



A New Generation of Modelling Needs for Environment and Health Impact

2-Part Presentation

- a) Facts.
- b) Future prospects.



PART-1; Facts and Needs

9th Int. Conf. on Harmo within Atmospheric Dispersion

“Existing Models”

- In 1991 in average 0.8 “models” per PC
- In 2003 approximately 2.3 “models” per PC
- Till 1995, 3 Harmo Workshops planned...

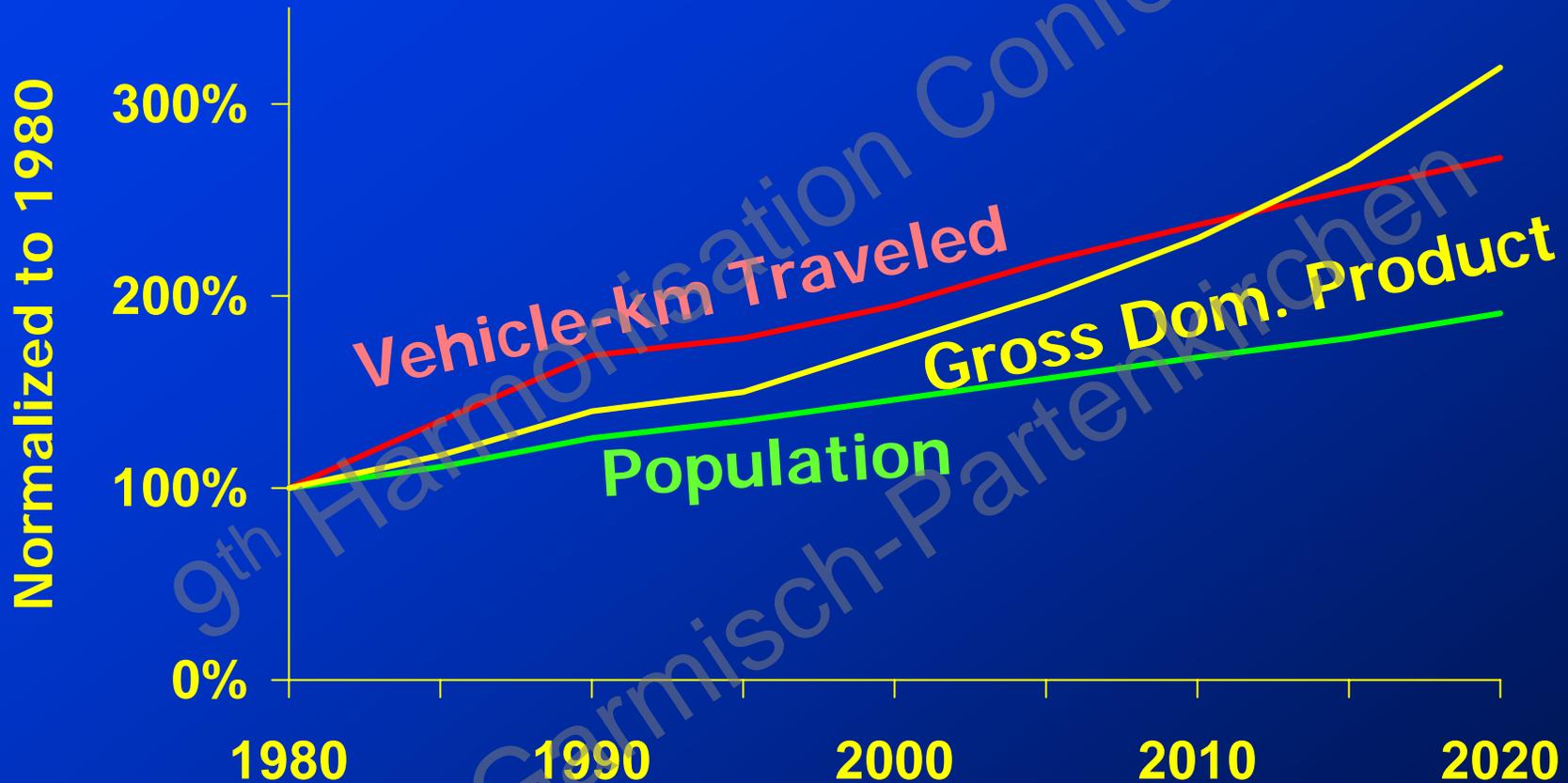
“Regulatory Needs”

- Till 1985 Plume Assessments
- Early 1990s Assessment Line/Area Sources
- In 1995, Urban Assessments
- In 2002, Integrated Urban Assesments
- In 2010 ???



Growth

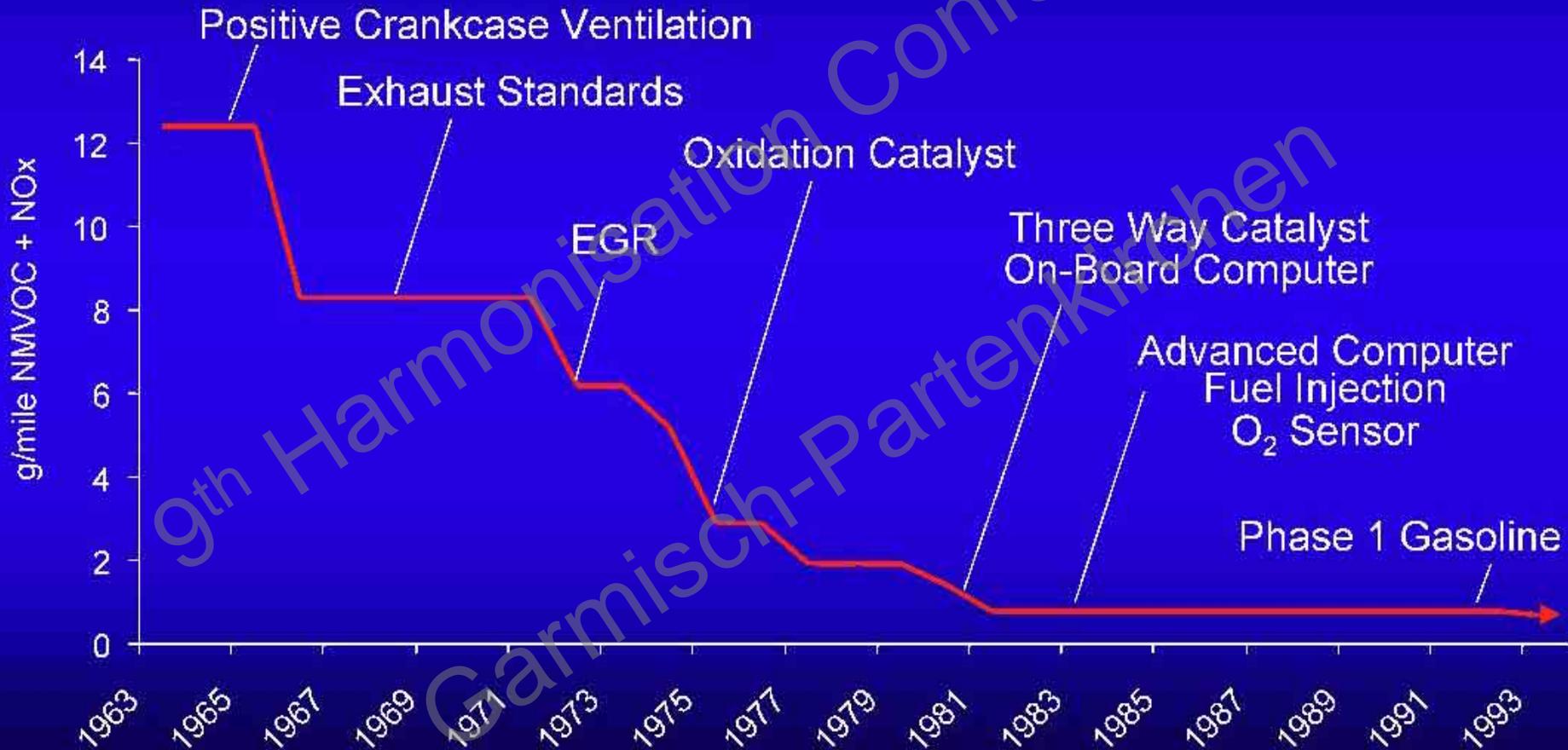
9th Int. Conf. on Harmo within Atmospheric Dispersion





California Auto Emission Reductions 1/2

9th Int. Conf. on Harmo within Atmospheric Dispersion





California Auto Emission Reductions 2/2

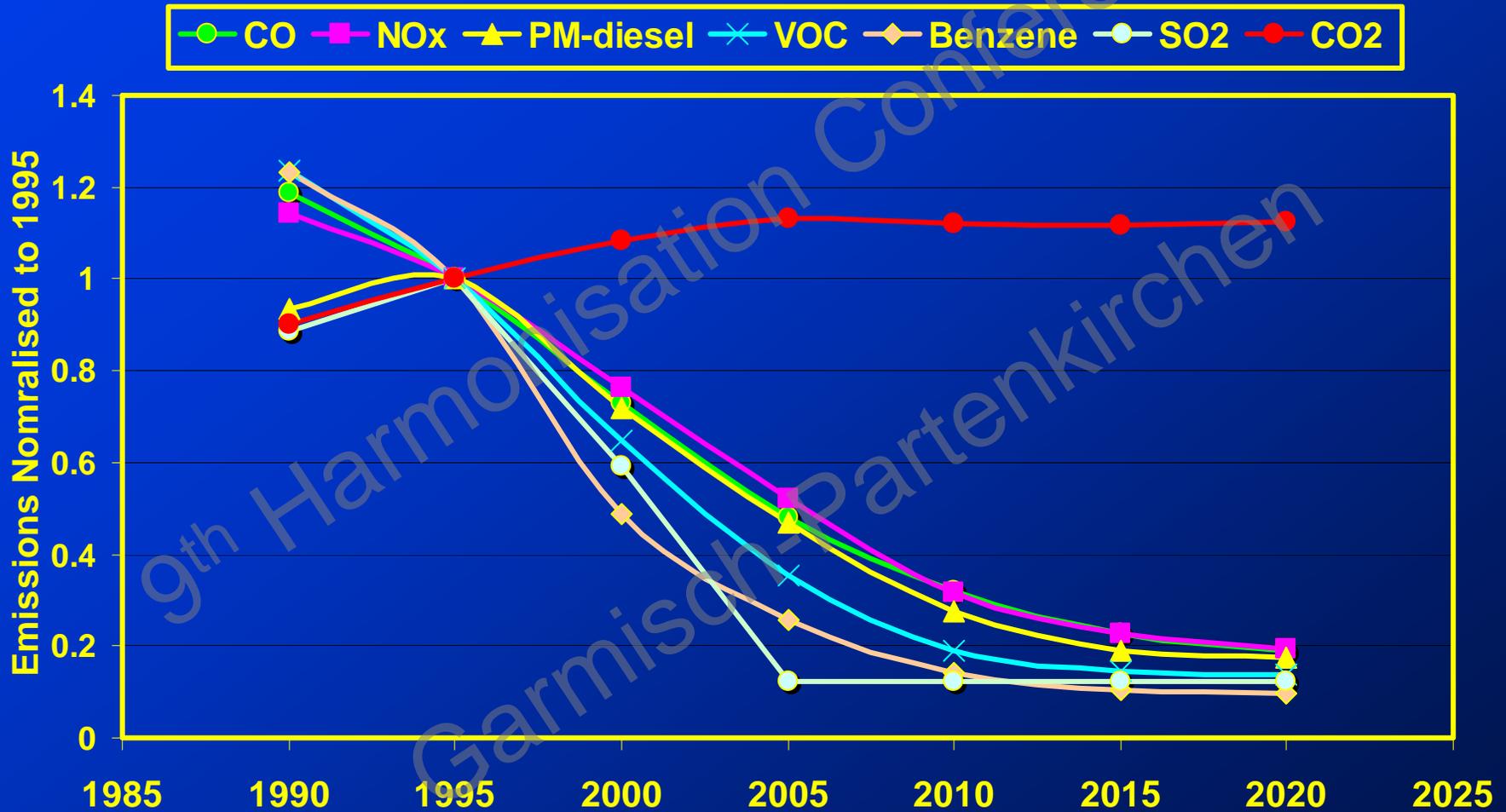
9th Int. Conf. on Harmo within Atmospheric Dispersion





European reductions – All Pollutants

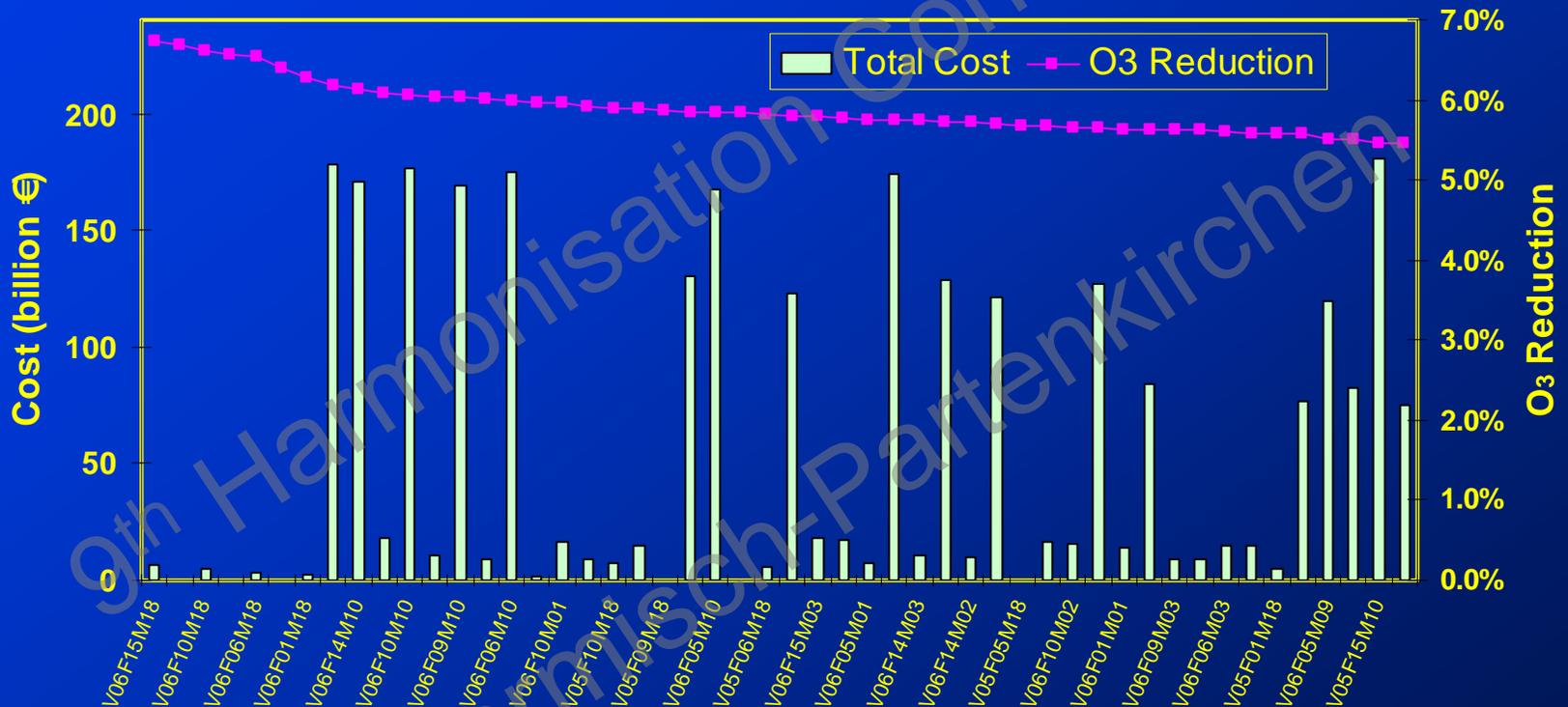
9th Int. Conf. on Harmo within Atmospheric Dispersion





Cost Effectiveness

9th Int. Conf. on Harmo within Atmospheric Dispersion

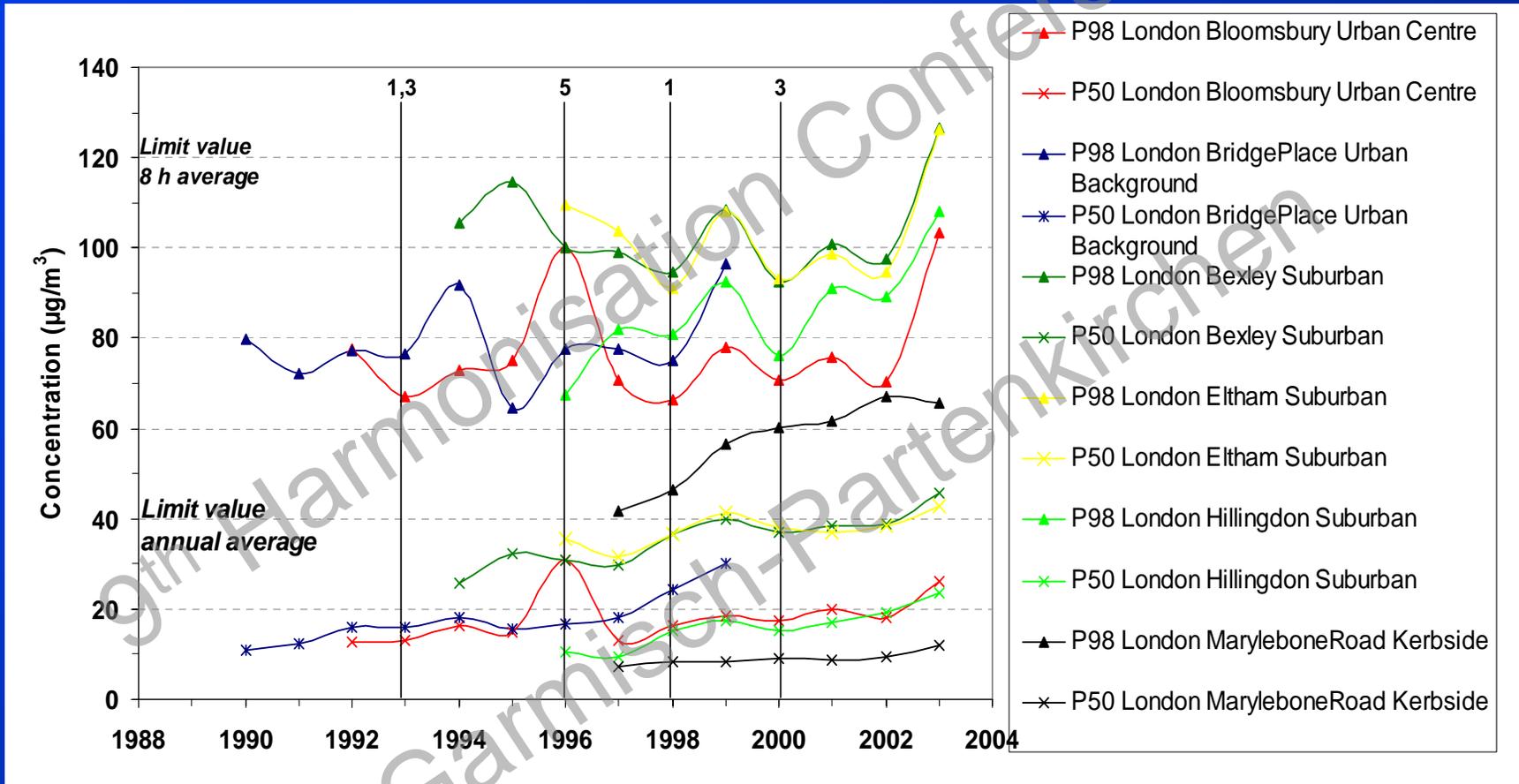


BEST SCENARIOS OUT OF 4500



What Went Wrong?

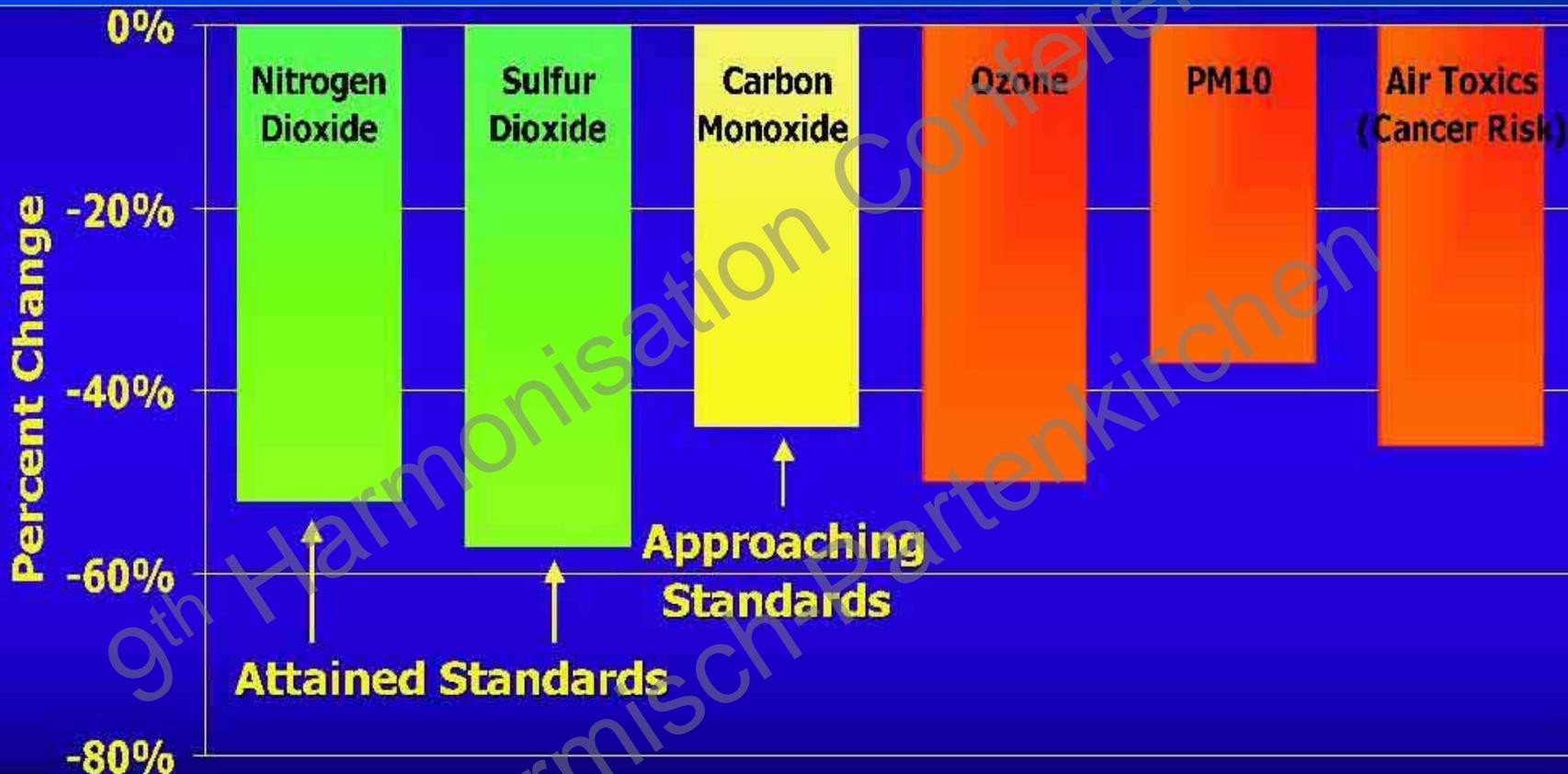
9th Int. Conf. on Harmo within Atmospheric Dispersion





Improvements over 20 years ?

9th Int. Conf. on Harmo within Atmospheric Dispersion



- New Pollutant Problems Emerged
- Standards are reduced
- Some problems are unsolved with present knowledge



PART-2; Future Regulatory Actions

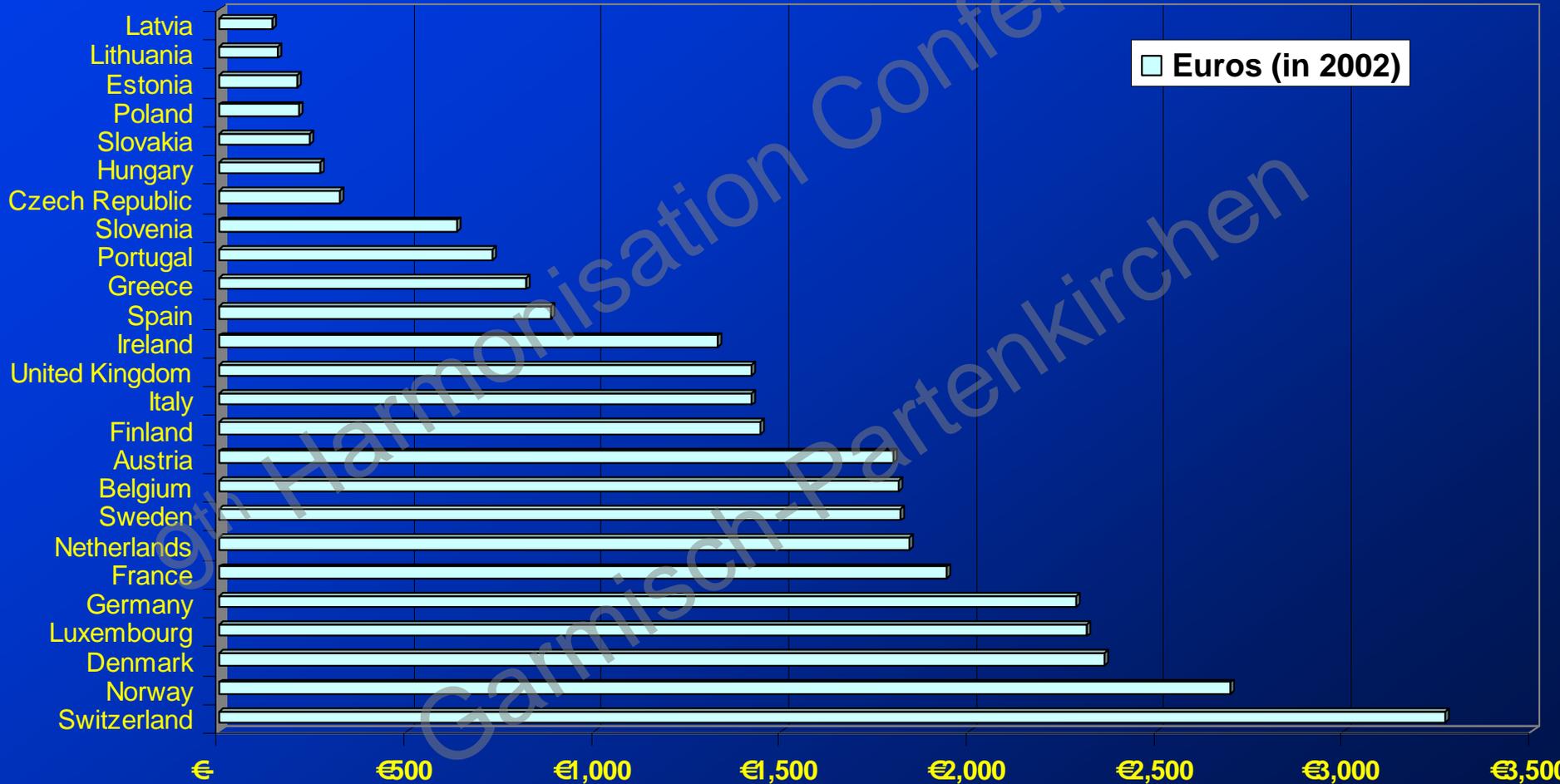
9th Int. Conf. on Harmo within Atmospheric Dispersion

- **EU Commission presented, on 11 June 2003, a Communication (COM388) to the Council, the European Parliament and the European Economic and Social Committee on**
“European Environment and Health Strategy”
- **Health and Environment related research represents approximately 40% of the total FWP6 budget.**
- **New field as indoor-outdoor link, exposure and risk assessment are expected to have a significant impact in the health and environmental area.**



Health Spending per person

9th Int. Conf. on Harmo within Atmospheric Dispersion





Objectives for 2005-2010

9th Int. Conf. on Harmo within Atmospheric Dispersion

- **The health relevance of exposure to high concentrations and exposure at hot-spots**
- **Uncertainties linked to the nature and size of effects of ambient air pollutants on human health**
- **The importance of susceptibility to effect of air pollution**
- **The robustness of the current Air Quality Guideline value for NO₂ of 40 µg/m³ as annual mean etc**
- **The health relevance of other ambient air pollutants than those which are currently identified as priority substances (like PM and ozone) or already regulated way in the European Union...**



What can be done? New prospects

9th Int. Conf. on Harmo within Atmospheric Dispersion

- **Implement the polluter pays principle in the areas and times where needed.**
- **Regulatory models in large geographical areas and high spatial resolution**
- **Identify the perceived sectors where this is going to be environmentally effective while competitiveness and other side effects are not occurring**
- **Provide dynamic alternatives to minimize the risk of health risks**
- **Utilise new technologies (e.g. GRID for advancement of modelling approaches.**



Final Remarks

9th Int. Conf. on Harmo within Atmospheric Dispersion

- **Abatement of atmospheric pollutants has reached saturation and merely creates important secondary effects.**
- **Reduction scenarios will need to be variable in days and specifically located in hot spot areas.**
- **Dynamic taxation can be coupled advanced sensors and with telematic tools which are now technologically feasible.**
- **The effectiveness of the polluter pays principle can be monitored and disseminated on real-time.**
- **Public awareness can make such solutions politically acceptable and minimise indirect effects to sustainable development or other sectorial changes.**



Thank you for your attention

9th Int. Conf. on Harmo within Atmospheric Dispersion

- europa.eu.int/comm/environment/legis_en.htm
- europa.eu.int/comm/environment/health/index_en.htm
- **New information technology infrastructure**
GRID - NoE POLICIES for Oct 2005
autooil.jrc.cec.eu.int/sustain-gis