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Introduction On

Integrated Pollution Prevention and Control (IPPC)

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March 14th 2011

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Background of IPPC in the EU

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- Environmental conditions in EU:
  many environmental cross border problems:
  * acid rain
  * smog
  * river water quality

Air Pollution

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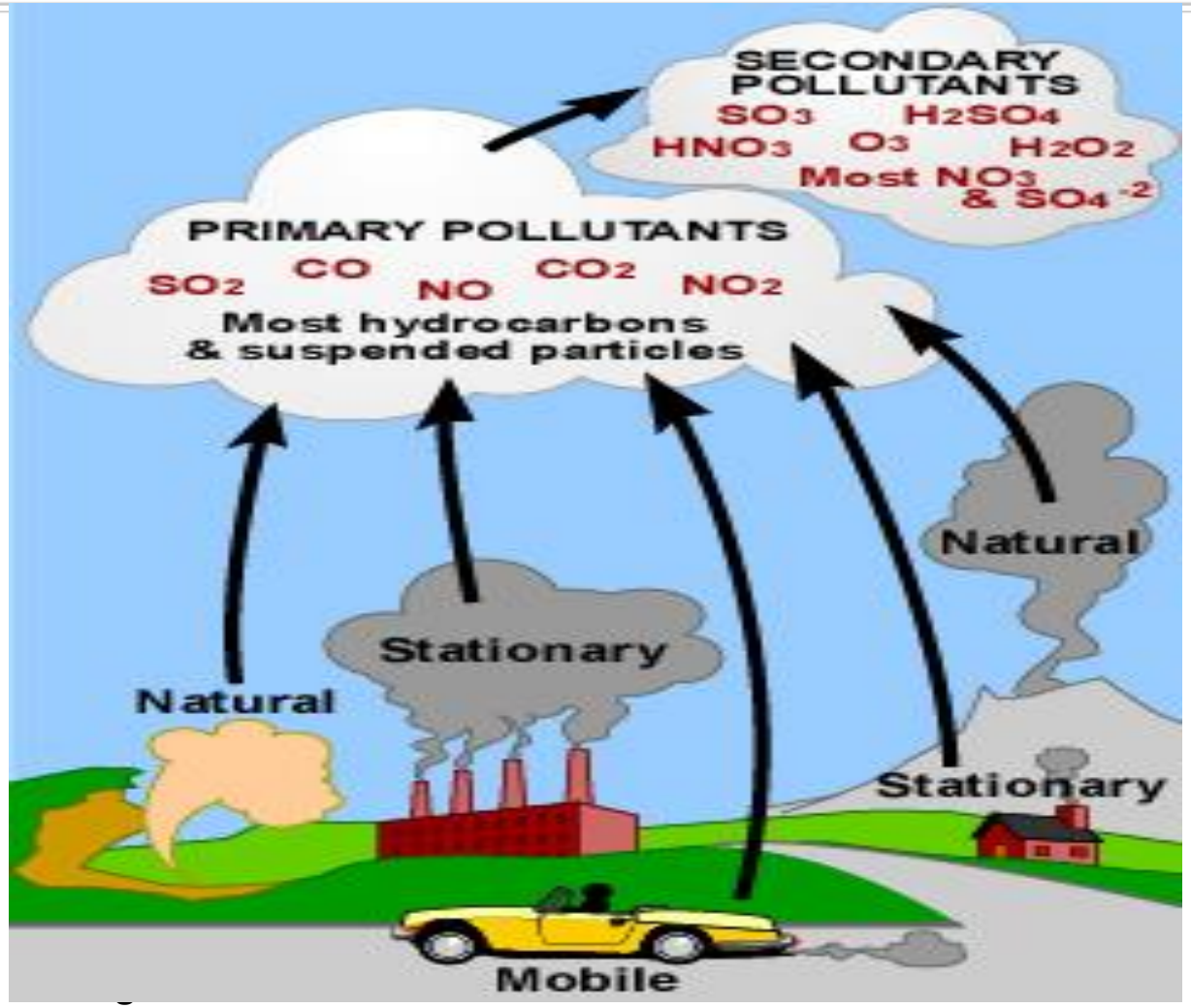

Different problems – search for common solutions

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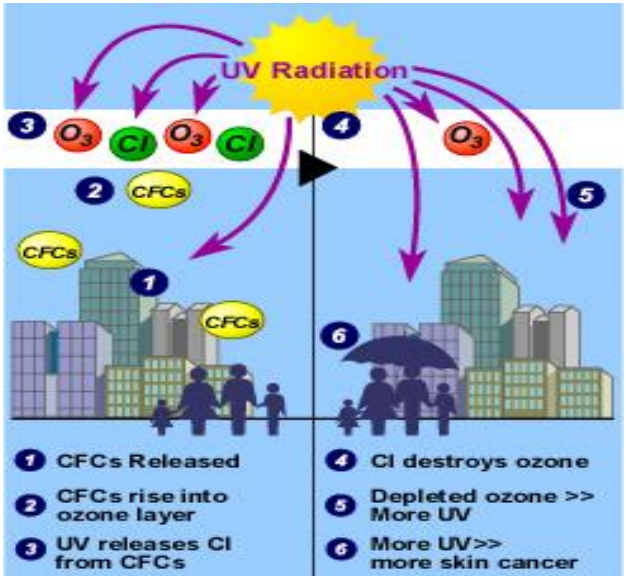

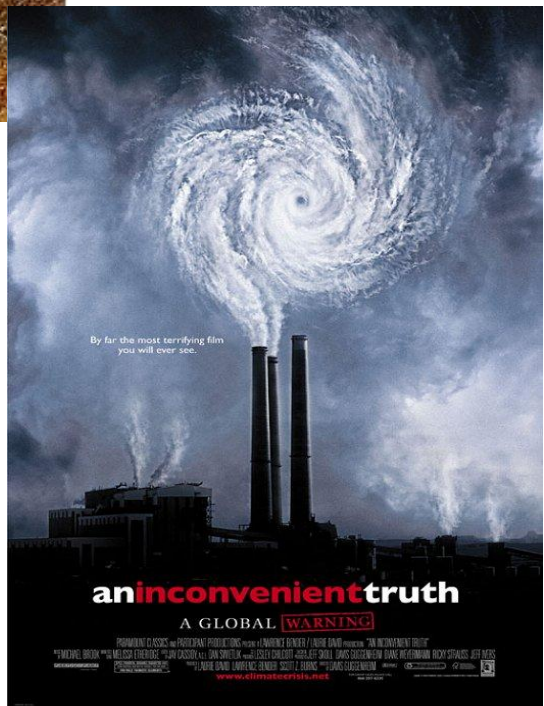

Background of IPPC in the EU

- Reasons for IPPC:
  * optimal environmental protection
  * integrated approach
  * starting with prevention
  * uniform approach in EU:
  = equal economical consequences
  * supporting eco-inovation

History of EU environmental policy

- 1972: first EU action plans
- Respons to acute environmental problems with air pollution, water pollution, waste.

Example: air pollution problems

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Rotterdam Industrial harbour area

Netherlands, especially Rotterdam industrial port region:

Densely populated area, short distances between:

- *** polluters (industries, traffic)**
- *** living area.**

-> strong need for good planning and environmental control

Port of Rotterdam: Growth after the war (1945,->)

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Port of Rotterdam: Growth after the war

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But: Rotterdam Public Health versus Economic Growth

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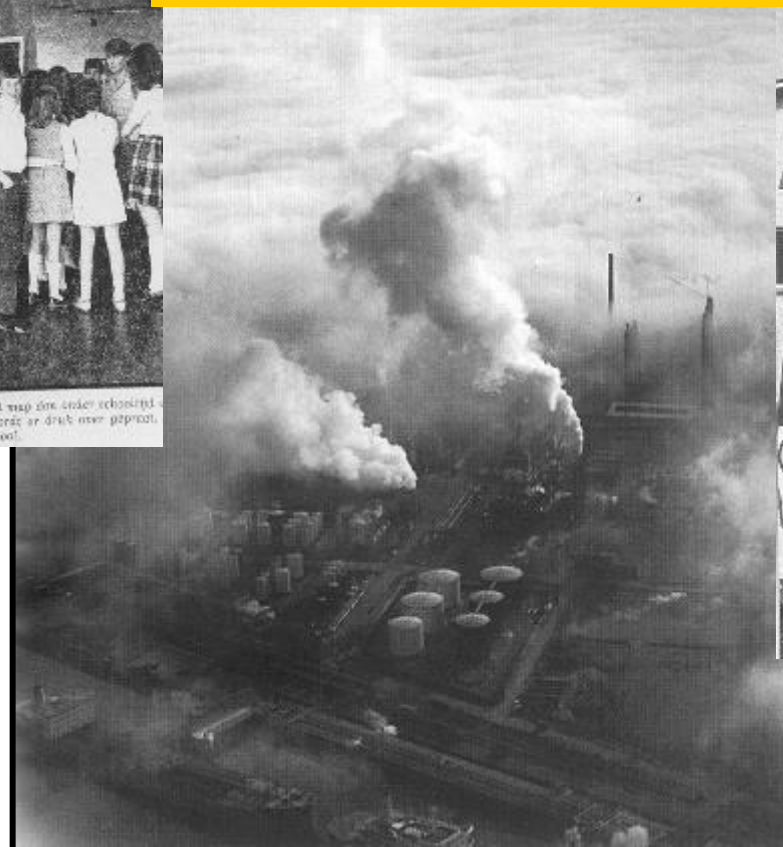
* High air pollution levels
* Schools closed
* Fight between economy/employment and health!

Duizend leerlingen in Vlaardingen naar huis gestuurd

Telegram naar minister



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Development of EU environmental legislation

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- 1970's:
  * action plans as a respons on acute problems
  (dead fish in rivers, people ill from air pollution)
  * public awareness is raising
  -> principle: polluter pays
  -> solution: place filter systems
- 1980's:
  * impact on ecosystems ("acid rain")
  * impact on ozon layer
  -> solution: integrated approaches, prevention, saving
- 1990's:
  * changes necessary in production and consumption:
  "Sustainable Development"
- 2000, ->:
  EU environmental regulations have global impact:
  REACH, Carbon dioxide trade (Kyoto protocol), IPPC

IPPC

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- **Integrated Pollution Prevention and Control**

‘EU Council Directive 96/61/EC
of 24 September 1996 concerning
integrated pollution prevention and control’
= IPPC directive

- **Update 2008/1/EC**

- **IPPC directive is a legal framework and has been implemented in national legislation of EU member states**

IPPC-Directive

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- Relevant for relatively large industries
  (a.o. chemical industry, metal, ceramic, cement, waste processing, energy production)

- Goal:
  - to achieve high level of protection of the environment
  - through permits by an integrated approach (air, water, soil, energy and waste),
  - based on Best Available Techniques (BAT).

- BAT is described in BAT REFerence documents (BREF)

BAT – definition (art.2)

- ***'techniques':***
  ** the technology used, AND*
  ** design, building, maintaining, operation and decommisioning of the installation (management)*

- ***'available techniques':***
  ** developed on a scale which allows implementation in the relevant industrial sector,*
  ** under economically and technically vial conditions,*
  ** taking into consideration the cost and advantages,*
  ** whether or not the techniques are used or produced inside the Member State in question,*
  ** as long as they are reasonably accessible to the Operator.*

- ***'best':***
  effective in achieving a high level of protection of the environment as a whole.

BAT – definition continued (art.2)

- *11. 'best available techniques' shall mean the most*
- *effective and advanced stage in development of*
- *activities and their methods of operation which indicate*
- *the practical suitability of particular techniques for*
- *providing in principle the basis for emission limit values*
- *designed to prevent and, where that is not practicable,*
- *generally to reduce emissions and the impact on the*
- *environment as a whole:*

IPPC -BREF

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- **Bat REFerence documents (BREF's):**

- are descriptive documents (not prescriptive!) that contain information about processes in the industry, tailored towards environmental issues

- should reflect good practices of the industry and not some wishful thinking (avoid unrealistic and / or economically detrimental BAT's)

- have been developed with inputs from all member states, including input and review by the industries!

IPPC - BREF

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- **Two types of BREF's:**

- 'Vertical BREF's' which are specific for a type of industry or combination of industries, such as:
  - Organic fine chemicals (OFC)
  - Metal processing industries (MI)

- 'Horizontal BREF's' which deal with (a) special topic(s) that may be relevant to more than one type of industry, such as:
  - Common waste gas and waste water treatment / management systems in the chemical sector (CWW)
  - Emissions from storage of bulk or dangerous materials (ESB)
  - Monitoring (MON)

Periodical BREF updates

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The European IPPC Bureau - Windows Internet Explorer provided by Royal Haskoning_

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Reference documents

Search

You can find here an alphabetical list of the full series of reference documents that the European IPPC Bureau works on. For each document you will find:

- the latest reference document (BREF) itself. In short, each document generally gives information on a specific industrial/agricultural sector in the EU, techniques and processes used in this sector, current emission and consumption levels, techniques to consider in the determination of BAT, the best available techniques (BAT) and emerging techniques
- the list of references (background material) quoted in the BREFs
- links to webpages containing translations of the BREFs into languages other than English
- links to webpages containing relevant legislation/standards
- additional technical information.

Translations of complete reference documents and/or Executive Summaries are available **here**.

Reference document	Adopted document	Current draft	Meeting report	Estimated review start
Cement, Lime and Magnesium Oxide Manufacturing Industries	BREF (05.2010)			
Ceramic Manufacturing Industry	BREF (08.2007)			
Chlor-alkali Manufacturing Industry	BREF (12.2001)		MR (09.2009)	
Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector	BREF (02.2003)	D1 (10.2009)	MR (06.2008)	
Economics and Cross-media Effects	BREF (07.2006)			
Emissions from Storage				

Internet 100%

Vertical BREF content structure

1. General information
2. Applied processes and techniques / substances and classification
3. Current emission and consumption levels / applied techniques
4. Techniques to consider in the determination of BAT
5. Best available techniques
6. Emerging techniques
7. Concluding remarks
8. Glossary
9. Annexes

BAT

- Specific techniques,
- Specific method of working
- Managerial systems,
- Emission Limit Values (ELV’s)
- BAT associated emission Levels

BAT-associated emission levels (range)

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For exhaust gases from chemical production processes, BAT is to achieve the NO_X emission levels given in Table 5.5 and, where necessary to apply treatment techniques such as scrubbing or scrubber cascades with scrubber media such as H_2O and/or H_2O_2 to achieve such levels (see Section 4.3.5.1).

Source	Average mass flow kg/hour*		Average concentration mg/m³*	Comment
Chemical production processes, e.g. nitration, recovery of spent acids	0.03 – 1.7	or	7 – 220**	The lower end of the range relates to low inputs to the scrubbing system and scrubbing with H_2O. With high input levels, the lower end of the range is not achievable even with H_2O_2 as the scrubbing medium
Thermal oxidation/incineration, catalytic oxidation	0.1 – 0.3		13 – 50***	
Thermal oxidation/incineration, catalytic oxidation, input of nitrogenous organic compounds			25 – 150***	Lower range with SCR, upper range with SNCR

* NO_X expressed as NO_2, the averaging time relates to the emission profile (see Section 5.2.1.1.4)
** Levels relate to dry gas and Nm^3
*** Levels relate to dry gas and Nm^3

Table 5.5: BAT associated NO_X emission levels

BREF Cross Media Effects and policy

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- Environmental situation -> necessity to lower specific emission
  -> based on sound environmental and effect related monitoring
  -> reflected in governmental environmental policy and programs (priorities)
  (example: salt content in waste water)
- Integrated balance in environmental protection (example: VOC versus NOx)
- BREF Cross Media Effects

IPPC > BREF Cross media en Economics

Principles:

- Introducing of new BAT technology
- Compare integrated impact on environment
- Relation Economic feasibility and BAT
- Location relation and impact for environment

Why performing IPPC-check?

- Legal obligation (“Israeli Clean Air Law”)
- International companies: internal standard
- Environmental “Check-up”
  -> identify opportunities for improvement, like:
  * energy saving,
  * optimisation of systems
  * selection of environmental friendly equipments
  (routine maintenance/investment planning)
- Environmental training for staff
- Communication to stakeholders
- Contributes to company’s image

IPPC – BREF World wide standard

the European BAT,

described in BREFs,

is more and more considered to be

THE standard in sustainability in industries

in other countries in the world!

Industrial Emissions Directive (2010/75/EC)

- Combining Directives
- Enhanced updating BREFs
- More strict emission control
- More strict emission limits for Large Combustion Plants
- Transposition by june 2012 in national regulations
- Implementation in 2014 and later

The IED recast the following instruments into a single one

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1. Directive 96/61/EC of the European Parliament and of the Council of 24 September 1996 concerning integrated pollution prevention and control
2. Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants
3. Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste
4. Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations
5. Council Directive 78/176/EEC of 20 February 1978 on waste from the titanium dioxide industry
6. Council Directive 82/883/EEC of 3 December 1982 on procedures for the surveillance and monitoring of environments concerned by waste from the titanium dioxide industry
7. Council Directive 92/112/EEC of 15 December 1992 on procedures for harmonizing the programs for the reduction and eventual elimination of pollution caused by waste from the titanium dioxide industry

New branches

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1. Energy Industries

1.1 Combustion of fuels in installations with a total rated thermal input of 20 MW or more

2. Production and processing of metals

2.5 (c) operation of non-ferrous metal foundries producing cast metal products, with a production capacity of good castings exceeding 2,4 t/day for lead and cadmium or 12 t/day for all other metals.

4. Chemical Industry

4.7. Production of chemicals for use as fuels or lubricants

5. Waste Management

5.3 Disposal or recovery of non-hazardous waste with a capacity exceeding 50 t/per day involving the following activities: (c) pre-treatment of waste for co-incineration; (d) treatment of slags and ashes; (e) treatment of scrap metal.

6. Other activities

6.1 Production in industrial –installations of: (c) wood-based panels, with the exception of plywood, with a production capacity exceeding 600 m^3 per day.

6.9 Preservation of wood and wood products with a production capacity exceeding 75 m3/day.

6.10 Off-site treatment of waste water not covered by Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment57 and discharged by an installation covered by Chapter I.

→ *Annex II List of polluting substances: dust, including fine PM*

Concluding remarks

- IPPC is meant to protect human health and environment (prevention of negative effects on local, national and global scale)
- Be aware of the local context (Europe, Israel)
- Integrated approach (not (only) sectoral)

- What are the main problems in Israel?
  -> environmental quality monitoring
  -> policy priorities!

Thank you

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