

## IN FIGURES

Source : French Ministry in charge of Ecology

- **18% drop in** energy-related CO2 emissions between 1990 and 2015 (while GDP rose 44%)
- **16% drop in** greenhouse gas emissions since 1990
- **15.7% share of** renewable energy in France's final gross energy consumption (2016)
- **30% reduction** in consumption of fossil fuels and increase in share of energy from renewables (2030)
- **40% reduction** in emissions of greenhouse gases (2030)

## INTERNATIONAL

France, as a signatory of the Kyoto Protocol, chaired the 2015 Conference of the Parties of the 1992 United Nations Framework Convention on Climate Change (COP21/CMP11), which resulted in an international agreement to strive to limit global warming to less than 2°C. Of the 197 parties to the conference, 174 ratified the Paris Accord. France, in helping to implement the United Nations' Sustainable Development Goals for 2030, has emphasized three priorities: (i) ensuring food security and sustainable agriculture; (ii) promoting resilient infrastructure, sustainable industrialization, and innovation; and (iii) preserving the world's oceans, seas, and marine resources through sustainable exploitation. Since 2012, the country's agro-ecological plan of action has aimed to reduce the consumption of inputs, to preserve natural resources, and to enhance the sustainability of resource use.

In 2017 France launched a plan to prevent climate change from growing in scale and becoming irreversible. The plan includes a series of innovative and ambitious measures to enshrine the goals of the Paris Accord in public policy and to rally all actors to the fight for planetary survival. France is accelerating its commitment to achieve the energy and climate transition domestically, within the European Union, and on the international stage. France has also increased by €4 billion the amount of financing it will make available for sustainable development between now and 2020—€2 billion of the increase will be devoted to the challenges of climate change. In parallel, an additional €400 million will be allocated to the most fragile nations in the form of bilateral grants.

## RELATED FIELDS

• Agriculture • Agronomy • Biology • Chemistry • Earth and space sciences • Economics and management • Education • Energy • Engineering • Fishery sciences • Geography • Geosciences • Law • Life and health sciences • Oceanography • Physics • Public health • Sea sciences • Tourism • Transportation • Urban studies

## SUBFIELDS

• Agroecology • Alternative energy • Biodiversity • Biogeosciences • Biotechnologies • Climatology • Ecology • Ecotechnologies • Environmental engineering • Forestry • Green growth • Greenhouse gases • Land use and planning • Meteorology • Pollution • Toxicology • Water management and hydrology

## USEFUL LINKS

- ◆ **AllEnvi, national alliance for environmental research:** [www.allenvi.fr](http://www.allenvi.fr)
- ◆ **CEREGE, center for research and teaching in environmental geoscience:** <https://www.cerege.fr/en>
- ◆ **CESE, economic, social, and environmental council:** [www.lecese.fr](http://www.lecese.fr)
- ◆ **EGU, European Geosciences Union:** [www.egu.eu](http://www.egu.eu)
- ◆ **ENM Météo-INP Toulouse, national school of meteorology:** [www.enm.meteo.fr](http://www.enm.meteo.fr)
- ◆ **French Ministry of European and Foreign Affairs:** [www.diplomatie.gouv.fr](http://www.diplomatie.gouv.fr) >Politique étrangère de la France >Environnement et développement durable
- ◆ **French Ministry in charge of Ecology:** [www.statistiques.developpement-durable.gouv.fr](http://www.statistiques.developpement-durable.gouv.fr)
- ◆ **Make Our Planet Great Again climate plan:** [www.makeourplanetgreatagain.fr/Plan-Climat](http://www.makeourplanetgreatagain.fr/Plan-Climat)
- ◆ **Paris Accord:** [http://unfccc.int/portal\\_francofone/accord\\_de\\_paris/items/10081.php](http://unfccc.int/portal_francofone/accord_de_paris/items/10081.php)
- ◆ **Reports on greenhouse gases from the resource center for greenhouse gas emissions:** [www.bilans-ges.ademe.fr](http://www.bilans-ges.ademe.fr)
- ◆ **Scientific interest group on climate, environment, and society:** [www.gisclimat.fr](http://www.gisclimat.fr)
- ◆ **UN Framework Convention on Climate Change:** <https://unfccc.int>
- ◆ **UVED, virtual university for the environment and sustainable development:** [www.uved.fr](http://www.uved.fr)

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## SUSTAINABLE DEVELOPMENT

Development that responds to today's needs without compromising the ability of future generations to respond to theirs—that is the definition of sustainable development that emerged from the first United Nations World Commission on the Environment and Development (Brundtland Report, 1987). The Earth Summit held under UN auspices in Rio de Janeiro in 1992 imparted formal status to the notion of sustainable development and its three pillars—development that is economically effective, socially equitable, and environmentally sustainable.

Sustainable development's fields of application are therefore numerous. Clustered around protection of the environment are a set of disciplines concerned with sustainable agriculture, the economics of primary resources, air quality and climate, the ecology of natural environments, ecosystems, water and biodiversity, land use, management of natural resources and waste, alternative energy, efficient buildings, and clean transportation.

Environmentally friendly renewable energy includes energy derived from solar irradiation, wind, hydropower, and geothermics. Other renewables are fuel wood, harvest byproducts, biogas, biofuels, and household and industrial waste products.

Sustainable development figures in technical programs in a variety of fields, such as agronomy, biology, chemistry, and physics, as well as in programs in engineering, law, economics, social sciences, and management. Research in sustainable development is therefore characterized by its interdisciplinarity.

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# SUSTAINABLE DEVELOPMENT

## LICENCE (BACHELOR)

### LEVEL

#### LICENCE

(BACCALAURÉAT + 3 YEARS OF POSTSECONDARY STUDY) – L3

Three tracks offer programs related to sustainable development: Arts, Letters, and Languages, major in applied foreign languages, emphasis on tourism, sustainable development, and heritage. Law, Economics, and Management, major in team management and sustainable development. Science, Technology, and Health, major in engineering, emphasis on mechanical engineering and sustainable development.

#### LICENCE PROFESSIONNELLE

(BACCALAURÉAT + 3 YEARS OF POSTSECONDARY STUDY) – L2 +1

Programs related to sustainable development are available in four tracks: **Law, Economics, and Management**—major in trade and distribution, emphasis on sustainable development; major in organizational management, specialization in sustainable development in rural settings and emphasis on sustainable tourism. **Humanities and Social Sciences**—several majors and specializations in land-use planning and urban studies; international aid and development, emphasis on international cooperation and sustainable development; regional development, emphasizes on environmental education, the ecological transition, and sustainable development; e-commerce and digital marketing, emphasis on sustainable regional development; geography and regional planning, emphasis on sustainable regional development. **Science, Technology, and Health**—multiple majors, specializations, and emphases: agronomy, specialization in sustainable agriculture in tropical island settings; land-use planning and land management, emphasis on sustainable development/management and biodiversity; building and construction, specialization in construction management; analytical chemistry and environmental quality, emphasis on chemistry and processes for sustainable development and the environment; energy and climate engineering, specialization in sustainable development and renewable energy; natural spaces, specialization in sustainable development of forests and local areas; energy planning and sustainable development; management of agricultural and rural businesses and sustainable development of rural areas; careers in environmental protection and management, emphasis on ecological restaurants and sustainable development; crop production, emphasis on crop protection and sustainable development. **Life and Earth Sciences**—emphasis on environment and sustainable development.

## MASTER

### LEVEL

#### MASTER

(BACCALAURÉAT +5 ANNÉES D'ÉTUDES SUPÉRIEURES) – M2

In several academic tracks, a Master's degree can be earned with a concentration or specialization in sustainable development:

> **Law, Economics, and Management**—energy management, energy law, and sustainable development; sustainable regional development, concentration in management of sustainable tourism and outdoor recreation; legal management of risk and sustainable development; environmental and urban law, concentration in sustainable development; business law, double diploma in law and management of sustainable development; law of sustainable development; corporate legal planning around sustainable development; economics of sustainable development, the environment, and energy; management of sustainable development projects; environmental management and sustainable development; energy economics and sustainable development; law and management of sustainable development; Euro-Mediterranean management and sustainable development; managing legal risks and sustainable development; sustainable development in the French-speaking world; corporate social responsibility and sustainable development; advising local governments on sustainable development policy...

> **Science, Technology, and Health**—agroecology, biodiversity, sustainable environmental management and regional planning; biology and ecology applied to forests, agronomy, the environment, and ecosystem management; biodiversity and sustainable development; sustainable development strategy and peri-urban planning; biotechnology for sustainable development; chemistry, concentration in catalysis, environment, and sustainable development; construction and sustainable regional planning and eco-development; ecology and sustainable development; electrical power and sustainable development; environment, sanitation, and sustainable development; innovative process engineering and sustainable development; sustainable environmental engineering; environmental engineering and management for sustainable development; agro-resource production and sustainable development; materials science for energy and sustainable development...

> **Environmental Science, Regional Planning, and Economics**—land use, energy, & regional ecology; sustainable building & eco-construction; eco-innovation; ecosystems; ecological modeling; environmental toxicology...

> **Arts, Letters, and Languages**: —anthropology, specialization in sustainable development; intercultural studies and sustainable development; communication for ecological stewardship and sustainable development; environmental and geomatic management; applied foreign languages, emphasis on sustainable development; education, emphasis on the teaching of sustainable development...

> **Humanities and Social Sciences**—societies and sustainable development; sustainable local development in emerging areas; spatial dynamics and sustainable development in the countries of the global South; tourism and sustainable regional development...

**Programmes Taught in English:** 25 Master's-level programs related to sustainable development are offered in agroecology, environment, biology, chemistry, physics, engineering, energy, urban studies, humanities, and social sciences...

Agris Mundus MSc in agricultural development and sustainable management of natural resources: [www.agrismundus.eu](http://www.agrismundus.eu)

European Joint Degree program MSc Sustainable Food Systems: [www.susfoods.eu](http://www.susfoods.eu)

European Master degree in Plant Health in Sustainable Cropping Systems (PlantHealth): <http://planthealth.upv.es>

#### DIPLÔME D'INGÉNIEUR / EQUIVALENT TO MASTER (BACCALAURÉAT +5 YEARS OF POSTSECONDARY STUDY) – M2

France's schools of engineering deliver professional qualifications and master's-level degrees accredited by CTI, the commission on engineering degrees, with specializations in agroecology, environment, and energy, among others.

Bordeaux Polytechnic Institute, <https://ensegid.bordeaux-inp.fr>  
[www.cti-commission.fr/accreditation](http://www.cti-commission.fr/accreditation)

## BEYOND THE MASTER

#### MASTÈRE SPÉCIALISÉ (MS)

(M2 + 1 YEAR OF POSTSECONDARY STUDY)

"*Mastère Spécialisé*" is a label conferred by the *Conférence des Grandes Écoles* to qualifying post-master programs. Several programs offer students a double competency in sustainable development and one of many specializations in agriculture, marine engineering, transportation, management...

Mastère Spécialisé programs list: [www.cge.asso.fr/nos-labels/ms](http://www.cge.asso.fr/nos-labels/ms)