Agriculture

The Green Revolution

- Refers to the application of modern, western-type farming techniques to developing countries (e.g. India)
- **1960s** – rapid world population increase
- => searching for new ways to increase productivity from the land
- 4 main features:
  - **1. High yield varieties**
  - **2. Irrigation**
  - **3. Appropriate technology**
  - **4. Land reform**

1. High yield varieties

- Developed countries (GB, USA, D, AUS) provided research and money to develop **high yield varieties** (HYVs) of maize, wheat and rice.
- **Farm output increased dramatically and food prices lowered** => allowed
  - cash crops to grow and
  - rural unemployment to fall
- HYVs need large amounts of fertilizers and insecticides ⇔ **HYVs are prone to insect attack**
- HYVs require best soil and water conditions =>
- only the more wealthy farmers in developing world have benefited from the new strains, increasing inequality in living standards in rural areas
- **HYVs are used in drier regions** (e.g. hill rice regions of India) ⇔ they are less effective in main wet paddy regions of the Ganges valley and delta in the east part where fields are
  - deep flooded and
  - soils are waterlogged

2. Irrigation

- Many developing countries rely heavily on irrigation to increase output from the land => **many constructions of dams and reservoirs** all over the country
- **Dams – positives:**
  - irrigation of large farming area
  - hydro-electric power for rural communities
- **Dams – negatives:**
  - deforestation of surrounding landscape
  - earthquakes caused by heavy weight of the water
- Irrigation can bring problems of **waterlogging** to soils and **salinisation** through the upward movement of soil salts.
- Over 60 000 km^2 of irrigated land in India has been impaired this way
  - i.e. larger area than Slovakia

3. Appropriate technology

- Most people in developing countries live in rural areas and use low or basic technology.
- AT = Intermediate technology suitable to the state of development of the country.
- If it´s not suitable => **disasterous effects**
- AT has several main aims
- **Main aims of Appropriate Technology:**
  - to provide jobs
  - to produce goods for local markets
  - to replace imported goods with local goods
  - to use local resources, labour, material and finance
  - to provide communities with services like health, water, housing, roads and education

- **Examples:**
  - hospitals and houses made from local cement and sand
  - improved techniques for storing rainwater
  - training courses for carpenters
  - design of fuel efficient stoves
  - manufacture of improved fishing boats

- **Great deal of Appropriate technology:**
  - introduction of basic, simple techniques only,
  - but enormous difference to the lives of people throughout the **developing** world

4. Land reform

- **Great inequality in ownership of the land** =>
  - majority of a farmland is owned by few wealthy landowners
  - many of the poorer farm labourers own no land and suffer great poverty
- The size of farms is small in comparison with those of the developed world
  - e.g. 75% of farmers in India own less than 3 ha
  - many small plots spread over a wide area
- Since 1947 = land reform in India:
  - increase of average farm size for the small land owners
  - setting an upper limit on the amount of land held by wealthiest landowners
  - relocation of surplus land to the landless people
  - **Such reforms have increased the productivity of farms and increased the incomes of farmers.**

Genetics

- **Biotechnology companies** claim that genetically modified (GM) crops can:
  - *increase harvests*
  - *benefit the environment*
  - *help avoid a further world food crisis*
- **Critics:**
  - GM crops may *damage the environment*
  - *threaten human health*
  - *remove freedom of choice from consumers*
- 1999: research in Aberdeen => GM potatoes damaged the immune system and vital organs of rats

- On the other hand: potatoes, by their nature, produce a wide variety of toxic chemicals
- Genetic modification may have stimulated the production of natural potato toxins which would have then harmed the laboratory rats.
- Other examples of GM crops:
  - soya beans resistant to herbicides
  - maize designed to protect itself against some types of pests
- The soya bean creates 25% of the US export to the EU and is worth over 1.2 billion GBP annually (cca 72 billions SKK) **=> BIG BUSINESS**

Diseases

BSE and CJD

- „Bovine Spongiform Encephalopathy“ - **BSE**
- „Creutzfeldt-Jakob disease“ - **CJD**
  - both belong to rare group of diseases caused by misshapen (deformed) protein called PRION
- The link between BSE and CJD is:
  - Medical = the shape of the protein causing disease
  - Geographical = most cases of CJD have occured in places where BSE is more prevalent
- CJD is rare – affects 1 person in a million
- **Papua New Guinea:** CJD known as „laughing death“ ⇔ ritual cannibalism: highlanders honoured their relatives by
  - eating their brains
  - or smearing it on their bodies
- Cow infection peaked in **1992 in the UK**
- Cattle was infected by scrapie – disease common in sheeps

  - **Why was BSE not a problem elsewhere?**
- **Bad luck**
- **Few places outside the UK suffered from scrapie**

- **Cattle carcasses in the UK are burnt at relatively low temperature (<100°C = don´t kill all the bacteria), in France and Italy temperature is 130-140°C to incinerate cattle**
- **=> UK more vulnerable to an environmental catastrophe** ⇔ humans were fed by potentially infected beef

Keywords

- the Green revolution, increase productivity, high yield varieties, irrigation, appropriate technology, land reform, rural unemployment, inequality in living standard,
- deep flooded fields, waterlogged soils, dams, reservoirs, hydro-electric power, waterlogging, salinisation, intermediate technology, disasterous effects, carpenter, stove, ownership, wealthy landowners, poverty
- genetics, biotechnology companies, genetically modified products, world food crisis, toxic chemicals, laboratory rats, highlanders, carcass, environmental catastrophe