Environmental Administration and Legislation

Mikkeli University
of Applied Sciences
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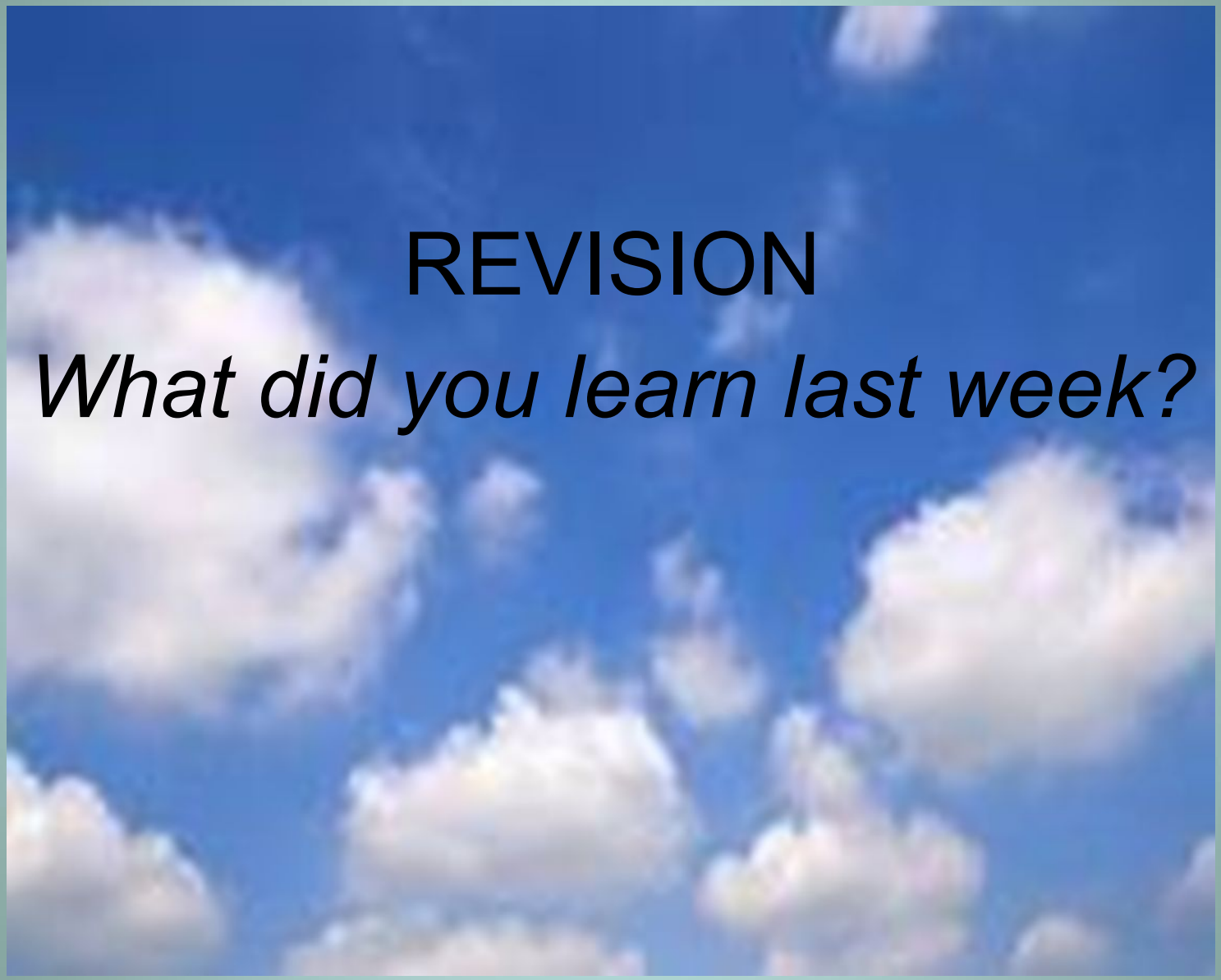

REVISION
What did you learn last week?

Legislation on Air Pollution

- Air Pollution Prevention (reduction of certain emissions),
- Protecting the Ozone Layer,
- Climate Change Mitigation (e.g. the GHG trading scheme),
- Noise Abatement, including permissible sound levels e.g. for motor vehicles.
- Remember the Relevant International Agreements?

Aspects of Climate Change Mitigation

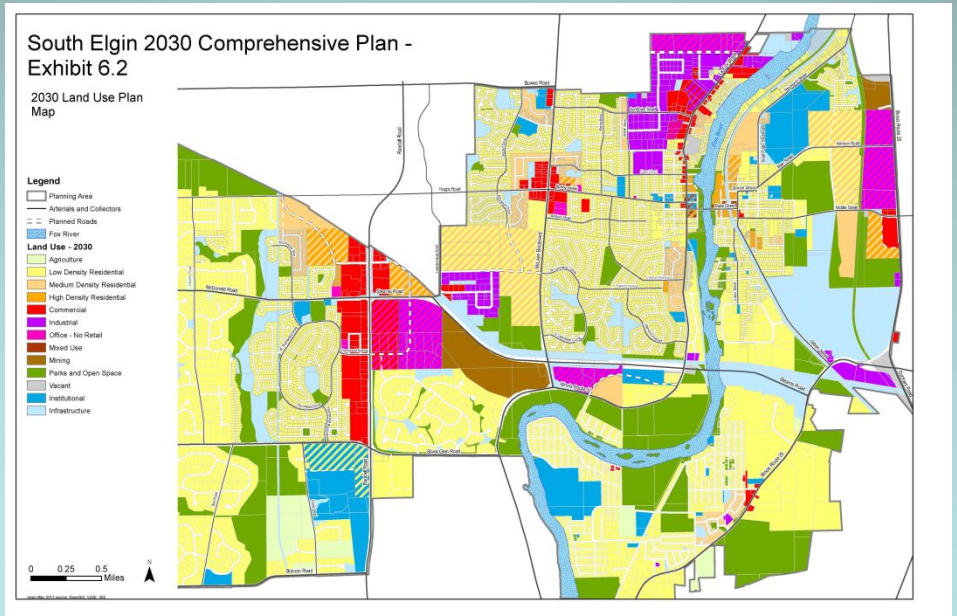
Reduction of Greenhouse gases *(how?)*

Carbon capture

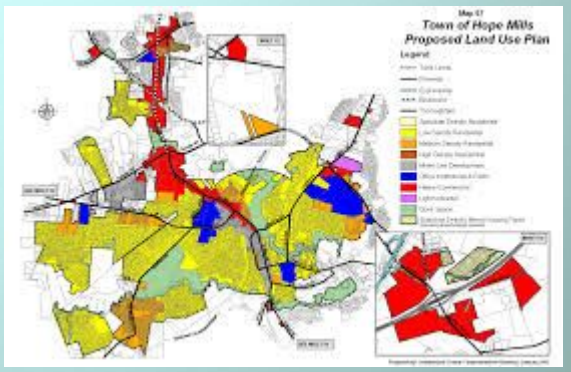
→ Mitigating the change itself

Flood control, land use planning…

→ taking steps to prepare for the effects of climate change



Land use planning



Land use planning

- EU Strategies for sustainable land use:
  - Urban development
  - Rural development
- Land use planning as an efficient instrument for sustainable development and environmental protection*!

Land use Planning:
Finnish Land Use and Building Act 132/99

- “The objective is to ensure that the use of land and water areas and building activities on them create preconditions for a favorable living environment and promote ecologically, economically, socially and culturally sustainable development.”
- “The Act also aims to ensure that everyone has the right to participate in the preparation process, and that planning is high quality and interactive, that expertise is comprehensive and that there is open provision of information on matters being processed.”

Finnish Land Use and Building Act 132/99: system of land use planning

1. "Land use in municipalities is organized and steered by local master plans and local detailed plans.
   - The local master plan indicates the general principles of land use in the municipality.
   - The local detailed plan indicates how land-areas within a municipality are used and built."

2. "Regional land use plans contain a general plan for land use for the entire region or for a specific sub-area therein."

www.ymparisto.fi

Finnish Land Use and Building Act 132/99:

Interaction and publication of planning information

1. “Plans must be prepared in interaction with such persons and bodies on whose circumstances or benefits the plan may have substantial impact, as prescribed below in this Act”.

2. The authority preparing plans must publicize planning information so that those concerned are able to follow and influence the planning process.

Influencing land use planning

Right of appeal:

- Objections may be submitted by local residents, organizations or the authorities.
- Appeals calling for alterations to local master plans or detailed plans approved by the municipal authorities must be submitted to the administrative courts.
- Appeals against regional land use plans or joint local master plans drafted by more than one municipality should be directed to the Ministry of the Environment. Further appeals may be taken to the Supreme Administrative Court.

Influencing land use

- Building permissions:
  - Planning permission for building developments is subject to hearings involving the owners and tenants of neighbouring properties.
  - Authorities must ensure building developments are in accordance with the relevant plans.
- The use of a property may not be in conflict with the intended use, as expressed in the land use plan.

Land Use Plan as a tool for Environmental Protection

- Land use planning is a powerful tool for at least noise abatement, but also for sustaining biodiversity and enhancing environmental health.

  Examples?

- Land use plans are not only maps of which activities are placed on what areas. They also contain - sometimes very specific - controls on construction projects on the area.

Legislation Controlling the Environmental Impacts of Mining and Soil Extraction

Mining as an activity

Thematic Strategy on the sustainable use of natural resources (COM(2005) 670) classification of natural resources:

- raw materials (e.g. minerals and biomass)
- environmental media (water, air and soil)
- flow resources (e.g. wind, geothermal and solar energy)
- physical space required to produce or sustain the other resources.

Non-energy extractive industry

- Communication from the Commission promoting sustainable development in the EU non-energy extractive industry
- The extractive industry is often divided into three subsectors:
  - metallic minerals (iron, copper, zinc, etc.),
  - construction materials (natural stone, sand, limestone, chalk, etc.)
  - industrial minerals (salt, sulphur, etc.)

Environmental impact of extractive operations

From the point of view of the environment, extractive operations raise two types of concern:

- the use of non-renewable resources
- extractive operations harm the environment
  - air, soil and water pollution,
  - noise,
  - destruction or disturbance of natural habitats,
  - visual impact on the surrounding landscape,
  - effects on groundwater levels.

Environmental impact of extractive operations

- The waste produced by the extractive industry is a major problem.
  - Mining waste is among the largest waste streams in the EU and some of that waste is dangerous.
- Abandoned mine sites and unrestored quarries spoil the landscape and can pose severe environmental threats due especially to acid mine drainage

The existing legislative framework for extractive industry

- The Directive on environmental impact assessment covers open pit mining and quarries, where the surface of the site exceeds 25 hectares.
- The deposit of waste from the processing of minerals in a pond is covered by Directive 99/31/EC on the landfill of waste
- Minerals processing is covered by the Directive concerning integrated pollution prevention and control (IPPC), which also lays down that pollution must be prevented or reduced through the use of best available techniques (BAT).
- The Community eco-management and audit scheme (EMAS) provides an instrument to integrate environmental concerns in the extractive industry.

The existing legislative framework for extractive industry

- Priority issues for the integration of the environment into the extractive industry include prevention of mining accidents, improvement of the overall environmental performance of the industry and sound management of mining waste.
- The White Paper on environmental liability reinforces the key principles of polluter-pays, prevention and precaution and others to be taken into account by the extractive industry.

A Case Example: Talvivaara

Talvivaara Mining Company is an internationally significant base metals producer with its primary focus on nickel and zinc.

Talvivaara´s main asset is the Talvivaara nickel mine in Sotkamo, Finland.

(www.talvivaara.com)

A Case Example: Talvivaara

1. Bioleaching is a process, whereby metals are leached from ore as a result of bacterial action.
2. In nature, bioleaching is triggered spontaneously by micro-organisms in the presence of air and water.
3. Commercially applied bioleaching technologies utilize the same phenomenon, but accelerate this natural process.
4. Several physicochemical and microbiological process parameters are modified in order to enhance and speed up the metal recovery process.

(www.talvivaara.com)

A Case Example: Talvivaara

1. Talvivaara carries out its mining operations in the forested landscape of the Kainuu region, in a sparsely populated area, which was previously in its natural state.
2. In the areas used for mining operations, vegetation has been removed, and the area's water bodies are used as sources of raw water; some of the extra water accumulated in production is led into the water bodies.
3. Preserving biodiversity and conserving the landscape in the areas surrounding the mine is a key objective for Talvivaara.

(www.talvivaara.com)

A Case Example: Talvivaara

1. In accordance with the environmental permit, the impact of Talvivaara's mining operations on the area and its wildlife is included in the scope of regular monitoring.

2. The state of the natural environment in the Talvivaara area has been monitored since 2004.
3. The objective is to gather comprehensive data from the mining site in order to enable mine planning in an environmentally considerate manner and to make comparisons during-the mining stage possible.

(www.talvivaara.com)

Legislative tools: Talvivaara

- Planning Stage: Environmental Impact Assessment
- Construction Stage: Environmental Permit
- Operating Stage: Permit requirements, monitoring and planning, waste management
- Post Operating Stage: Site remediation

Utilisation of soil

- Land extraction
- Strongly linked to biodiversity, soil protection, waste management..
- Agriculture, forestry

Land extraction

- Commission Communication (COM(2003)572): "Towards a thematic strategy on the sustainable use of natural resources“ deals also with the extraction of soil
- Finnish Land Extraction Act 555/1981
  - “The aim of this act is to ensure that land extraction supports the goal of sustainable environmental development”
  - Restrictions to extraction of resources
  - Permit requirement
  - Authorities, penalties

Agriculture

- Commission Communication (COM(2001)162): Biodiversity Action Plan for Agriculture

Forestry

- Communication (COM(2006)302) on an EU Forest Action Plan
- Communication (COM(2008)113) on innovative and sustainable forest-based industries in the EU
- Communication (COM(2005)84) - Reporting on the implementation of the EU forestry strategy
- Communication (COM(2006)34) "An EU Strategy for Biofuels“ -> Energy, Sustainability

Soil

Legislation on Soil Pollution Concerns

- Prevention of discharge of harmfull substances
- Controlling activities leading to specific risks
- Requirements for remediation of contaminated soil, including treshold values for specific substances

Prevention of Discharge of Harmfull Substances into Soil

- Industrial Emissions Directive!
- Elimination and minimization of production, use and release of persistent organic pollutants
- Pollution caused by nitrates from agricultural sources (Nitrates Directive)
- REACH!

Controlling activities leading to specific risks

- Carbon dioxide capture and geological storage
- Landfill of waste
- Promoting sustainable development in the non-energy extractive industry
- Approaches to sustainable agriculture

Thematic strategy for soil protection

Communication COM (2002) 179 to protect soils against erosion and pollution.

"Commission will propose legislation on a Community information and monitoring system for soil threats.

This monitoring will provide the basis for future legislative initiatives and will be used as a tool to adjust and review existing policies in the field of soil protection."

EUROPEAN SOIL DATA CENTRE (ESDAC)

1. “The **European Soil Data Centre** is the thematic centre for soil related data in Europe.
2. Its ambition is to be the single reference point for and to host all relevant soil data and information at European level.
3. It contains a number of resources that are organized and presented in various ways: datasets, services/applications, maps, documents, events, projects and external links. “

Remediating Contaminated Soil

COM(2006) 231; Proposal for Directive for setting out a framework for soil protection (2004) and amending Directive 2004/35/EC:

> "Member States must remediate the polluted sites in line with a national strategy setting out the priorities. Where it is not possible for the person responsible to sustain the cost of remedying the site, the Member State concerned must make provisions for the appropriate financing."

Remediating Contaminated Soil

Government Decree on the Assessment of Soil Contamination and Remediation Needs 214/2007:

"This Decree lays down the provisions for the assessment of soil contamination and remediation needs."

"Soil contamination and remediation needs must be assessed if the concentration of one or several harmful substances in the soil exceeds the threshold value prescribed in the appendix to this Decree."

Substance (symbol)	Natural concentration mg/kg	Threshold value mg/kg	Lower guideline value mg/kg	Higher guideline value mg/kg
Antimony (Sb)	0,02	2	10	50
Lead (Pb)	5	60	200	750

“The guideline values for harmful substances in soil… must be used as a tool in the assessment of soil contamination and remediation needs.”

Remediating Contaminated Soil

"The assessment of soil contamination and remediation needs shall be based on an assessment of the hazard or harm to health or the environment represented by the harmful substances in the soil."

How would you do this?

What aspects would you consider?

Remediating Contaminated Soil

The following shall be taken into account in the assessment:

1) the concentration, overall amounts, properties, location and background concentration of the hazardous substances in the soil;
2) the soil and groundwater conditions of an area suspected to be contaminated and factors that have an impact on the spreading of harmful substances inside and outside the area;
3) the current and planned purpose of use for the area suspected to be contaminated and its environment or groundwater;

Remediating Contaminated Soil

4) the possibility of exposure to harmful substances in the short or long term;
5) the severity and likelihood of the health and environmental hazard from exposure and possible combined effects of the harmful substances,
6) the elements of uncertainty in the research data and other source information and assessment methods used.

<u>As the conditions change, the soil contamination and remediation needs shall be reassessed, if necessary.</u>

Liability

Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage.

Under the terms of the Directive, environmental damage is defined as:

- direct or indirect damage to the aquatic environment covered by Community water management legislation and by the Framework Directive relating to marine strategy;
- direct or indirect damage to species and natural habitats protected at Community level by the 1979 Birds Directive or by the 1992 Habitats Directive;
- direct or indirect contamination of the land which creates a significant risk to human health.

Liability

Where there is an imminent threat of environmental damage, the competent authority designated by each Member State may:

- require the operator (the potential polluter) to take the necessary preventive measures; or
- take the necessary preventive measures and then recover the costs incurred.

Liability

Where environmental damage has occurred, the competent authority may:

- require the operator concerned to take the necessary restorative measures or
- take the necessary restorative measures and then recover the costs incurred.
- Environmental damage may be remedied in different ways depending on the type of damage

Liability

for damage affecting the land, the Directive requires that the land concerned be decontaminated until there is no longer any serious risk of negative impact on human health;

In Annex II to the Directive there is further information on the method that has to be taken into account in order to remedy environmental damage.

Managing environmental impacts throughout the life cycle of a project:

- EIA: reducing harms during the planning and construction phases
- IPPC licencing: reducing harms during the planning, construction, operation and closing phases.