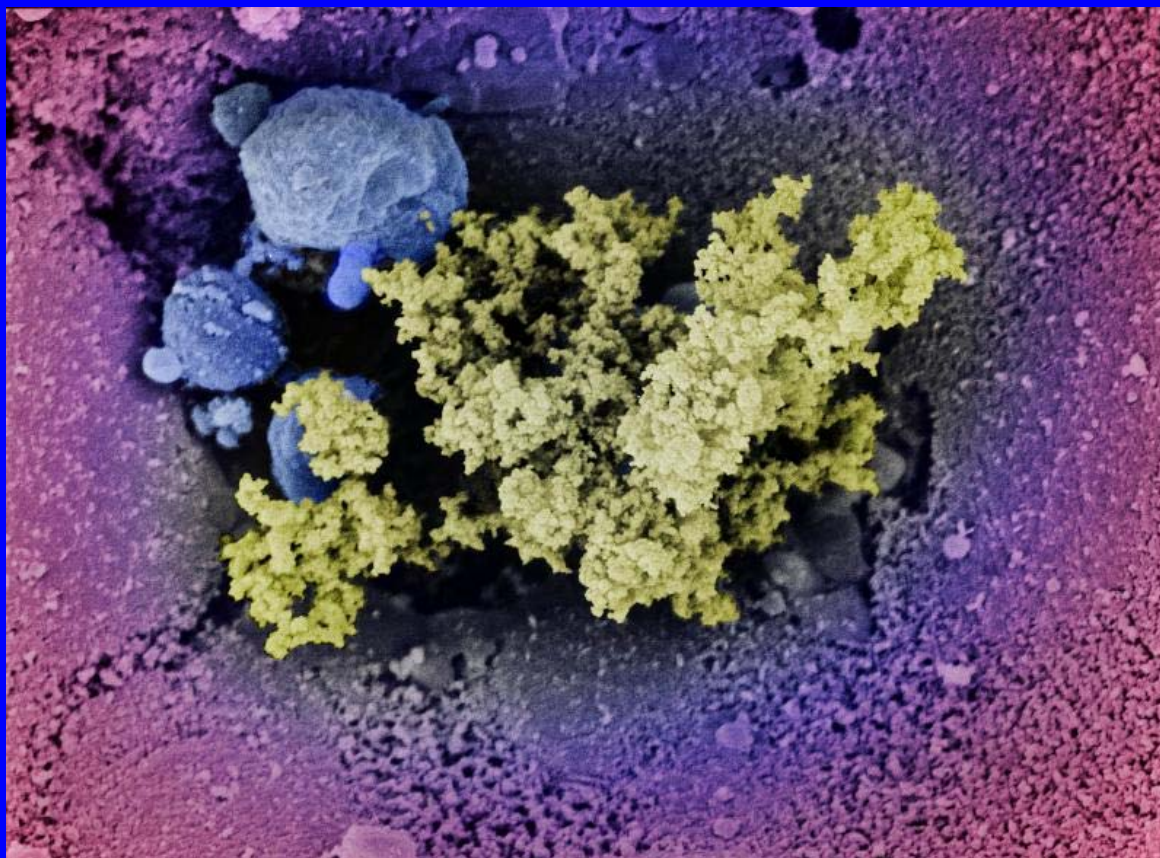


# Thematic Strategy on Air Pollution

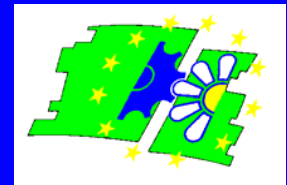


and  
streamlined  
air quality  
legislation

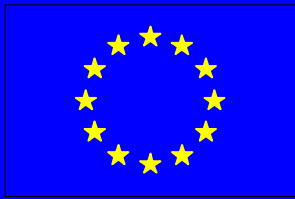
CAFE team, DG Environment



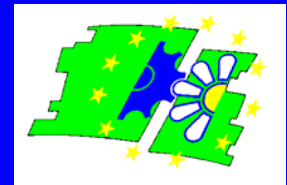
# Thematic Strategy is a response to 6<sup>th</sup> EAP



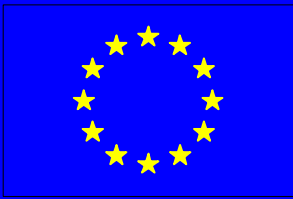
- **6<sup>th</sup> EAP- Decision of Council & EP of July 2002:**
    - *‘achieving levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment’; (Art 7.1. of 6th EAP)*
    - **Integrated approach; consistency with other environmental policies; exploit synergies;**
  - **Better Regulation**
    - **supported by thorough impact assessment;**
    - **new legislative proposal to streamline air quality legislation**
-



# Objective of Clean Air for Europe (CAFE) Programme



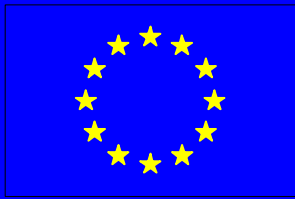
- **Established in 2001 to provide the technical input for the Thematic Strategy on air pollution**
- **Best available science & transparency**
- **Benchmark current and future air pollution with regard to *significant* impacts**
- **Define interim objectives up to 2020 – based on analysis of closing the gap between business as usual and Maximum Technical Feasible improvement**
- **Inform the review of air quality legislation**
- **Starting point in 2000**
  - **≈ 350,000 premature deaths attributable to PM**
  - **Average statistical life expectancy shortened by roughly 9 months, in some MSs: 1 to 2 years.**



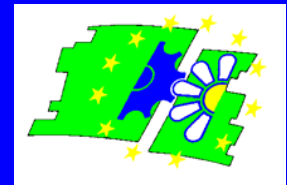
# How were these interim objectives defined?



- **Peer-reviewed health (WHO) and scientific advice**
  - **Assessment of the effect of current policies**
  - **Peer-reviewed integrated assessment to develop cost-effective solutions for both health and environment**
  - **Peer-reviewed Cost-Benefit Analysis**
  - **Macro-economic analysis**
    - **Lisbon Strategy & Competitiveness**
  - **Stakeholder involvement and consultation**
    - **Over 100 stakeholder meetings and over 10.000 responses to internet based consultation**
  - **Accompanied by comprehensive impact assessment (170+ pages)**
-



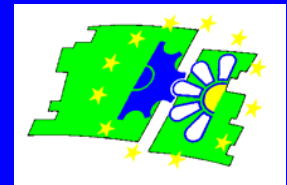
# Impacts addressed by the Strategy (1)



- **Health: Fine Particles (PM<sub>2.5</sub>) & Ozone**
  - Range of problems from minor respiratory effects to premature death; also cardiovascular effects.
  - No known thresholds for effects
- **Acid rain (SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>)**
  - Affects freshwaters and terrestrial ecosystems
  - leads to loss of flora & fauna; reduced growth of forests, leaching of toxic metals into soil solution

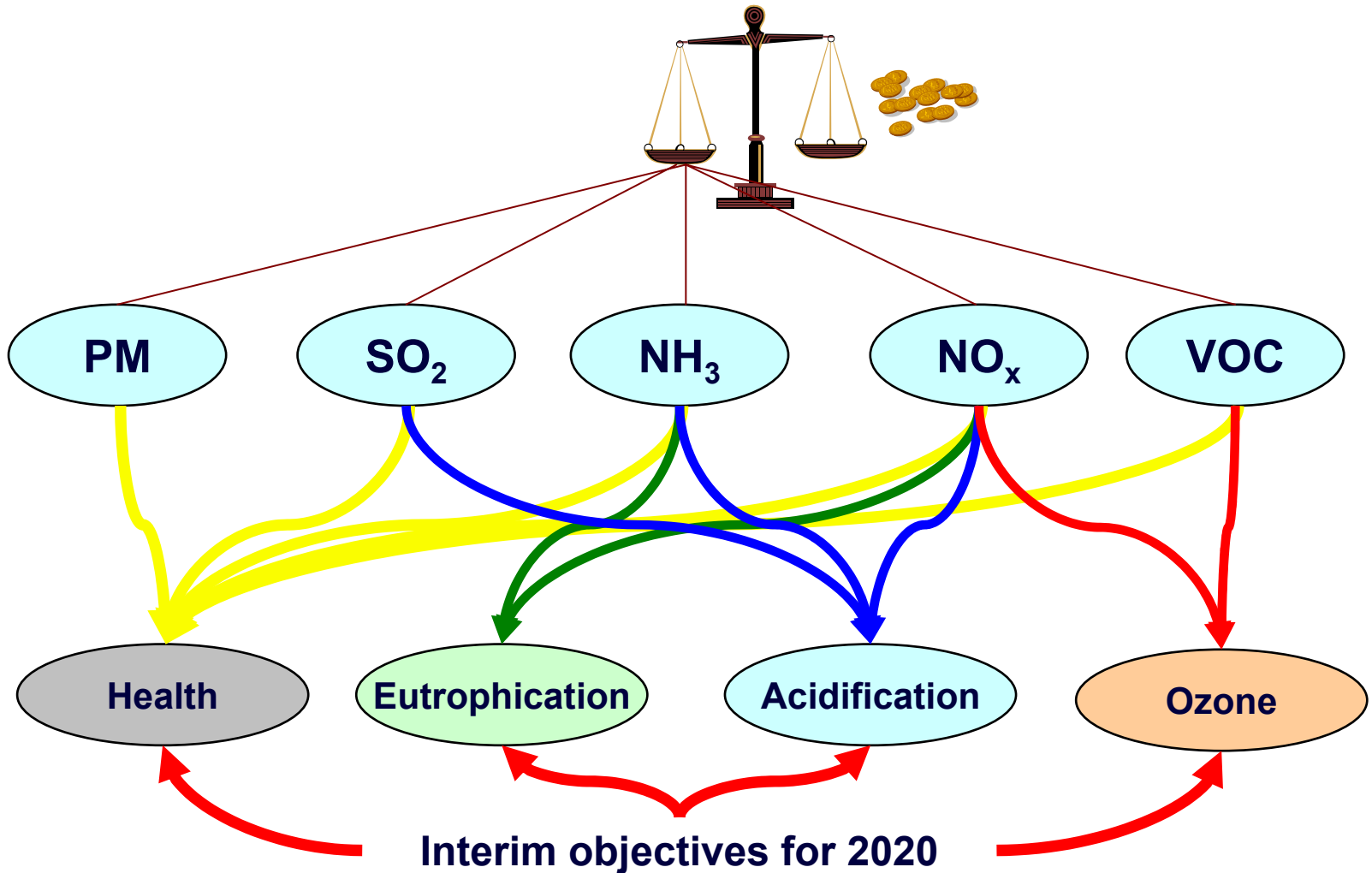


# Impacts addressed by the Strategy (2)



- **Eutrophication ( $\text{NO}_x$ ,  $\text{NH}_3$ )**
  - Excess nutrient nitrogen causes species composition change & loss of biodiversity
  - Also causes nutrient imbalances in plants/trees - increases susceptibility to other stresses such as drought
- **Ozone (non-health)**
  - Damages trees and plants including agricultural crops
  - Damages buildings/materials

# Defining cost-effective solutions is complicated

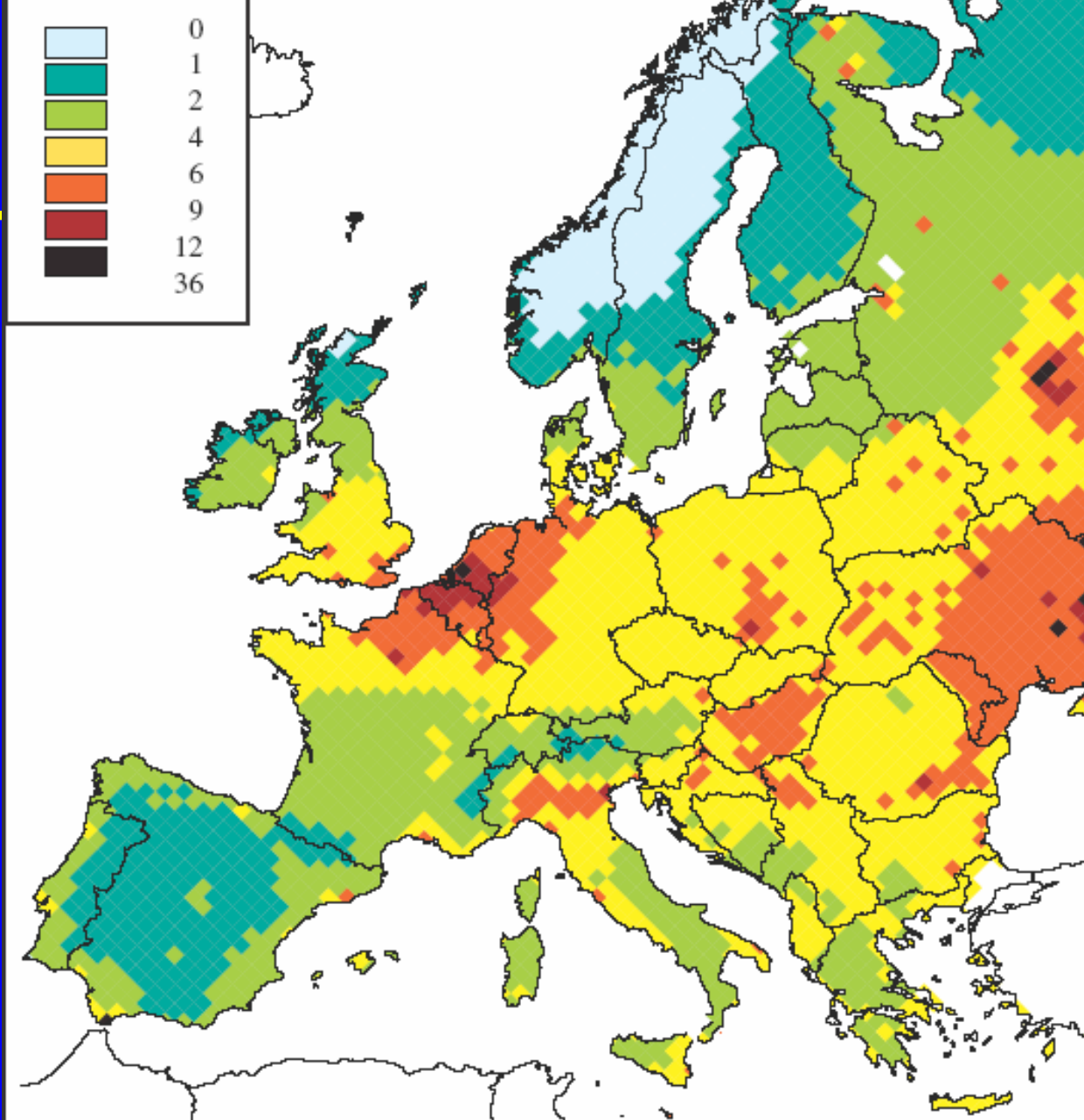




## Example 1: Fine particles

**Even if situation  
improves by 2020:  
2.5 million life years  
or  
272,000 premature  
deaths  
if nothing is done.**

Loss in average statistical  
life expectancy due to  
identified anthropogenic  
PM<sub>2.5</sub>  
Calculations for 1997  
meteorology



Source: Clean Air for Europe Programme (2005)



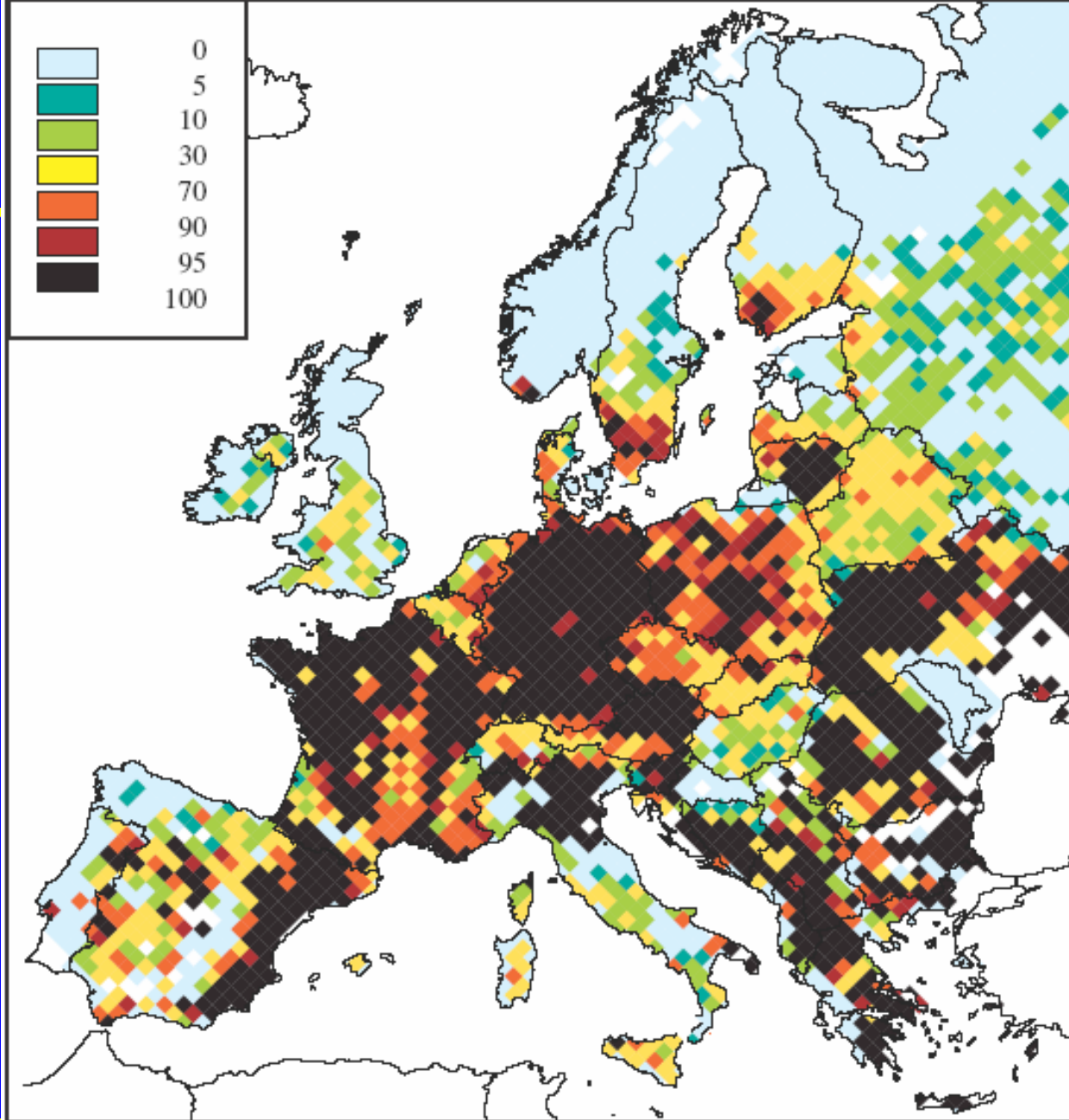


**Example 2:**  
**Problem of too much**  
**nitrogen deposited**  
**to nature in 2020**  
*No EU policies have*  
*yet addressed this.*

**Ecosystem area**  
**exceeded eutrophication**  
**590 000 km<sup>2</sup>**

Percentage of  
ecosystems area with  
nitrogen deposition  
above critical loads  
using grid-average  
deposition.

Calculation for 1997  
meteorology



Source: Clean Air for Europe Programme (2005)



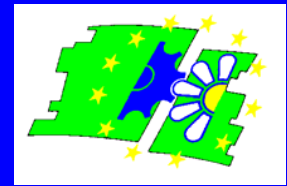
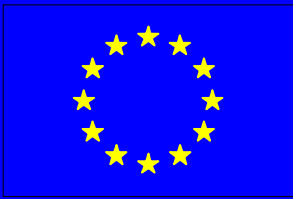
# Summary of “Business as Usual”



- Emissions continue to decline
- But in 2020
  - Premature deaths related to fine particulates still 270,000
  - Loss of statistical average life still 5 months in the EU
  - Ozone premature mortality equal to 20,800 cases
  - 119,000 km<sup>2</sup> of forest at risk from acid rain
  - 590,000 km<sup>2</sup> of ecosystems at risk from nutrient Nitrogen
  - 760,000 km<sup>2</sup> of forest at risk from ozone
- Cost-effective improvements are possible

<i>kT</i>	<i>2000</i>	<i>2020</i>	<i>%</i>
SO <sub>2</sub>	8736	2806	-68%
NO <sub>x</sub>	11583	5889	-49%
VOCs	10661	5918	-44%
PM <sub>2.5</sub>	1749	971	-44%
NH <sub>3</sub>	3824	3686	-4%

Ships will represent 125% and 101% of land based SO<sub>2</sub> and NO<sub>x</sub> emissions in 2020.



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# The Strategy

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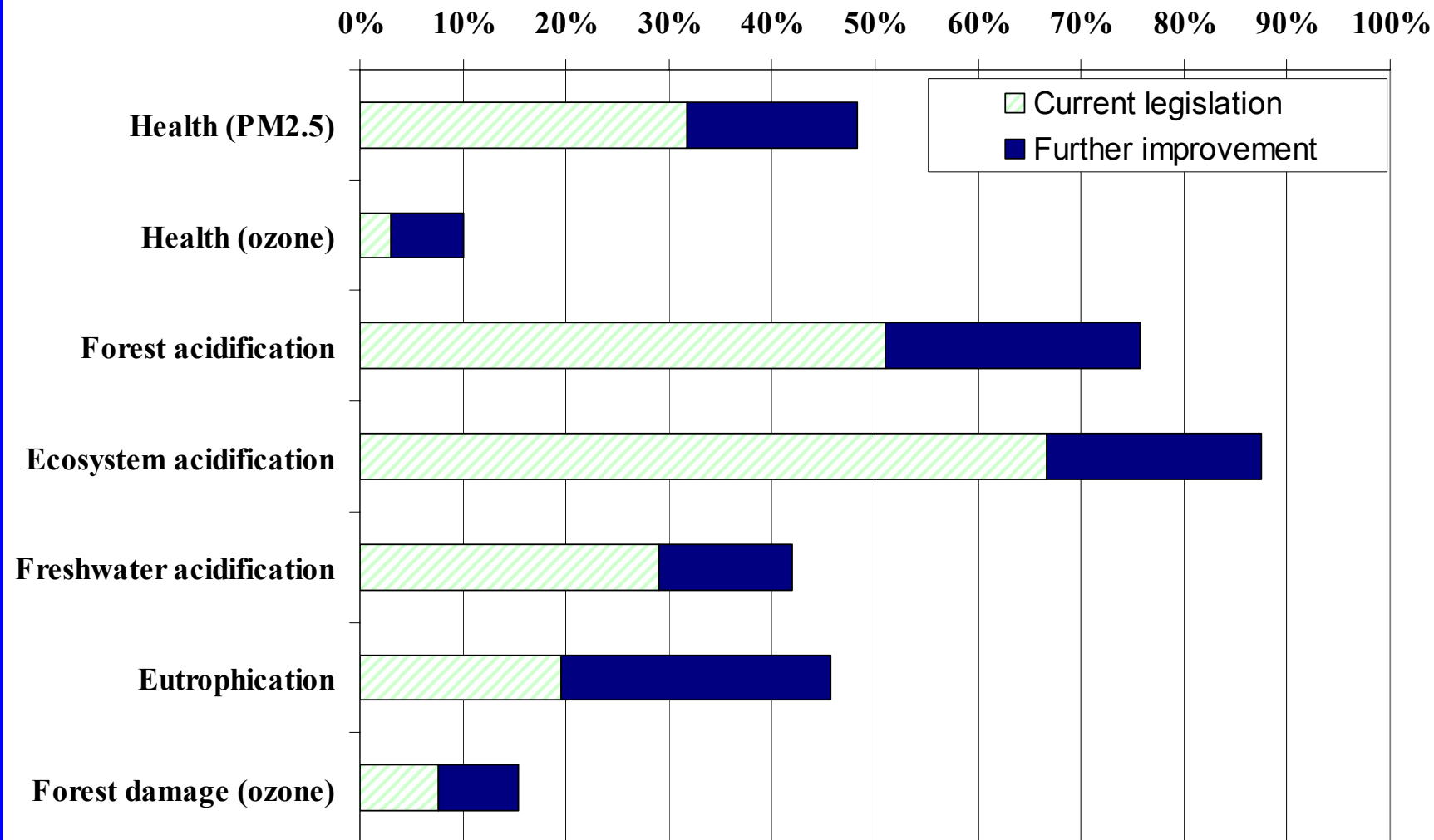
# Summary of Strategy – Costs & Benefits



Ambition level	Benefits								Costs per annum (€bn)
	Human health			Natural environment					
	Life Years Lost (million) PM <sub>2.5</sub>	Premature deaths (000s) PM <sub>2.5</sub> and ozone	Range in monetised health benefits per annum (€bn)	Ecosystem area exceeded acidification (000 km <sup>2</sup> )			Ecosystem area exceeded eutrophication (000 km <sup>2</sup> )	Forest area exceeded ozone (000 km <sup>2</sup> )	
			Forests	Semi-natural	Fresh-water				
<b>2000</b>	3.62	370	-	243	24	31	733	827	-
<b>Baseline 2020</b>	2.47	293	-	119	8	22	590	764	-
<b>Strategy</b>	<b>1.91</b>	<b>230</b>	<b>42 – 135</b>	<b>63</b>	<b>3</b>	<b>19</b>	<b>416</b>	<b>699</b>	<b>7.1</b>
<b>MTFR</b>	1.72	208	56 – 181	36	1	11	193	381	39.7



# Improvement of health & environment indicators following the Strategy (improvement relative to 2000)



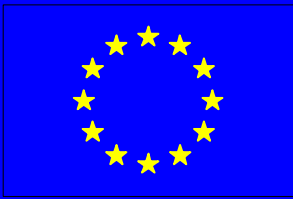


# Objectives of the Strategy

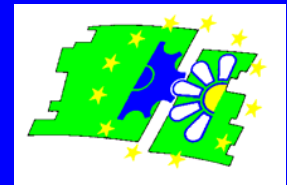


## *Improvements by 2020 relative to 2000*

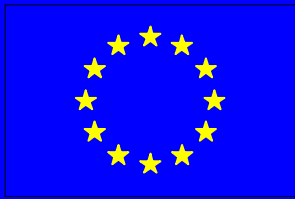
<b>Life Years lost from particulate matter (million)</b>	<b>47%</b>
<b>Acute mortality from ozone</b>	<b>10%</b>
<b>Ecosystem forest area exceeded from acidification</b>	<b>74%</b>
<b>Ecosystem freshwaters area exceeded from acidification</b>	<b>39%</b>
<b>Ecosystem area exceeded from eutrophication</b>	<b>43%</b>
<b>Forest area exceeded by ozone</b>	<b>15%</b>



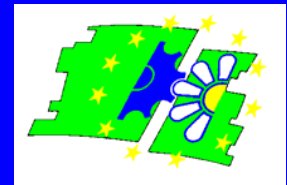
# Measures following the Strategy



- **Euro 5 for cars and vans**
  - **Euro 6 for Heavy Duty Engines**
  - **Revision of the NECD consistent with objectives identified in the Strategy**
  - **Small scale combustion**
    - Review of IPPC directive for larger sources
    - Energy using Products directive for small sources
  - **Ship NO<sub>x</sub> engine standards (IMO or Community)**
  - **Agriculture (NH<sub>3</sub>)**
    - N content of feedstuffs
    - Review of IPPC directive for intensive agriculture
  - **Revise Air quality legislation**
-

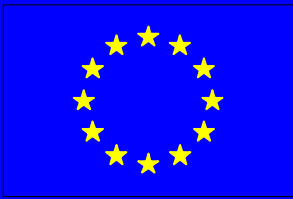


# National Emissions Ceilings Directive 2001/81/EC

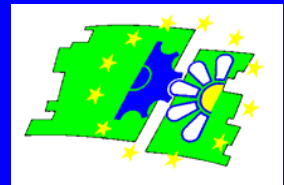


- **Addresses air pollution which travels across national borders**
- **Tackles impacts on natural ecosystems from acid rain, excess nutrient nitrogen and ozone.**
- **Establishes limits on the annual mass emissions of four air pollutants  $\text{NO}_x$ ,  $\text{SO}_2$ , VOCs and  $\text{NH}_3$**
- **to be attained by 2010**





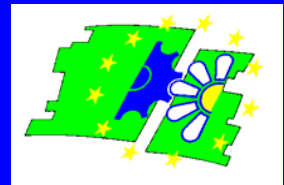
## NECD (2)



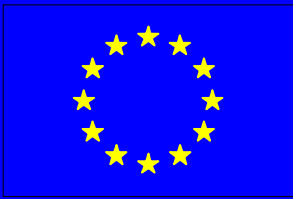
- 
- **Annual reporting of emissions for (year-2) according to guidelines from the Convention on Long Range Transboundary Air Pollution**
  - **Plans & Programmes have to be prepared at periodic intervals (end 2002, end 2006) to demonstrate how the ceilings will be met.**
  - **The NECD is mirrored by the Gothenburg Protocol under the CLRTAP**
-



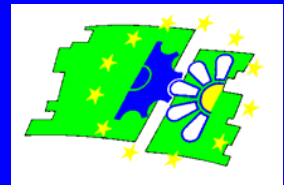
# Revision of the NECD



- **The NECD will be revised to deliver the Thematic Strategy's objectives – preparatory work underway**
  - **New emission ceilings for the year 2020**
    - **New pollutant  $\text{PPM}_{2.5}$  will be included**
  - **Proposal expected in mid-2007**
  - **Also a new reporting mechanism being developed to improve consistency with climate gas reporting.**
-



# CLRTAP & Gothenburg Protocol



- **The Community is a party to the Convention on long range transboundary air pollution.**
- **A lot of scientific and technical work is undertaken under CLRTAP which informs policy development in the EU (e.g. EMEP protocol)**
- **The Community has ratified the Gothenburg Protocol which effectively mirrors the NECD.**
- **Review of the Gothenburg Protocol also underway under the CLRTAP – complete by end 2007 followed by revision, if appropriate.**