Institute of Natural and Life Sciences

Biological Sciences, / Agronomic Sciences / Semester 3 / Section A

Chapter III:

Meaning of Development?

The main dimensions of the environmental crisis:

Human demography:

* 6.3 billion inhabitants do not have the same life expectancy in the North and the South

* 1.3 billion do not have access to drinking water

* more than 800 million people are undernourished. 200 million are children

* the scourge of infectious diseases has worsened over the past 40 years

* 35 million people affected by AIDS, including 28 in sub-Saharan Africa

Global warming:

* Expected increase in average temperature: 2° to 6° in the 21st century (0.6° in the 20th century)

* 2/3 of Pacific islands threatened with immersion

* 28 billion tonnes of greenhouse gases are released into the atmosphere (CO2, NO, methane, CFCs)

• Rising sea levels

• Shifting climate zones and biotopes

• Distribution of water resources and agricultural difficulties

• Difficulties in adapting ecosystems and people

• “Contrasting” weather events (cyclones, floods, etc.)

*** The greenhouse effect**

* The main greenhouse gases

- Carbon dioxide: CO2

- Methane: NH4

- Nitrous oxide: N2O

- Sulfur hexafluoride: SF6

- 2 halocarbons: PFC, HFC

(CO2 represents 60% of total emissions)

Fossil fuels (non-renewable):

Nature provides man with two main categories of energy sources: non-renewable energies and renewable energies.

Non-renewable energies are mainly fossil fuels (oil, natural gas, coal), which are forms of chemical energy from biomass stored over the past millennia, and nuclear fission derived from uranium.

As their name indicates, the reserves corresponding to these energy sources are limited and are not renewed.

Depletion of natural resources includes:

- water consumption
- local resources (energy, food, etc.)
- territorial resources (fossil fuels, fertile soil, forests, marshes and wildlife)

Drinking water:

Scarcity: 97.5% of the planet's water volume is salt water. 70% of the remaining 2.5% of fresh water is frozen. Available fresh water is actually reduced to 40,000 km3 or 6700m3 per person on average exploitable in reasonable economic techniques. In some areas (e.g. North Africa, Middle East) the lack of water and the large population have caused this ratio to fall to 1,250 m3 per person. This is water stress (floor below which social and economic development is not possible).

Unequal distribution: 12% of the world's population has less than 2000m3 per person (70% of the inhabitants of the Middle East and North Africa, 25% of the inhabitants of sub-Saharan Africa (the Sahel for example), 20% of Western and Eastern Europeans (Belgium, England, ..), 5% of the inhabitants of East Asia and Latin America). 6 countries receive half of the available fresh water (Brazil, Russia, China, Canada, Indonesia, United States) while areas are in water stress (California-Mexico, West Coast of South America, Africa, Near and Middle East, Central Asia, Iran, Pakistan, West India, etc.)

Poor water quality and pollution: 1.5 billion people are affected by dysentery, which causes 5 million deaths per year according to the WHO. The last three decades have been particularly disastrous for water (resurgence of cholera, typhoid fever, trachoma, etc.). Water is therefore, along with famine, one of the great plagues of the century. According to the WHO, 80% of diseases in the developing world are linked to water quality. Lack of access to drinking water and sanitation is the leading cause of global mortality.

Water uses: The largest consumer of water is agriculture, which uses 70% of fresh water volumes. This is followed by industry (22%) and the remaining 8% for domestic use (only 1.5%* for drinking1).

Access to water for the world population: 2.5 billion people do not have any sanitation. 1.2 billion people live on less than $1 per day (extreme poverty) and the same number do not have access to drinking water. The water problem on a global scale is therefore largely linked to the problems of poverty and development. Many countries have advantageous water resources (e.g. Indonesia, China) but have not solved the problem of access to drinking water for their populations.

Biodiversity:

* threatened environments (wetlands, mangroves, etc.)
* out of 1.7 million known species, 11,000 are threatened with extinction
* IUCN Red List: 100 species of mammals and 150 species of birds have disappeared in 1 century
* depletion of fish resources
* 74% of fishing is overexploiting resources
* at the end of 2000, nearly a third of coral reefs have disappeared for good
* According to the IUCN Red List: 41% of amphibious species, 33% of coral reefs, 25% of mammals, 20% of plants and 13% of birds are threatened.
* Nearly 60% of the services provided by ecosystems are threatened (MEA, 2005).
* Current rate of species extinction: 100 to 1,000 times higher than the average rate of extinction since the appearance of life on Earth (6th extinction crisis).

Sustainable Development Goals

Sustainable development is economic development accompanied by social and ecological development. It is not just about economic and consumption growth. The word sustainable means development that aims to improve the human condition in the long term, along with the economy and the environment. These three elements are inseparable.

Indeed, poverty eradication cannot be achieved without economic development to finance social programs. On the other hand, it is not possible to meet the needs of the world's population without economic growth.

Environmental protection must accompany economic growth, otherwise the Earth's resources will be depleted.

Environmental protection must accompany the fight against poverty because poor populations are forced to take non-ecological actions to survive, such as the destruction of forests, waterways, or intensive fishing.

This is why the three objectives of sustainable development, which are: ecology, the fight against poverty and the protection of the Earth's resources, are simultaneous.

The UN has defined 17 Sustainable Development Goals (SDGs) to improve the world by 2030. The first 15 correspond to the 3 pillars of sustainable development: people (social), planet (ecological) and prosperity (economic). The last 2 shape the essential framework: peace (SDG16 - peace and security) and partnership (SDG17).

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and achieve, at all levels, effective, accountable and inclusive institutions

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.