

## 1.4 Sustainability

### 1.4.1 Definitions

**Sustainability:** use and management of resources that allow full natural replacement of the resources exploited and full recovery of the ecosystems affected by their extraction

**Natural capital:** term used for natural resources that can produce a sustainable natural income of goods or services

**Capital:** the means of production that are used to create goods that provide income

**Natural income:** yield obtained from natural resources

**Ecosystems:** provide life supporting services such as water replenishment, flood and erosion protection and goods such as timber, fisheries and agricultural crops

**Sustainable development:** development that meets the needs of the present without compromising the needs of the future to meet their own needs

**Overshoot:** occurs when the environment's capacity and the limits to growth are exceeded

### 1.4.2 Millennium Ecosystem Assessment (MEA)

Factors such as biodiversity, pollution or climate change maybe used quantitatively as ecological indicators of sustainability. Gender parity, gross domestic product, life expectancy can be used as socioeconomic factors. These factors can be applied on a range of scales from local to global.

→ MEA was funded by UN in 2001. It's researched how ecosystems have changed over the last decade and made predictions for how they want to change in the future. Report in 2005 = natural resources being used in a way which degrades them.

Findings:

- 60% of the ecosystems worldwide have been degraded
- 25% of land surface is cultivated
- We use 40 to 50% of all available surface freshwater
- More than 25% of fish stocks are over harvested

Suggestions:

- Remove subsidies to agriculture, fisheries and energy resources that harm the environment
- Encourage land owners to manage land and to enhance eco-services (carbon storage and freshwater generation)
- Protect more areas from development, especially in the oceans

### 1.4.3 Environmental Impact Assessments

**Ecological Footprint:** model used to estimate the demands that human populations place on the environment

It is an indicator of sustainability → if EF exceeds the area available then we are not sustainable

Environmental Impact Assessments

They should be done before any type of development

- a) Identifying and quantifying possible impacts
  - Using a baseline study
  - For example how big is the development
  - How sensitive is the area
- b) Predicting scale of potential problems
- c) Limiting the fact of impact to acceptable limits (ie mitigation)

Disadvantages → there are a different standard of EIA in different countries so comparisons are difficult