European Commission

Enterprise and Industry
Directorate General

Challenges for Sustainable Development & Environment Protection Addressed by ETPIS

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*** The views expressed in this presentation are personal and may not necessarily reflect those of the European Commission.**

Outline of Presentation

Industrial safety facts &
links to competitiveness &
sustainability

Seveso II & ETPIS activities

Further Developments & Special Aspects in Risk Assessment & Industrial Safety

Nanomaterials

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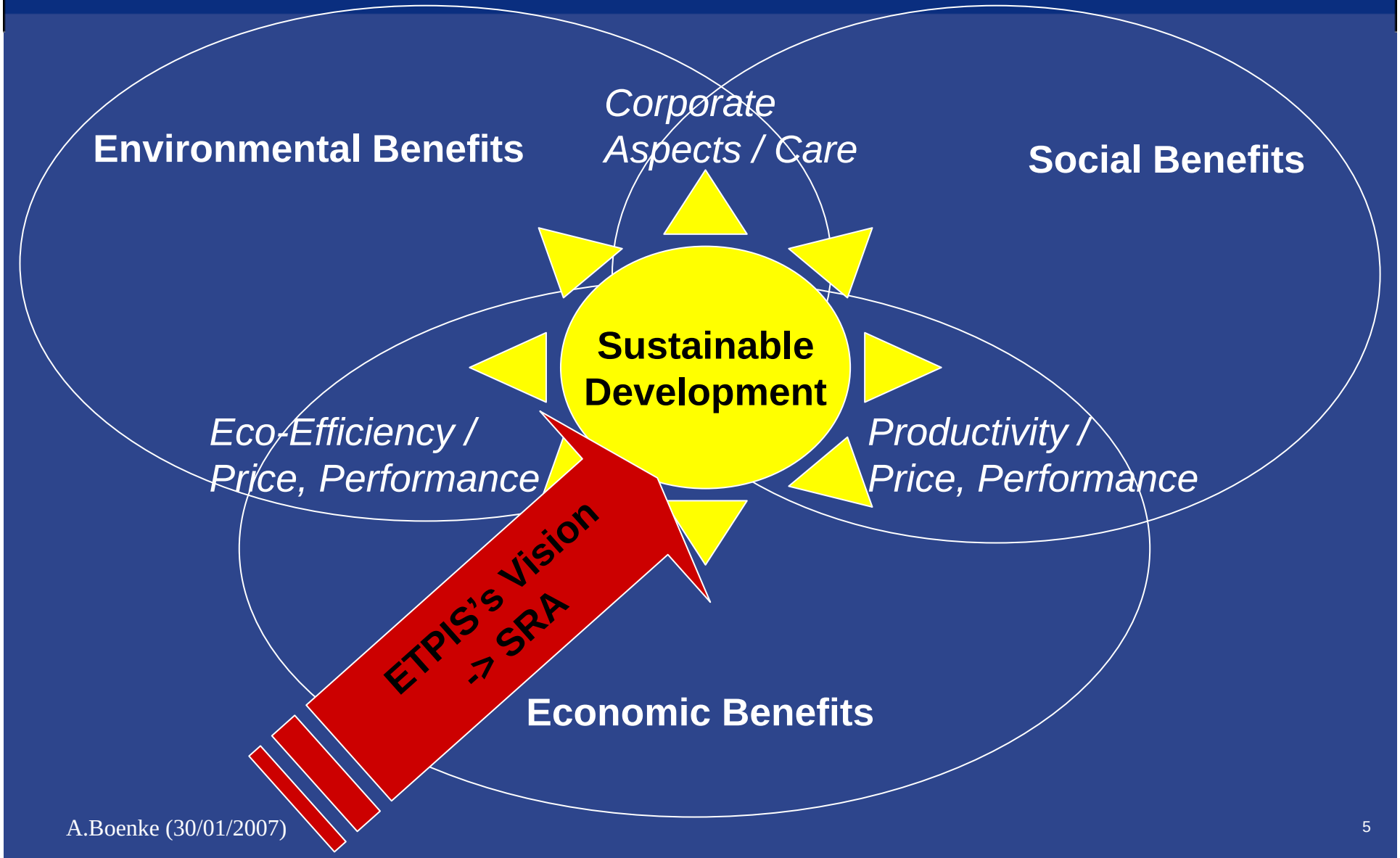
Industrial Policy

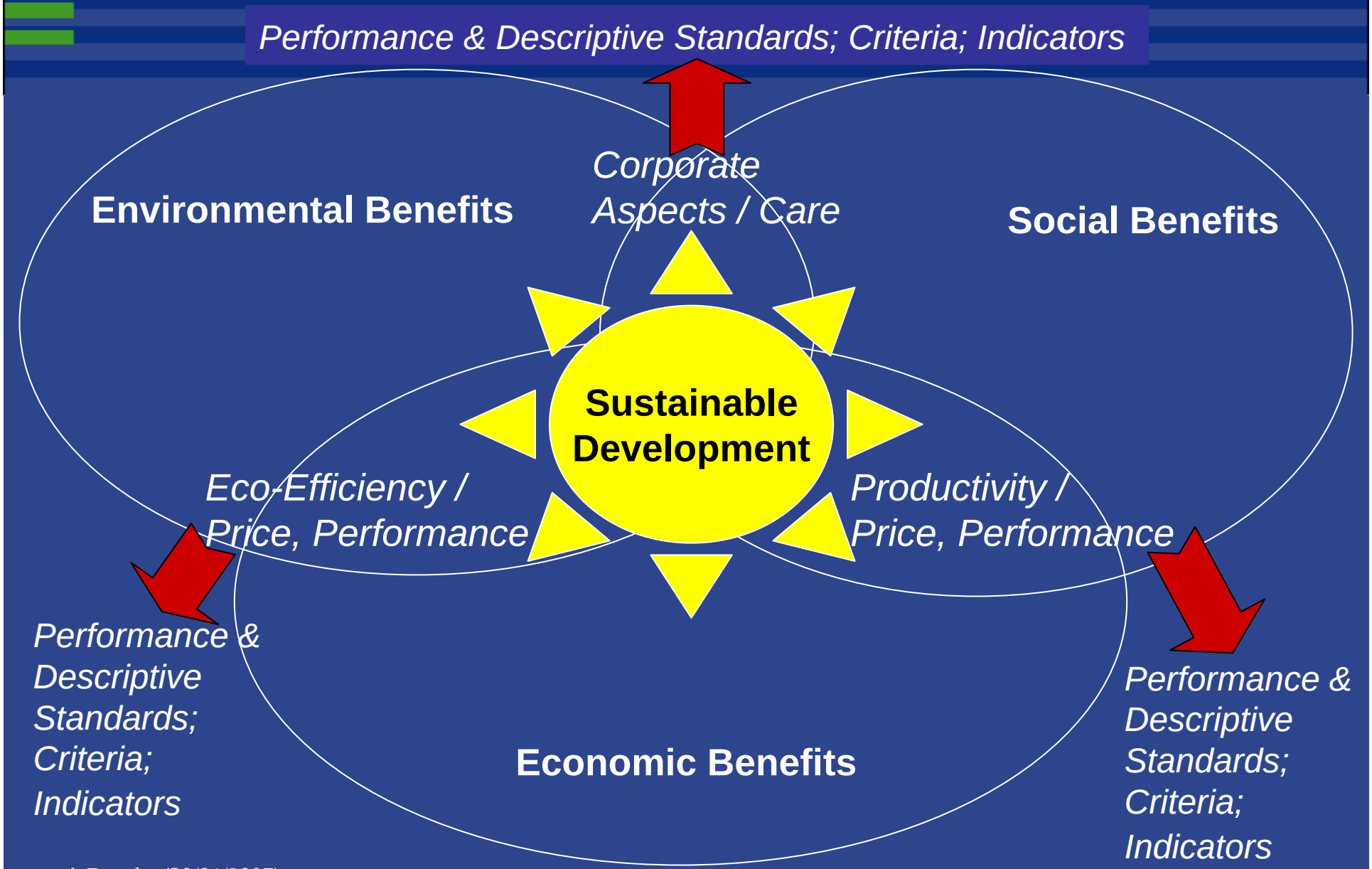
A New Industrial Policy - "*Partnership for Growth & Jobs*":

- **Making Europe a more attractive place to invest & work;**
- **Putting knowledge and innovation at the heart of European Growth;**
- **Shaping policies to allow business to create safer & better jobs;**
  - **Fewer accidents & occupational diseases lead to:**
    - **Fewer outages of industrial installation;**
    - **Fewer absences from work;**
    - **Lower health care cost;**
    - **Higher capital efficiency.**

Sustainable Development



Sustainable Development



Industrial Safety Facts – Links to Competitiveness

Toulouse disaster (major accident) on 21st September 2001 resulted in:

- **1 500 million € of damages,**
- **27 000 homes and 1 300 companies damaged,**
- **30 people killed (21 on site with 10 employees and 11 sub-contractors, 9 off-site),**
- **2 242 were injured & 5 000 persons have been treated for acute stress...**

This disaster has upset the public, led to a severe impact on an industrial city & led to the close down of the AZF plant (*450 direct jobs*) & the SNPE phosgene related activities (*492 jobs, 600 sub-contracting jobs*).

=> Prevention & Reduction Approaches are Needed To Boost Competitiveness & Growth

Industrial Safety Facts – Links to Competitiveness & Sustainability

The cement industry sustainability initiative progress report highlighted in relation to occupational health & safety performance in the June 2005 report - Web-site of World Business Council for Sustainable Development (WBCSD) - http://www.wbcsd.ch/DocRoot/6m0dSbjrQYq5S9Sj77Mk/csi.pdf):

Recent CSI member company fatality and injury data

Reporting scope	Year 2004	Year 2003
Number of CSI members reporting (out of a total of 16)	14	11
Total directly employed	138'940	130'752
Millions manhours worked, directly employed	269	246
Number of Lost Time Injuries (LTI's)		
Number of LTI's, directly employed	1'585	1'651
LTI frequency rate directly employed (per million manhours)	5.88	6.71
Number of LTI's, indirectly employed	739	652
Number of fatalities		
Number of fatalities, directly employed	27	28
Fatality rate (per 10,000 directly employed)	1.94	2.14
Number of fatalities, indirectly employed	54	32
Number of fatalities, third parties	11	21
Of which, logistics fatalities were:		
Directly employed	5	9
Indirectly employed	10	9
Third parties	5	17

Improvement between ~4% to 12%

Improvement between ~4% to 48%

A.Boenke (06/02/2007) *=> We can do it with the right approaches*

Industrial Safety Facts – Links to Competitiveness & Sustainability

- **Most of the Chemical Industry Workplaces are performing with an average accident rate of less than 1 per 200,000 man hours (*a significant number are achieving 0.4 or lower*)**

⇒A lot has been achieved so far.

⇒ETPIS to generate further updated quantitative & comparable data documenting clearly the link of industrial safety to competitiveness & sustainability.

Industrial Safety Facts – Links to Competitiveness (Workplace safety)

- **Zinckgrapf S. (2004), Mensch nach wie vor grösstes Risiko, Chemie Technik, Nr. 12, 33.Jahrgang, pp. 20-21 (In German):**
  - **-> Reports about the results of a VCI-survey as part of the Responsible Care Report.**
  - **-> Reports a reduction of cases since 1995 by about 50%.**
  - **-> 6.81 accidents to be reported on 1 million working hours within the German Chemical Industry.**
  - **-> About 50% of all accidents were reported to be related to human errors.**
  - **-> About 31% of the security officers were of the opinion that missing personnel security equipment is responsible for accidents (*last year's figure just above10%*) leading to a planned increase of 23% of investment.**
  - **-> Reports that 69% (*last year's figure 30%*) of the questioned security officers invest now more in training and 73% (*last year's figure just above 40%*) put more emphasis on the improvement of the organisation.**

=> Work on Human Factors & Training is Needed

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Seveso II Directive (96/82/EC) – Responsibility EC-DG Environment

- The Seveso II Directive was last amended in 2003 & ~8000 establishments in Europe are subject to its safety requirements.

  => Broadening scope & reinforcement of various requirements such as land-use planning.

- Transposition measures had to be in place by summer 2005.

- Most Member States communicated transposition measures & conformity checks are on-going.
  - Implementation checked by means of regular reports from Member States.
  - Last reporting period covered 2003-2005 forms basis for overall report to EP & Council in 2007.
  - **The Commission will continue work closely with Member States on the number one priority, i.e. implementation.**

Seveso II Directive (96/82/EC) – Responsibility EC-DG Environment

- **Environment & Industry Aspects:**
  - **Investing in technologies for improved industrial safety will boost economic success & reputation in society.**
  - **Referring to the safe handling & storage of hazardous substances, the objective is to establish & maintain consistent & effective measures.**
- **For Seveso competent authorities (CAs) need to cooperate with industry & each other to prevent accidents:**
  - **Safety & health CAs;**
  - **Environment CAs;**
  - **Civil Protection CAs;**
  - **Land-use Planning CAs.**

All need to speak the same "language".

⇒ ETPIS training activities can help.

Seveso II Directive (96/82/EC) – Responsibility EC-DG Environment

- **Risk Assessment & Management:**
  - **Terminology & methods underlying risks concepts differ widely.**
    => ETPIS work can help bring these closer. => Increase Knowledge.
  - **Also Land-Use Planning Guidelines contribute to a harmonised risk assessment.**
    => ETPIS can help to do more through increased knowledge & tools.
- **Cooperation of the EU with other countries (e.g. China) is growing in importance.**
  => ETPIS can help to build bridges & facilitate dialogue at the industry stakeholder level.
- **Interaction of the Seveso II Directive with the UN-ECE – Industrial Accidents Convention allows for safety improvements beyond legal enforcement.**
  => ETPIS can help to build bridges & facilitate dialogue at the industry stakeholder level.

Seveso II Directive (96/82/EC) – Responsibility DG Environment

- **Establish a mechanism for coordination of all industrial safety projects from former (5th & 6th) FPs & FP 7. => ETPIS now fills this gap.**
- **ETPIS allows all stakeholders to bring forward their needs & agree on a common approach. Hence, the SRA is allowing for a comprehensive industrial safety research strategy.**
- **ETPIS allows for additional transparency on the availability of financial resources for industrial safety. A vertical & horizontal coordination between different stakeholders to steer programmes & projects is facilitated.**
- **Ensure that project results from the ETPIS-SRA are disseminated in an optimum manner to allow a further development of policies.**

=> These recommendations are also valid for Industrial safety in general

ETPIS – Further Harmonised Implementation of the Seveso II Directive (96/82/EC)

How could ETPIS contribute to the "*EU Safety Network*" ?

- **Provide additional knowledge & cost-effective tools to further improve the dissemination & uptake of relevant research project results to different stakeholders (here: Member States – Competent Authorities, industry operators, NGOs & the Commission).**
- **Provide cost-effective tools to further improve the *EU Safety Network* by making it more effective & increase the uptake of new knowledge linked to e.g. *services; monitoring; inspections; management (linking with responsible care, etc.); planning, design & development of products & processes*.**

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ETPIS – Further Developments in Risk Assessment & Industrial Safety

How could ETPIS contribute to an improved risk assessment & industrial safety ?

- **Provide additional knowledge & cost-effective tools to allow for greater convergence & dissemination of risk assessment practices between Member States by facilitating learning & the development of future harmonised prevention activities.**
- **Provide additional knowledge & cost-effective tools for improved training, inspection & risk communication (*see EC, STARC-Project Report*) approaches taking into account specialities.**
- **Provide additional knowledge & cost-effective tools based on the user perspective to further help in the analyses of the natural environment & surrounding activities to identify the hazards linked to a safe installation operation & the vulnerability of the area.**
- **Provide a forum to allow for an informal & open discussion of various safety aspects including any ideas by involving all stakeholders.**

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ETPIS – Special Aspects in Risk Assessment & Industrial Safety

How could ETPIS contribute to special aspects linked to risk assessment & industrial safety ?

- **Provide additional knowledge & cost-effective tools based on the user perspective to fully exploit various approaches by including also the probabilistic approach & make sure that the "*worst case scenario*" is covered - the use of sensitivity analysis is essential.**
- **Provide additional knowledge & cost-effective tools for a clearer description & understanding of the term "tolerable level".**

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ETPIS – Health, Safety & Environmental Aspects of Nanomaterials

Nanomaterials - Hazard

- size, shape, composition, surface chemistry including surface charge & adsorbed species

Nanomaterials - Exposure

- urgent need for exposure data on humans (consumers & workers) & environmental species including micro-organisms
- *but, difficulty for*
  - *routine sampling*
  - *counting & measuring particles that are below the limit of detection by visible light*

=> For ETPIS: Contribute to This Gap Closure

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ETPIS – Health, Safety & Environmental Aspects of Nanomaterials

Nanomaterials – Risk Characterisation

- **sources**
- properties: high surface to volume ratio + quantum effects
- **characterization is essential**
- routine human exposure – **note background & history**
- principal route: inhalation but changing
- environmental exposure: air, water, soil – **note background & history**

ETPIS - Health & Safety of Nanomaterials

Knowledge gaps

- **mechanisms & kinetics of the release**
- **exposure levels to humans & environment**
- **possibility of extrapolation**
- **toxicokinetic data after exposure for target organs identification & doses for hazard assessment**
- **occupational exposure**
- **fate, distribution &, persistence & bioaccumulation**
- **effects**

Actions

- **boosting collaboration => CA&Industry; OECD, ISO&CEN**

=> For ETPIS: Contribute to This Gap Closure

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How to tackle Risk?

Risk *"must be measured, not according to the yardstick of general conjecture, but on the basis of relevant scientific research"*

(Source: see Case C-17/93, *Criminal proceedings against J.J.J. Van der Veldt*, [1994] ECR 3537, paragraph 17).

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The End

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