

# GREEN PHILIPPINES

Greening the Philippine Industries with the **ECOPROFIT** Approach



A project funded by  
The European Union's Asia-Pro Eco Programme

## ECOPROFIT



**STENUM Ltd.**

[www.stenum.com](http://www.stenum.com)



## Ecocity Graz



- 1988/89 - Smog
- 1991 – Analysis and first „programme framework“
- 1992 - UNCED-conference in Rio de Janeiro - Agenda 21
- 1995 - Programme „Ecocity 2000 – Local Agenda 21“ passed by the city council

## Ecocity 2000 – goals (1995)

Factor	Sustainability parameter	Goal by 2000
<b>Air</b>	Emission of SO <sub>2</sub> , CO, dust	-30%
	Emission of Nox, VOC	-60%
<b>Noise</b>	Streets with more than 65 dB	-10%
<b>Energy</b>	CO <sub>2</sub> -emissions	-20%
	Energy consumption	-7%
	Proportion of renewable energy sources	25%
<b>Traffic</b>	Private traffic	-2%
	Public traffic (km)	+10%
<b>Waste</b>	Residual waste	-30%
	Industrial waste	-30%
	Hazardous waste	-50%
<b>Water</b>	Drinking water	-5%
<b>Soil</b>	Built up surface	Balance
<b>Nature</b>	Additional protected areas	50 ha
	Additional natural monuments	7

## Ecocity 2000 – the projects



**ÖKOprofit**

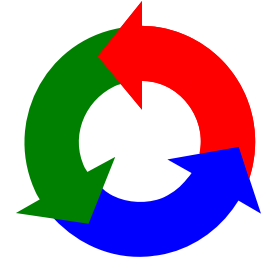
**ÖKOdrive**

**THERMOprofit**

- **Cleaner Production for the local industry**
- **Biodiesel for the public buses**
- **Contracting to reduce the energy consumption of public buildings, industry, and private buildings**

## ECOPROFIT for beginners

### 3 programme elements



- **common workshops** on environmental issues for the companies' representatives (cross-sectoral learning)
- **individual consulting**: special support in organizational and technical fields (2-5 days per company)
- **ECOPROFIT-award**: at the end of the year the companies are given a prize for their environmental performances by the city of Graz

## Structure of the ECOPROFIT program for new companies

**Workshops**

motivation and information

pollution prevention, cleaner production

setting up an environmental team und program

material flow analysis

waste management, hazardous chemicals

energy analysis

laws and regulations

eco controlling

preparation of final report

**AWARD / LABEL  
of the city / region**

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## Structure of a typical ECOPROFIT workshop

- **feed back: each company representative reports on the in-company- progress since the last workshop**
- **introduction into the new topic**
- **interactive games to apply the theoretical parts of the topic in practice (e.g. coffee-making in the material flow analysis) and evaluation**
- **discussion/preparation for „home-exercises“**



## Examples for individual consulting



- data inventory and analysis (input/output)
- material flow analysis
- legal compliance-check
- new waste management system
- energy analysis/peak load measuring
- eco-controlling environmental indicators
- negotiations with energy suppliers/disposal companies
- process optimization and minimization options
- environmental review for the award



## PRINCIPLES

### CP/Ökoprofit Option Generation

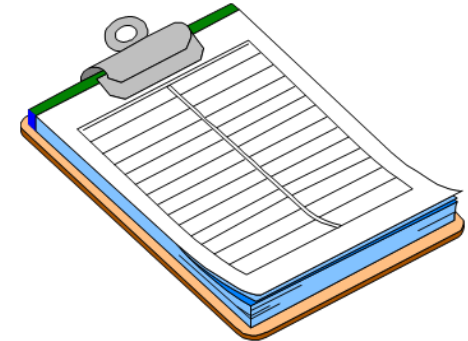
- „Standard“ options
- „New, creative“ options

### CP/Ökoprofit Option Evaluation

- Technical
- Ecological
- Economical

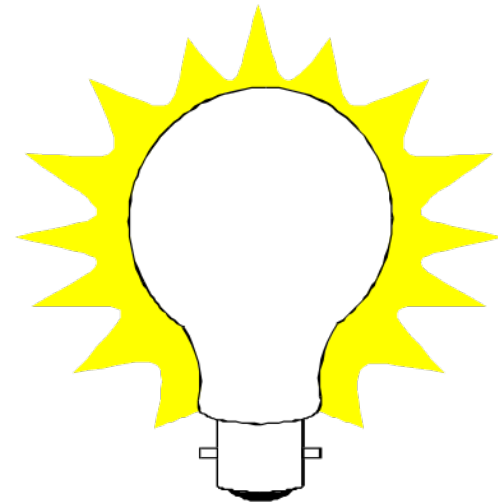
## „Standard“ options

- **General checklists from manuals**
- **Branch specific manuals and studies, other information sources**
- **Information from suppliers**
- **...**



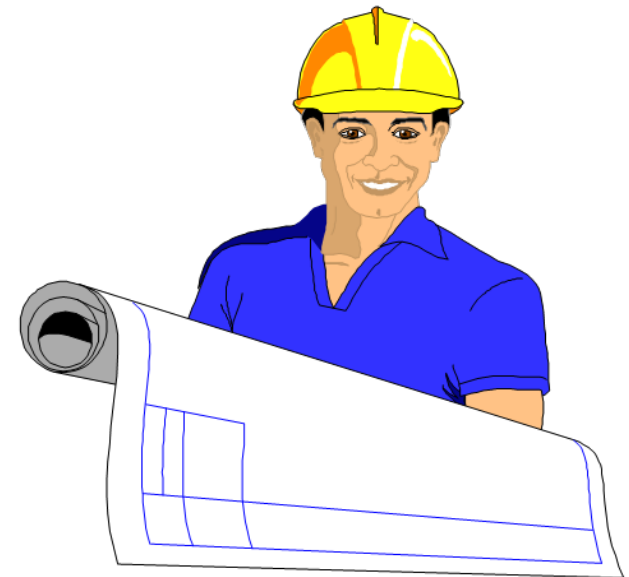
## „New, creative“ options

- **Apply consequently the CP methodology, ask questions**
- **Brainstorming with employees in a team**
- **Use/find cross-sectoral experience**
- **Use information from process units and transform for company (i.e. Cooling, compressed air, motivation and involvement of employees, ...)**
- **...**



## Technical Evaluation

- **Influence on product quality**
- **Influence on productivity**
- **Material consumption**
- **Energy consumption**
- **Influence on maintenance**
- **Safety**
- **Flexibility**
- **...**



## Ecological Evaluation

- 
- **Material Consumption**
  - **Energy Consumption**
  - **Emissions to air, water, soil**
  - **Cross-media effects?**
  - **Replacement of substances**
  - **Health and safety**
  - **...**



## Economical Evaluation

- **Pay back time**
- **Other financial rentability calculations**
- **Determine all affected cost factors**
  - **obvious environmental costs**
  - **costs for lost raw material**
  - **investment and depreciation costs for equipment**
  - **personal costs**
  - **outside services**
  - **„hidden“ costs**



## Efficient use of raw materials

printing industry

➤ emptying of paint drums



## ECOPROFIT-company:

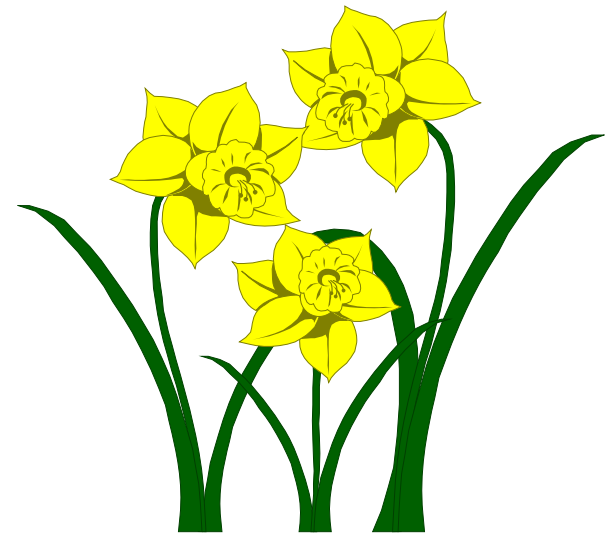
### Gartenbaubetrieb Herneth

94 employees, turnover 75 Mio ATS

- construction of mobile plant tables  
reduction of water, fertilizer and disinfection agent by 70 %
- use of biological plant protectives
- installation of waste islands  
reduction of non hazardous waste by 58 %

**planned** emphasis on energy saving at  
the greenhouses

- admix of compost to plant soil
- construction of a soil bunker
- construction of an own hydro power station









## Efficient energy use



**Not only a question of best supply technology !**

## ECOPROFIT - Label

- **Environmental policy**
- **Legal compliance check**
- **Documentation of the env. performance**
- **Environmental program for the next year**

**Waste management concept  
Checklists**



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Greening the Philippine Industries with the **ECO**PROFIT Approach

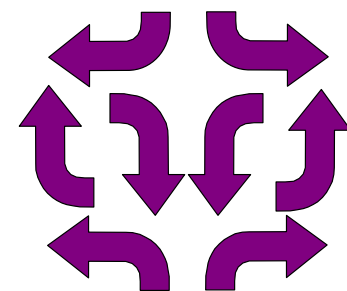


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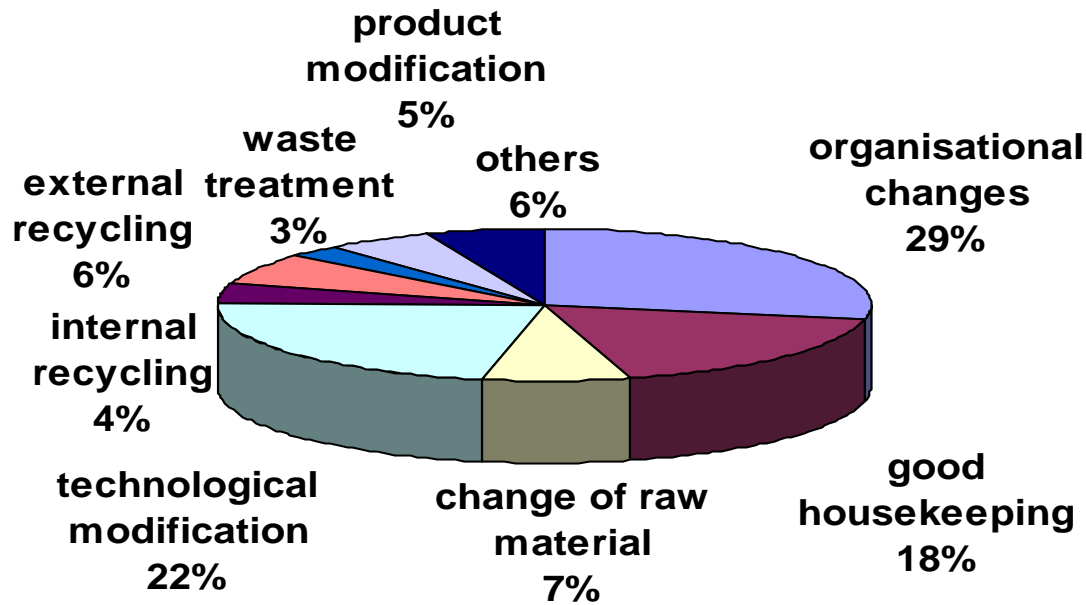
## ECOPROFIT-Club ... a well working network

- regular common workshops
- company visits among each other
- quick and informal exchange of information
- common acting against others
- common use/purchasing
- cooperation/common projects
- participation in social events



## ECOPROFIT Graz 2000

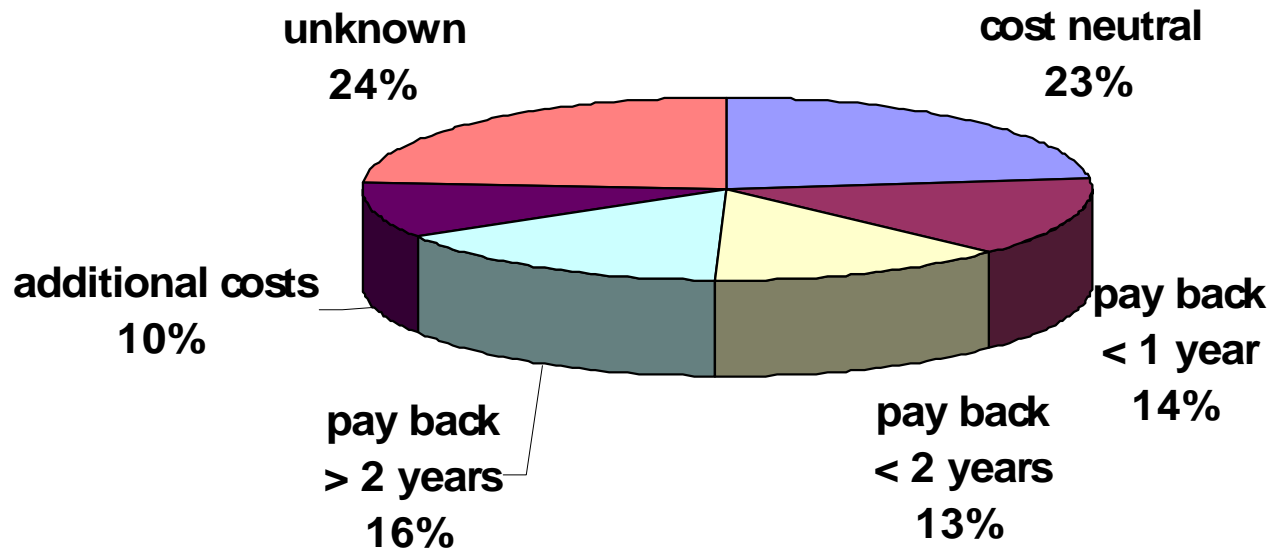
### Realized and planned options



**In total 594 options, from that:**  
60 %; 355 = realised options 2000  
40 %; 240 = planned options 2001

## ECOPROFIT Graz 2000

### Economic efficiency of the options





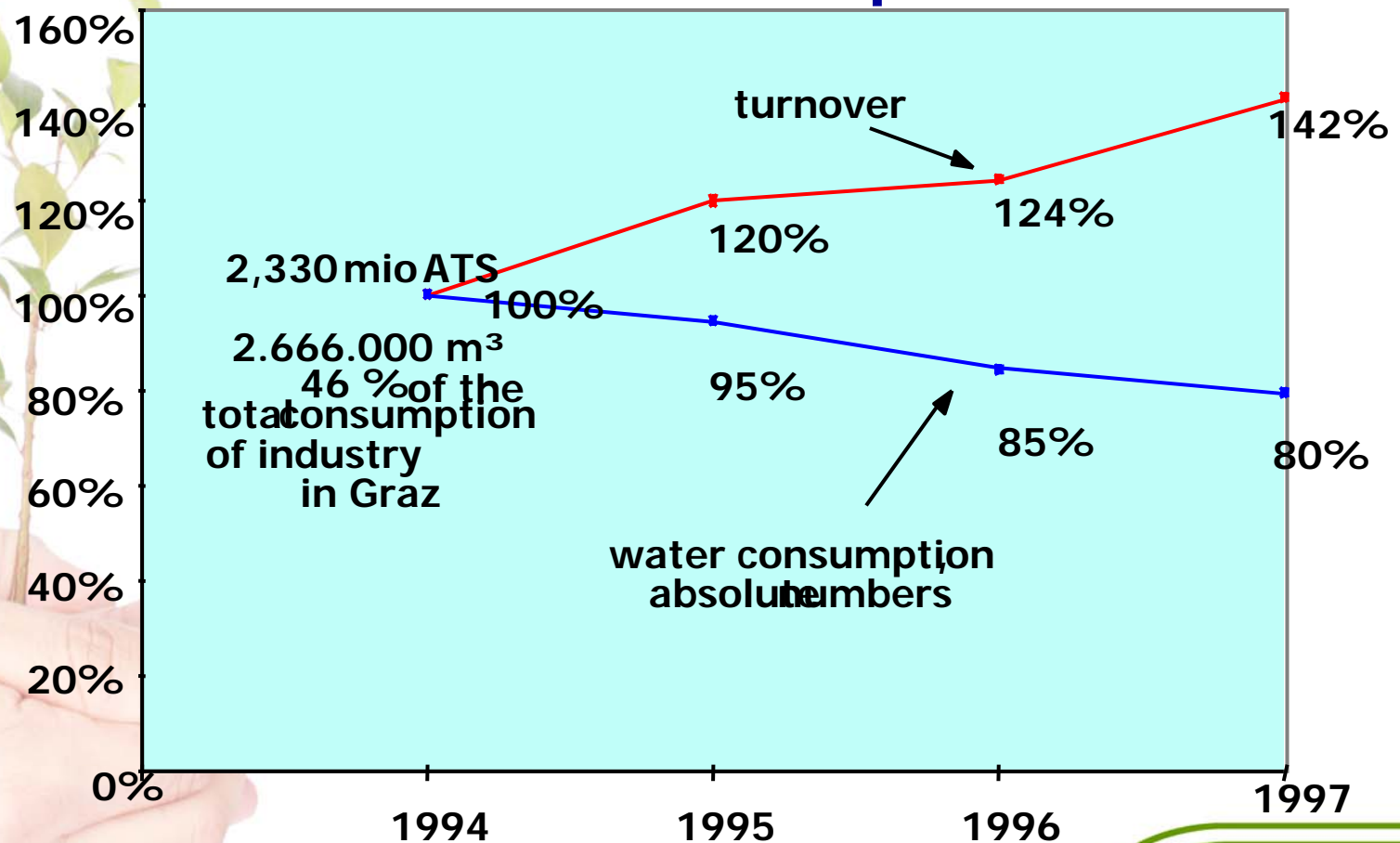
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## Consumption of Water of 15 ECOPROFIT – companies in Graz



Sourcelan Sage, STENUM

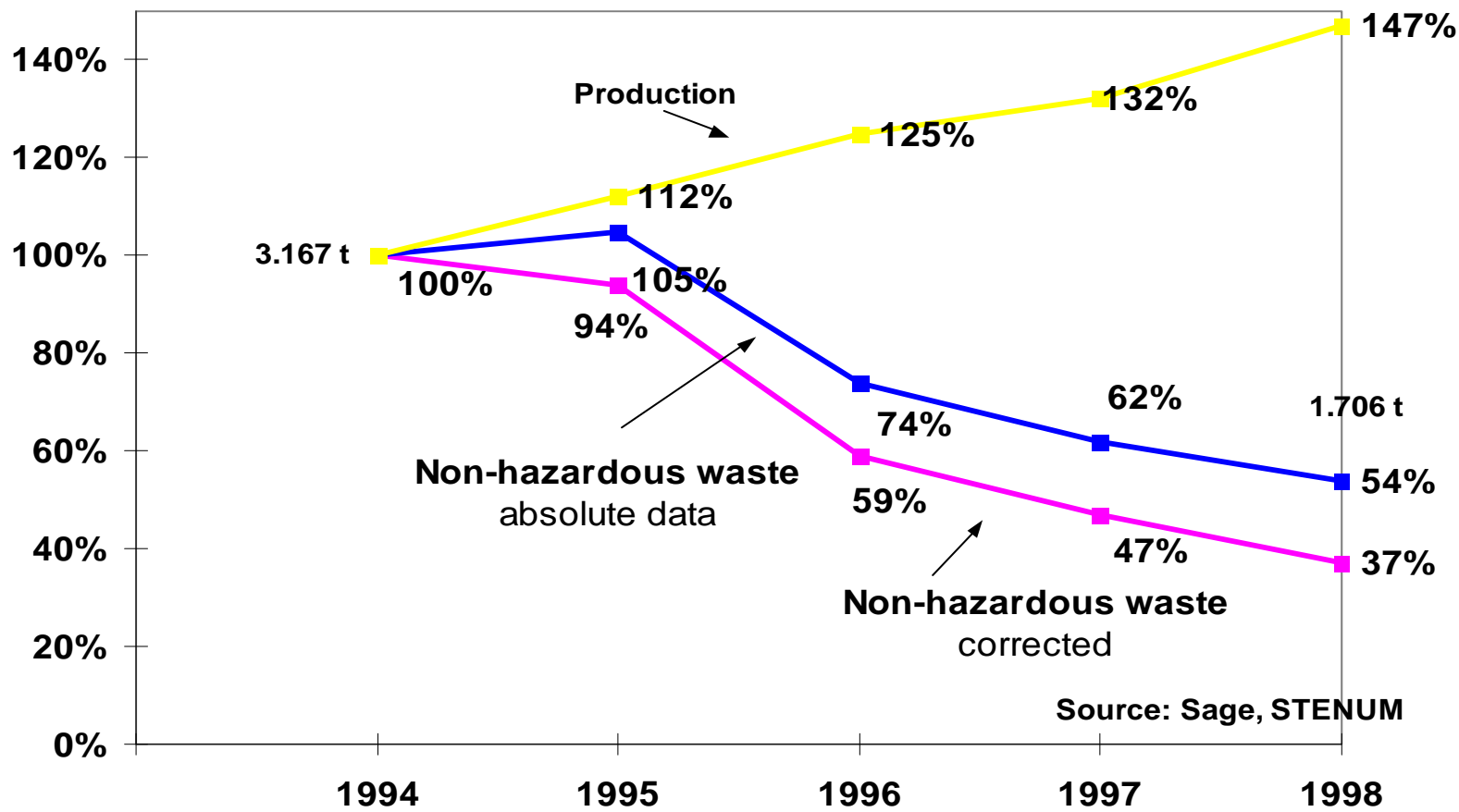


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## Non-hazardous waste (19 ECOPROFIT-companies)

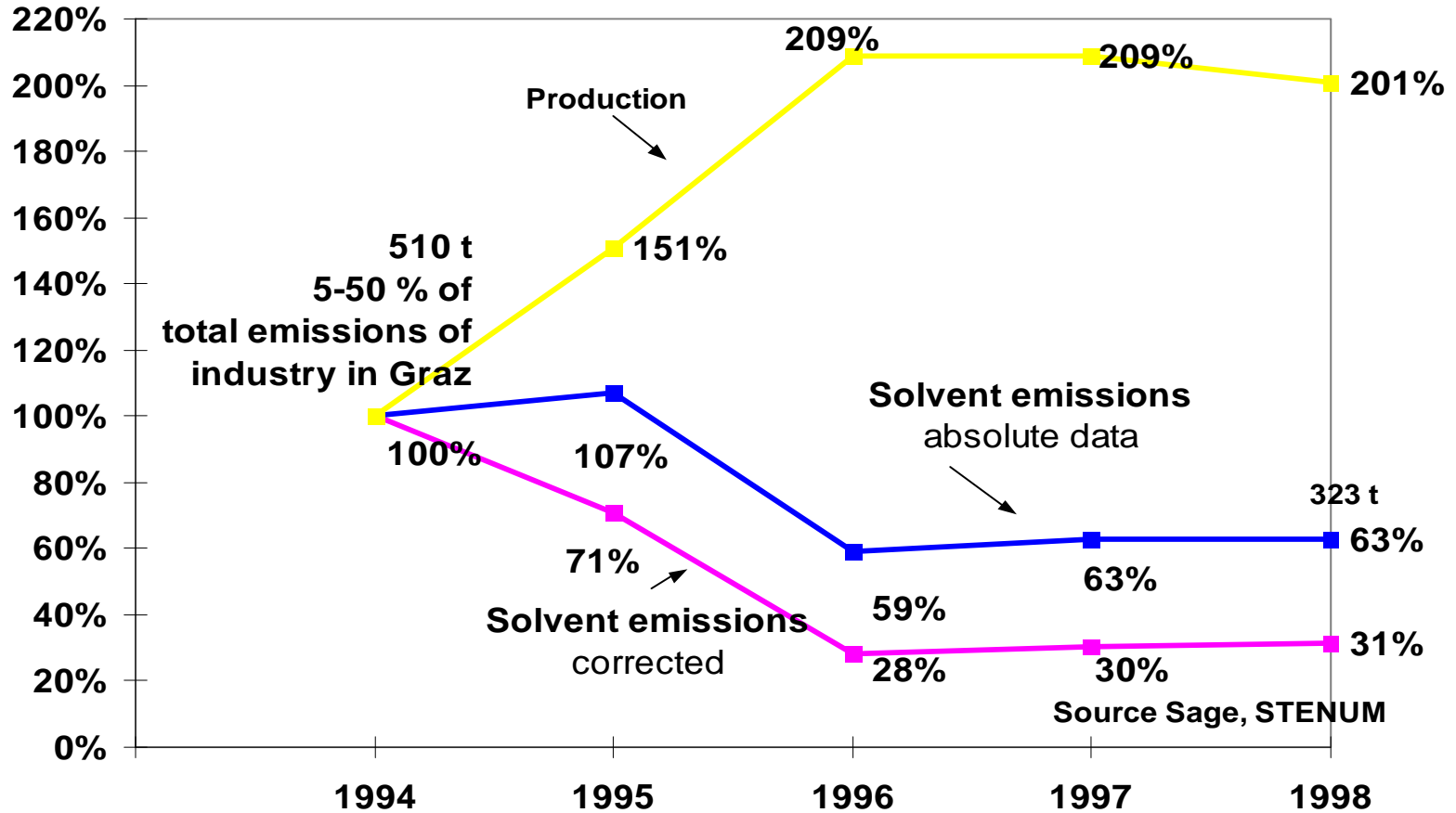


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## Solvent emissions (6 ECOPROFIT-companies)



## Improvement within company

- **documentation of environmental performance**
- **set up of an environmental programme (continuous improvement)**
- **creation of awareness (environmental, legal, ...)**
- **self auditing of legal compliance (waste, water, air, health&safety, ...)**
- **ensure the self control of permit every 5 years**
- **set up of an organizational unit (permanent environmental team)**



## Reasons for a successful project

- triangle of companies, authority and consultant
- approach also for small and medium sized enterpr.
- motivation of the project team
- structure of project with common workshops
- extensive look upon pollution prevention
- creating a network, high identification
- award for the companies
- preparation for an eco audit

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Greening the Philippine Industries with the **ECOPROFIT** Approach

Alfred Wall AG (**printing**)  
Arbeiterkammer (**union**)  
Autohaus Jagersberger (**car repair**)  
BULME (**school**)  
J. Christof (**metal work**)  
Salis & Braunstein (**car repair**)  
DI FRANZ ROBIER Bau-GmbH (**build.**)  
Desserta Graz (**dairy**)  
Druckwerk (**printing**)  
ELBAK Batteriewerke (**electronic.**)  
ELDRA Elektrodraht (**electronic.**)  
EUROSTAR (**car producer**)  
Flughafen Graz (**airport**)  
Gartenbaubetrieb Herneth (**gardener**)  
Grazer Stadtwerke AG (**traffic**)  
Geschützte Werkstatt (**workshop**)  
Heuberger Eloxieranstalt (**anodizer**)  
IKEA-Immobilien (**shopping center**)  
IMO-Markt GmbH (**trade**)  
J. Hornig (**food trade**)  
Leopold Pharma (**pharmaceutical**)

**~ 40.000 employees**  
**~ 7 billion US\$**  
**~ 150 companies**



J.+R. Nezmahen OHG (**painting**)  
Landesnervenkr. (**hospital**)  
Magistrat Graz, Beschaffungsamt (**public**)  
Marienhütte (**steel**)  
Maschinenfabrik Andritz (**machinery**)  
Musikhochschule (**school**)  
Neckermann (**mail order**)  
Öko-Service (**recycling**)  
Reisinger & Sohn (**car repair**)  
Pugl (**car repair**)  
Steirerbrau AG (**brewery**)  
Stmk. GKK (**health.**)  
Stmk. Landesdruckerei (**printing**)  
Steyr Daimler Puch (**car producer**)  
Stross OHG (**textile cleaning**)  
Styria Druck (**printing**)  
Otto Url (**paint shop**)  
Verein BAN (**public utility**)  
K. Wittwar (**car repair**)  
Wo&Wo (**metal work**)  
Wurst Reiner (**food**)

**City of Graz, Dep.  
of Environmental  
Protection**

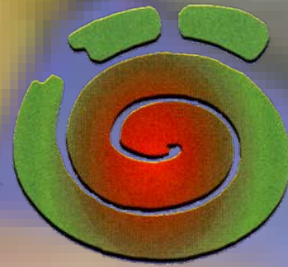
**1991-2007**

**STENUM,  
TU-Graz**



**Site security**

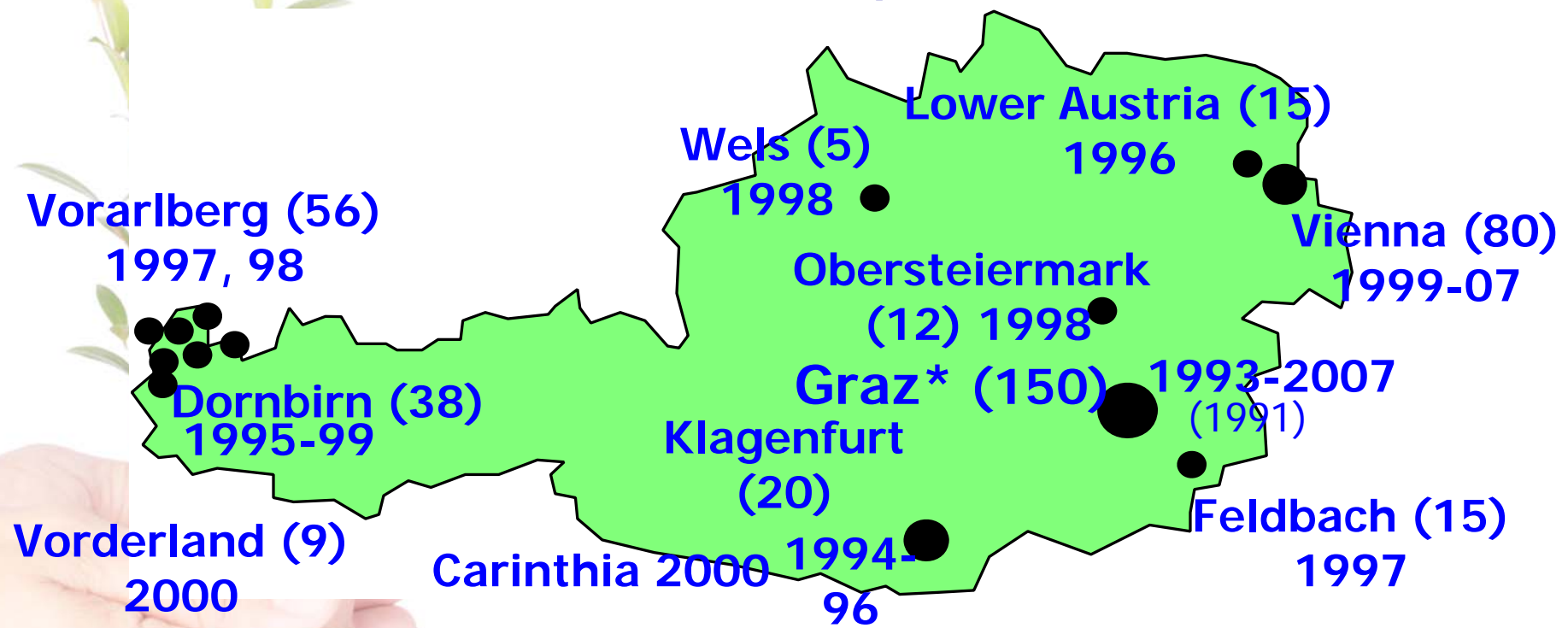
**Eco-Efficiency**



**Cost-Efficiency**

**Competitiveness**

## Figure 1: ECOPROFIT Projects in AUSTRIA, 1991-2007



\*incl. ECOPROFIT-Tourism



## CP/ECOPROFIT-Projects

### STENUM-worldwide (Feb 2003)

➤ **Europe:** Austria, Czech Republic, Germany, Finland, Hungary, Ireland, Portugal, Slovak Republic, Slovenia, Ukraine



➤ **Asia:** China, India



➤ **Latin America:** Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Nicaragua, Cuba



➤ **UNIDO/UNEP**

