
Department of Preparatory Training

Level: 1st Year

Module: Human Engineering

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Course n°9 : Sustainable development

Course outline

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- 2-The three pillars of sustainable development
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Academic year: 2025-2026

1- Definition of sustainable development

The concept of sustainable development is the subject of a report by the World Commission for the Environment and Development (headed by Mrs Brundtland), which defines it as follows: "Sustainable development is a development that meets the needs of present generations without compromising the ability of future generations to meet their own".

In this sense, sustainable development is a mode of development that aims to reconcile economic growth, the improvement of the lot of people and the protection of the environment.

2- The three pillars of sustainable development

A) Economic efficiency

it is a question of ensuring sound and sustainable economic management, without prejudice to the environment and the human being and of developing growth and economic efficiency through reasonable and sustainable modes of production and consumption.

B) Social equity

it is a question of satisfying the basic needs of humanity in terms of housing, employment, health, education, equal opportunities, reducing inequalities between individuals (prevention of social exclusion), while respecting their cultures, combating the exploitation of children, strengthen social groups through syndicate, associations, etc.

C) Environmental quality

The environmental pillar often appears as the first challenge of sustainable development that concerns the preservation and improvement of the environment, in particular by the reasonable use of natural resources and by the prevention of environmental impacts. Example: reduction of atmospheric pollutants; protection of forests; protection of oceans and fisheries resources; and promotion of agriculture that respects the environment and health.

3- The fundamental principles of sustainable development

A) Solidarity between countries, between peoples, between generations, and between members of a society, sharing the resources of the Earth with our neighbors leaving to our children.

B) Precaution in decisions so as not to cause disasters when it is known that there are risks to health or the environment. For example: limiting CO₂ emissions to curb climate change and protect the atmosphere.

C) The participation of everyone, whatever their profession or social status, to ensure the success of sustainable projects. For example: setting up child and youth councils.

D) The responsibility of everyone, citizen, industrialist or farmer. So that the one who damages, degrades and pollutes. For example: make industries that pollute a lot pay a tax.

4- Good practices for sustainable development in Algeria

A- Mediterranean Foundation for Sustainable Development:

The environment constitutes for the Foundation «Djanatu Al-Arif» in Mostaganem a concrete responsible commitment to the Nation and future generations. It brings together, in the form of a national network, a pool of skills and experience that they gladly make available to any person or organization interested in environmental protection, in a spirit of responsible citizenship.

B- Wastewater treatment:

The coast of Algeria has 21 desalination plants spread over the 14 coastal wilayas and 2 others under construction, which fall under the Ministry of Water Resources. They provide 17% of the water consumed in the country and feed 6 million people with a volume of 2.6 million m³/ day.

C- Resupply Stations (Bejaia):

The project is unique in Algeria, it consists of the treatment of conventional household waste, waste from medical activities and the recycling of waste oils. It also provides for sorting, recovery, composting, paper, plastic and glass processing, except for construction site waste, which must go to another destination.

5- Good practices of sustainable development at international level

A. Denmark

Denmark's Environmental Performance Index score in 2022 was 77.9, much lower than its score in 2020 of 82.5, as is the case in most other nations. Nonetheless, Denmark retains its position as the world's most sustainable country. In addition to receiving special recognition for its efforts in renewable energy and sustainable agriculture, Denmark stands out for having excellent ratings in "nearly all topics covered by the EPI."

Moreover, Denmark is among the select few nations with "net zero" CO₂ emissions by 2050. Denmark has long prioritized sustainability, advocating clean products like eco-friendly hotels, solar-powered boats, and organic food and enacting some of the most effective legislation in the world to cut greenhouse gas emissions and stop climate change. Denmark is a global pioneer in sustainable transportation with well-established bike lanes and public

transportation networks. The nation is likewise dedicated to lowering carbon emissions and has set ambitious targets for renewable energy.

B. United Kingdom

The UK is the second most sustainable country in the world. With a 2022 EPI score of 77.7, the United Kingdom ranked second globally, and its 23-point increase from 2012 to 2022 was the third-highest improvement of any nation. The UK is one of the few countries on pace to cut its net CO₂ emissions to zero by 2050, along with Denmark, which especially singled out the UK's efforts to manage greenhouse gas emissions.

The UK was one of just six nations to receive a perfect score of 100 for sanitation and drinking water. It also receives excellent marks for controlling soil acidification and solid domestic fuel consumption.

C. Finland

Finland comes third in this list of top 10 sustainable countries. Finland shares the top spot in several performance measures with many other high-scoring countries, including grassland loss (protection), marine protected areas, wastewater treatment, soil acidification, sanitation, drinking water, solid household fuels, PM_{2.5} (air quality), "black carbon" emission and heavy metals.

Finland had the third-highest EPI rating (76.5) in 2022. Finland gets over 35% of its energy from renewable sources, and protecting its forests and animals is a top priority. Finland is also home to one of the world's most sustainable cities, Helsinki, which aims to be carbon neutral by 2035.