

THE GREEN LINK TO PROFITABILITY FOR SMEs



***6th Canadian Round Table on Pollution Prevention
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Presentation Agenda

- ❖ **Concept**
- ❖ **Achievements to Date**
- ❖ **Two Actual Projects**
 - ◆ **Sani Terre**
 - ◆ **Cycles DeVinci**

Program Objectives

**IMPROVE PRODUCTIVITY,
PROMOTE EFFICIENCY,
AND PREVENT POLLUTION**

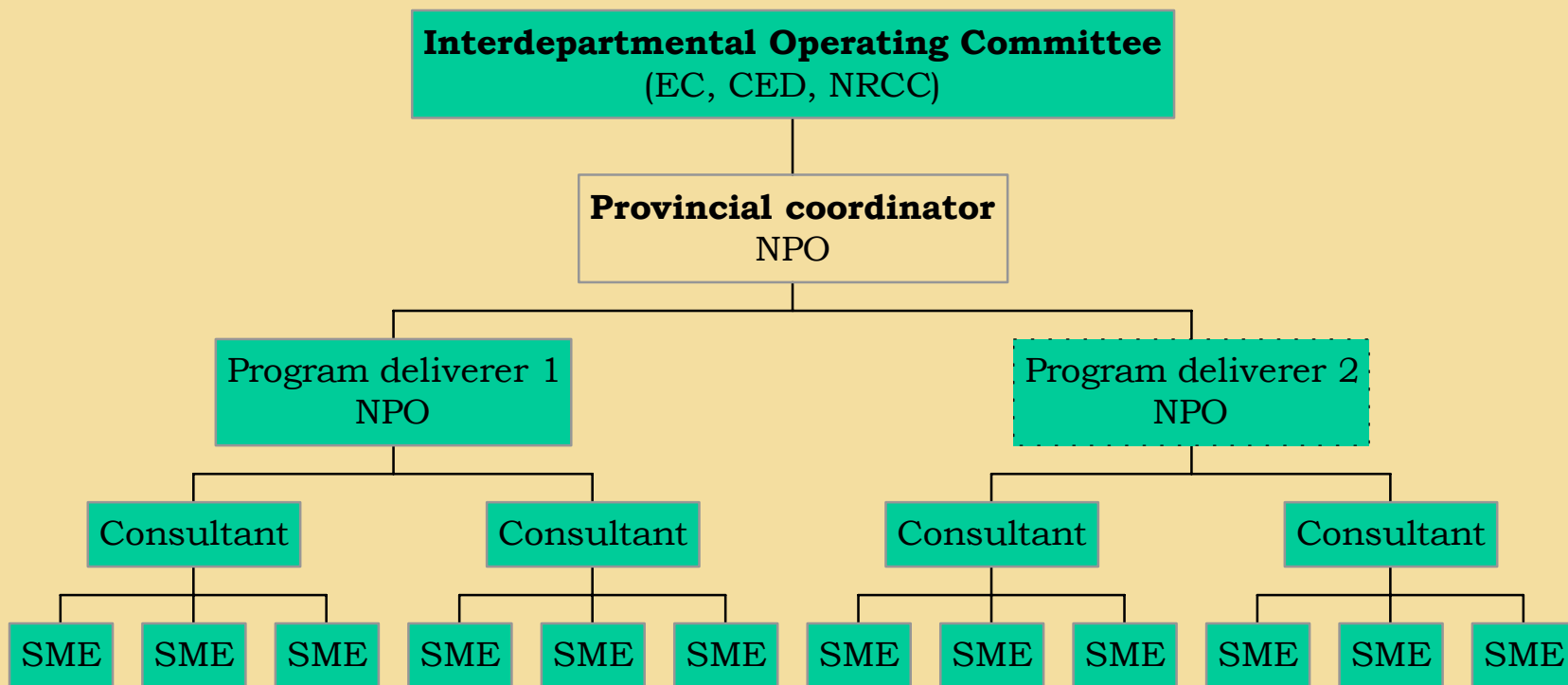
BY

**CUTTING DOWN WASTEFUL EXPENSES
AND INTRODUCING RATIONAL USE
OF RESOURCES**

Partners for a Better Environmental Performance from SMEs

- ❖ **ENVIRONMENT CANADA**
- ❖ **CANADA ECONOMIC DEVELOPMENT**
- ❖ **NATIONAL RESEARCH COUNCIL OF
CANADA - IRAP**

Operating Structure



Approach

- ❖ **LIFETIME OF A CLUB: 6-10 MONTHS**
- ❖ **ASSOCIATION OF 15 SMEs**
- ❖ **1 CUSTOM-DESIGNED PROJECT/SME**
- ❖ **4 DAYS OF WORKSHOPS AND NETWORKING**
- ❖ **SUPPORT OF ENVIROCLUB ADVISERS**

Enviroclub^{MO} Products

ENVIROCLUB^{MO}

→ **IN-PLANT PROJECTS**
90 hours of consultation

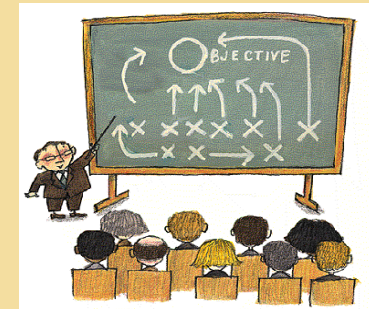


- • **In-plant technical project**
- • **Achievement of a milestone in an environmental management system**

→ **6 PRACTICAL WORKSHOPS**

Registration fee: \$2,500

1% total payroll



Technical Projects

- ❖ **SIMPLE APPLICATIONS WITH LOW IMPACT ON PRODUCTION PROCESS**

Results measured with indicators



- ❖ **ENVIRONMENTAL**
- ❖ **TECHNICAL**
- ❖ **ECONOMIC**

Focus Issues

- ❖ **Reduction of toxic substances**
- ❖ **Reduction of priority substances**
- ❖ **Reduction of greenhouse gas**
- ❖ **Reduction of ozone depleting substances**
- ❖ **Reduction of acid rain**

Introduction to the Environmental Management System

BASIC COMMON ELEMENT:

- ◆ **Identify significant environmental impacts and**

ONE OF THE FOLLOWING ELEMENTS:

- ◆ **Prepare an EMS action and implementation plan**
- ◆ **Prepare a training plan for employees**
- ◆ **Identify necessary steps for implementing a contingency plan**

Workshops

DAY 1

- ❖ **Environmental management and pollution prevention: Competitiveness and profitability factors**

DAY 2

- ❖ **Environmental management systems (EMS):
Within your reach and at your pace**

Workshops (cont'd)

DAY 3

- ❖ **Identification tool for pollution prevention projects in your operations**
- ❖ **Environmental emergencies preparedness**

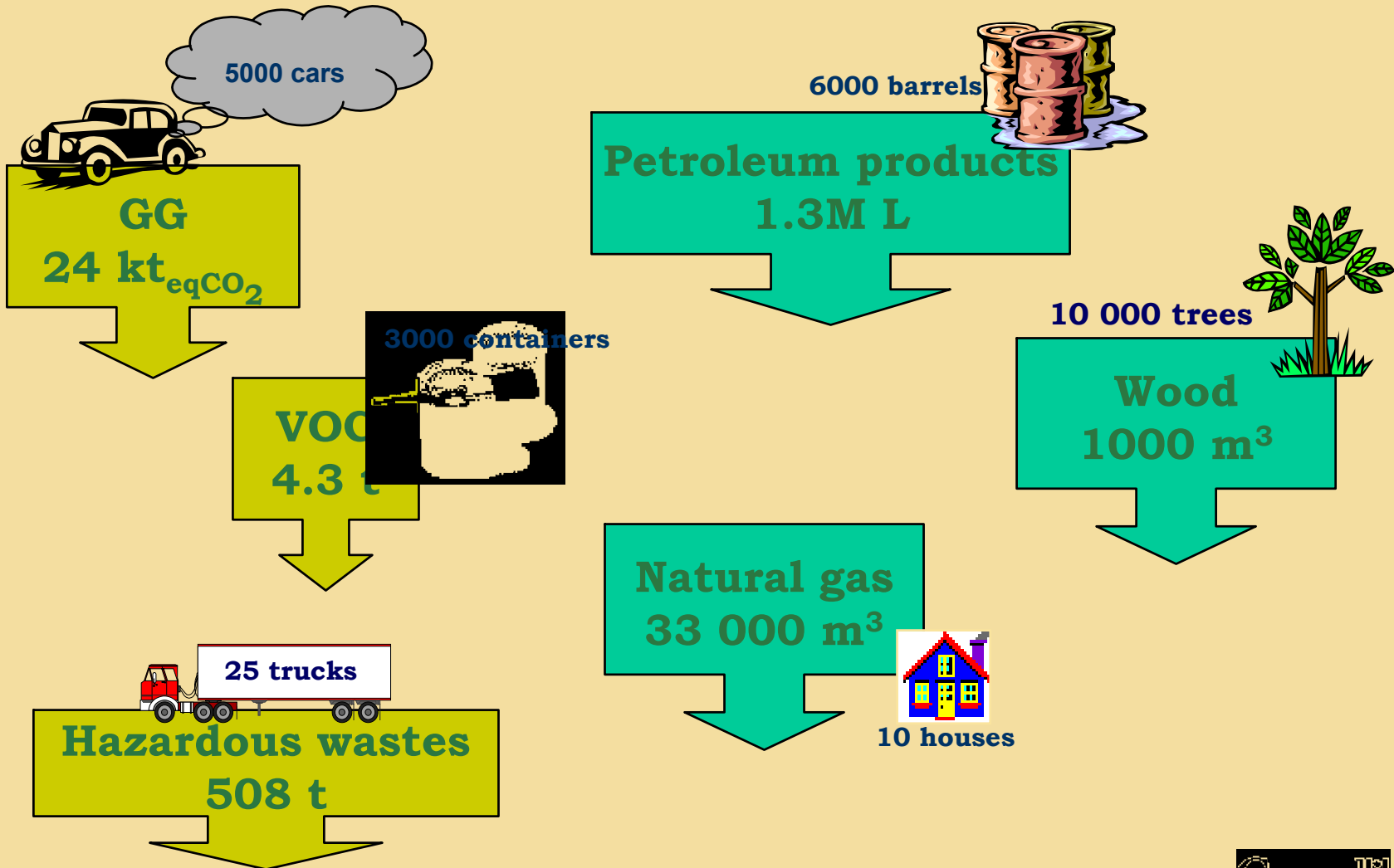
DAY 4

- ❖ **Environmental performance: a marketing and communication tool**
- ❖ **Climate change: time for SMEs to act**
- ❖ **Federal Funding programs**

Results to Date

- ❖ **2 clubs established (18 SMEs)**
 - ◆ **Saguenay-Lac-Saint-Jean 2000**
 - ◆ **Centre du Québec**
- ❖ **14 technical projects**
 - ◆ **8 GG**
 - ◆ **5 toxics (toxic substances, VOC, etc.)**
 - ◆ **1 other (ecological design)**
- ❖ **4 EMS projects**

Annual Environmental Gains



Economic Analysis

Investments

- ❖ **Government**
 - ◆ **\$400K for two Enviroclubs^{MO}**
- ❖ **Industry**
 - ◆ **\$10-15K/plant**
 - ◆ **+ capital investment**

Benefits

- ❖ **Environmental gains**
- ❖ **Recurrent annual savings:**
 - ◆ **\$1.5M**
- ❖ **Return on investment:**
 - ◆ **8-24 months**

Feedback on Workshop Ratings

- ❖ **Useful information and easy networking**
- ❖ **The “Model Plant” concept is very useful**
- ❖ **Great initiative and well adapted to SMEs**
- ❖ **Project presentations by participants appreciated**
- ❖ **High quality material, content, pedagogical strategy, and facilitation**

Keys to Success

❖ **RECRUITING**

- ◆ **Credibility of recruiter**
- ◆ **Tailored meetings with SMEs**
- ◆ **Seek out SMEs on their own turf**

❖ **WORKSHOPS**

- ◆ **Credible facilitators**
- ◆ **Less theory, more practice**
- ◆ **Networking**

❖ **IN-PLANT PROJECTS**

- ◆ **Simple, technically and economically feasible**
- ◆ **Economic and environmental gains**
- ◆ **Return on investment: 24 months maximum**

Why SMEs?

- ❖ **Small but numerous (9453 plants)**
- ❖ **Well represented in Quebec (89.2%)**
- ❖ **Little interest in the environment**
- ❖ **Poor knowledge/understanding of environmental issues**
- ❖ **Need expertise to identify P2 projects**
- ❖ **The Enviroclub^{MO} experience opens them up to other environmental projects**
- ❖ **Lack of resources, time, expertise, etc.**

Conclusion

- ❖ **Enviroclub^{MO} has generated real environmental and economic benefits for the 18 participating SMEs**
- ❖ **Vehicle for voluntary pollution prevention measures**
- ❖ **Can be delivered and adapted to:**
 - ◆ **a region**
 - ◆ **an industrial sector**
 - ◆ **a large organization and its plants**
 - ◆ **a large organization and its suppliers**

A Success Story: Cycles Devinci Inc.



www.devinci.com

Pierre Paquette, P. Eng.
Process Engineer

Presentation framework

- ❖ **Introducing the company**
- ❖ **The Company's expectations**
- ❖ **Goal of the Enviroclub^{MO} Project**
- ❖ **Project Stages**
- ❖ **Results**
- ❖ **Project Evaluation**

Cycles Devinci Inc.

- ❖ **Founded in 1987**
- ❖ **Located in Chicoutimi, Quebec**
- ❖ **Designs and manufactures high-performance aluminum bicycles**
- ❖ **Sales of \$10M**
- ❖ **55 employees**

The Company's Expectations of the Program

- ❖ **Assistance in getting information**
- ❖ **Assistance in finding specialists**
- ❖ **Finding an efficient solution at a reasonable cost**

Enviroclub^{MO} Project

Substantial reduction of solvent use in painting process

Objectives:

- ❖ **Decrease use of solvent by 80%**
- ❖ **Increase the painting department's production capacity by 100%**
- ❖ **Improve paint quality**

Project Stages

- ❖ **Analysis of the current situation**
- ❖ **Development of an action plan**
- ❖ **Implementation of the action plan**

Analysis of the Situation before the Project

- ❖ **Insufficient production capacity**
- ❖ **Low pressure paint spraying method**
- ❖ **Forced-air intake insufficient to ensure linear painting flux**

Development of an Action Plan

- ❖ **Information search**
 - ◆ **Specialists (atomizing chambers)**
 - ◆ **Suppliers (types of paints and of paint sprayers)**
- ❖ **Plan layout of painting department**
- ❖ **Plan construction of atomizing chamber**
- ❖ **Selection of a baked liquid paint**
- ❖ **Selection of electrostatic paint sprayers**
- ❖ **Selection of a paint baking oven**

Implementation of the Action Plan

- ❖ **Modification of dividing walls in the painting department**
- ❖ **Manufacture and installation of atomizing chambers**
- ❖ **Purchase and installation of electrostatic paint sprayers**
- ❖ **Purchase and installation of paint baking oven**

Cost of purchases

Table of Costs

Equipment	Cost
Paint baking oven	\$40,000
Atomizing chambers	\$6,000
Electrostatic paint sprayers	\$20,000
Total	\$66,000

General Results

Product or substance	Before	After
Amount of solvent used (g/bicycle frame)	33.5	6.4
Amount of paint used (g/bicycle frame)	102.5	69.2
Energy used (m³/bicycle frame)	0	0.3234
Production capacity (units/day)	45	100

Economic Analysis

- ❖ **Annual savings: \$87 300**
- ❖ **Return on investment: 9 months**
- ❖ **Investment: \$66 000**

Environmental Analysis

- ❖ **Decrease of about 80% in quantity of solvent used**
- ❖ **Annually**
 - ◆ **Before: 335 kg**
 - ◆ **After: 64 kg**

Project Findings

- ❖ **Increased production capacity**
- ❖ **Reduced costs for raw materials**
- ❖ **Reduced labour costs**

Evaluation of the Enviroclub^{MO} Project

- ❖ **Training workshop simple and general**
- ❖ **Facilitates search for specialists**
- ❖ **Guidance for project manager**
- ❖ **Raises environmental awareness**
- ❖ **Process for resolving environmental and other problems**
- ❖ **Reduction of pollutant emissions (clean air for cyclists...)**

Question Period

Cycles Devinci Inc.

www.devinci.com

Another Achievement



- ❖ **Founded in 1999**
- ❖ **Manufactures scrubbing units for the international forest machinery market**
- ❖ **50 employees**

**Christian Mathieu
President**

The Company's Expectations of the Enviroclub^{MO} Program

- ❖ **Assistance in search for information**
- ❖ **Technical and scientific support**
- ❖ **Finding information on funding possibilities**
- ❖ **Reduction of operating and maintenance costs**

Sani-Terre's Project

❖ **PROBLEMS:**

- ◆ **High fuel consumption**
- ◆ **Greenhouse gas emissions**
- ◆ **High operating costs**

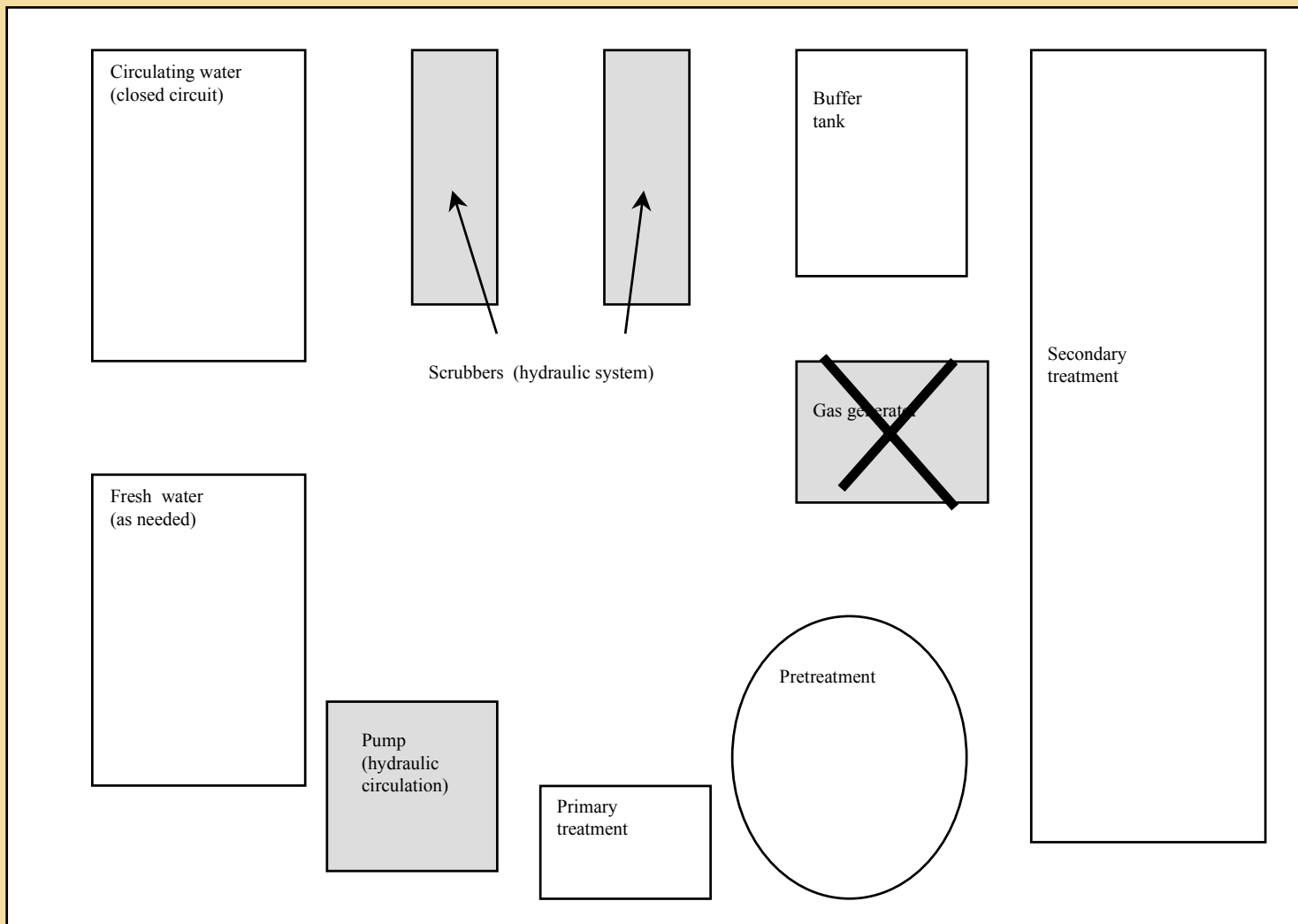
❖ **OBJECTIVES:**

- ◆ **Decrease greenhouse gas production**
- ◆ **Reduce operating costs**
- ◆ **Technical advancements**

❖ **PROBLEM-SOLVING:**

- ◆ **Replace combustion units with hydraulic units**

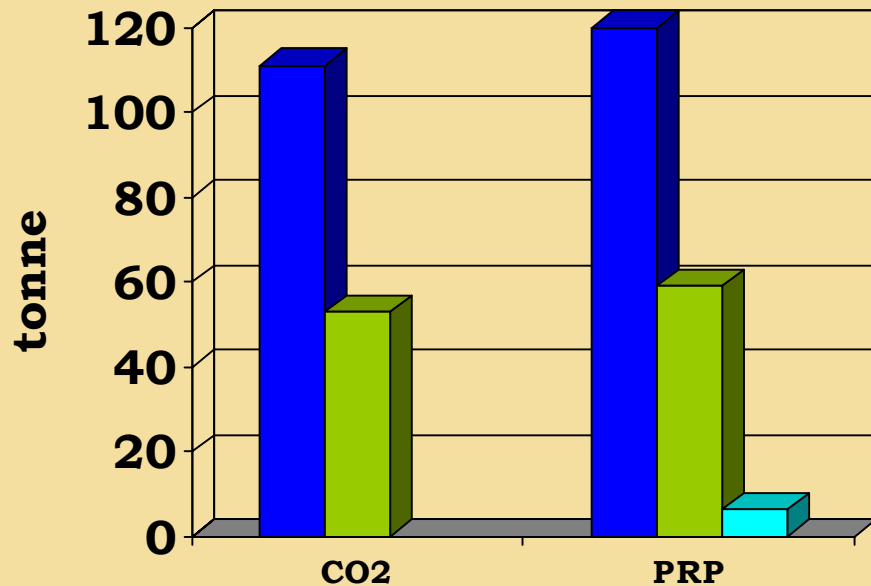
Process Diagram



Indicators

Type of indicator	Project control indicators
Economic	1. Fuel consumption (L/h)
Economic	2. Fuel consumption (\$/h)
Economic	6. Maintenance cost of scrubber unit (\$/year)
Economic	7. Long-term maintenance cost (unit reconditioning)
Economic	9. Purchase cost of equipments (\$)
Environmental	10. Quantity of CO ₂ (tonne/year)
Environmental	11. Quantity of CH ₄ (kg/year)
Environmental	12. Quantity of N ₂ O (kg/year)

Reduction of GHG Releases by a Scrubbing Unit



■ Conventional unit ■ Prototype ■ Average house

PROJECTION:

60 x

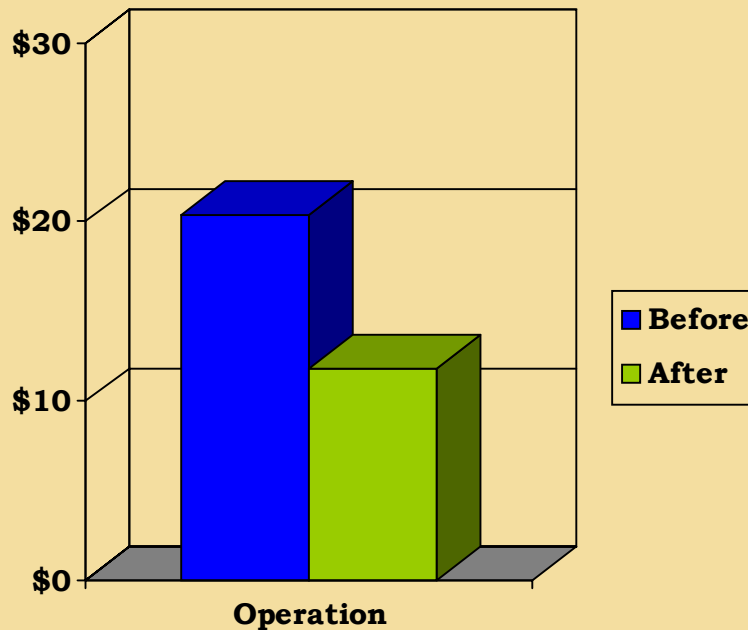


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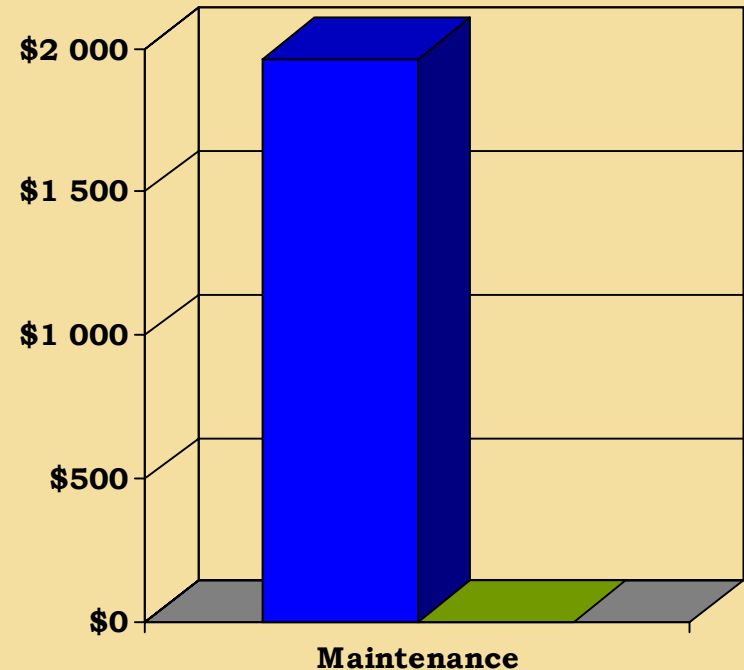


Scrubbing Unit Operating and Maintenance Costs*

Operating costs



Maintenance costs



*Over 15 years and based on 1200 hours/year of use.

Conclusion

- ❖ **Before Enviroclub^{MO}**
 - ◆ **Soil**
 - ◆ **Water**
 - ◆ **Costs**
- ❖ **After Enviroclub^{MO}**
 - ◆ **Air**
 - ◆ **Reduction of operating costs**
 - ◆ **Elimination of maintenance costs**
 - ◆ **Reduction of fire hazard**
- ❖ **Long-range perspective**
 - ◆ **Further improve the technology**
 - ◆ **Manufacture 60 units for the international market**

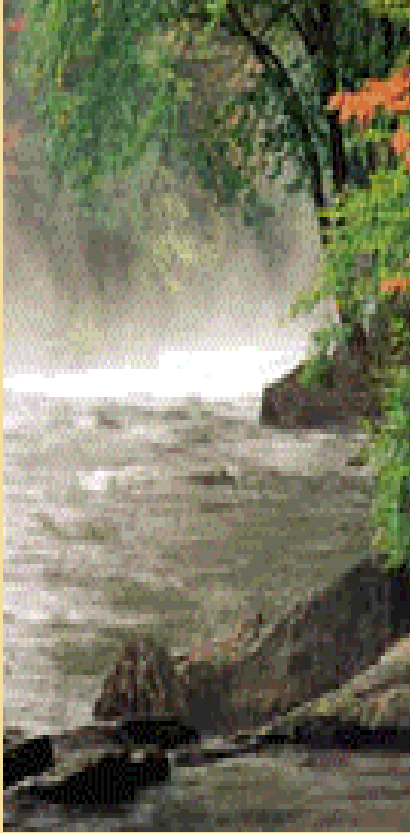
Appraisal of Enviroclub^{MO}

❖ **Project:**

- ◆ Awareness and understanding of issue of GHGs
- ◆ Technical support and expertise available
- ◆ New technology more competitive and more cost effective

❖ **Workshops:**

- ◆ Offer guidance on becoming an environmentally responsible company
- ◆ Promote sharing of information and networking



QUESTIONS?



COMMENTS?