

Managing environmental risks in the Norwegian offshore oil and gas business

Rio de Janeiro, 31 May 2012

Dag Erlend Henriksen

Agenda

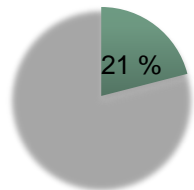
- Norwegian oil and gas – a brief overview
- Relevant authorities – roles and competencies
- The environmental regulatory regime
- Experiences - is it working?
- Challenges ahead

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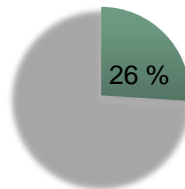
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Norwegian oil and gas – a brief overview (i)

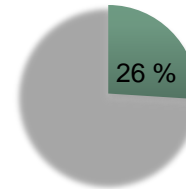
- Norway's most important business sector



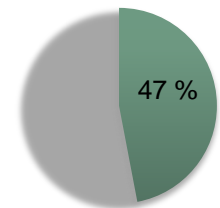
The petroleum sector's share of GDP



The petroleum sector's share of state revenues



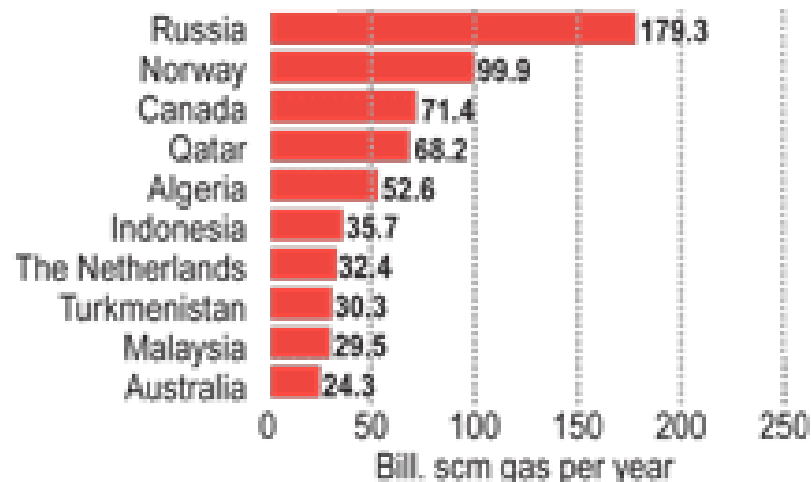
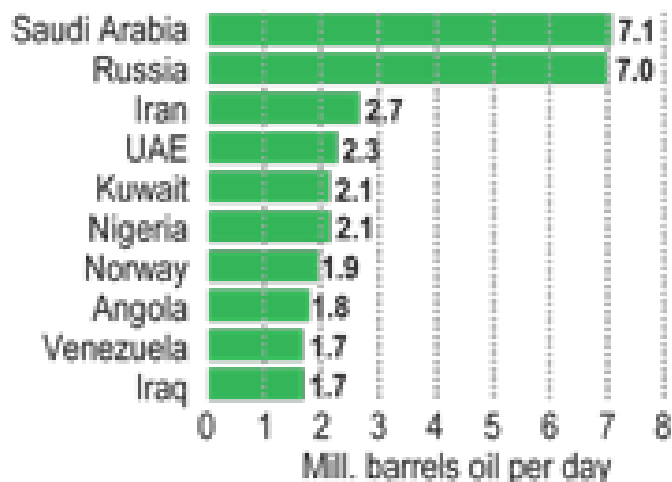
The petroleum sector's share of total investments



The petroleum sector's share of total exports

- In 2010 - seventh largest oil exporter and second largest gas exporter

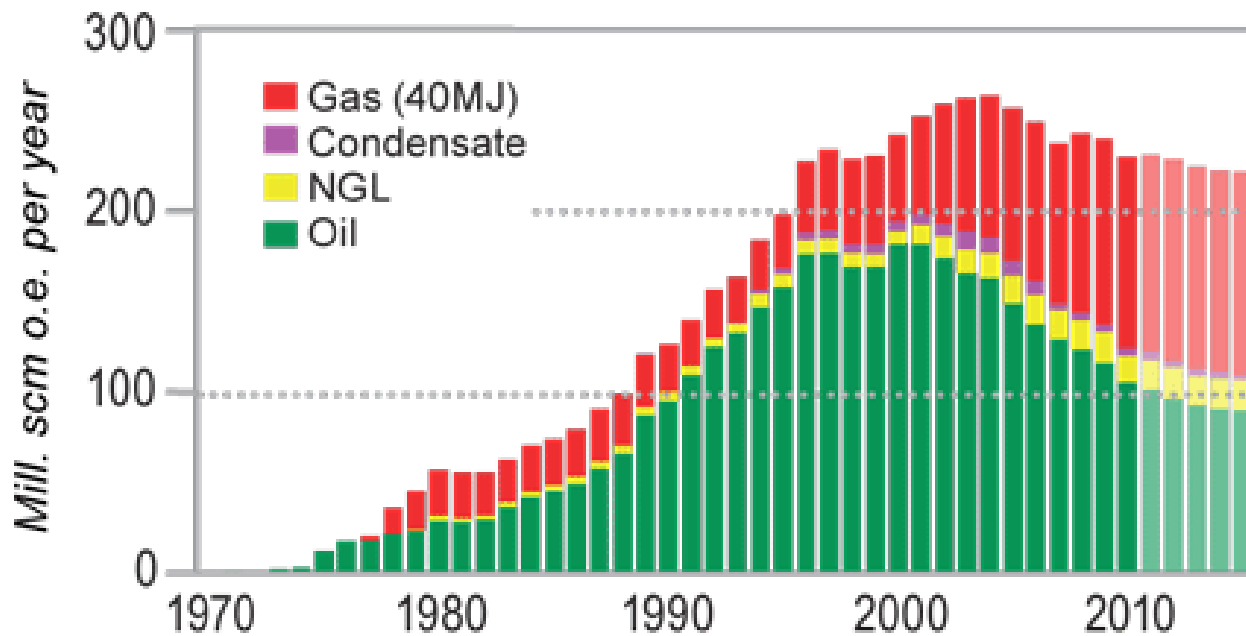
Norwegian export – compared to other countries (2010)



Norwegian oil and gas – a brief overview (ii)

- Norway is a mature petroleum province
 - First commercial discovery Dec 1969
 - More than 500 exploration licenses have been granted
 - More than 40 fields in production, more than 60 companies qualified as licensees, approx 13 fields have been abandoned and decommissioned
 - Declining oil production (down 1,3 mill bbl / day since peak)
 - Increasing gas production

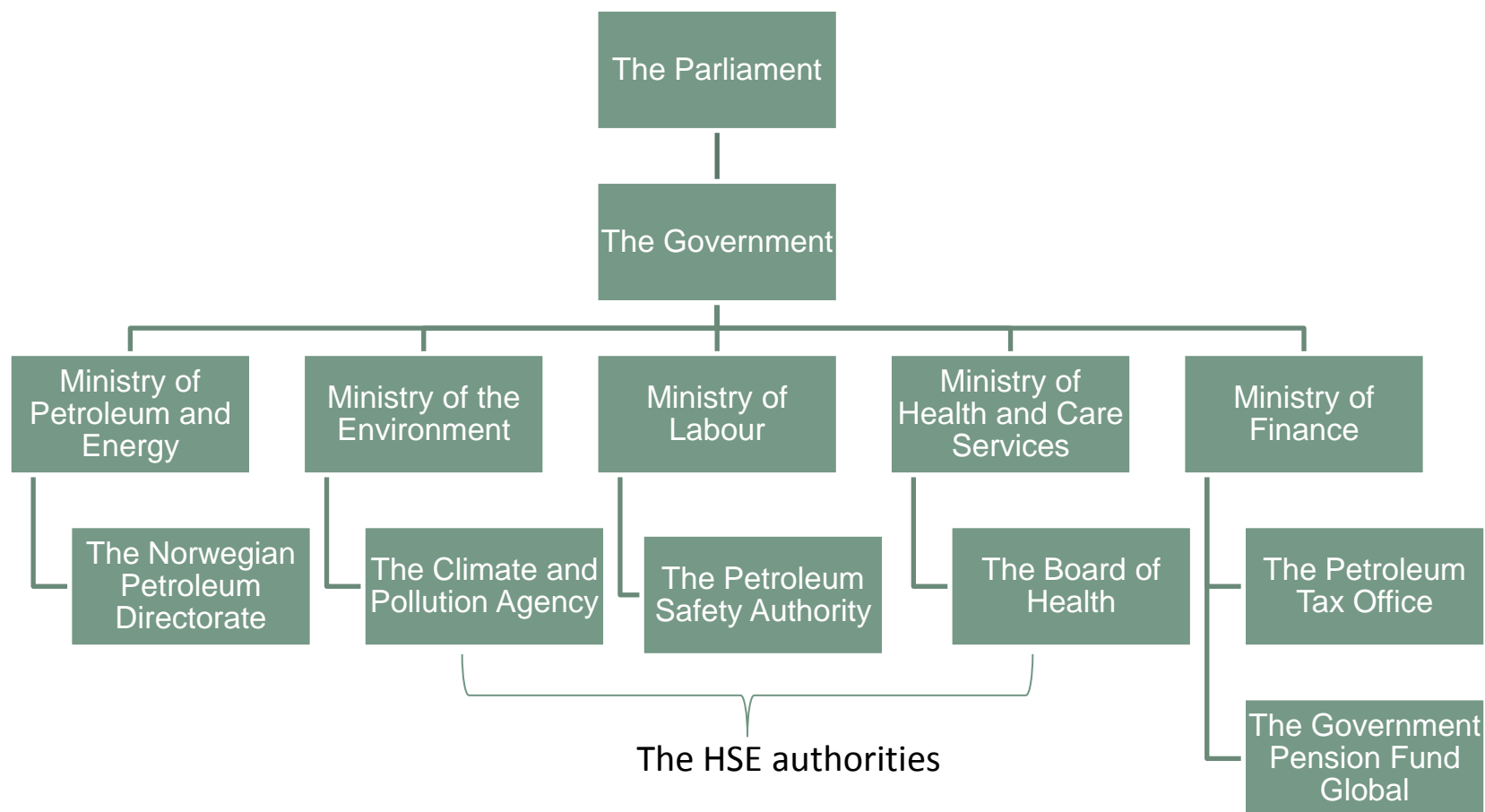
Norwegian production – 2010 levels



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The Norwegian regulatory authorities for the oil and gas activities



The roles of the Climate and Pollution Agency

- Issue discharge permit and lay down provisions
- Monitor compliance
 - by audits and inspections
 - by checking annual reports
 - by assessing environmental monitoring programs
- Impose sanctions
- Reports serious incidents to the police



The roles of the Petroleum Safety Authority (i)

- Regulatory responsibility for technical and operational safety
- Safety comprises:
 - Human life, health and welfare
 - The environment
 - Financial investment and operational regularity
- Emergency preparedness
- Working environment
- Key role in qualification of licensees



The roles of the Petroleum Safety Authority (ii)

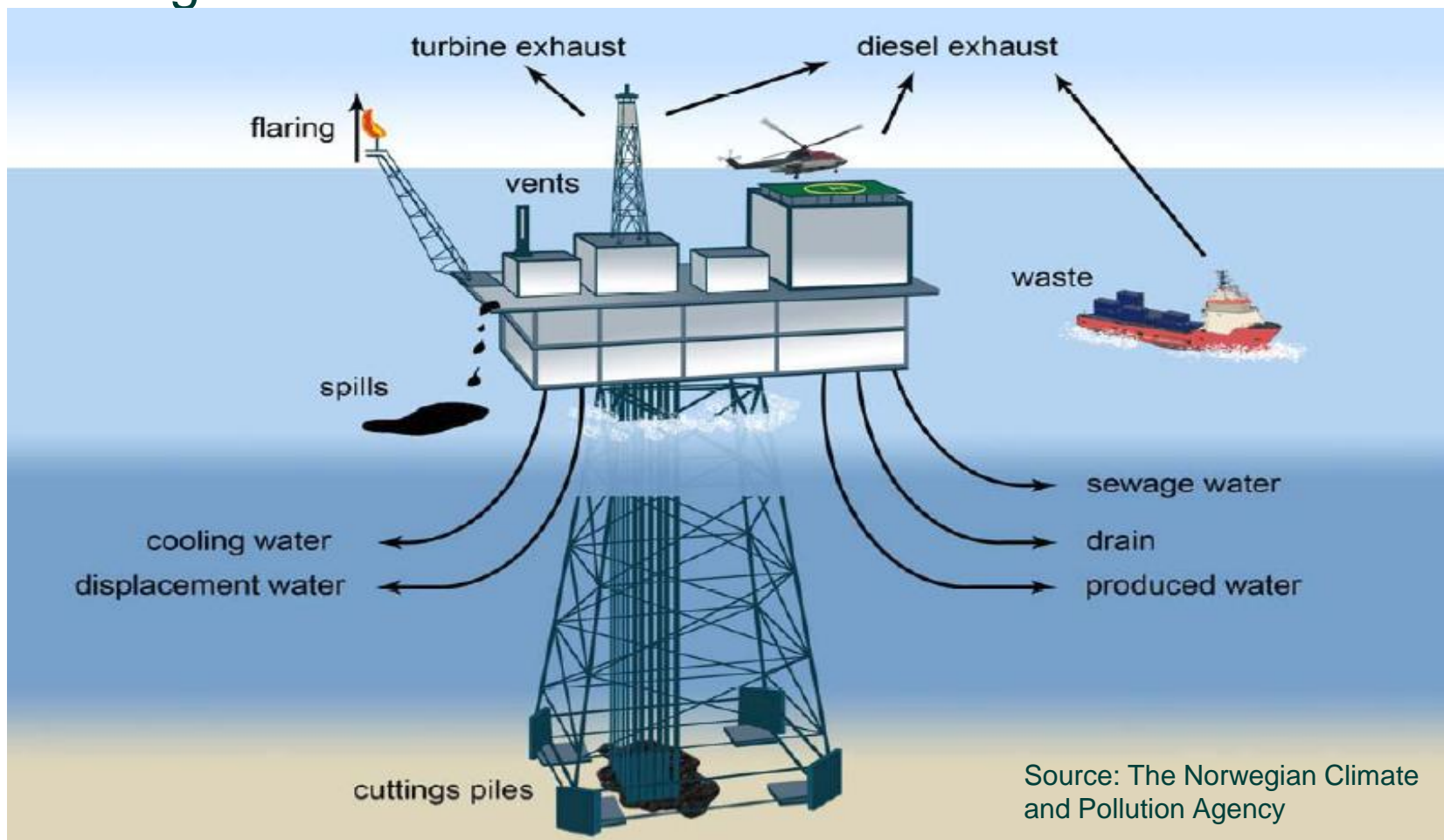
- Issue "Acknowledgement of compliance" for mobile installations
- Monitor compliance
 - by audits and inspections
 - by checking annual reports
 - by assessing plans and incidents monitoring programs
- Issue enforcement notices -
Impose sanctions
- Reports serious incidents to the police
- Covers all phases of activities, incl planning and construction



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Sources of discharges and emissions in the Norwegian oil and gas business

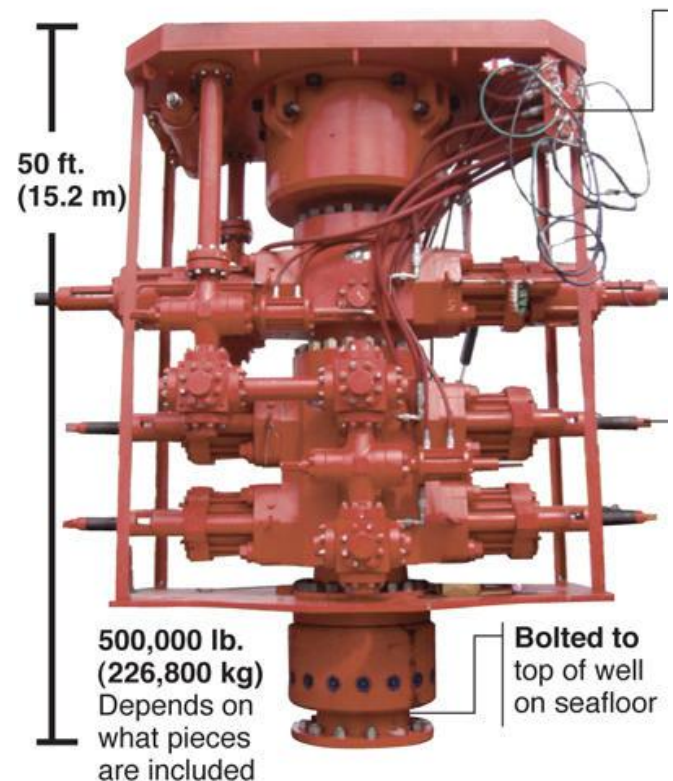


Some principles for environmental policy in Norway

- The precautionary principle
- The principle of risk reduction
- Continuously improvement
- The use of BAT (Best Available Techniques)
- The polluter pays principle
- Emphasis on management systems
- Communication and cooperation

Blowout preventer

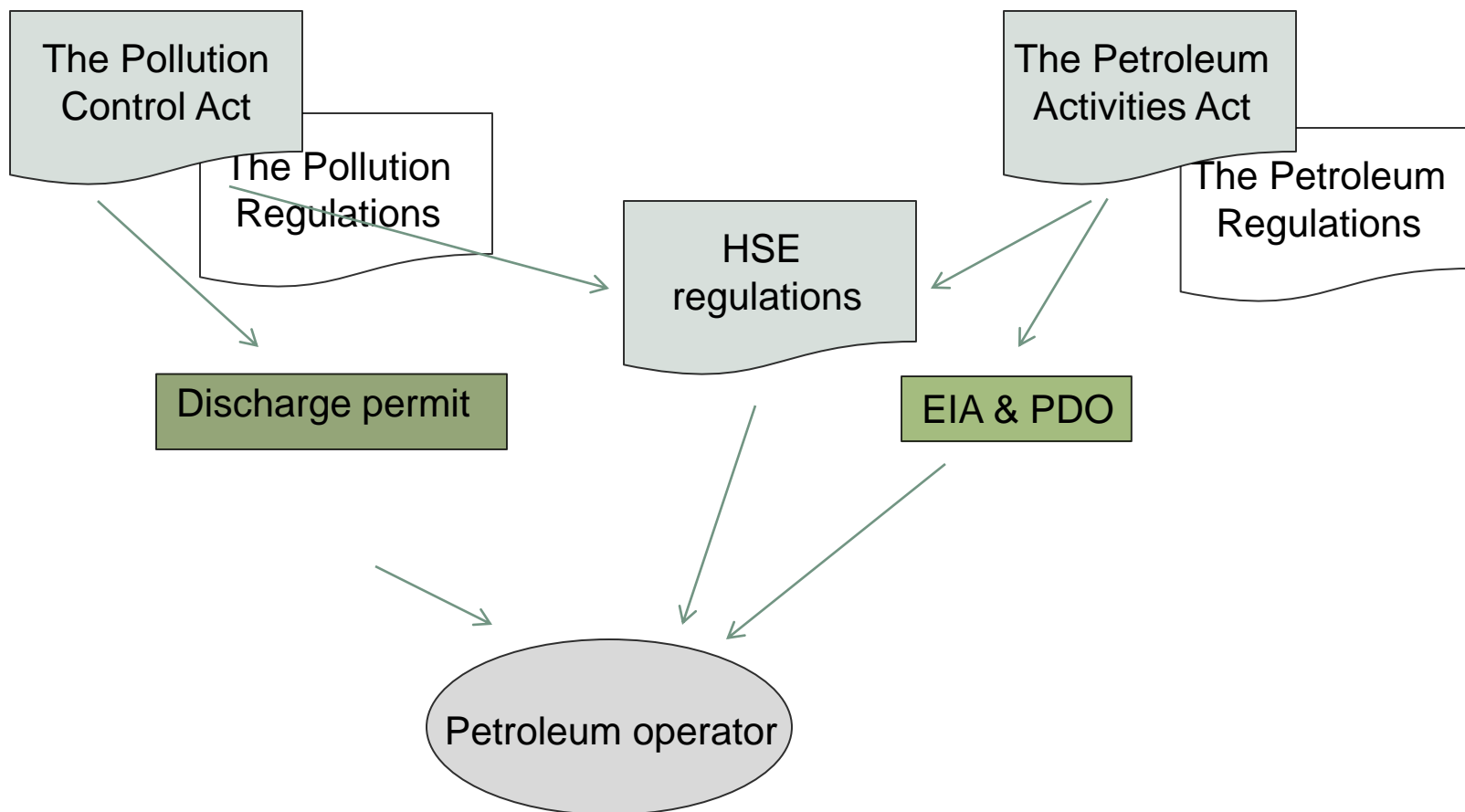
Investigators are trying to determine why the Deepwater Horizon blowout preventer failed.



Main instruments in Norwegian environmental law re oil and gas

- Management plans relating to defined areas
- Environmental impact assessments
- Discharge permits and HSE regulations
- Economical instruments; NO_x tax, CO₂ tax, + duty to surrender emission allowances
- Politically (non legally binding); zero harmful emissions target
- International co-operation within a.o. EEA, OSPAR-convention, Kyoto-protocol, Gothenburg-convention

Outline of the regulatory regime



The 1981 Pollution Control Act (i)

- A framework law to protect the environment from pollution regardless of pollution source (some exemptions like transport sector)
- Establishes the principle that all pollution is prohibited if it is not permitted by a permit (or regulations)
- Section 7 of the PCA states that it is forbidden to have, do or initiate anything that may cause pollution or risk of pollution unless



The 1981 Pollution Control Act (ii)

- More than one subject can be hold responsible for pollution
- In principle, the polluter will not be free from future liability arising from its activities – perpetual liability
- The environmental authorities may issue regulations and emission standards



Discharge permit (i)

What is it?

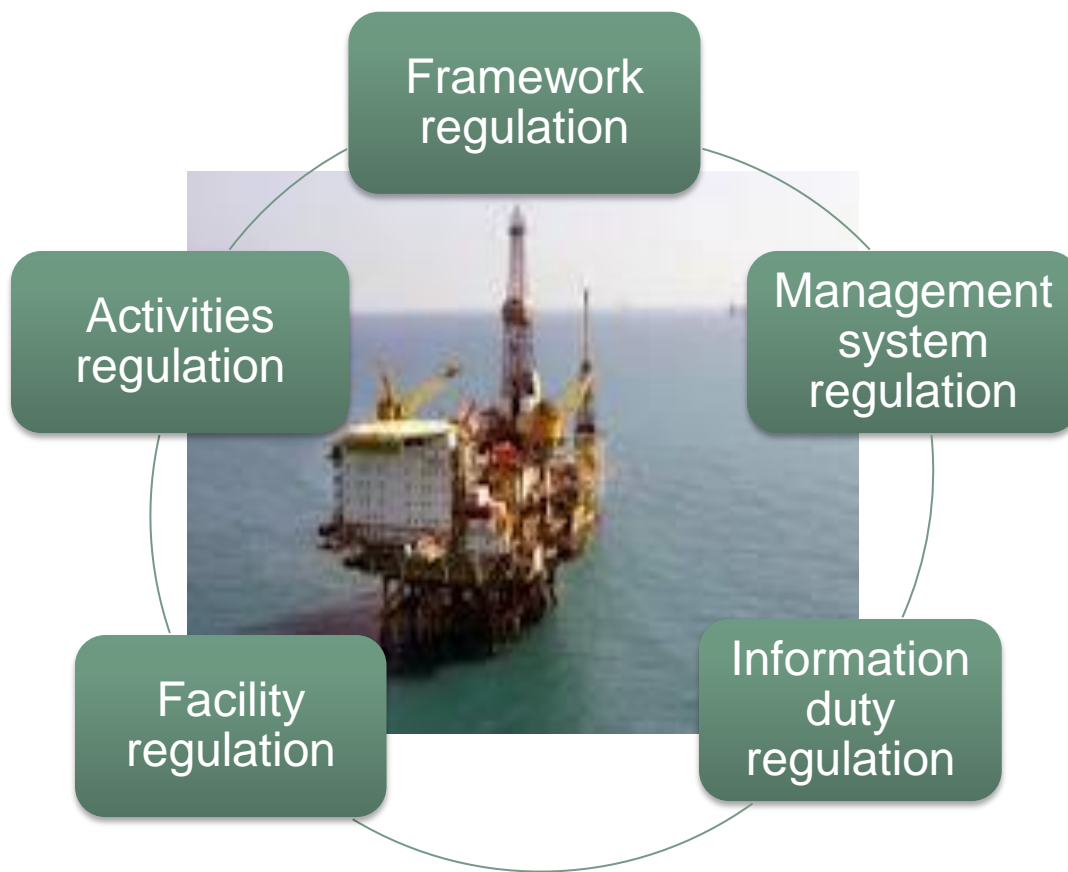
- Individual permit issued for each plant (operator)
- Contains specific provisions (in addition to the HSE regulations)
- Permits to be issued on the following principles
 - the polluter pays
 - the best available techniques
 - the precautionary principle
- The operator has to apply for amendments (e.g. if production increases)
- About 40 permits for oil fields in production
- In addition: each exploration drilling needs separate permit (main issue: chemicals and emergency preparedness)

Discharge permit (ii)

What does it contain?

- Definition of activities covered
- Limitations on consumption and release of chemicals and oil drilling fluids
- Provisions re injection of produced water and drill cuttings
- Emissions to air (energy production, loading of oil, vents and flare)
- Emergency preparedness, incl oscp
- Energy management system
- Monitoring and reporting requirements
- General provisions (to reduce as much as possible, to prevent situations entailing non-compliance, substitution of chemicals, waste management (regulations))
- Limited duration

HSE regulations pertaining to offshore petroleum activities



The management system regulation

- Two important principles:
 - the operator is always responsible for pollution and safety (the so-called "see-to" duty)
 - the authority has always the power to decide and to stipulate provisions
- The operator shall implement management system to documentate that he achieves
 - a high level of HSE
 - a systematic approach to comply with all regulations and standards related to HSE
 - a continuously improvement of HSE

The activities regulations

- Emissions standards on produced water (oil content) and drill cuttings (oil content)
- Test criteria for chemical products and criteria for categorization with regard to environmental hazard
 - Persistency, bioaccumulation and toxicity
- Principal of substitution of chemicals
- Mandatory monitoring programs



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Dialogue and transparency necessary for good decisions

- Authorities and oil companies have mutual use for and interest in dialogue and openness
- Learning from each other
- Mutual respect
- Transparency
- Authorities decide
- Legal right to complain (company and public parties)

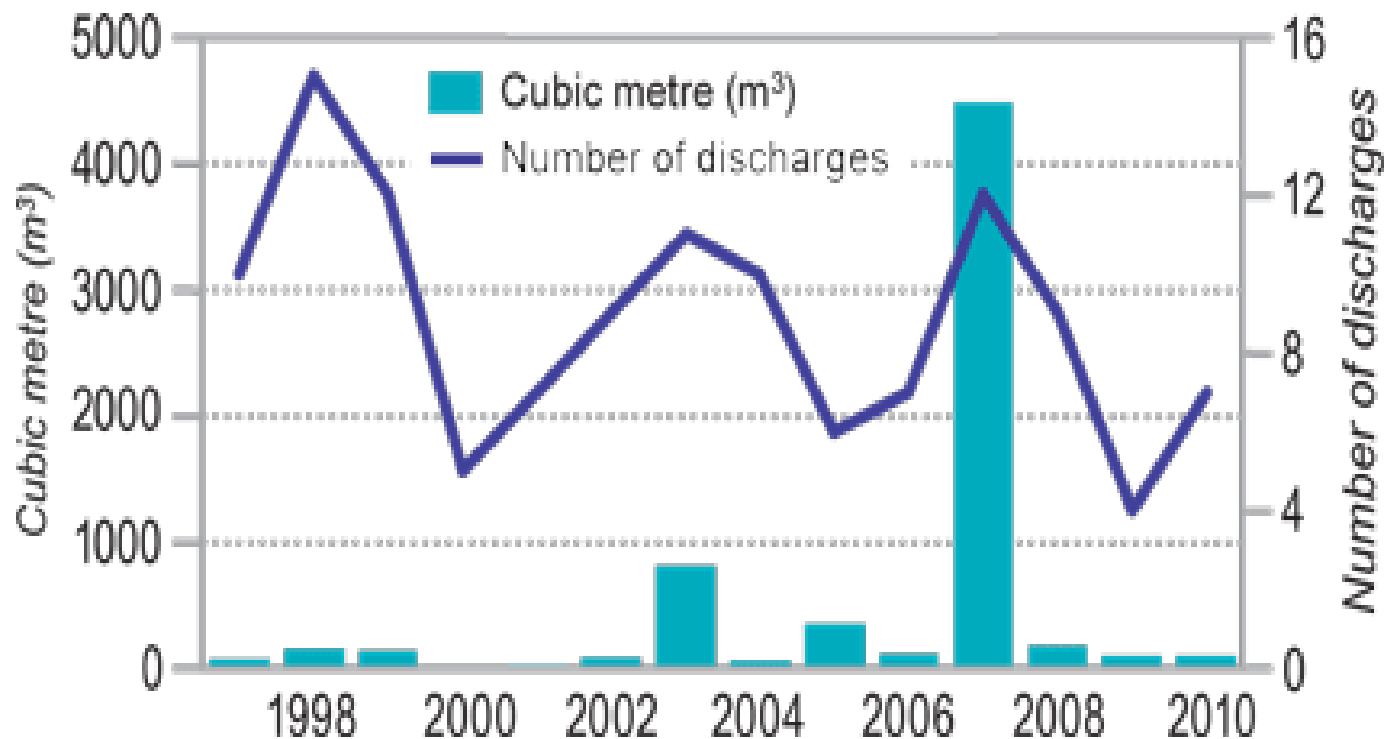


And..... it's working

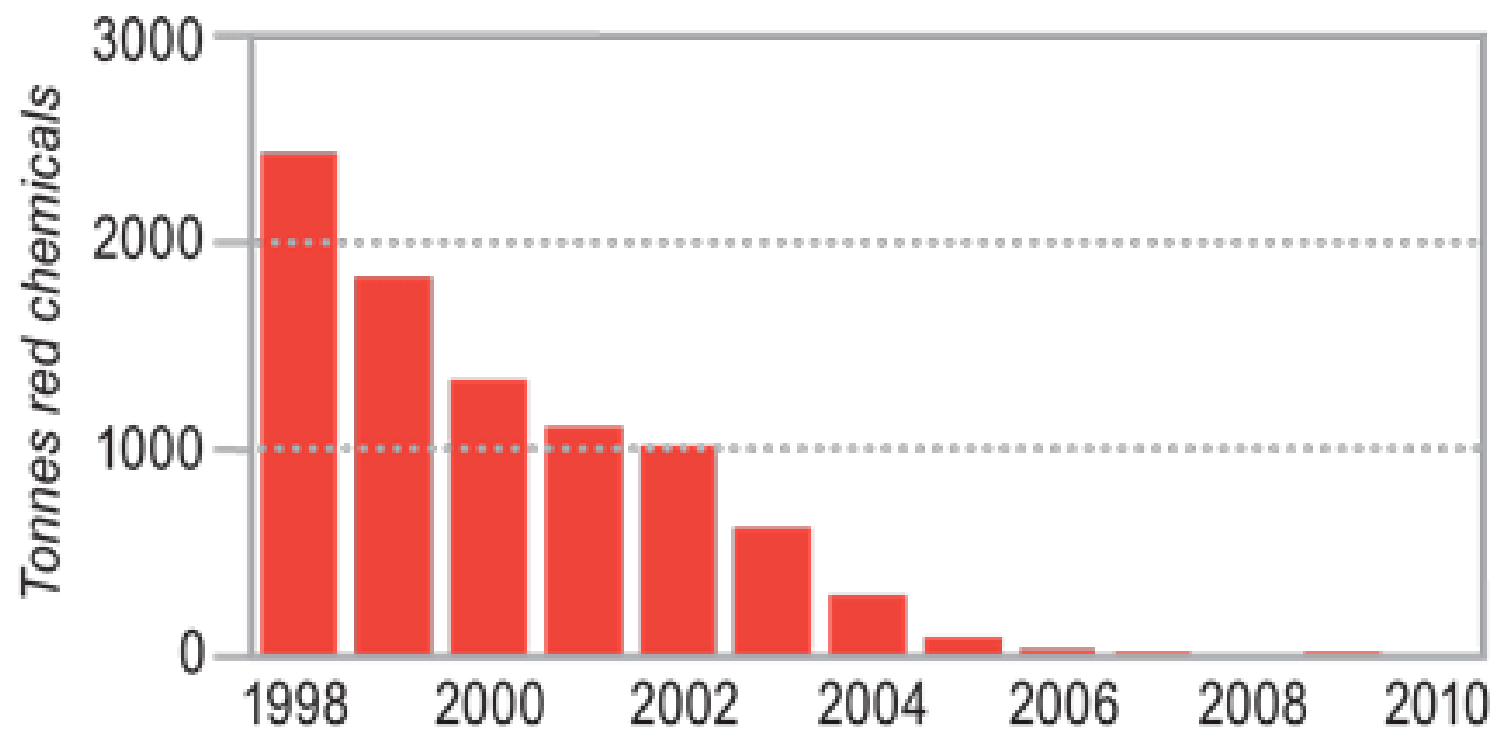
- No major oil spills since 1977
- No major accidents since 1981
- Use of hazardous chemicals reduced with 99% from 1997 to 2010
- Good co-operation between Climate and Pollution Agency and Petroleum Safety Authority
- Good co-operation and interaction between authorities and companies
- Although it is costly - understanding that strict HSE regulations are protecting the revenue base for oil companies as well as for the state, plus are in the personal interest of the individuals

Oil spill from Norwegian oil and gas

4300 m³
equals
27000
bbl

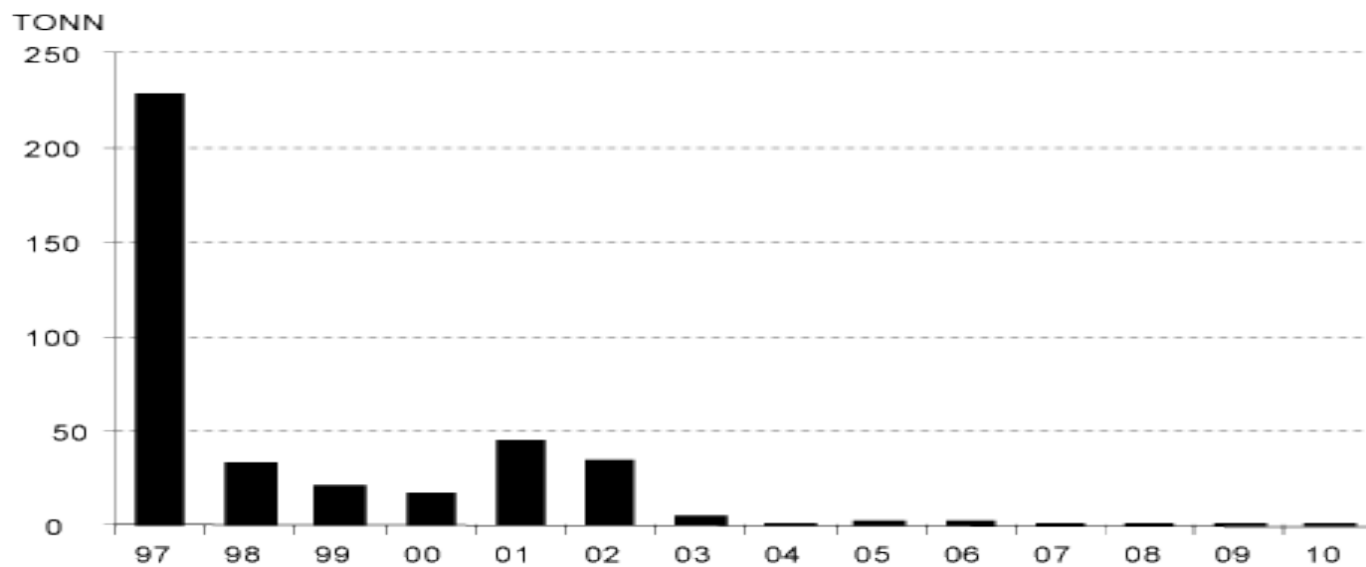


Emissions of red listed chemicals



Emissions of black listed chemicals

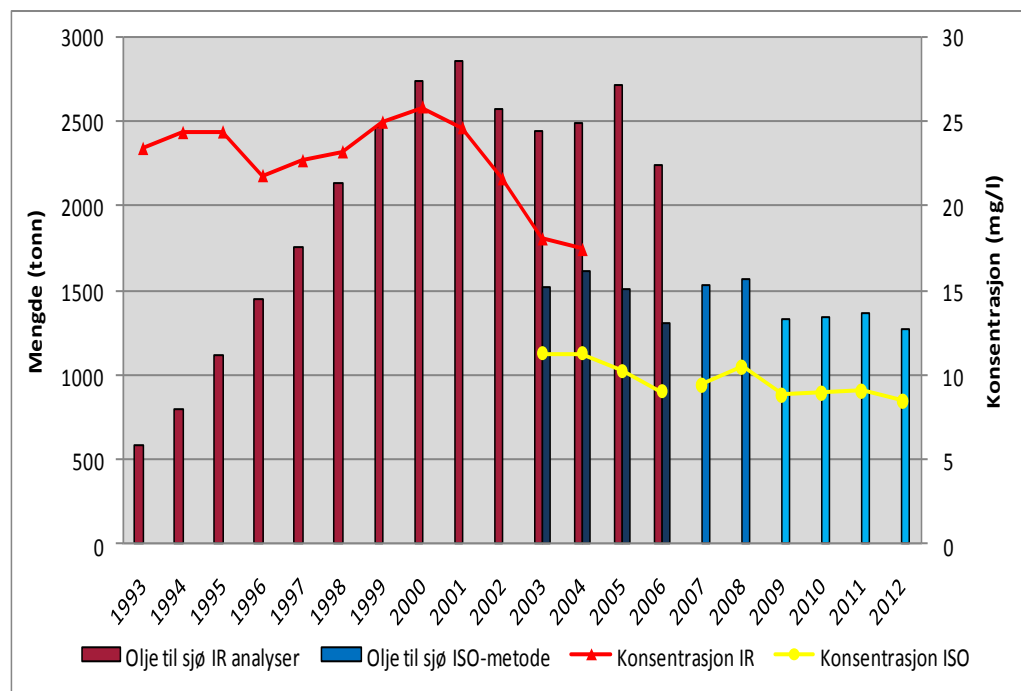
→ Utslipp av kjemikalier i svart kategori



KILDE: Klima- og forurensningsdirektoratet, 2011 / www.miljostatus.no

Oil in produced water

- 2008: 10,5 mg/l
- Goal 2003: 45 % reduction
- No measures => 60% increase
- Achieved 0-30 % reduction, (change of analytical method)
- Less reduction than planned:
 - Less water injected than expected
 - Cleaning less effective than expected
 - Large contributions from Gullfaks, Statfjord, Troll



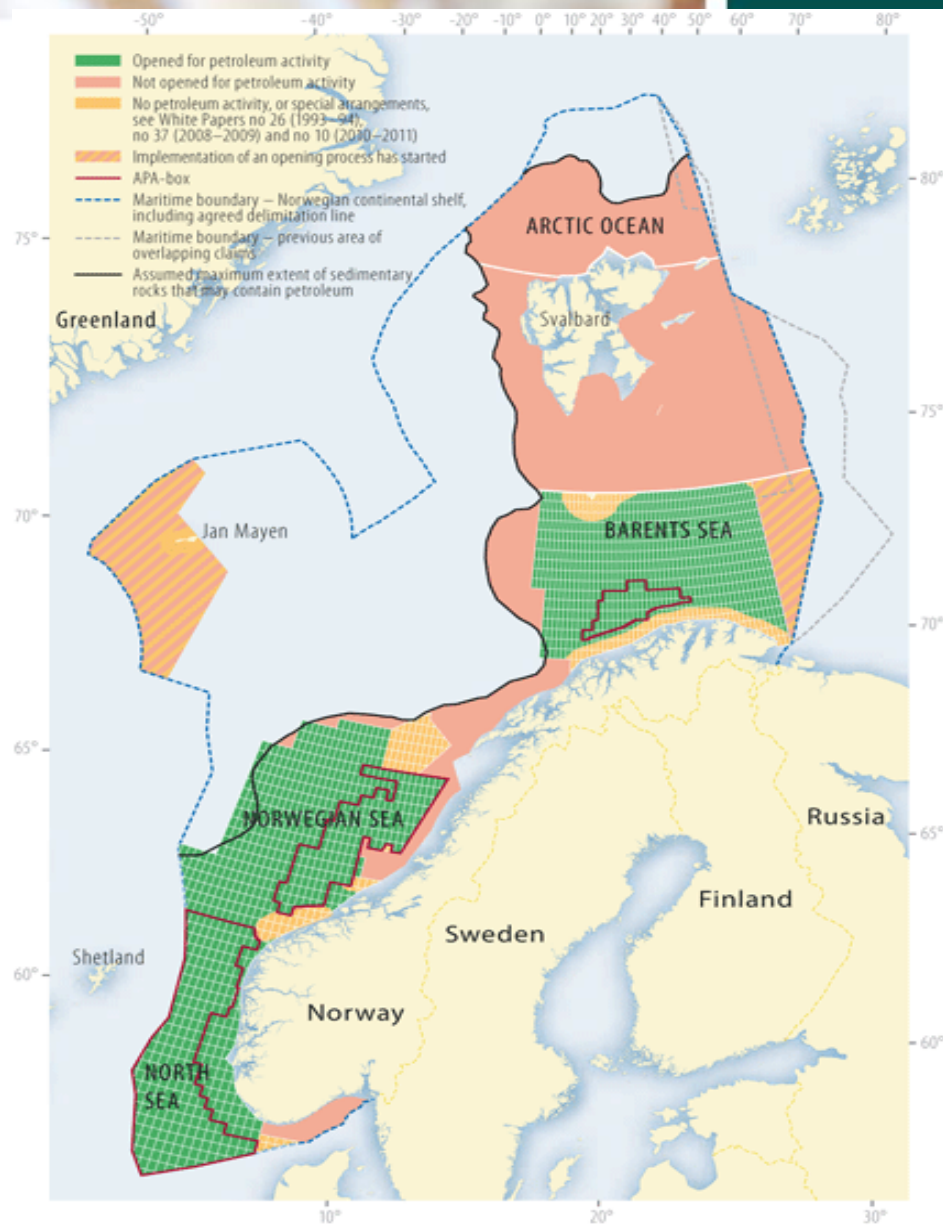
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Challenges lie ahead (i)

- Commercially viable resources increasingly more difficult to find:
 - Increased energy consumption in exploration and production
 - Higher emissions to air unless further measures are taken
- Petroleum exploration and production moving into the arctic:
 - More vulnerable
 - Need to be more precautionous

Moving into the arctic



Challenges lie ahead (ii)

- The wake-up call: Deepwater Horizon – three main areas identified by the PSA for industry to follow-up and improve on:
 - Organisation and management; decision making and prioritisation processes - driven by short-term financial gain - management of expertise, operational changes ... led to unclear allocations of responsibility and authority. Failures to communicate and share information. Not only at industry and company level, but also to relations between companies in contractual chains.
 - Risk management; reassess the way major accident risk is managed. Need to pursue ambitious studies and developments to secure better management tools. Better analyse, assess and understand change-related risk.
 - Barrier management; industry needs to develop a more integrated and uniform approach to barrier management, incl better and more specific performance requirements for a number of barrier elements.

Challenges lie ahead (iii)

- Conclusions
 - The regulatory system is good and for most part adequate, but
 - The stakeholders are competent and willing to improve
 - Which is necessary because the unlikely events of today and tomorrow's challenges require improvements
- The lawyer's perspective:
 - Legal community plays a role in this – develop regulatory instruments and secure contractual arrangements (incl contract administration)

Thank you for your attention!

Contact Details



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