74.568	m ³
	Waste water	175.000	m ³
2	Raw milk	70.000	t
3	Film for milk poaches	400	t
4	Crates	4	t

PRESSOURCE Inputs

1	Water		€/m ³
	From well	0	
	From city	1	
	Waste water	1	€/m ³
2	Raw milk	0,25	€/kg
3	Film	2	€/kg
4	Crates	2	€/kg

PRESOURCE Hazardous materials

Nr	MSD S	Material	Annual quantity	unit
1	j	Cleaning agents	7.120	kg
2	j	Disinfectants	15.202	kg
3	j	lubricants	647	kg
4	j	Refrigerants (R22)	110	kg

PRESOURCE Hazardous materials

Nr	Material		unit
1	Cleaning agents	2	€/kg
2	Disinfectants	5	€/kg
3	lubricants	2	€/kg
4	Refrigerant (R22)	12	€/kg

PRESURCE Waste

Waste	Annual quantity [kg]
Industrial waste	10.000
Wood pallets	employees
Packaging material	8.000

Disposal cost 350 €/t

PRESOURCE Energy

1	Electricity	7	GWh	0,10	€/kWh
2	Natural gas	3.000.000	sm ³	0,35	€/sm ³
3	Diesel	90.000	l	1,3	€/l

PRESURCE Reception of milk

Cleaning



PRESSURE Metering



PRESOURCE Pumps



PRESSURE Cooling

Cleaning



PRESURCE Storage

Cleaning



PRESURCE Pasteurization

**Cleaning,
Cooling**



PRESURCE Packaging material



- No recycled material used for bags and crates

PRESOURCE Filling

Cleaning, cooling,
Packaging waste



PRESSOURCE Cleaning



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PRESOURCE Ready made product



PRESOURCE Storage



PRESSURE Cooling - Compressor



PRESSURE R22 for refilling



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PRESURCE CIP plant



PRESSURCE Cleaning

- Water from final rinse is not recovered
- Manual control of rinsing

PRESSOURCE Benchmarking

	Energy consumption	Water consumption	Waste water
Production of market milk from 1 litre of received milk	0.07 – 0.2 kWh/l	0.6 – 1.8 l/l	0.8 – 1.7 l/l
Production of milk powder from 1 litre of received milk	0.3 – 0.4 kWh/l	0.8 – 1.7 l/l	0.8 – 1.5 l/l
Production of 1 kg of ice-cream	0.6 – 2.8 kWh/kg	4.0 – 5.0 l/kg	2.7 – 4.0 l/kg

Source: European BREF notes, „Food, drink and milk industry“ (<http://eippcb.jrc.ec.europa.eu/reference/>)

PRESOURCE Waste water treatment



PRESSURCE Boiler



PRESSURE Steam manifold



PRESOURCE Storage of cleaning chemicals



PRESOURCE



PRESOURCE Food waste

- 25% of products is not consumed!



2:

2.4 Are there significant environmental aspects? Is there an effectively operated environmental management system in place?

NA	Absence	Preparation	Integration	Proaction	WEIGHT
0	No EMS	EMS is being prepared	EMS is implemented	EMS is effectively implemented (goals for different aspects are defined and progress is monitored)	A B C
	1	2	3	4	

Sour.

Int

Rem.

For evaluation of **WEIGHT** the following approach is recommended: A – very important should be given to an enterprise with significant environmental impacts; B – medium importance with medium importance of environmental impacts; C – low importance for low importance environmental impacts

3.2 Management of potential to increase energy efficiency

NA	Absence	Preparation	Integration	Proaction	WEIGHT
0	No data available	Documentation of energy consumption, (some) energy reduction measures	regular energy audits (internal or external), documentation of energy consumption, benchmarking, good maintenance and training activities, action plan	Monitoring and controlling of energy efficiency data, energy action plan, energy team, energy report,	A B C
1	2	3	4		
Sour.	1.2 (input/output tables)				
Rem.					

PRESOURCE Selection tool

Selection aid tool in EDIT VALUE - Microsoft Excel

	B	C	D	E	F	G	H	I	J	K
2	Selection aid for tools in EDIT VALUE									
3	in bold our priorities									
4										
5	Tool	Use free/ Freeware	Strategy	Manage- ment	Product	Process	Level	Effort	External consultant needed	Experience with
6	Care+	yes	no	no	no	yes	Experienced	1 day	no	Corvinus
7	Ecological Footprint Calcula	yes	yes	yes	yes	yes	Experienced	5 to 10 days	yes	Corvinus
8	Ecomapping	yes	yes	no	no	yes	Beginner	4 hours	no	Corvinus, Env
9	EMAS Easy	no	yes	yes	no	no	Experienced	5 to 10 days	yes	Corvinus
10	Life Cycle Manager for SMEs	yes	yes	no	yes	no	Experienced	5 to 10 days	no	Corvinus
11	RET Screen	yes	no	no	no	yes	Experienced	5 to 10 days	yes	Proacademia
12	Einstein	yes	no	no	no	yes	Experienced	5 to 10 days	yes	Proacademia
13	Promot	yes	no	no	no	yes	Experienced	4 hours	yes	Proacademia
14	EFE Motor	yes	no	no	no	yes	Experienced	4 hours	yes	Proacademia
15	Training	yes	no	no	no	yes	Experienced	4 hours	yes	Proacademia
16	CP Excellence	no	yes	yes	no	no	Experienced	5 to 10 days	yes	Enviros
17	Ecoefficiency Calendar	yes	yes	yes	yes	yes	Beginner	4 hours	no	Enviros
18	Ecoefficiency Checkup Tool	yes	no	no	no	yes	Beginner	4 hours	no	Enviros
19	Test	yes	yes	yes	no	yes	Experienced	5 to 10 days	yes	Enviros
20	Three Steps to sustainability	no	yes	yes	yes	yes	Beginner	4 hours	no	Enviros
21	Jump Tool	no	no	no	yes	no	Experienced	30 days	yes	UBA
22	PIUS Check	no	no	no	no	yes	Experienced	30 days	yes	UBA
23	Resource Cost Accounting	yes	no	no	no	yes	Experienced	4 hours	no	UBA

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PRESOURCE Suggested tool: Cleaner Production

- **READ Tool:**

http://www.environment-agency.gov.uk/static/documents/Business/Resource_Efficiency_Tool_guide_for_EPRA1_customers.pdf

- **PRESME Tool**

(estimated time to check about 4 hours)

- **Ecoprofit**

(most effective in group, 5 to 15 working days)

- **PIUS Check**

(with external consultant, 30 working days)

PRESURCE Example of application

**Environment Agency**

[Home](#)
[Business & industry](#)
[Environmental topics](#)
[Resource efficiency & environmental performance](#)
[Our role in resource efficiency](#)
[Helping EPR A1 Operators improve their resource efficiency](#)
[Resource Efficiency Assessment Questionnaire](#)

Resource Efficiency Assessment Questionnaire

1

Start the assessment

2

How you plan for efficiency

3

What you do to be efficient

4

How do you review your work

5

Setting and meeting targets

6

Resource efficiency report

Introduction

Once you have completed this questionnaire you will get a report which summarises your business's performance, strengths and areas in which to improve. Because this tool is confidential we will not view or store your data. We will not hold a copy of your report but you can print or download it.

Your details

If you would like your details to appear on your report please enter them here.

Company name

Dairy South land

Your name

Hannes

Name of specific business site(s) if applicable

About your organisation

How many employees are there at the site or business you are assessing?

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PRESOURCE

- ▶ You may need to put short term/low cost measures in place in order to make progress.

Waste – ★★★★★★☆☆☆☆

Expenditure

- ▶ At present, waste costs around £100000 per annum. Your spending is constant.

Knowledge and understanding

- ▶ You understand some of your waste production well and have measured some of your waste production.
- ▶ Your measurement is moderately accurate.

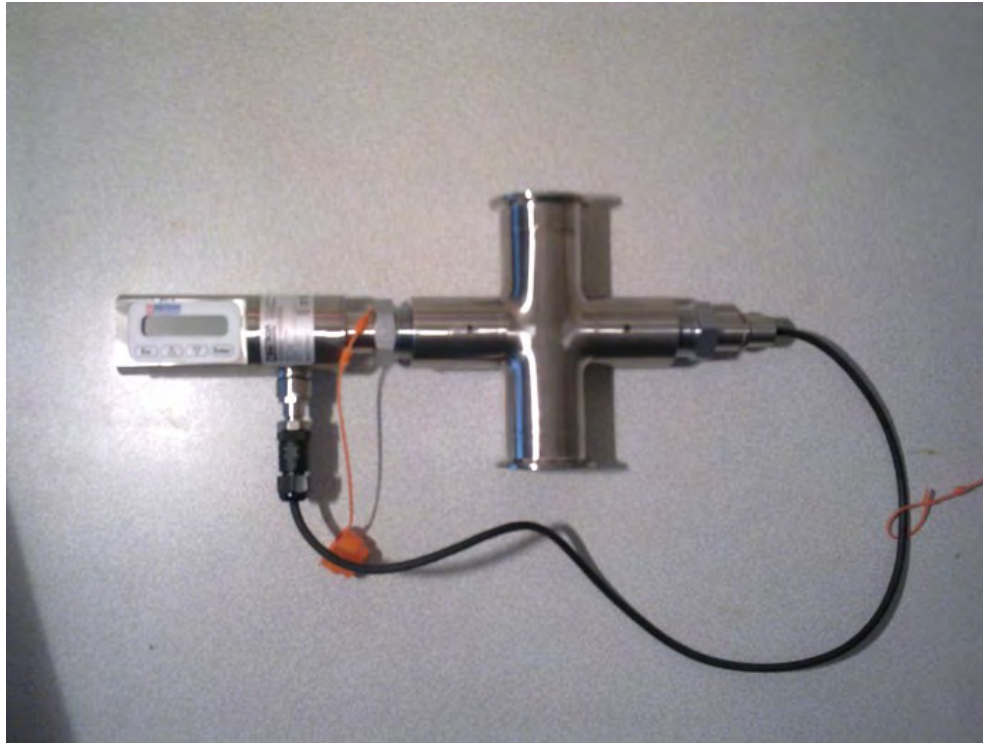
Achieving targets and improving performance

- ▶ Senior managers periodically review waste use.
- ▶ There are targets across most of the operation to manage waste use.
- ▶ Targets are partly based on technical or historical benchmarks.
- ▶ Waste use targets are sometimes achieved.
- ▶ Apparently there is more opportunity to increase efficiency in this area.
- ▶ You may need to put short term/low cost measures in place in order to make progress.

PRESOURCE Sector specific checklist (PRESME)

- Use continuous rather than batch processes to reduce the frequency of cleaning;
- Use automated cleaning-in-place (CIP) systems for cleaning to control and optimise water use;
- Install fixtures that restrict or control the flow of water for manual cleaning processes;
- Use high pressure rather than high volume for cleaning surfaces;
- Reuse relatively clean wastewaters (such as those from final rinses) for other cleaning steps or in non-critical applications;
- Recirculate water used in non-critical applications;
- Install meters on high-use equipment to monitor consumption;
- Pre-soak floors and equipment to loosen dirt before the final clean;
- Use compressed air instead of water where appropriate;
- Report and fix leaks promptly.

PRESSURCE Probes for upgrading CIP plant



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PRESURCE Proposal for upgrade of CIP plant

- 4 probes at 10.000 Euros
- 1 additional tank 15.000 Euros
- Pipes etc. 15.000 Euros
- Control unit 15.000 Euros
- Project costs, civil works, installation, startup 65.000 Euros



PRESURCE Suggested Tool: EMS

- EMAS
- ISO 14001

PRESURCE Example of application

22.12.2009

EN

Official Journal of the European Union

L 342/1

I

(Acts adopted under the EC Treaty/Euratom Treaty whose publication is obligatory)

REGULATIONS

REGULATION (EC) No 1221/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2009

on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repeaking Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 17 5(1) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social Committee (1),

development of initiatives to encourage organisations to publish rigorous and independently verified environmental or sustainable development performance reports is regarded as necessary in this context.

- (3) The Commission Communication of 30 April 2007 on the Mid-term review of the Sixth Community Environment Action Programme recognises that there is a need to improve the functioning of the voluntary instruments that

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ANNEX I

ENVIRONMENTAL REVIEW

The environmental review shall cover the following areas:

Identification of the applicable legal requirements relating to the environment.

In addition to the establishment of a list of applicable legal requirements, the organisation shall also indicate how evidence that it is complying with the different requirements can be provided.

Identification of all direct and indirect environmental aspects with a significant impact on the environment, qualified and quantified as appropriate and compiling a register of those identified as significant;

An organisation shall consider the following issues in assessing the significance of an environmental aspect:

- (i) potential to cause environmental harm;
- (ii) fragility of the local, regional or global environment;

PRESOURCE Suggested Tool: Ecodesign

- Ecolizer <http://www.ecodesignlink.be/en/ecolizer>
- Life Cycle design manager
http://www.unep.fr/scp/lcinitiative/publications/training/lcmnavigator/index_c.html

PRESOURCE Example of application



Bronze	02.02
Copper	02.03
Brass	02.04
Tin	02.05
Other	02.06

Plastics	
ABS	03.01
EVA	03.02
PA	03.03
PC	03.04
PE	03.05
PET	03.06
PMMA	03.07
PP	03.08
PS	03.09
PUR	03.10
PVC	03.11
SAN	03.12
Recycled plastics	03.13
Bioplastics	03.14
Composites	03.15
Rubber	03.16
Teflon	03.17

Bioplastics		03.14
PRODUCTION		mPt/kg
Modified starch/kg		275
Poly lactide (PLA)/kg		312
PROCESSING		mPt
Revolving, milling, drilling/cm ³		0,01 (!)
Extrusion, plastic film/kg		49
Extrusion, plastic pipes/kg		36 (!)
Hot element welding (30sec)/welding		2 (!)
Hot element welding (45min)/welding		155 (!)
Blow moulding/kg		123 (!)
Laser welding/m		0,46 (!)
Foaming/kg		60 (!)
Reaction injection moulding (RIM), large scale/kg		21 (!)
Rotation Forming/kg		106 (!)
Mirror-welding		dna
Injection moulding/kg		126 (!)
Ultrasonic welding (15kHz)/welding*		0,04 (!)
Ultrasonic welding (20kHz)/welding*		0,02 (!)
Ultrasonic welding (40kHz)/welding*		0,01 (!)
=518zoom=170,17,655		na/kg dna

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PRESOURCE Biopolymer bags



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PRESOURCE Action plan

- Train employees ...
- Check feasibility of CIP plant ...
- Introduce EMS ...
- Check feasibility of bioplastics ...

Thank you for your active participation!