Cleaner Production

Based on a presentation by
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Cleaner Production

Cleaner Production

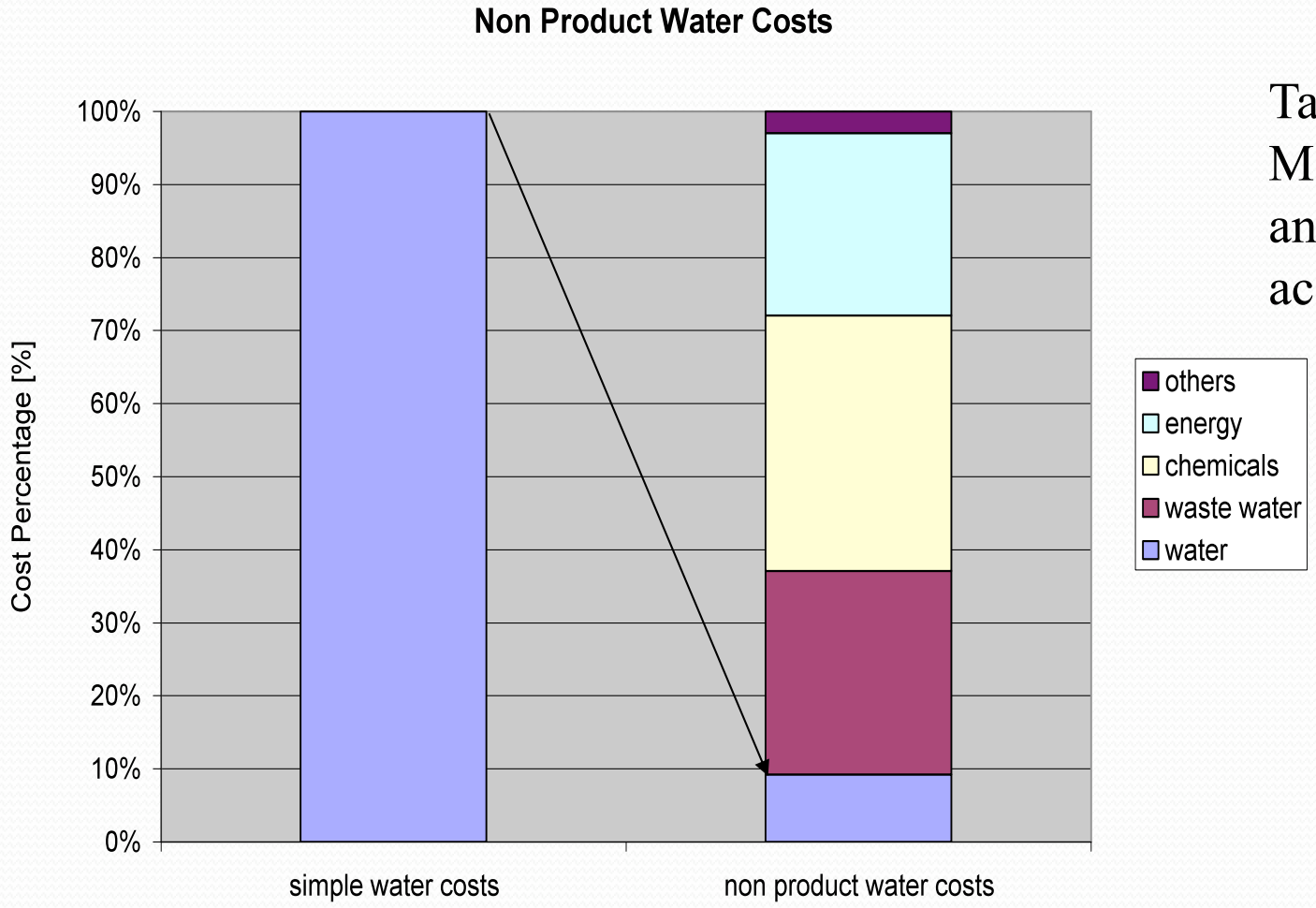
- The goal is to improve the eco-efficiency in companies by implementation of technical or organisational actions
- By reducing the negative effects to the environment operating costs are reduced
- Cleaner Production works with process integrated – preventive - methods instead of End-of-Pipe solutions

Cleaner Production is good not only for the environment but also for the economy!

Of course!

You make products efficiently, not pollutants - inefficiently

Total wastewater costs decreased by water saving in a textile company in Austria in 2005



Taking Depreciation, Maintainance and Personal Costs into account: add factor 4-5!!!

Step one in CP is to reduce the amount of resources used, in this case water

1. Start to monitor water use carefully
2. Install valves to close water when not used
3. Fix “low hanging fruits” (leaks etc)
4. Reuse of wastewater (down-classing of water)
5. Recirculation of cooling water after cooling (closed cooling water system)
6. Recirculation of process water (after specific purification)
7. Redesign of processes; specific steps include counter current rinsing etc

Step two is to separate wastewater streams

Depends on kind of pollutant

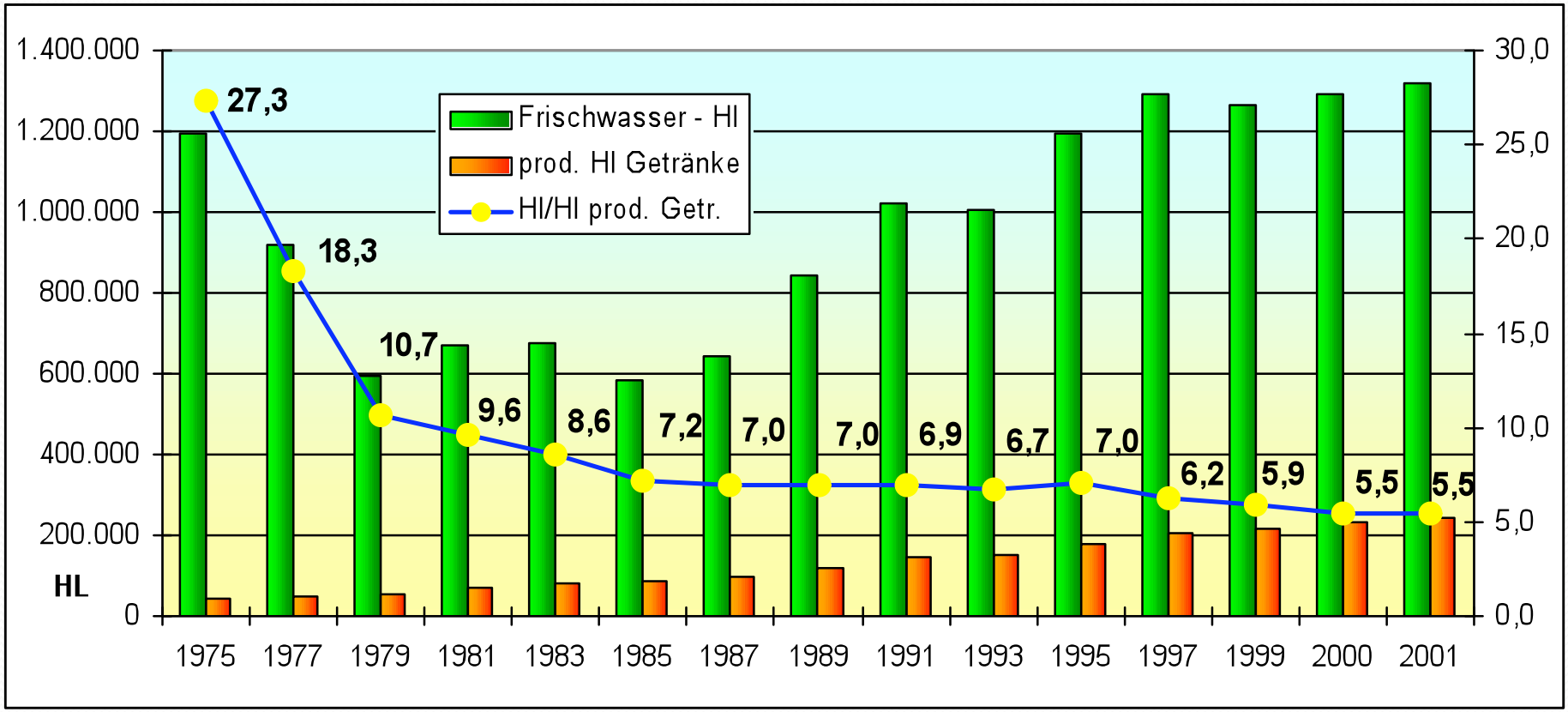
Separate handling of different waste streams

Reduce volume of wastewater

Even out peaks by intermittent storing

Specific steps include specific chemical steps

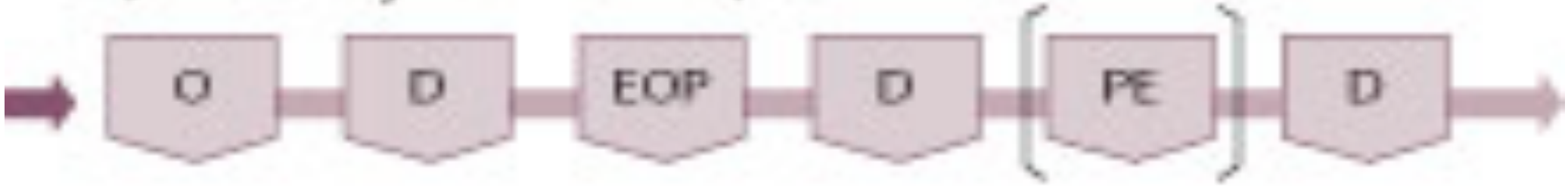
Examples for CP results



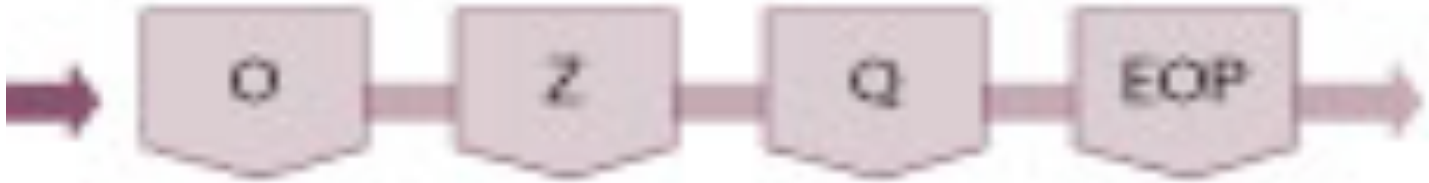
Pulp and paper industry changed bleaching chemistry and decreased pollution dramatically

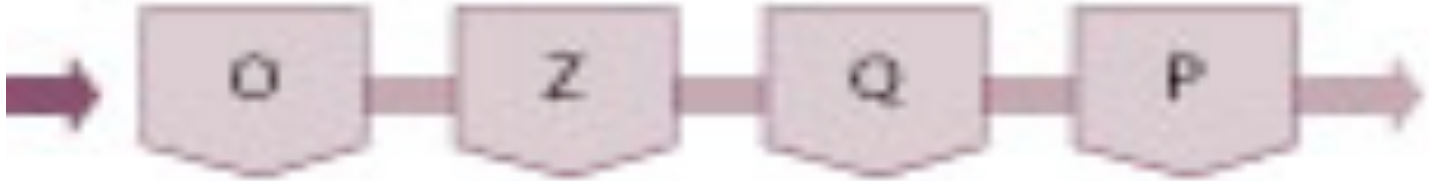
Traditional Kraft bleaching

ECF (Elementary Chlorine Free)



TCF /Totally Chlorine Free)





5 Basic Principles of CP

- Input-Substitution
- Good Housekeeping
- Internal Recycling
- Technological Optimisation/Change
- Optimisation of the Product

Input-Substitution

- Use of less hazardous raw-, auxiliary- or operating materials
- Use of operating materials with a longer life-time

Good Housekeeping

- Increasing the Material and Energy efficiency with actions in the process. Try to fetch the „Low hanging fruits“ first
  - Reducing losses due to leakage
  - Training of employees
  - …

Internal Recycling

- Closing of Material and Energy Loops (Water, Solvents,…)
- Cascading of Material and Energy streams

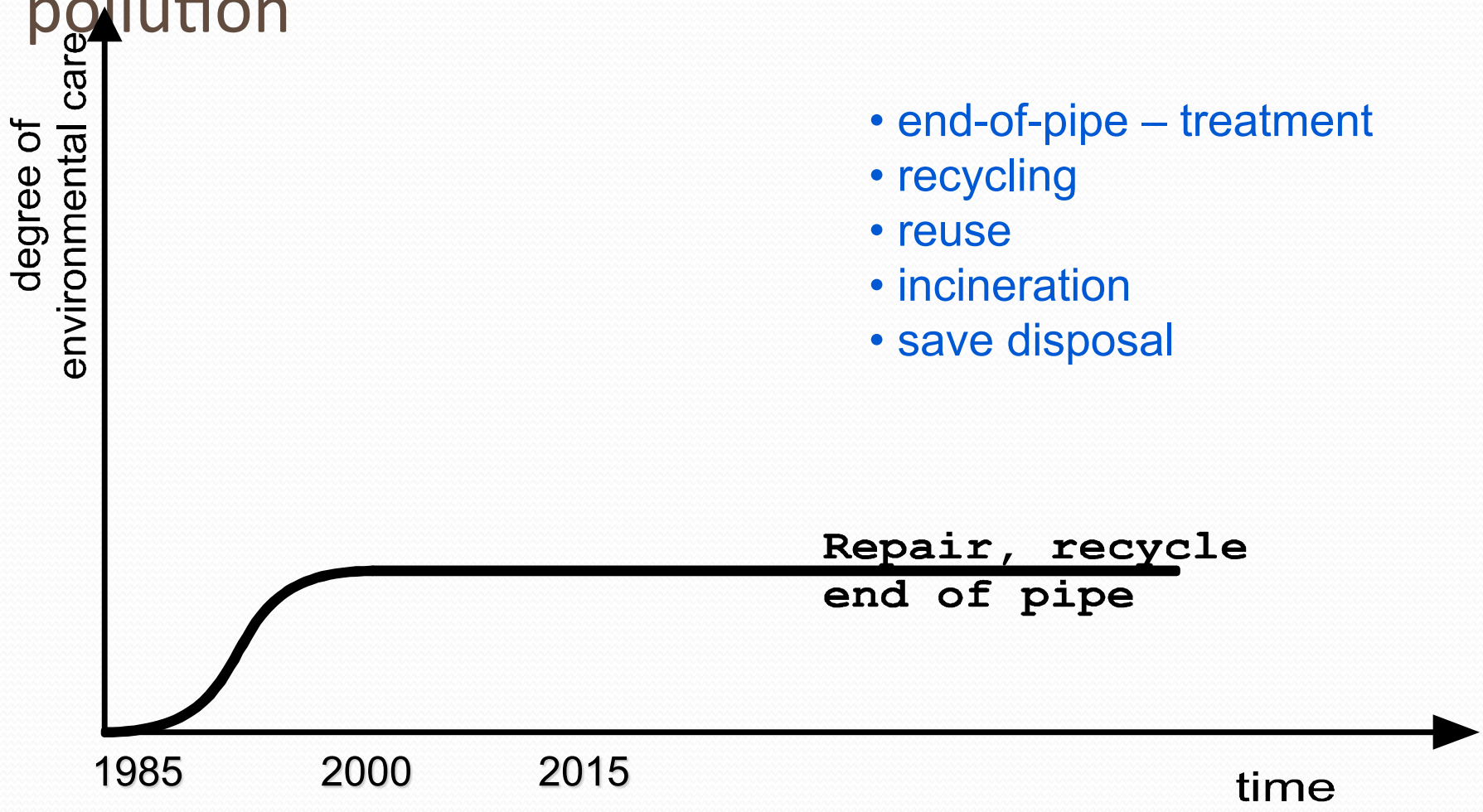
Technological Optimisation/Change

- Implementation of new technologies
- Improved process control
- Redesign of processes
- Change in or Substitution of hazardous processes

Optimisation of the Product

- Increasing the life-time
- Easier reparing
- Easier demanufacturing, recycling or deposition
- Use of non-hazardous materials

Environmental protection reduced air and water pollution



- end-of-pipe – treatment
- recycling
- reuse
- incineration
- save disposal

Eco-efficiency, IPPC, CP

- good housekeeping
- waste minimization
- closing cycles
- energy efficiency

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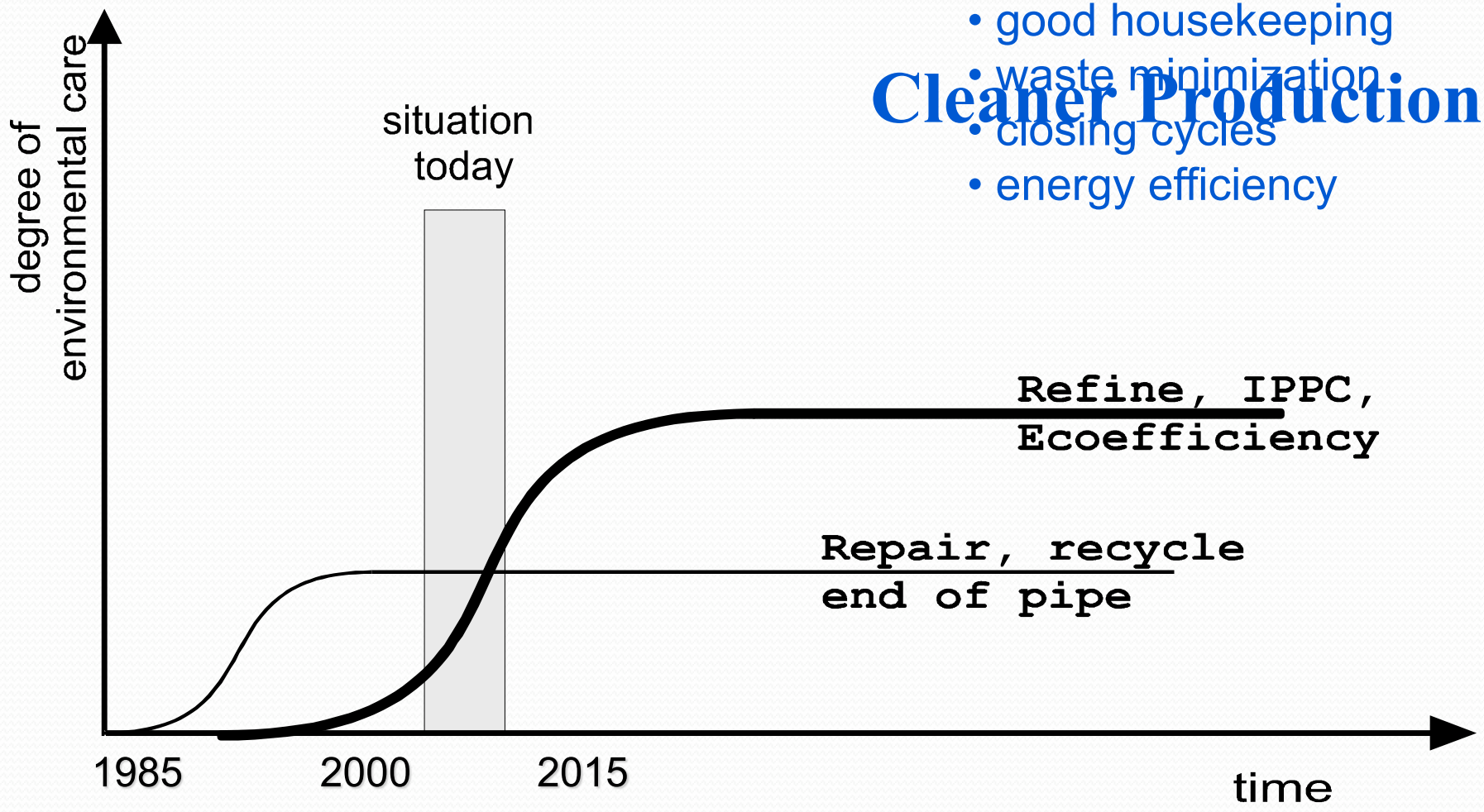
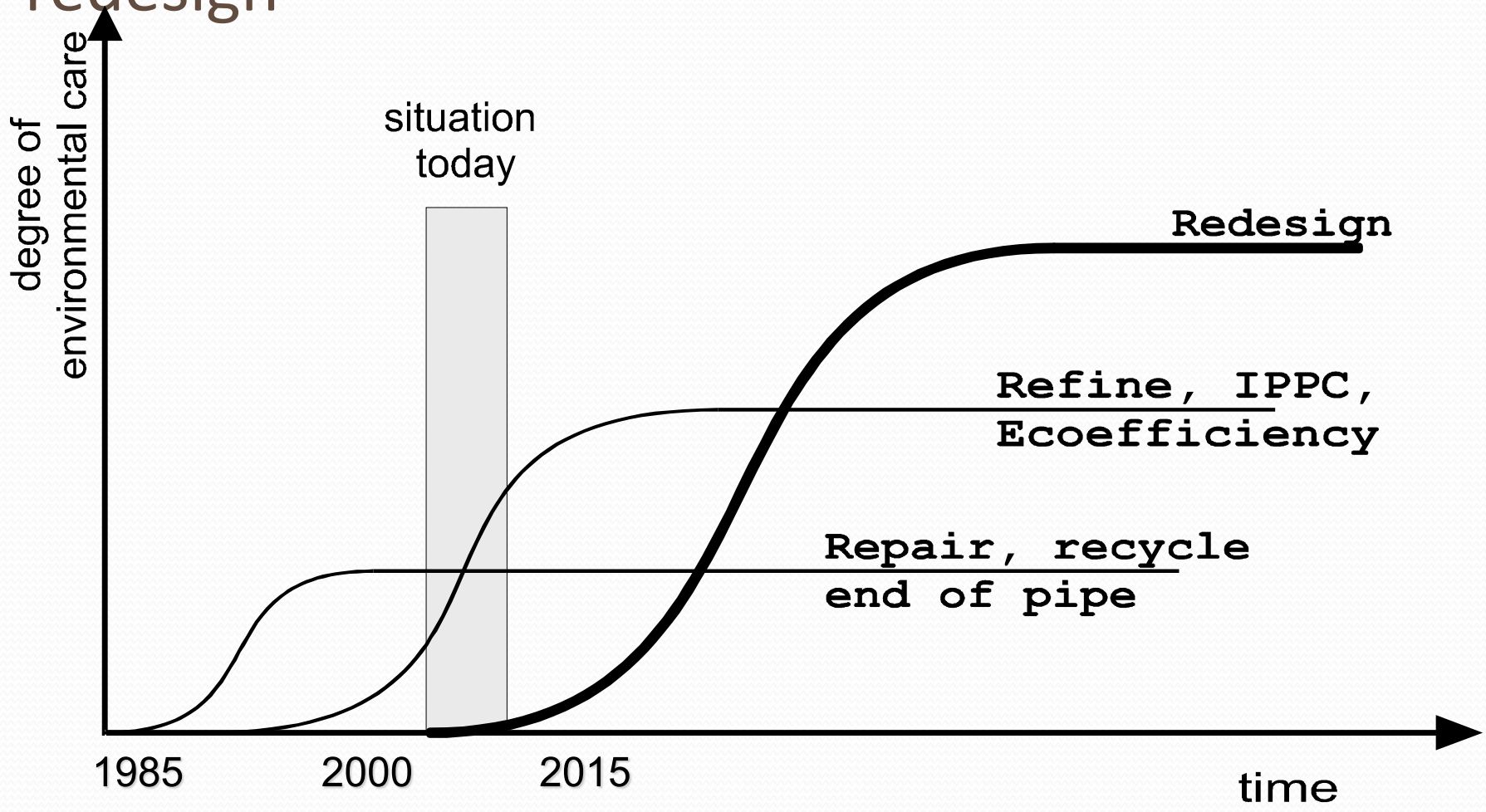
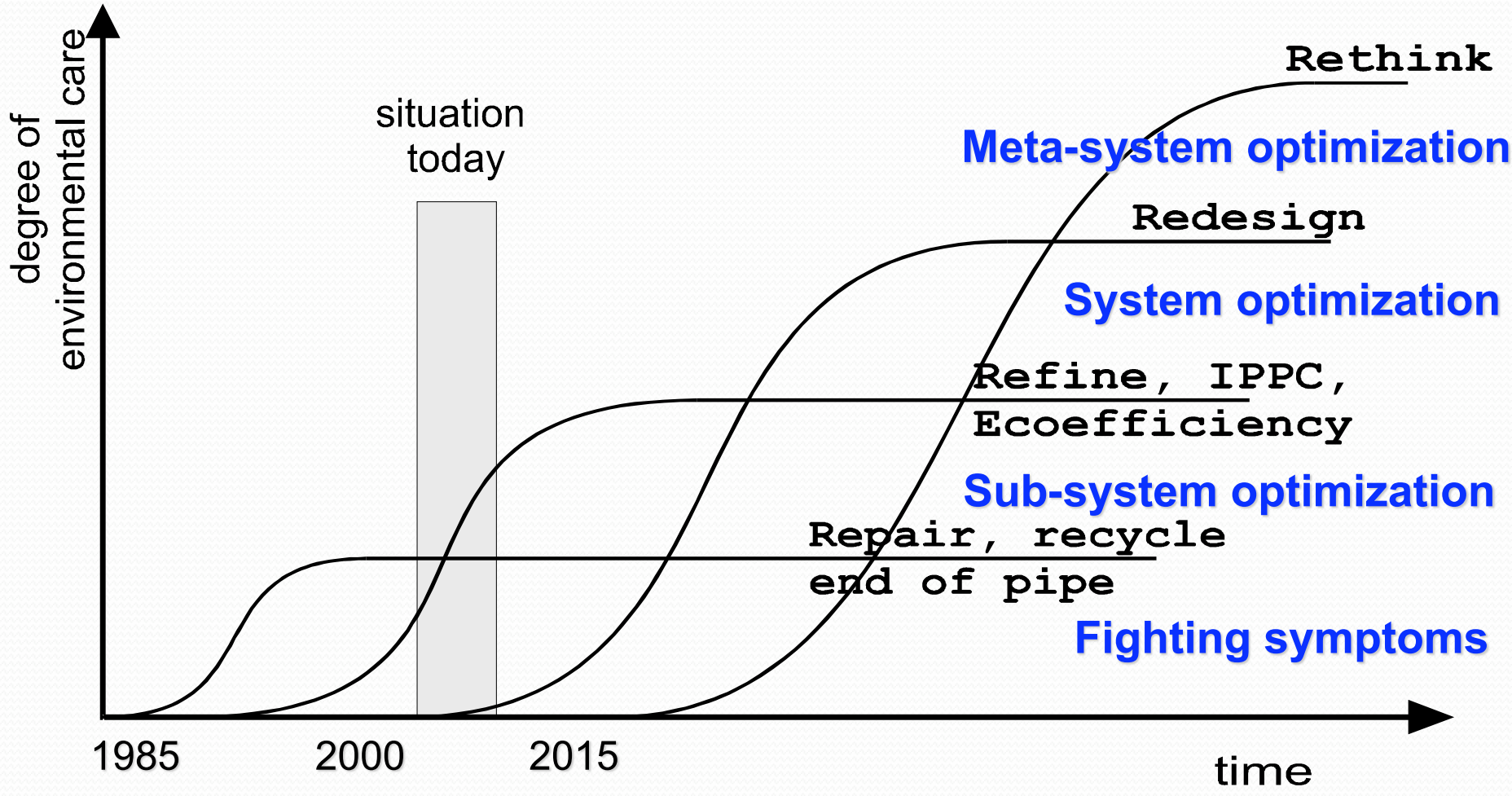


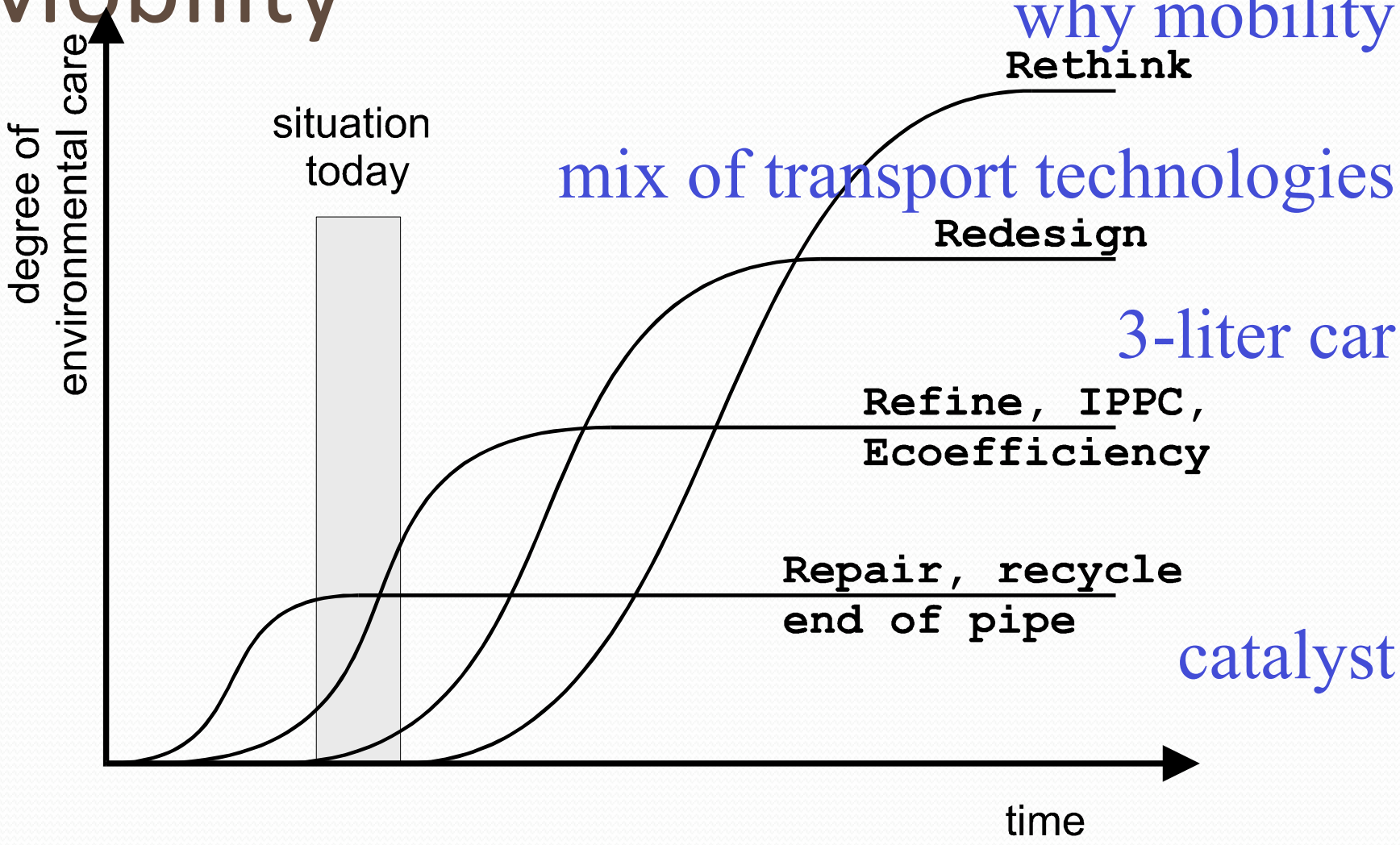
The shift from continuous improvements to redesign



The paradigm shift in environmental protection



Mobility


why mobility
Rethink
degree of environmental care
situation today
mix of transport technologies
Redesign
3-liter car
Refine, IPPC, Ecoefficiency
Repair, recycle end of pipe
catalyst
time


Paris 2010


London 2010
LOOK RIGHT
LOOK LEFT
CAFFÈ NERO

Thank you

Paris 2010