

Strengthening Sustainability of SMEs through Resource Efficiency



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Outline



- Sustainable Development
- Resource Efficiency (RE)
- Case studies → the business case
- Project structures (examples)
 - Shimla project, ACIDLOOP Project, ECO Switch project
- Challenges and recommendations for promoting RE

Sustainable development through the **3P** concept



- Planet
to have environmental considerations



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- Profit
to have economic success



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- People
to have fairness to all persons involved
in the process



Understanding the **Resource Efficiency** approach



Waste is generated
What is to be done with it ?

Understanding the **Resource Efficiency** approach



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What is to be done with it ?

End of Pipe thinking:

Waste Treatment approach

Understanding the **Resource Efficiency** approach



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Where does it come from ?

What can be done to avoid it ?

What can be done to reduce it ?

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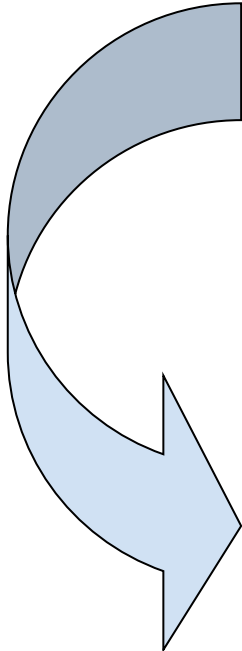
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Emissions and **wastes** are raw and auxiliary materials – which have mostly been purchased for a **certain amount of money** – and have not been transformed into **saleable products**.

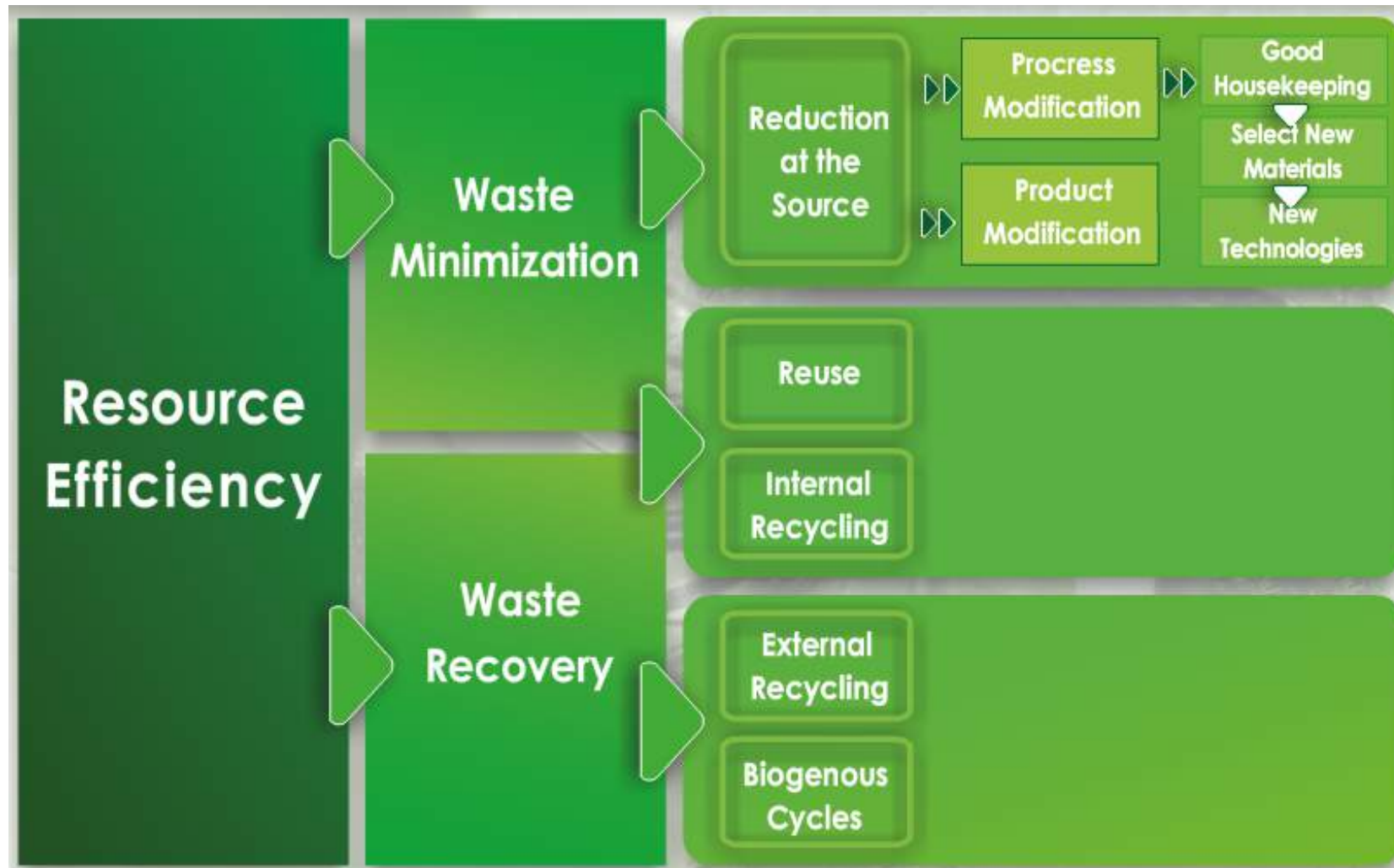
Understanding the Resource Efficiency approach



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Resource Efficiency is **high** when **nearly all** raw and auxiliary materials are transformed **to saleable products** – **waste is minimised**

Strategies for RE improvements



Advantages of RE



- ◆ Reduced **production costs**
- ◆ Reduced **maintenance costs**
- ◆ Improved statutory compliance
- ◆ Reduced **enviornmental impacts**
- ◆ Better work conditions for **employees**
- ◆ Better cooperation with authorities
- ◆ **Enhanced image**, competitive advantage
- ◆ Preparation or addition to ISO 14001 or other standards

Case study: LPG savings at steam boiler



Situation: Steam line and steam boiler surface not insulated adequately



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Solution: Install adequate insulation on steam lines and boiler surface

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ECO Impact: LPG gas savings of \$ 800 per year (735 kg/yr)
Payback: 8 months

Case study: Electricity saving at freezers



Situation: Refrigerator door seals damaged, door locks not working, defrosting not done, heat exchangers not cleaned adequately



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Solution: Replace all the damaged door seals, repair broken door locks and increase the frequency of defrosting, radiator cleaning

Case study: Electricity saving at freezers



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Solution: Replace all the damaged door seals, repair broken door locks and increase the frequency of defrosting, radiator cleaning

ECO Impact: Electricity savings of \$ 180 per year (250 kWh/yr)
Payback: 4 Months

Case study: Electricity saving at hot plating baths



Situation: Auto parts company, uses baths at elevated temperatures for blackening, degreasing. Tanks not insulated from top



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Case study: Electricity saving at hot plating baths



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Solution: Improve insulation on sides of tanks and insulate top of tank

ECO Impact:
Saved 43,200 kWh/yr
Payback: 3 Months

Case Study: Reduced energy consumption - auto parts SME



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Improvement: Number of pieces increased from 36 to 39 per lot thus saving energy on one hand and enhancing productivity on the other.

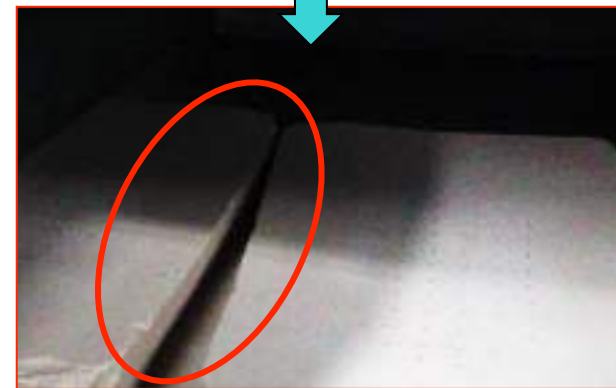


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Situation: 36 pieces of mirror are placed on a standard brick for convex process in an oven.

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ECO Impact:

Savings/yr: \$ 3,500

Payback: 2 months

Case study: Optimised Brain Berry or “Chaffer” heater load



Situation: Water was heated up to and maintained at 60°C and is maintained at the same throughout. Hot water at 50°C from steam cooking pots which was being drained out



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Solution: Use the hot condensate from the cooking pots instead of fresh water for brain berries

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Situation: Water was heated up to and maintained at 60°C and is maintained at the same throughout. Hot water at 50°C from steam cooking pots which was being drained out



Solution: Use the hot condensate from the cooking pots instead of fresh water for brain berries

ECO Impact: Savings \$ 180 per year (2200 kWh/yr) & 15 kl of fresh water
Payback: Immediate

Case study: Electrical energy savings in annealing furnace



	Before	After
	Annealing furnace is not insulated	Insulation of annealing furnace
Desired Temperature	300°C	300°C
Time taken (minutes)	45	25
Power of furnace	7.7 kW	
Heating time reduced	20 minutes or 0.34 hour	
Energy Saving	7.7 X 0.34 = 2.5 kWh per hour	
Operating hours per year	7200 hours	
Energy saved	7200 X 2.5 = 18,000 kWh	
Monetary Savings	\$ 2,500	



Case study: Diesel savings at hot water and steam boilers



Situation: A company had six diesel fired boilers each operating at different efficiency levels. 3 for hot water generation and 3 for steam generation (1 for operation and 2 as standby)

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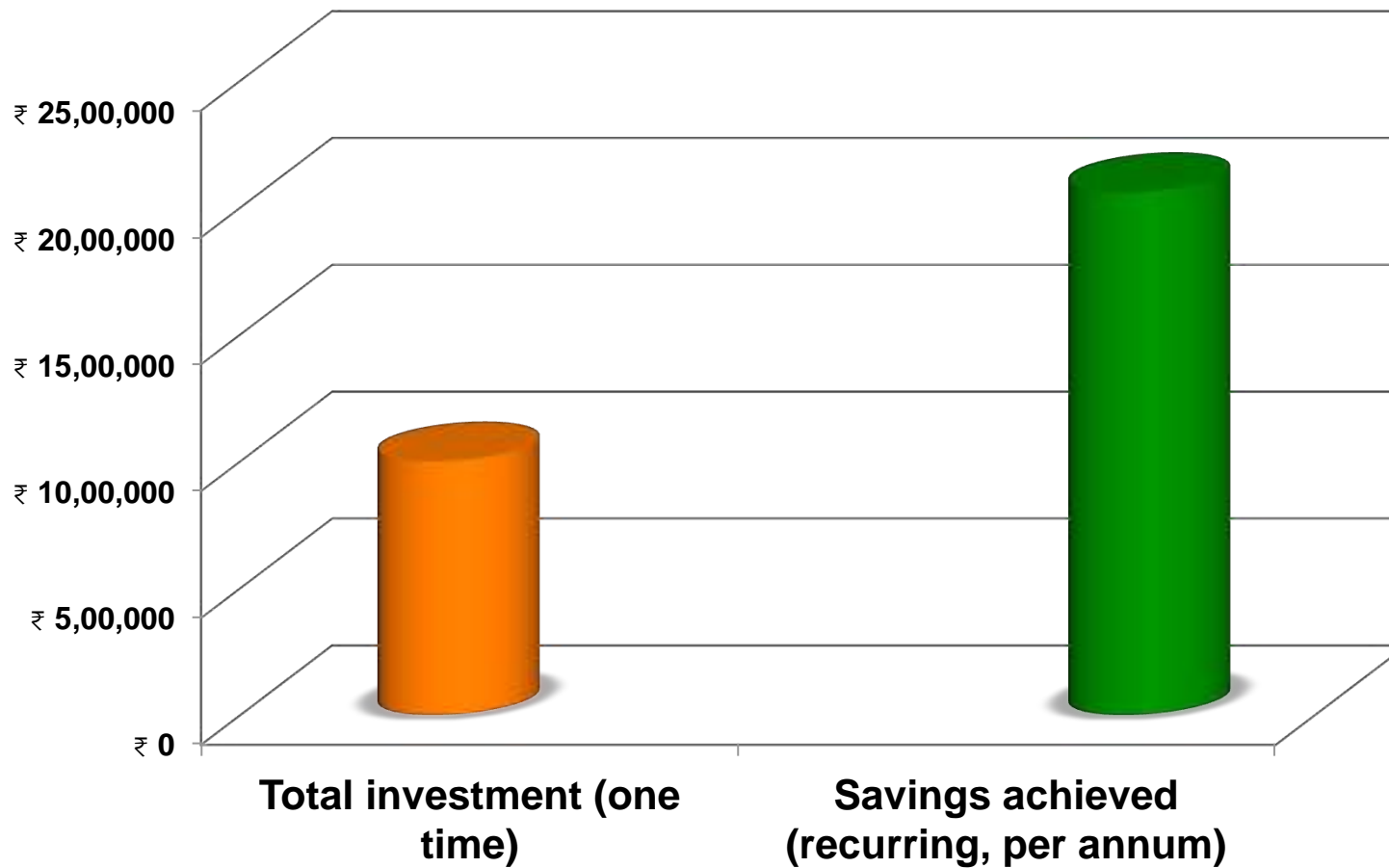


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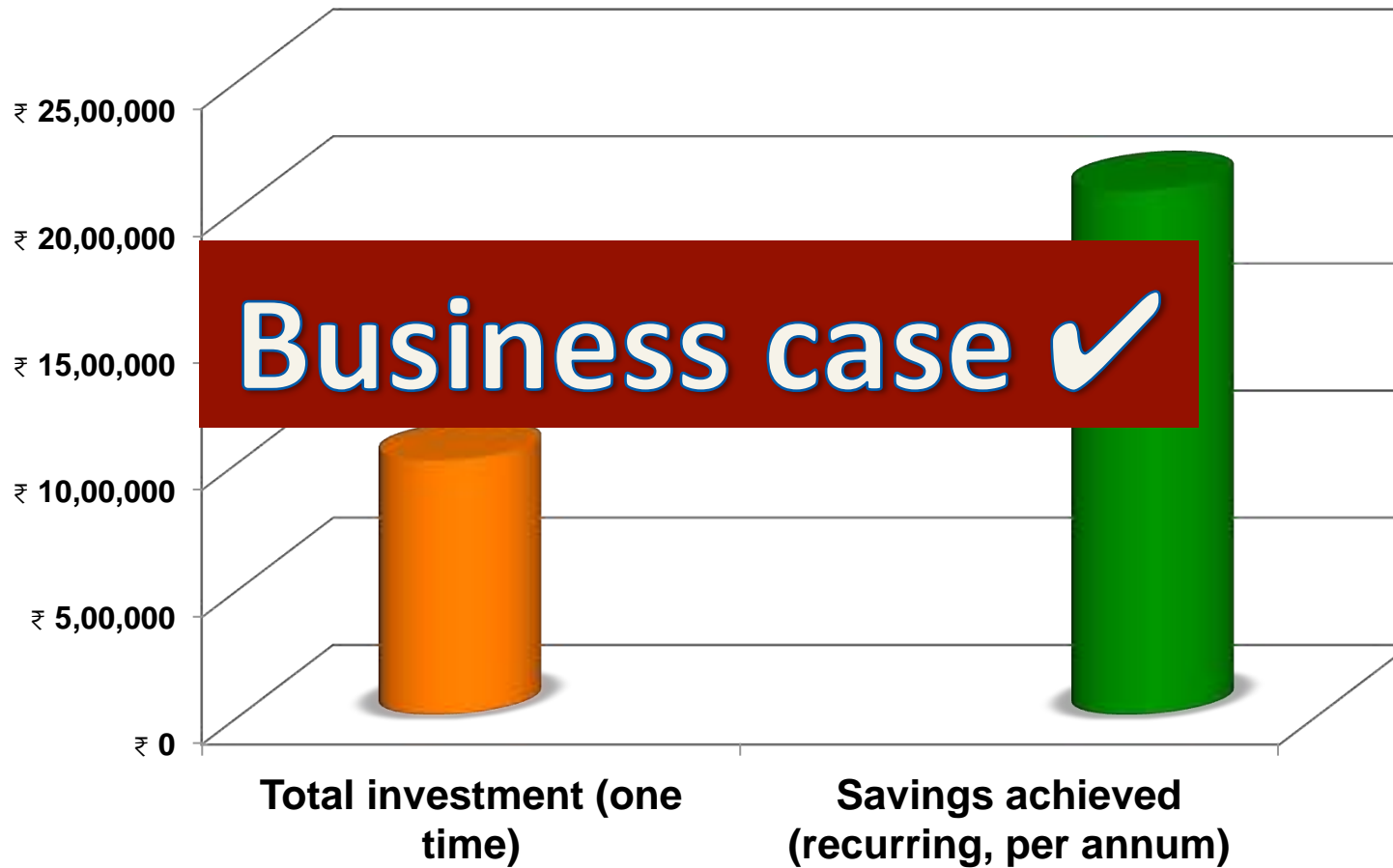
Solution: Operate highest efficiency boiler instead of other boilers most of the time

ECO Impact: Diesel savings of \$ 6,500 per year (9,280 l/yr)
Payback: Immediate

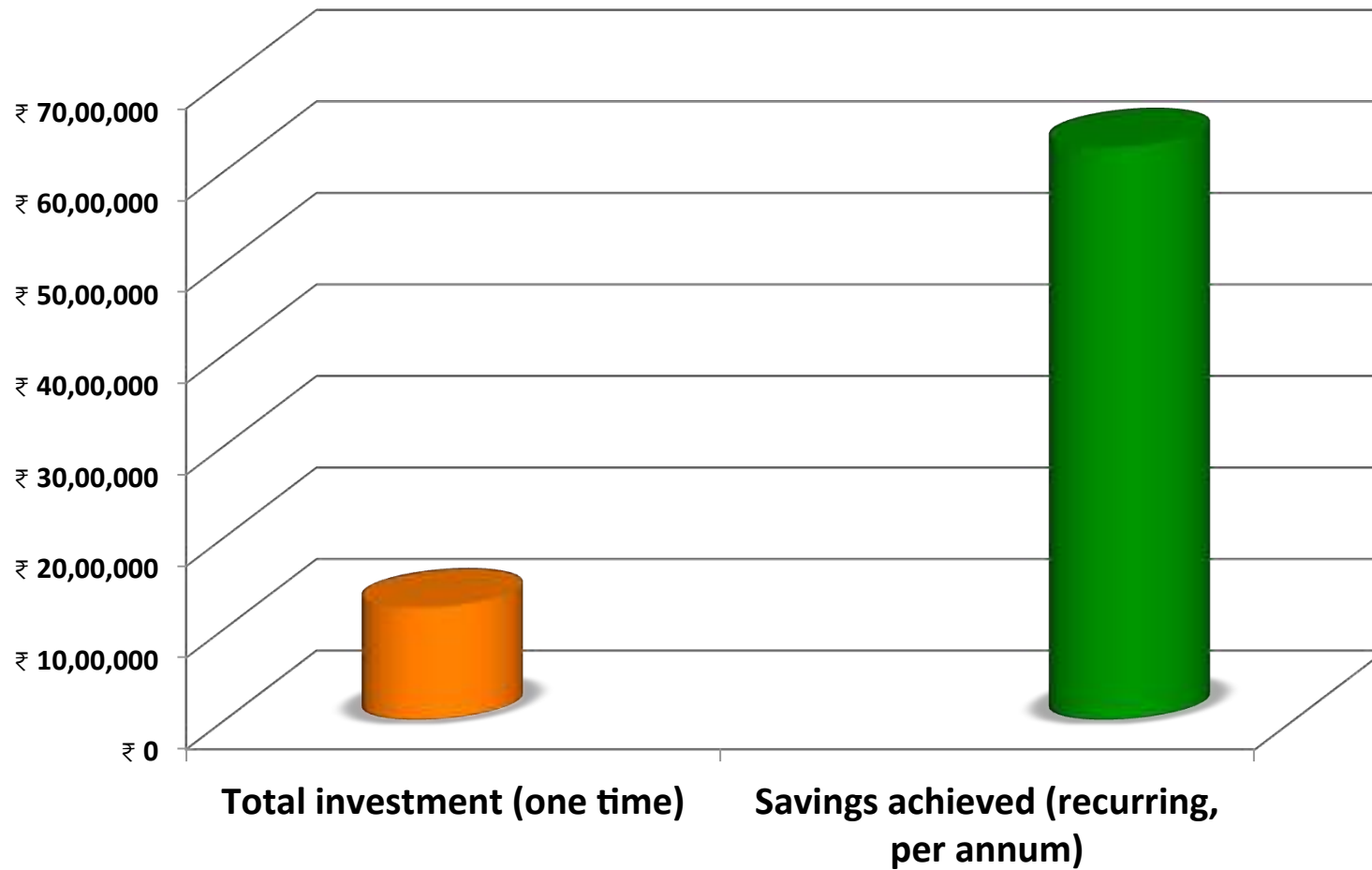
RE project at Shimla hotels



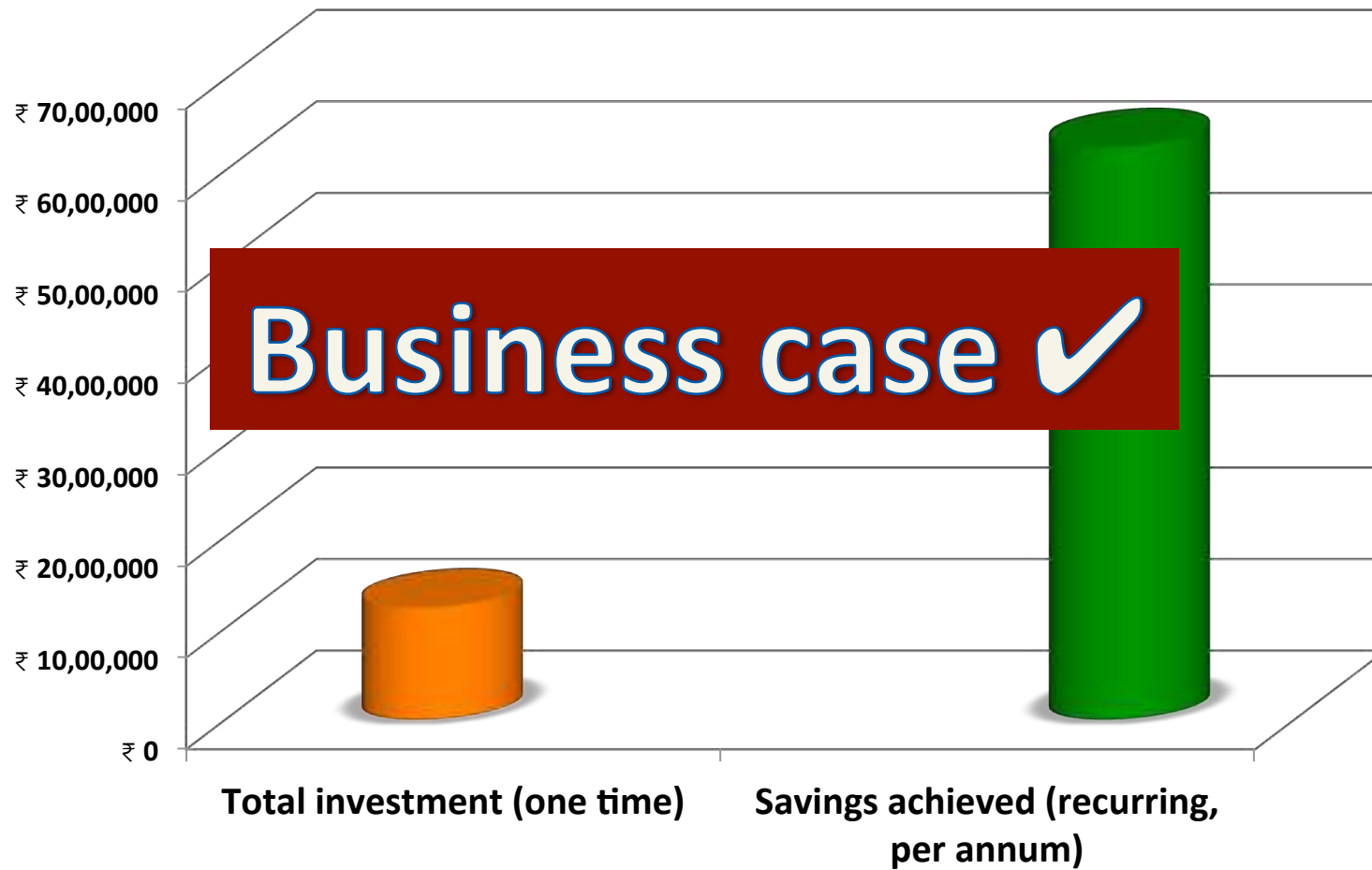
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RE project at Bhiwadi cluster



RE project at Bhiwadi cluster

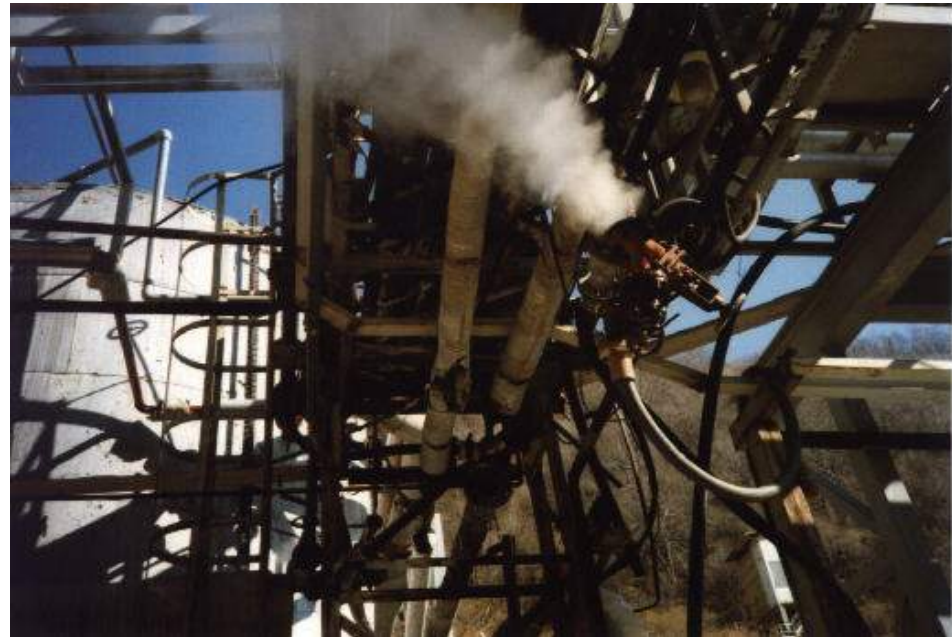


“This is all common sense”

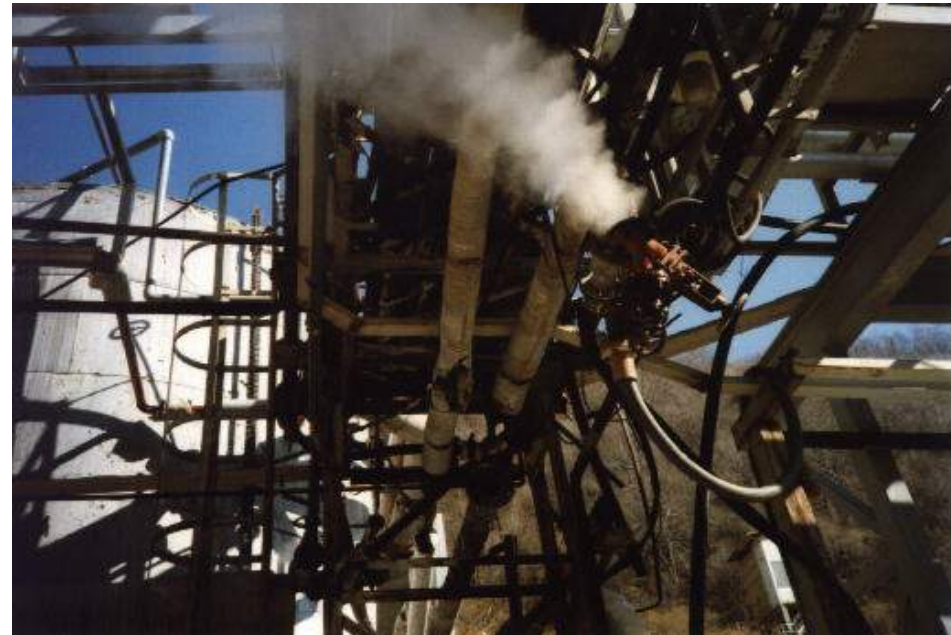


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Resource Efficiency is **not** a question of latest technology ...

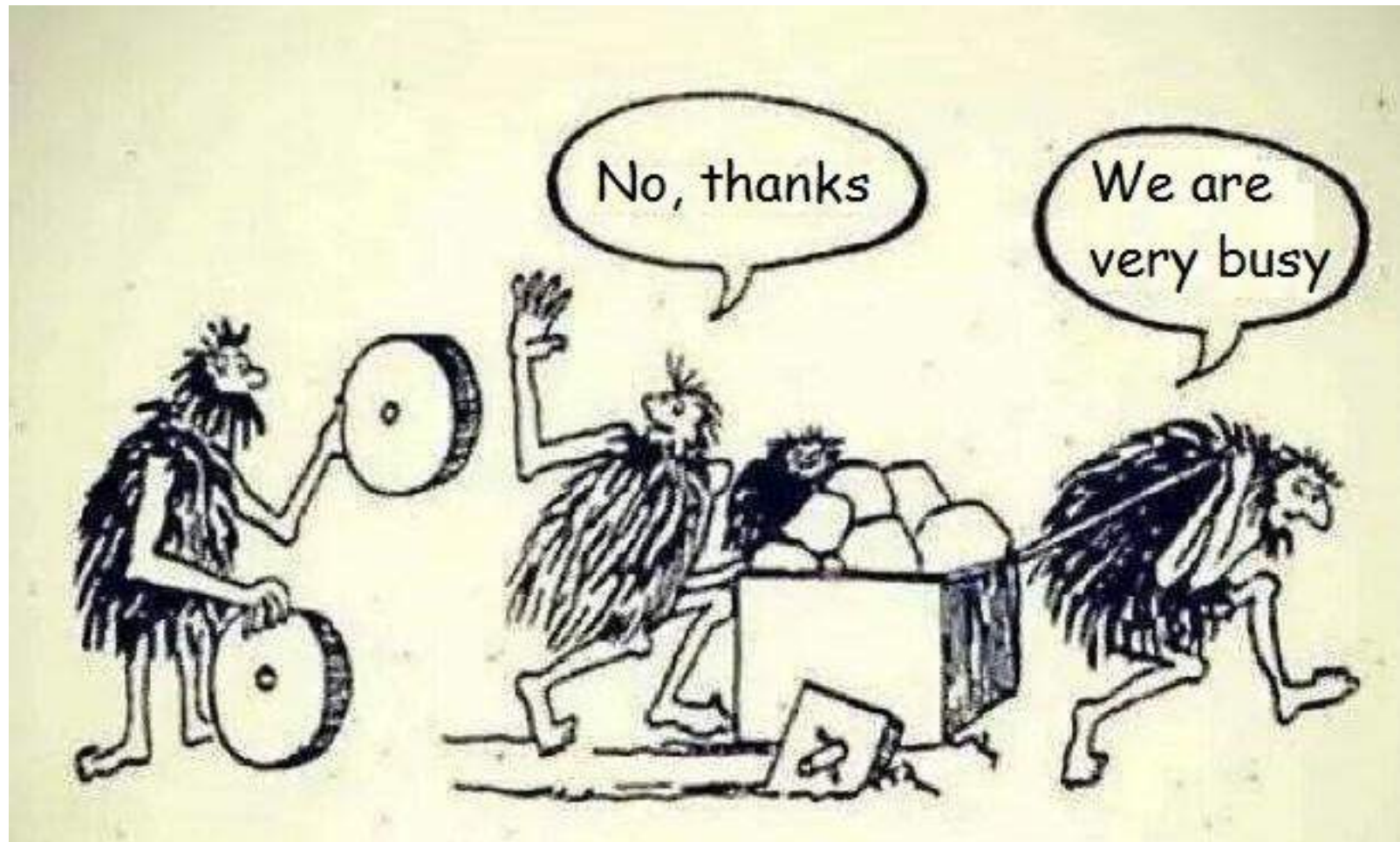


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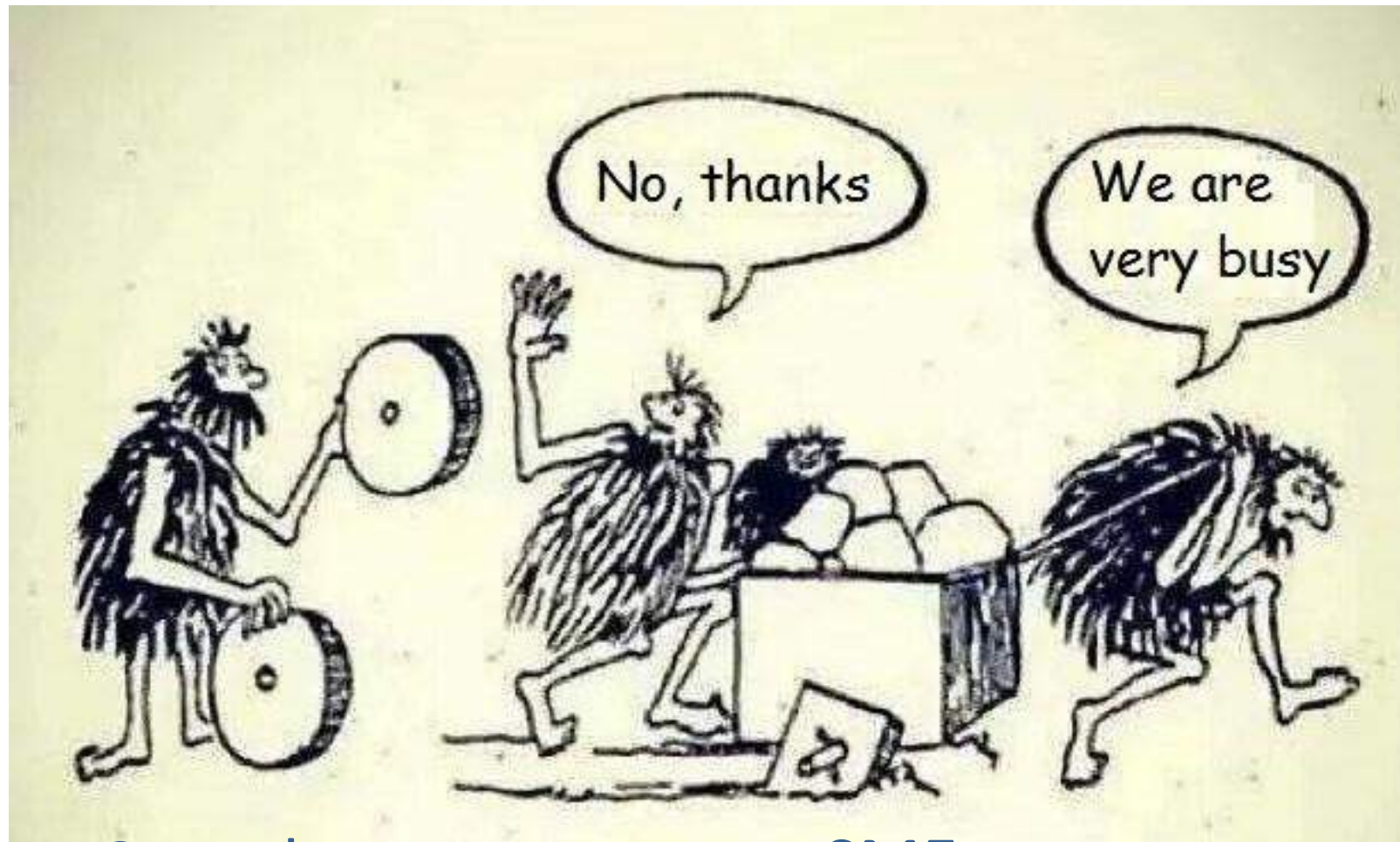


but of good **techniques!**

But ...



But ...



Consultant

SME

Example of an RE focused project:



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ACIDLOOP

PROJECT FUNDED BY



PROJECT IMPLEMENTED BY

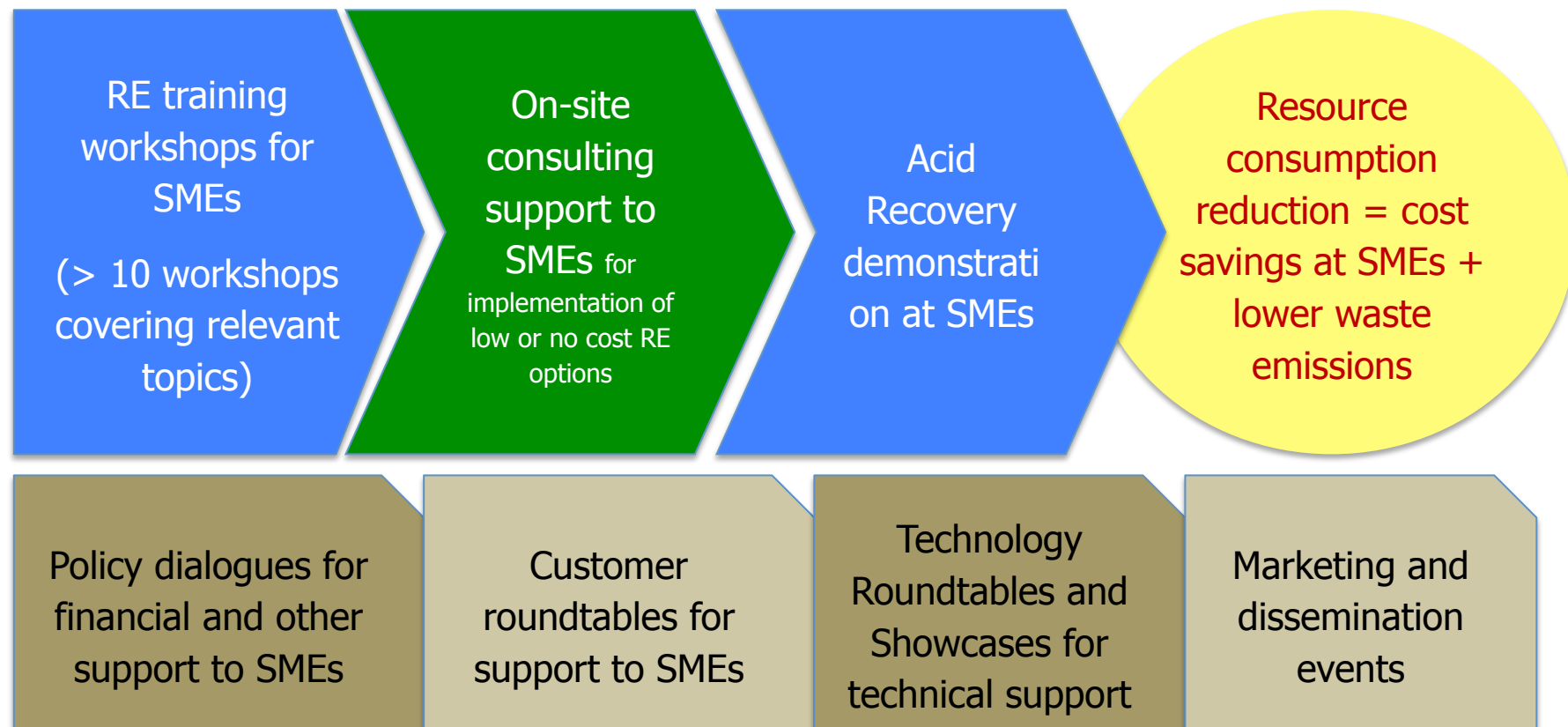


Example of an RE focused project:



- 4 year EU funded project (Switch Asia Programme)
- Implementation of resource efficiency (RE) and acid recycling (AR) in approx. 100 Indian metal finishing SMEs
- Locations: Gurgaon+Faridabad, Mohali, Pune, Aurangabad, Ahmedabad, Chennai
- www.acidloop.in

Structure of ACIDLOOP project

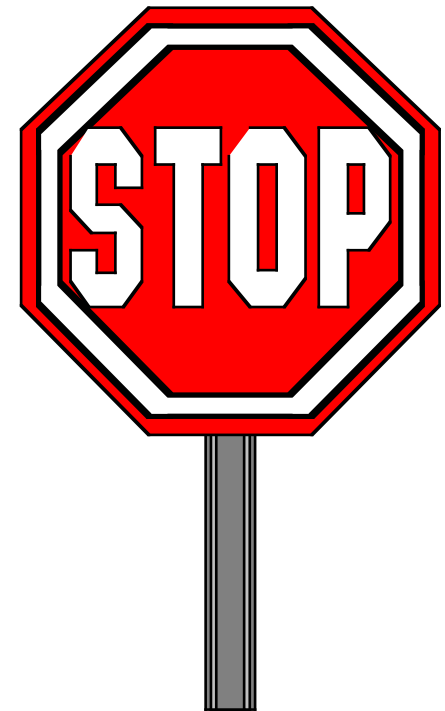


ECO Switch project – industry funded



- An optimised RE project that combines
 - Training
 - On-site consultancy
 - Implementation support and
 - Evaluation of realised savings
- Sustained support
 - Not just inputs for the enterprise
 - ECO Switch provides sustained support over 9 months to actually achieve savings as well as to institutionalise the best practices in the enterprise

Obstacles for implementing RE



Obstacles for implementing RE



Attitude

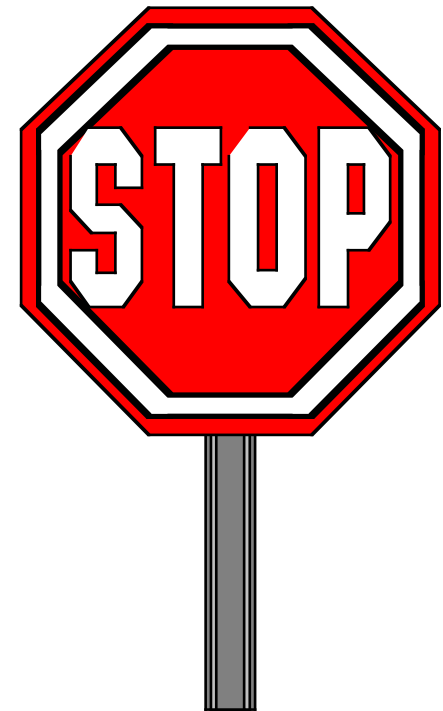
- obstacles in the structure, mentality, attitude, ...

Economic

- uneconomical, financing, ...

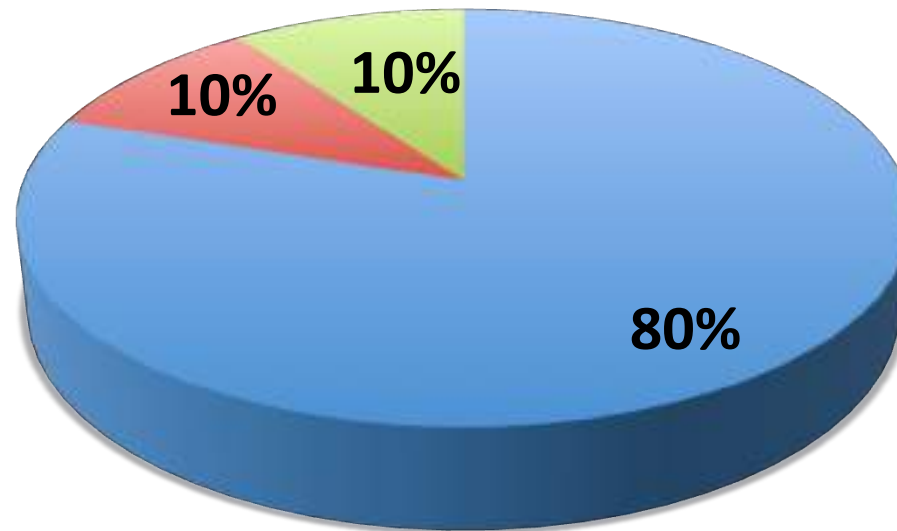
Technical

- no technical solution available



Source: Schnitzer, Technical University Graz

Obstacles for implementing RE



■ Attitude ■ Economic ■ Technical

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“Idea Killers”



- We have always worked like this
- We are too big/too small for this
- Do not forget we have to earn money
- This does not affect my department
- I am still waiting for the O.K.
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- I am very busy
- Let John do this
- I did not understand
- It is too early for this
- Now it is too late!

Recommendations to promote RE amongst SMEs



Awareness

- Show cases, business case ...



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Capacity

- As consultants, at SMEs, ...



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- Show cases, business case ...

Capacity

- As consultants, at SMEs, ...

Policy

- Incentives for adopting RE ... For example focussing on pollution prevention rather than pollution control

Financial

- Soft or easy small-ticket loans



Change



If you do not want to change anything, you will
always find an excuse.

If you want to change something, there will
always be a way.

Albert Einstein



Thank you for your attention!



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For additional information, please contact
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