

# Highlights

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*Key Figures on  
the environment*  
2015 edition



PARIS2015  
en faveur d'un climat  
COP21-CMP11



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# Contents

<b>Introduction .....</b>	<b>5</b>
<b>Part 1 – Natural environments and biodiversity: status and pressures ..</b>	<b>6</b>
<b>Climate – Greenhouse effect .....</b>	<b>6</b>
Average temperature.....	6
Greenhouse gas emissions.....	7
Carbon footprint of French consumption .....	8
Greenhouse gas emissions by sector.....	9
Emissions from passenger cars .....	10
Housing-related CO <sub>2</sub> emissions per inhabitant.....	11
<b>Air .....</b>	<b>12</b>
Pollutant emissions.....	12
Pollutant emissions by sector.....	13
Air pollution in urban environments.....	14
<b>Water .....</b>	<b>15</b>
Groundwater pollution.....	15
River pollution.....	16
Riverine pollutant flows into the sea.....	17
Contaminants in the marine environment .....	18
<b>Soils .....</b>	<b>19</b>
Organic matter in soils.....	19
Soil erosion.....	20
<b>Biodiversity .....</b>	<b>21</b>
Common birds.....	21
Otter populations in France .....	22
Protected terrestrial areas .....	23
Marine protected areas.....	24
Wetlands .....	25
<b>Part 2 – Management and use of natural resources .....</b>	<b>26</b>
<b>Land consumption.....</b>	<b>26</b>
Land take.....	26
Land use .....	27
<b>Material consumption .....</b>	<b>28</b>
Material consumption and “material intensity” .....	28
Factors influencing the changing material requirements .....	29
Aggregate production .....	30

<b>Water consumption</b> .....	<b>31</b>
Water abstraction by use .....	31
Daily drinking water consumption .....	32
<b>Energy consumption</b> .....	<b>33</b>
Final energy consumption by sector .....	33
Renewable energy sources .....	34
<b>Consumption of biological resources</b> .....	<b>35</b>
Sustainable forest management .....	35
Fishery resources .....	36
<b>Waste</b> .....	<b>37</b>
Municipal waste .....	37
Municipal waste treatment .....	38
Waste and extended producer responsibility .....	39
<b>Part 3 – Environmental economics and changing behaviours</b> ....	<b>40</b>
<b>Opinion</b> .....	<b>40</b>
Environmental concerns of the French .....	40
Expectations of the French vis-à-vis the State with regard to the environment .....	41
<b>Risks</b> .....	<b>42</b>
Forest fires .....	42
Natural disasters .....	43
Exposure to outdoor air pollution .....	44
<b>Economy</b> .....	<b>45</b>
Environmental employment .....	45
Workforce enrolled on initial environmental training courses .....	46
Environment protection expenditure .....	47
Environmental taxation .....	48
<b>Transport</b> .....	<b>49</b>
Household car journeys .....	49
Modes of transport .....	50
<b>Agriculture</b> .....	<b>51</b>
Organic farming .....	51
Pesticides .....	52
Permanent grasslands .....	53
<b>Industry</b> .....	<b>54</b>
Corporate social responsibility .....	54
<b>European comparisons</b> .....	<b>55</b>
<b>Glossary</b> .....	<b>56</b>
<b>Abbreviations and useful links</b> .....	<b>61</b>

# Introduction

Following the 1992 Rio Earth Summit, France made environmental information a cornerstone of its environmental policy, which was consolidated by the adoption of the Environmental Charter 10 years ago. Since 2009, it has been easier to access public environmental information via the "[tout-surlenvironnement.fr](http://tout-surlenvironnement.fr)" portal.

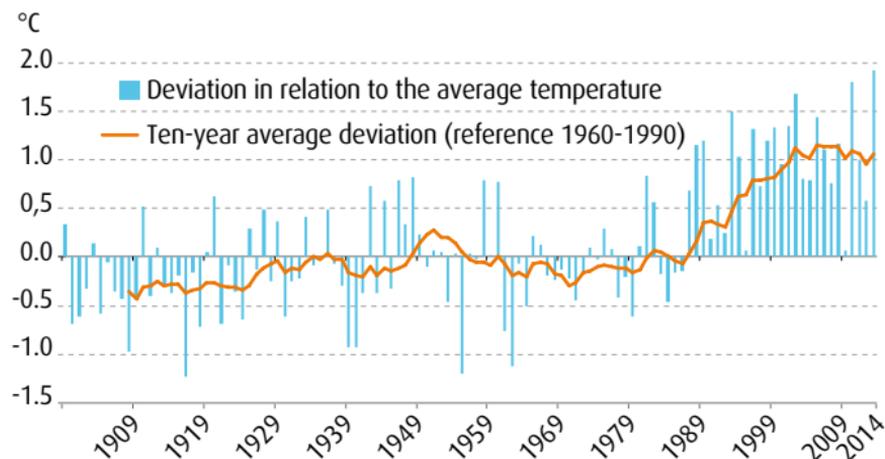
The [sixth edition of the French State of Environment report](#) was published in late 2014. A few months later, the European Environment Agency published [its fifth report on "The European Environment - state and outlook"](#). These documents shed light on the status of the different environmental sectors, the pressures and impacts affecting them.

The information presented in this publication is intended to offer a compact overview of key environmental issues. These long time-series offer an insight into the main trends that characterise the relationships between society, economy and the environment in France. These data supplement the more detailed information provided on the website of the French Monitoring and Statistics Directorate <http://www.statistiques.developpement-durable.gouv.fr>.

The digital version of this collection of key figures allows readers to download all of the data associated with the illustrations.

## Average temperature

Changes in the average annual temperature in metropolitan France



Note: The changes in the average annual temperature are shown by the deviation of this temperature from the average temperature observed between 1961 and 1990 (11.8°C).  
Scope: Metropolitan France

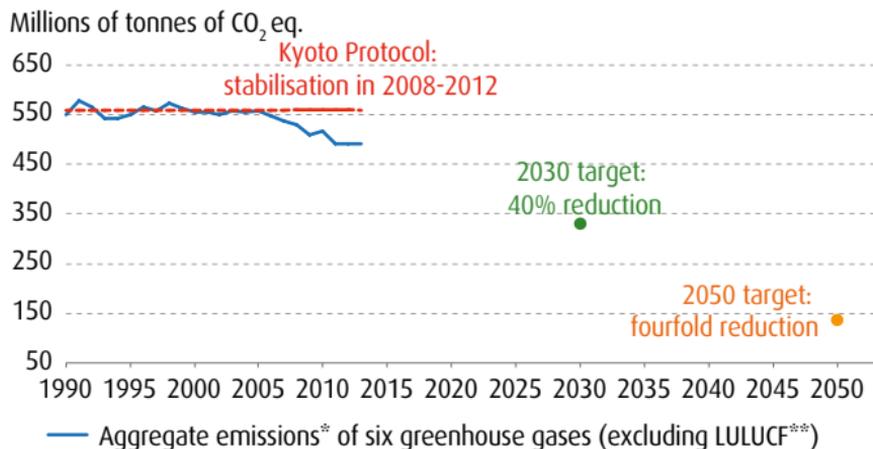
Source: Météo France

Atmospheric greenhouse gas emissions contribute to increasing the average global temperature. According to the IPCC, this has risen by 0.85°C over the last century. However, there are significant differences among regions of the world. In metropolitan France, the average temperature has risen by approximately 1.3°C over the same period.

At the global level, the 21<sup>st</sup> century has seen fourteen out of the fifteen hottest years ever recorded since 1900. A similar trend can be observed in metropolitan France, even though there are substantial inter-annual variations in its average temperature. 2014, with +1.9°C above the average for 1961-1990, was thus the warmest year recorded in metropolitan France since 1900, beating the previous record set in 2011 (+1.8°C).

## Greenhouse gas emissions

Changes in the aggregate emissions of six greenhouse gases



Note: data not adjusted for climate variations; \* carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFC) and perfluorocarbons (PFC); \*\* LULUCF: Land Use, Land Use Change and Forestry.

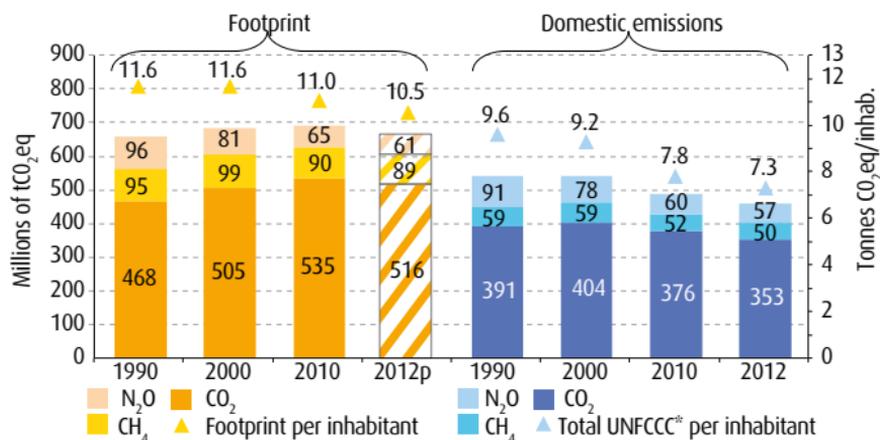
Scope: Metropolitan and overseas France, excluding OCTs (scope of the Kyoto protocol).

Source: CITEPA, Plan climat data, June 2015

Between 1990 and 2013, greenhouse gas (GHG) emissions dropped by 11% with substantial differences among sectors. For instance, GHG emissions in the transport and residential/tertiary sectors increased by 12% and 11%. However, these large increases during this period were offset by the reductions in emissions from industry (- 40%), energy (- 27%) and agriculture (- 6%). Since 2007, the trend for GHG emissions has been downward in all sectors. The aim for 2030 is to reduce emissions by 40% compared to their 1990, with a fourfold reduction by 2050 as stated by the 2015 Energy Transition Act.

## Carbon footprint of French consumption

Comparison of changes in the carbon footprint and emissions in France



Note: \* this only takes account of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (metropolitan France);  
p = provisional estimate.

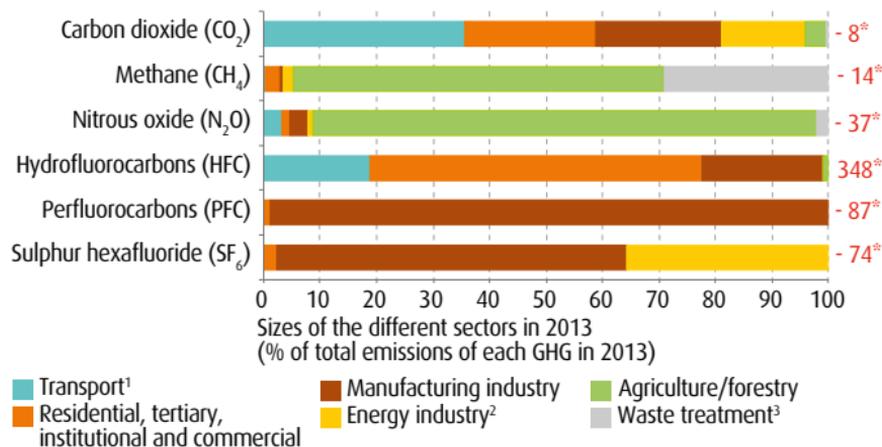
Sources: Domestic: CITEPA ; Footprint: IEA – CITEPA – French customs – Eurostat – INSEE. Processing: SOeS, 2015

The carbon footprint of the final demand of the French consists of the greenhouse gas emissions incurred, in France as well as abroad, by their consumption. In 2012, the carbon footprint was almost equal to the 1990 level. However, considering the increase in the population, the carbon footprint per capita dropped by 10% to 10.5 tonnes of CO<sub>2</sub> equivalent (t CO<sub>2</sub>e). Over the same period, the nationwide emissions dropped by 15% and the mean per inhabitant decreased by 24% to 7.3 t. CO<sub>2</sub>e in 2012.

This levelling out of the carbon footprint is a consequence of the stabilisation of direct household emissions (from heating and private vehicles: 19% of the footprint), the 51% increase—since 1990—in emissions in line with imports (intermediate consumption by companies and final household demand: 50% of the footprint) and the reduction of emissions by businesses in France (- 36%) in line with production destined for the domestic market.

## Greenhouse gas emissions by sector

Shares of activity sectors in emissions of six greenhouse gases (GHGs)



Sizes of the different sectors in 2013  
(% of total emissions of each GHG in 2013)

■ Transport<sup>1</sup>
■ Residential, tertiary, institutional and commercial
 ■ Manufacturing industry
 ■ Agriculture/forestry
 ■ Energy industry<sup>2</sup>
■ Waste treatment<sup>3</sup>

\* Changes in greenhouse gas emissions (in %) 1990-2013

Note: excluding land use, land use change and forestry; the computed percentages are based on the quantities of GHG expressed in their CO<sub>2</sub> equivalent; <sup>1</sup> domestic traffic only; <sup>2</sup> including incineration of waste with energy recovery; <sup>3</sup> excluding incineration of waste with energy recovery.

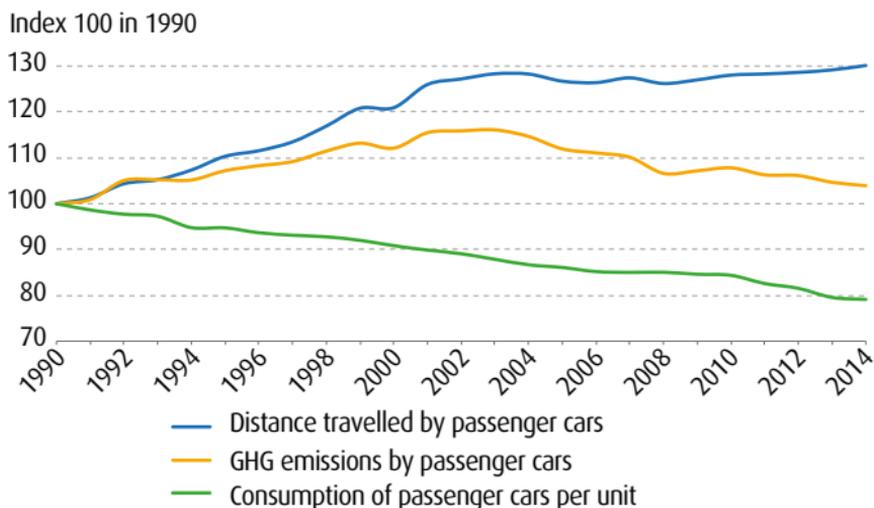
Scope: Metropolitan and overseas France excluding overseas countries and territories.

Source: CITEPA, Plan climat data, June 2015

The GHG emissions covered by the Kyoto Protocol decreased between 1990 and 2013, with the exception of HFCs which rose very sharply (+ 348%). The latter are increasingly used as refrigerants (for commercial refrigeration and motor vehicle air conditioning) and in aerosols as replacements for CFCs whose use and production were prohibited by the Montreal Protocol in 1993. Conversely, PFC emissions have dropped significantly due to the progress made in controlling their emissions during aluminium production and the shut-down of two aluminium production sites. Finally, emissions from the manufacturing and energy industries—all GHGs combined—dropped by 40% and 27%, whereas emissions from the residential, tertiary, institutional and commercial sectors and the transport sector increased by 11% and 12% respectively.

## Emissions from passenger cars

Changes in the distance travelled by passenger cars (PCs), their unit consumption and greenhouse gas emissions



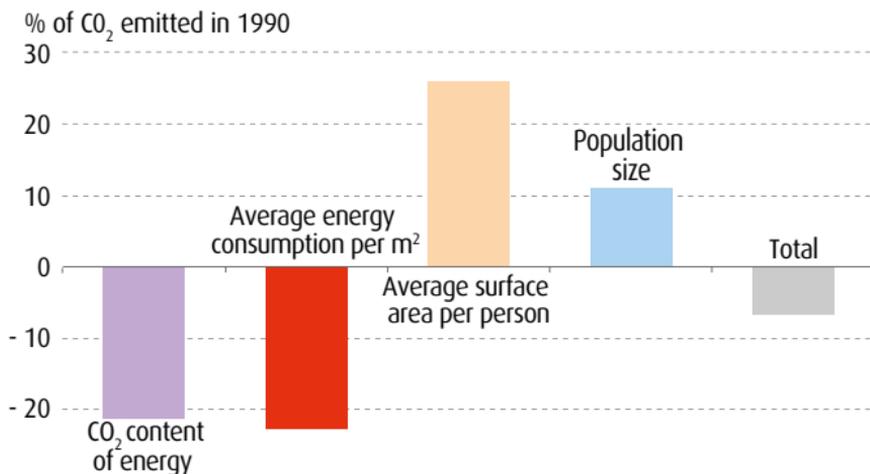
Scope: the emissions data cover metropolitan France; the distances travelled and consumption data relate to metropolitan and overseas France.

Sources: SoeS, CCTN, July 2015; CITEPA, SECTEN format, April 2015

Greenhouse gas emissions from passenger cars (PCs) amounted to 68.7 million tonnes of CO<sub>2</sub> equivalent in 2014. They were also slightly above their 1990 level after the 16% rise observed between 1990 and 2003, in line with the + 28% increase in the distances travelled by PCs in France. The drop in emissions observed since then is due to the stabilisation of the distances travelled (405 billion vehicle-kilometres travelled in 2014), combined with the decrease in the unitary consumption of PCs: 6.49 litres per 100 km in 2014, which was nearly 1.7 litre less than in 1990. This unitary improvement can be primarily attributed to the high proportion of diesel-engined vehicles (62.2%), as diesel vehicles consume less than petrol vehicles (6.19 l/100 km compared to 7.42 l).

## Housing-related CO<sub>2</sub> emissions per inhabitant

Changes in the impact of factors influencing CO<sub>2</sub> emissions in housing between 1990 and 2012



*Interpretative note: the drop in the mean energy consumption per m<sup>2</sup> in housing observed between 1990 and 2012 alone may have led to a reduction of over 20% in the CO<sub>2</sub> emissions from housing over this period, all other factors remaining equal.*

*Note: non climate-adjusted data; CO<sub>2</sub> from energy (including electricity production and biomass) used for heating, domestic hot water and cooking.*

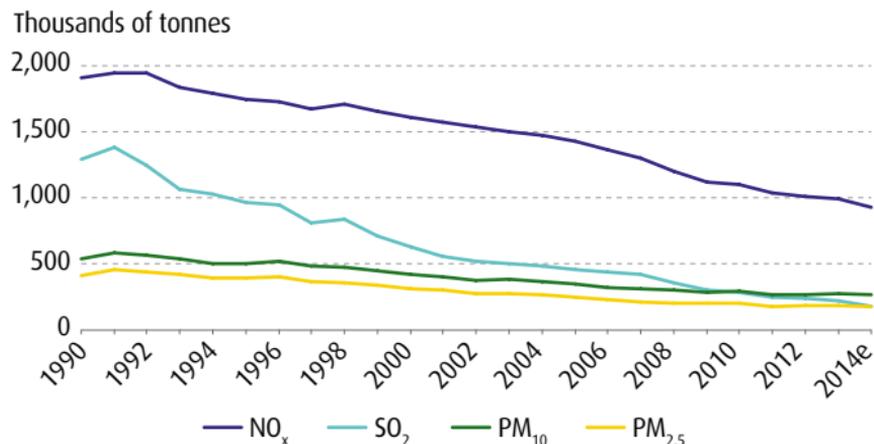
Scope: Metropolitan France

Source: CITEPA; INSEE; SOeS. Processing: SOeS, 2015

Since 1990, aside from weather-related fluctuations, the level of CO<sub>2</sub> emissions from housing has remained relatively stable, despite an increase in the housing stock (nearly 27%). In reality, this relative stability conceals the contradictory effects of the main variation factors: the decrease in the CO<sub>2</sub> content of energy (replacement of fuel by gas or electricity) and in energy consumption per surface area (better insulation due to recent energy efficiency standards) are partly cancelled out by the increase in surface area per person (greater comfort and decrease in the size of households) and in the number of dwellings (population growth).

### Pollutant emissions

Changes in sulphur dioxide, nitrogen oxide, PM<sub>10</sub><sup>\*</sup> and PM<sub>2.5</sub><sup>\*\*</sup> emissions



Note: \* PM<sub>10</sub>: particles with a diameter of less than 10 µm; \*\* PM<sub>2.5</sub>: particles with a diameter of less than 2.5 µm; e = estimate.

Scope: Metropolitan France

Source: CITEPA / SECTEN format - April 2015

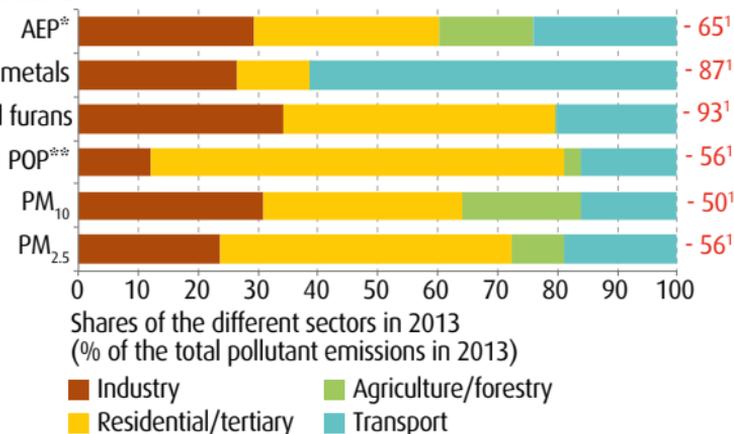
Human activities such as energy production, transportation, agriculture and heating, etc. emit atmospheric pollutants, which may have harmful effects on human health and the environment.

Between 1990 and 2013, SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> emissions decreased by 83%, 48%, 50% and 56% respectively in metropolitan France. The industrial sector (85%) emitted the most SO<sub>2</sub> in 2013. Transport accounted for 59% of NO<sub>x</sub> emissions. The largest emitters of PM<sub>10</sub> and PM<sub>2.5</sub> in 2013 were the residential/tertiary sectors (33 and 49%) and industry (31 and 24%).

## Pollutant emissions by sector

Shares of activity sectors in emissions of air pollutants

Groups of pollutants



Shares of the different sectors in 2013  
(% of the total pollutant emissions in 2013)

■ Industry
 ■ Agriculture/forestry  
■ Residential/tertiary
 ■ Transport

<sup>1</sup>1990-2013 changes in air pollutant emissions, all sectors combined (in %)

Note: \* substances relating to acidification, eutrophication and photochemical pollution (sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds, carbon monoxide and ammonia); \*\* persistent organic pollutants (polycyclic aromatic hydrocarbons, polychlorinated biphenyls and hexachlorobenzene).

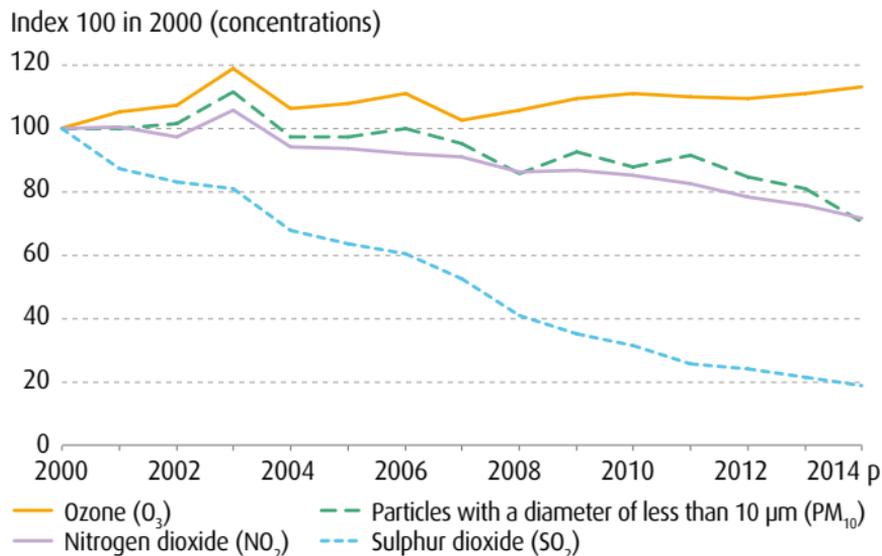
Scope: Metropolitan France

Source: CITEPA / SECTEN format, April 2015

Between 1990 and 2013, atmospheric emissions of most pollutants decreased, although there were significant disparities within certain groups. Hence, dioxin and furan emissions were reduced by 93% following the conformity upgrading of incinerators and the development of incinerators with energy recovery capabilities. On the other hand, discharges of copper particles, generated mainly by road transport (wear of brake pads) and rail transport (wear of catenary cables), remained stable. Similarly, ammonia emissions—primarily from livestock effluent and the spreading of mineral fertilisers in agriculture—were stable (-3%).

### Air pollution in urban environments

Changes in air pollution in urban background situations in France



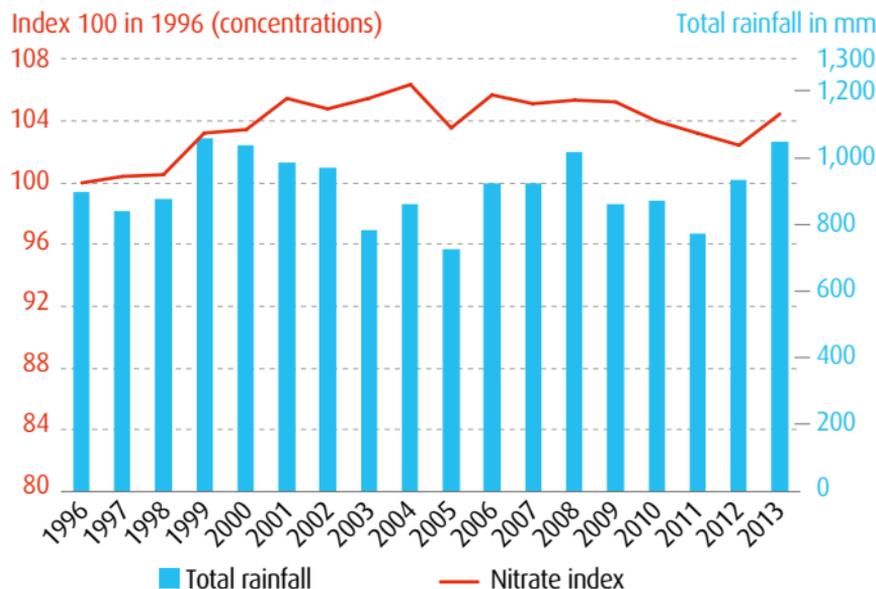
Note: p = provisional data.

Source: Géod'Air, May 2015. Processing: SOeS, 2015

In urban areas situated a long way from any direct sources of pollution, air quality generally improved between 2000 and 2014. Sulphur dioxide concentrations decreased significantly and are no longer problematical. Concentrations of nitrogen dioxide and particles with a diameter of less than 10 µm also decreased, but to a lesser extent. Nevertheless, the regulatory thresholds established for these two pollutants are exceeded every year in different parts of the country, especially close to road traffic. Ozone concentrations, which are highly dependent on weather conditions, have risen and exceed the regulatory threshold for health in certain parts of France. These pollutants may affect the respiratory system to varying degrees. The dangerousness of the particles depends on their composition and the particle size.

## Groundwater pollution

Changes in nitrate levels in groundwater in metropolitan France



Source: Water Agencies; BRGM, ADES databank, RCS and RCO networks; Météo France; MEDDE/DEB. Processing: SOeS, 2015

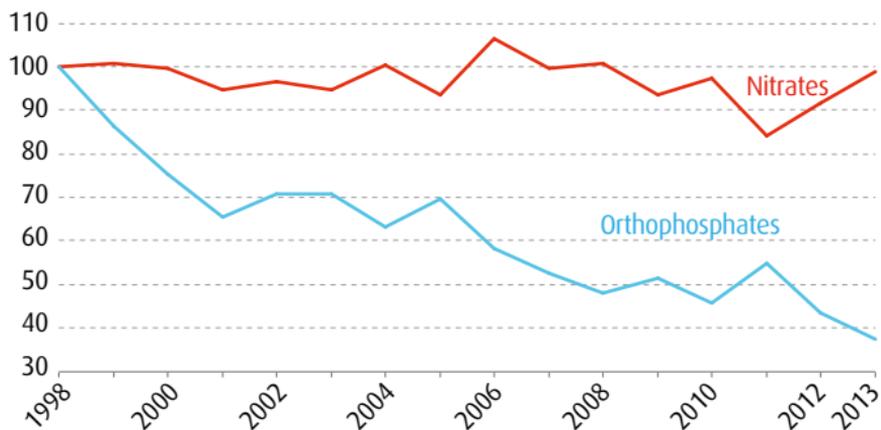
Along with pesticides, nitrates are the most highly detected pollutants in the groundwater of metropolitan France. Between 1996 and 2004, nitrate concentrations increased in water tables and then levelled off. Nevertheless, regional disparities are observed, with improvements in certain water tables and continuing deteriorations in others.

Inter-annual fluctuations are closely associated with the pluviometry. While nitrate levels are lower in dry years, as in 2005 and at the start of the 2010s, they increase with the return of heavier rainfall which promotes the leaching of soils. Considering the transfer times, this leaching effect impacts groundwater at a later stage than rivers.

### River pollution

Changes in the pollution of rivers by nitrates and phosphates

Index 100 in 1998 (concentrations)



*Note: the index is calculated with partial data for the Seine-Normandy and Adour-Garonne basins for 2008-2009 and 2010-2011 respectively, due to gaps in data series.*

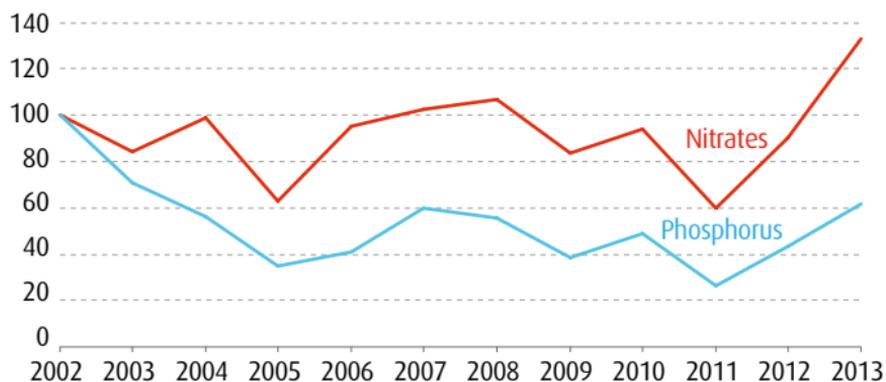
Source: Water Agencies, 2015; MEDDE. Processing: SOeS, 2015

Orthophosphate levels in rivers have decreased significantly since 1998, thanks to improvements in the treatment of urban waste water and the marked decline in the use of phosphatic fertilisers. The slight reduction in the use of mineral nitrogen fertilisers has not had a significant effect on the nitrate levels in rivers, which remained generally stable over this period. Inter-annual changes are also influenced by the pluviometry. During dry years, which are less favourable to dilution, nitrogen surpluses are generated in the soils, and leached once the conditions return to normal. This corresponds to the situation observed since 2011.

## Riverine pollutant flows into the sea

Changes in nitrogen and phosphorus flows

Index 100 in 2002



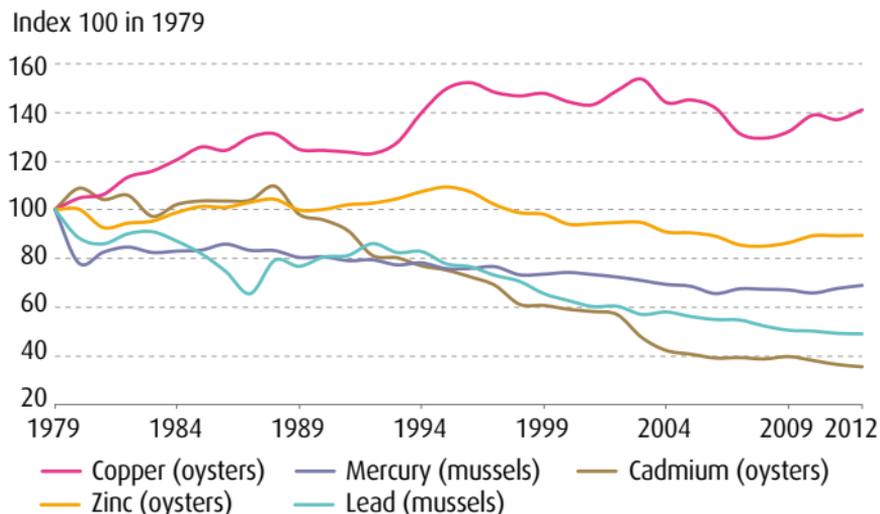
*Note: the series was updated with limited data concerning 2008 for the Seine-Normandy basin and 2010 for the Adour-Garonne basin.*

Source: Metropolitan France, Water Agencies; Schapi, Hydro bank, 2014.  
Processing: SOeS via Rtrend software, 2015

Pollutant inputs conveyed by rivers can vary markedly from year to year according to the flow rates, which are in turn linked to the pluviometry. Hence, the phosphorus and nitrate flows in all marine regions together increased in 2012 and 2013 due to the high rainfall during these years. Since 2002, however, the general trend has been downward for phosphorus flows. The situation is different for nitrates, on the other hand, which after remaining quite stable until 2012, began an upward trend in 2013.

### Contaminants in the marine environment

Changes in concentrations of the main heavy metals



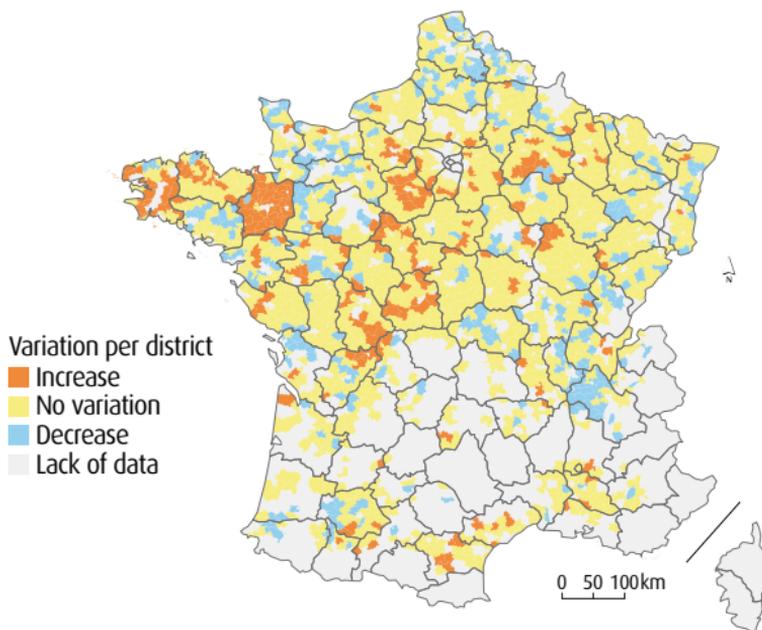
Note: the annual values are medians calculated for all points; chained index with constant, bi-annual fields.

Source: IFREMER, ROCCH, 2012. Processing: SOeS (National sea and coastal zone observatory)

Above a certain concentration, heavy metals can affect marine life and make certain marine products unfit for human consumption. Marine filter-feeding organisms (oysters and mussels) act as good markers for the changes in concentrations of the main heavy metals found in the seas and oceans. Although there have been marked decreases in the cadmium and lead concentrations due to the regulations in force that restrict or prohibit their use (e.g. lead-free petrol), copper concentrations have significantly increased. This increase may be a possible consequence of the re-emerging use of copper in the production of anti-fouling paints for boats. Finally, mercury and zinc concentrations are slightly lower.

## Organic matter in soils

Changes in organic carbon content per *canton* (district) between 1995-1999 and 2000-2009

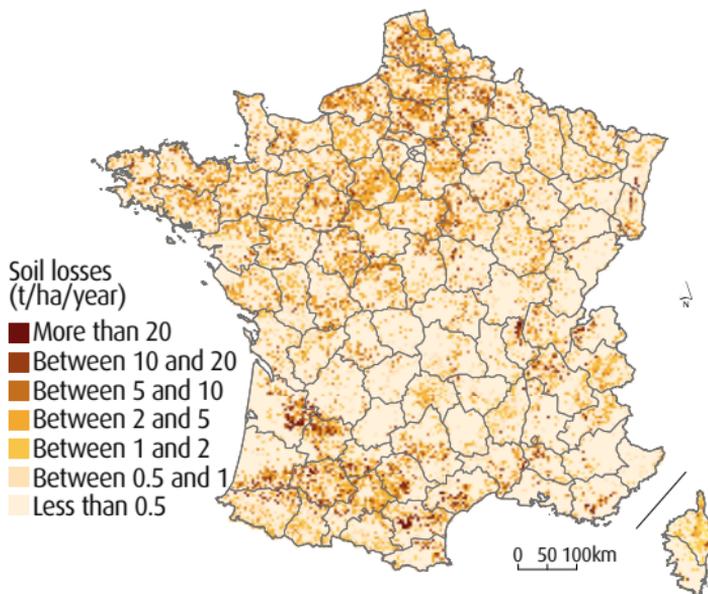


Source: Gis Sol, BDAT, 2015. Processing: SOeS, 2015

Organic matter has numerous agronomic and environmental functions (climate change mitigation, soil fertility and stability). It is an indicator of soil quality. Between 1995-1999 and 2005-2009, the organic carbon content of soils, which amounts to 60% of their organic matter, decreased in 9% of districts in metropolitan France, particularly in Basse-Normandie, Pays de la Loire, Nord – Pas-de-Calais and Rhône-Alpes regions. There are certainly numerous reasons for this decline: overall changes in ecosystems, conversion of natural meadows into arable land and modification of agricultural practices. On the other hand, the organic content of soils increased in 6% of districts.

## Soil erosion

Soil losses due to hydric erosion in metropolitan France

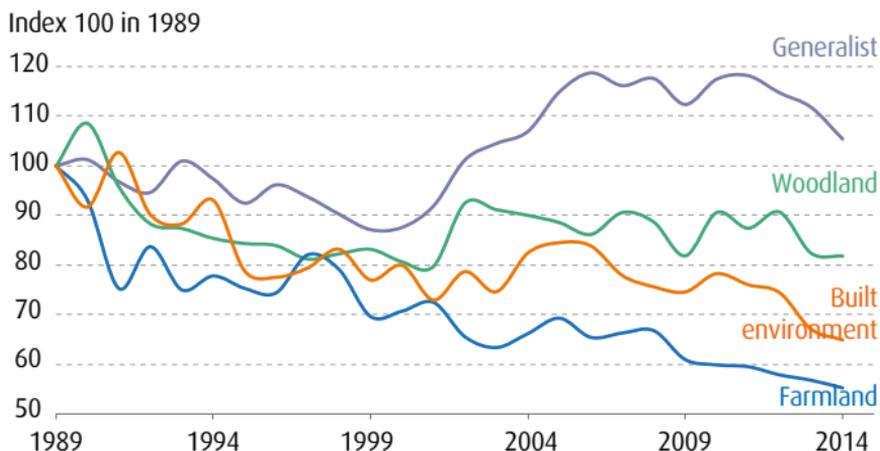


Source: BRGM, according to Cerdan *et al.*, 2010. Processing: SOeS, 2013

Erosion is a natural phenomenon by which soils are degraded due to the displacement of their constituent materials, especially by rainfall. The upstream loss of the fertile layer and the downstream submersion of crops or infrastructures (mudflows) are accompanied by a drop in the yields and biodiversity of soils and a decline in water quality. Hydric soil erosion is estimated at an average of 1.5 t/ha/year in France, compared to 1.2 t/ha/year in Europe with—in both cases—significant spatial heterogeneity (up to 20% of the territory affected by very high rates). The greatest impacts are felt in vineyards and, to a lesser extent, fruit orchards. Silty areas in Northern France and the Pyrenean piedmont are also highly vulnerable to soil losses.

## Common birds

Changes in the abundance index for common bird populations



Note: temporal monitoring of common birds (STOC programme).

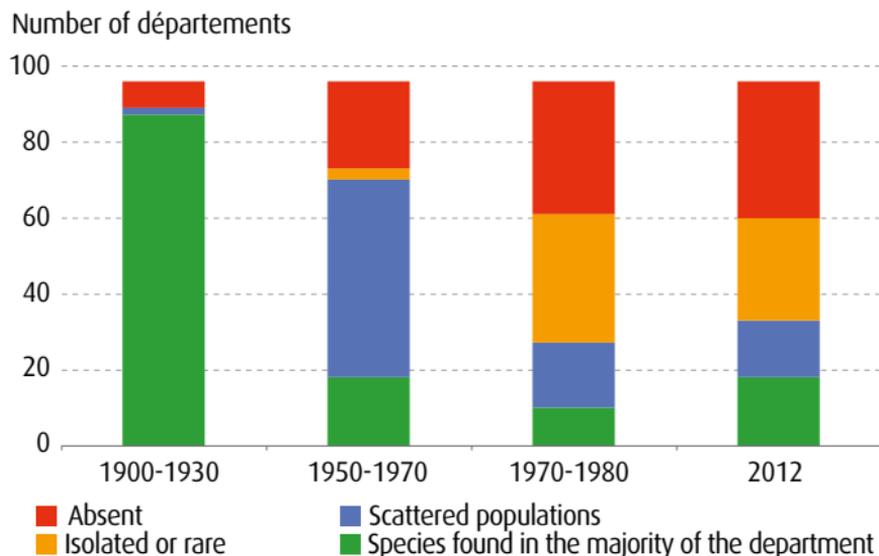
Scope: Metropolitan France

Source: MNHN

Common birds are good markers of the pressures exerted on environments. Certain species which are dependent on a particular habitat (farmland, woodland or built environments), are said to be "specialist", whereas "generalist" species populate a wide range of habitats. The populations of different specialist bird groups declined during the 1990s. Since 1999, they appear to have been stabilising for woodland species but are continuing to decline for those in farmland and built environments. There are large variations in the populations of generalist species without any clear long-term trend being apparent. These changes, if confirmed, threaten the diversity of avian fauna due to the homogenisation of populations. Similar trends are observed in Europe. There are multiple causes of this decline but damage to habitats or the loss thereof remain the main threat.

### Otter populations in France

Changes in otter presence in French *départements*

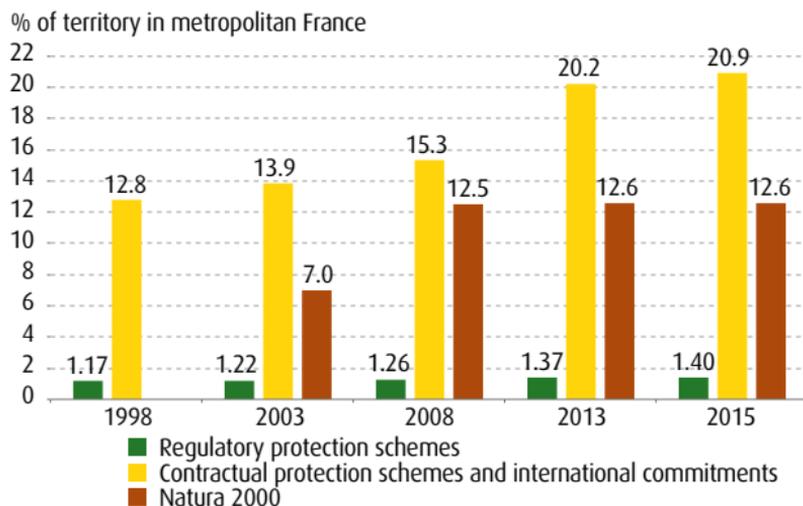


Source: Bouchardy; Rosoux; SFEPM Otter Group; MNHN/SPN; 2010-2015 National otter action plan

The otter's position at the top of the food chain makes it a vulnerable species but also a good indicator of the abundance of fish stocks and the quality of aquatic environments. Established throughout most of metropolitan France up to the start of the 20<sup>th</sup> century, this mammal was intensively hunted and its population declined from the 1930s onwards. The last remaining populations were confined to the Massif Central and the Atlantic seaboard. These populations formed the basis for a recolonisation process which began in 1984, through the implementation of legal protection for the species and the running of conservation campaigns. In this way, the Loire, Garonne and Rhône basins have been recolonised. There are currently thought to be between 1,000 and 2,000 otters in France.

## Protected terrestrial areas

Changes in the share of terrestrial surface areas in protected areas within metropolitan France



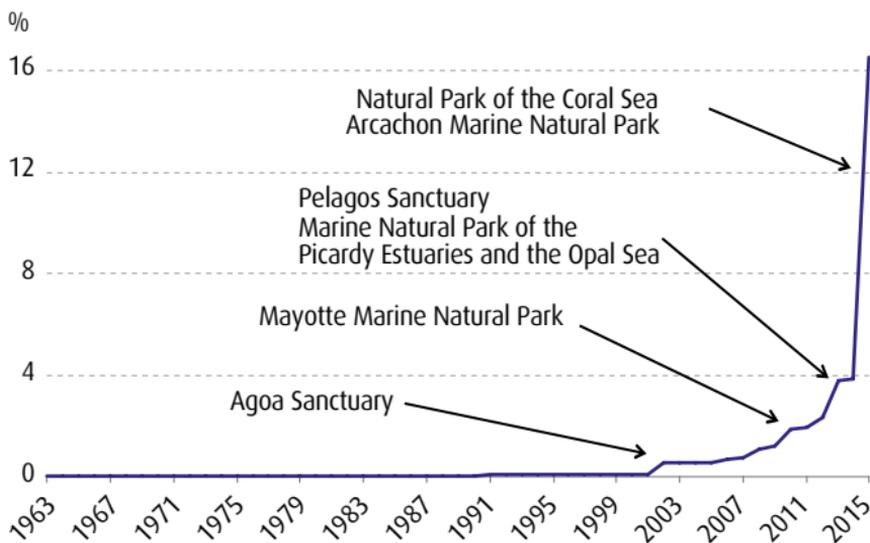
Source: MNHN, "Protected areas" and "Natura 2000" databases. Processing: SOeS, 2015

The number and surface areas of protected areas in France increased between 1998 and 2015, at different rates according to their type and the regions. In metropolitan France, the surface areas under regulatory protection increased only slightly, covering 1.40% of the national territory in early 2015. The growth of areas protected by contractual means can be largely explained by the creation of Regional natural parks (Parcs naturels régionaux). After initial deployment issues, the Natura 2000 network expanded significantly in 2006 and has been stable at around 12.6% since 2008.

Protected areas have also been established in the French overseas *départements*, where, over the same period, areas protected by regulatory means increased at a much faster rate than in metropolitan France, largely due to the creation of the Guiana and Reunion national parks. Hence, 28.7% of the overseas *départements*' territory benefited from regulatory protection in early 2015.

### Marine protected areas

Changes in the proportion of all waters under French jurisdiction classified as marine protected areas

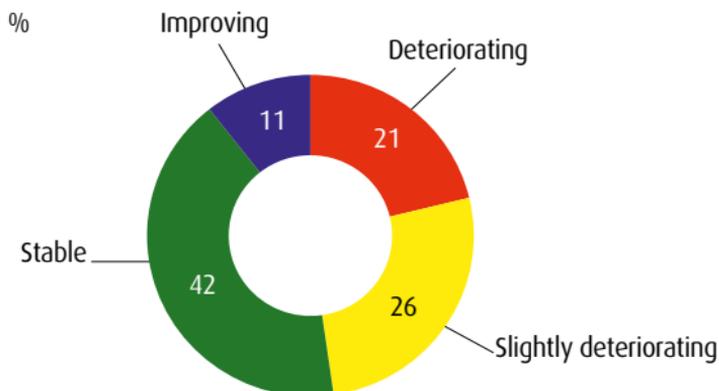


Source: French Marine Protected Areas Agency (AAMP), January 2015. Processing: AAMP, 2015

On 1 January 2015, the 392 designated marine protected areas (MPA) covered 16.5% of the waters under French jurisdiction, covering nearly 1.7 million km<sup>2</sup>. This proportion has been increasing very significantly for the past ten years or so. This change is in large part due to the creation of vast MPA such as the very recent Natural Park of the Coral Sea which covers a large proportion of the waters around New Caledonia (1.3 million km<sup>2</sup>), the creation of six marine natural parks and the extension of the Natura 2000 marine network in the waters of metropolitan France, which amounts to over half of the French MPA. 23.6% of metropolitan French waters are thus classified as MPA.

## Wetlands

Changes in 132 wetland sites between 2000 and 2010



Scope: 132 sites located in France.

Source: MEDDTL/SOeS, national expert survey, 2011

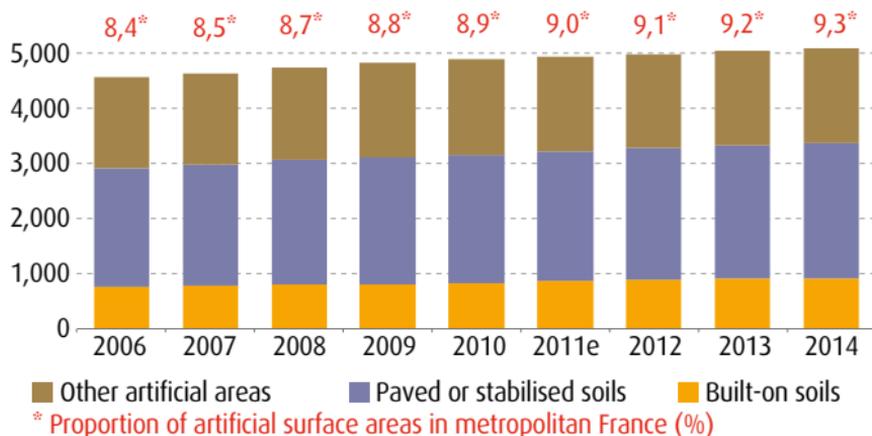
Wetlands (marshes, peat bogs, mud flats and alluvial forests, etc.) are mainly located at the interface between terrestrial and aquatic environments. They are characterised by remarkable and often specific biodiversity.

The expert survey carried out in 2011 evaluated the changes that occurred throughout France between 2000 and 2010. A comparison of the changes in the extent and general conservation status of the natural environments within these areas revealed that 47% of the wetlands had deteriorated to varying degrees, 42% had remained stable and 11% had improved. This trend is due more to the deterioration of the conservation status of the environments than to the decline in surface areas. There are multiple causes: drainage, urbanisation, exceptional weather events and the proliferation of invasive species.

## Land take

### Changes in artificial areas

Thousands of hectares



Note: e = estimate.

Scope: Metropolitan France

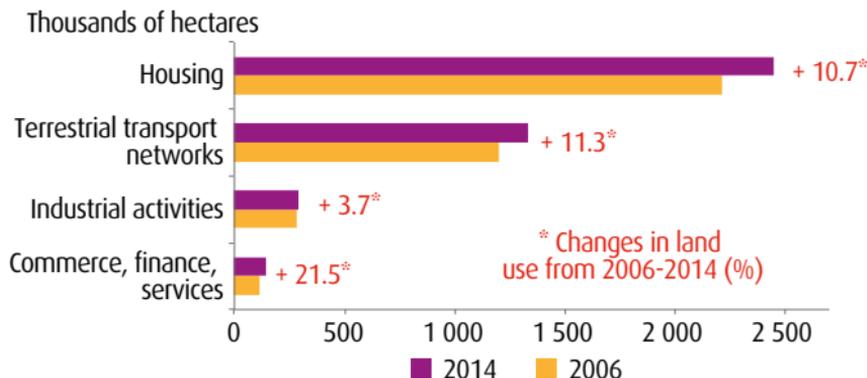
Source: SSP, Teruti-Lucas survey, March 2015. Processing: SOeS, 2015

Land take leads to a generally irreversible loss of natural and agricultural resources. The resulting destruction and fragmentation of natural environments are detrimental to numerous species.

Artificial areas covered nearly 5.1 million hectares in 2014, which amounts to approximately 9.3% of Metropolitan France. Half of this area corresponds to paved or stabilised soils (e.g. roads and car parks), whose sealing has negative impacts on the water cycle and run-off in the event of heavy rainfall. Artificial areas increased by approximately 540,000 hectares between 2006 and 2014, largely at the expense of agricultural land but also of woodland and heathland.

## Land use

Changes in land use by housing, industry, the tertiary sector and transport infrastructures



Scope: Metropolitan France

Source: SSP, Teruti-Lucas surveys in 2006 and 2014.

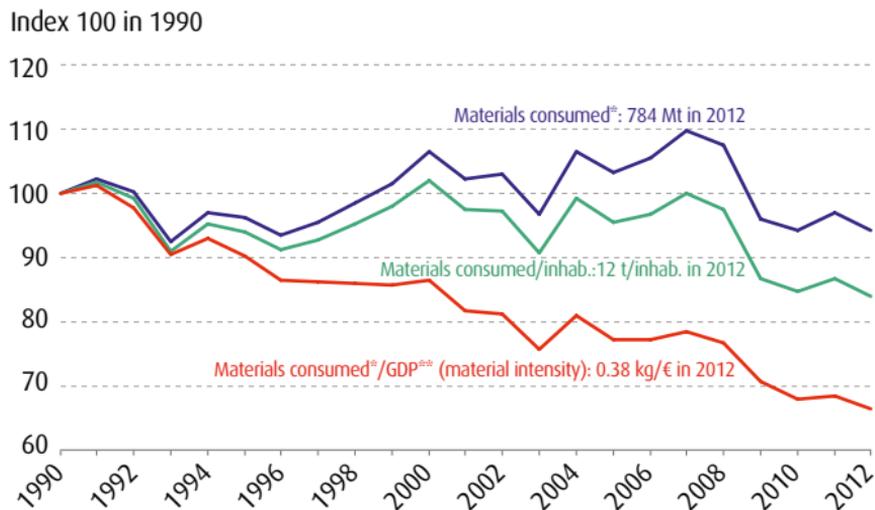
In 2014, there were 64 million inhabitants and 34 million dwellings in metropolitan France. Since 2006, the population has increased at half the rate of the number of dwellings (+ 4% and + 9% respectively). The number of people per dwelling continues to decline, due to population ageing and changing lifestyles.

The floor space occupied by housing accounts for nearly half of artificialised surface areas. It is increasing at a faster rate than the population and the number of dwellings: + 11% in 8 years. Single-family dwellings occupy nearly 95% of the surface areas covered by housing. Since 2006, however, the surface areas dedicated to collective accommodation have been increasing faster than those allocated to single-family dwellings.

At the same time, terrestrial transport networks (roads, motorways and railways) have continued to expand (+ 11%), as have the areas assigned to industrial activities, but to a lesser extent. The surface areas intended for tertiary activities (excluding public services and recreational activities) have increased very significantly (+ 21.5%).

## Material consumption and "material intensity"

Changes in the material consumption and material intensity of the French economy



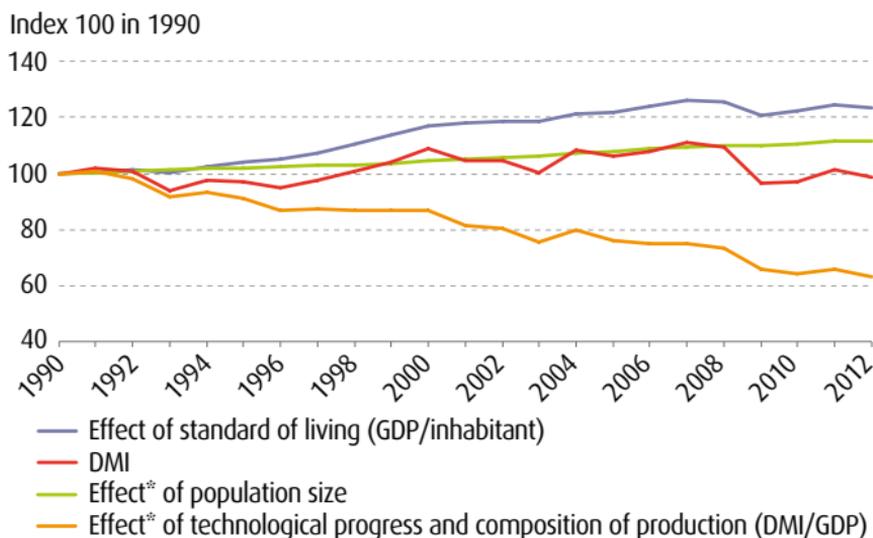
Note: \* the apparent domestic material consumption, in tonnes, incorporates fossil fuels, mineral and agricultural products, extracted from the national territory (metropolitan France and French Overseas Départements) or imported in the form of raw materials or finished products, minus exports; \*\* in volume, chained prices, 2010 basis.

Source: Agreste; French customs; INSEE; SOeS; SSP; Unicem. Processing: SOeS, 2015

From 1990 to 2008, the material intensity, which reflects the apparent material requirement to generate each euro of added value, decreased by 23%. Despite this, the annual consumption of materials per inhabitant (14 tonnes) remained stable over this period. Since 2009, the contraction in economic activity has accentuated the decline in material intensity, primarily linked to the drop in the domestic consumption of construction materials. Over the 2009-2012 period, the average consumption per inhabitant amounted to 12.2 tonnes, which was lower than for the previous period.

## Factors influencing the changing material requirements

Changing impacts of factors influencing the material requirements of the French economy



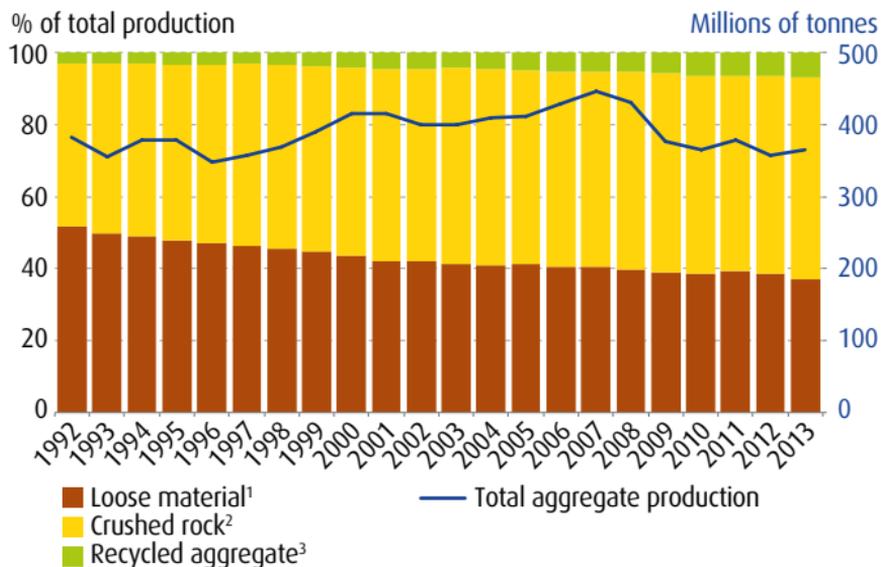
Note: \* each of the factors is considered individually (all else remaining equal); DMI (Direct Material Input) = the material requirement of the economy; real GDP, chained prices, 2010 basis.

Source: Agreste; French customs; INSEE; SOeS; SSP; Unicem. Processing: SOeS, 2015

In 2012, the material requirement of the French economy was close to its 1990 level. There are different, contradictory explanatory factors. For example, the change in the level of economic activity, considered individually and with all other factors remaining equal, may have resulted in a 24% increase in the material requirement. Similarly, the demographic effect alone may have led to a 12% increase. *On the other hand*, the cumulative effect of technical developments and the composition of production (relative shares of agricultural, industrial and service activities) alone may have allowed for a drop of over 35% in the material requirement.

## Aggregate production

Changes in aggregate production



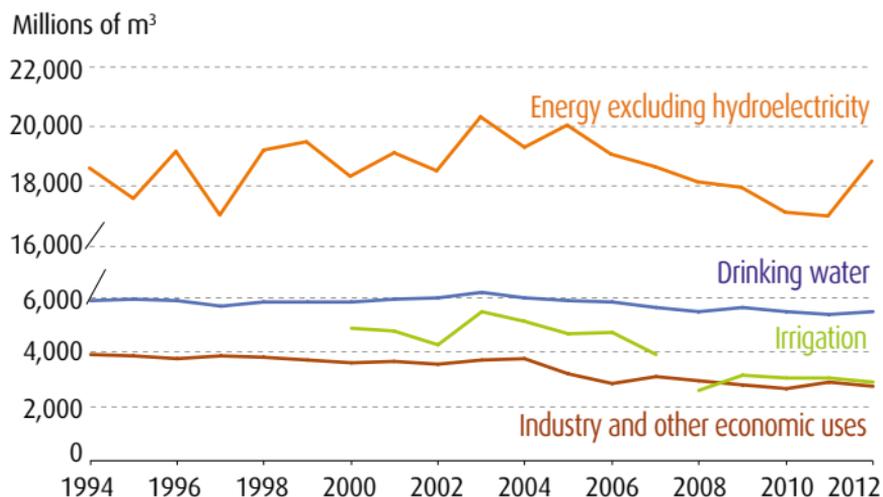
Note: <sup>1</sup> aggregate of alluvial origin, marine aggregate and other types of sand; <sup>2</sup> aggregate derived from limestone and igneous rock; <sup>3</sup> aggregate derived from shale, slag and demolition materials.

Source: Unicem, 2015

Aggregate accounts for nearly 60% of the materials extracted in France. Its production (especially the quarrying sites) is associated with environmental impacts. After a rise of nearly 17% between 1992 and 2007, aggregate production has decreased by 18% since then, due to the economic crisis. In 2013, 366 million tonnes (Mt) were produced at the 2,700 production sites. The use of recycling has doubled since 1992, thus saving 25 Mt, in 2013, of a resource that by its very nature is finite. This amounted to 6.7% of the total production. This change is consistent with the goals of the Waste Framework Directive which requires 70% of construction waste to be reused or recycled between now and 2020.

## Water abstraction by use

Changes in water abstractions by use



Note: for energy: freshwater abstraction, excluding hydroelectricity; for irrigation: as a change was made to the estimation method for volumes abstracted for irrigation in 2008, the data to be considered from this date cannot therefore be compared with those from the previous period.

Scope: metropolitan France

Source: Water Agencies. Processing: SOeS, 2015

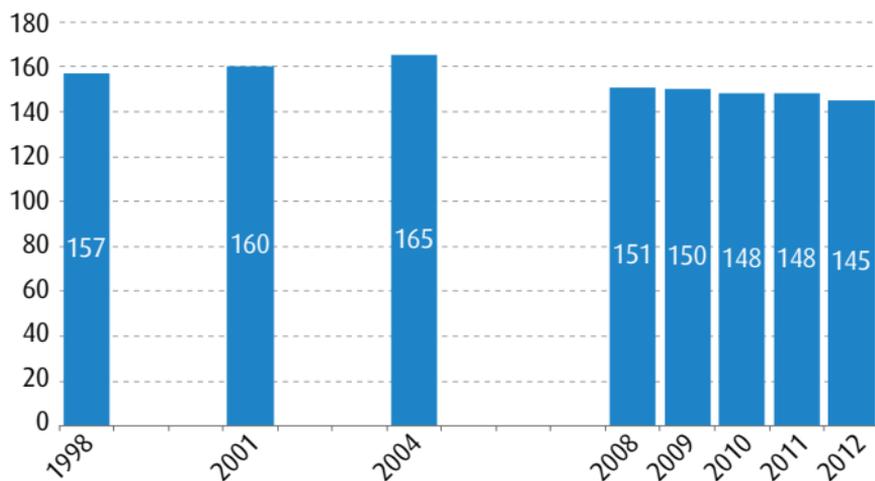
Water abstraction for industrial use have been decreasing since the late 1990s, and they have also been decreasing for drinking water production since the mid-2000s. No clear trend for irrigation can be observed, however, given its sensitivity to pluviometry and the changes made to the estimation methods. Abstraction for energy production are highly influenced by the maintenance programme of nuclear power stations and, to a lesser extent, by the climatic conditions.

A large proportion of the water abstracted for energy production is returned to rivers, albeit with modified characteristics (higher temperature, lower quality, etc.). Conversely, almost all of the water abstracted for irrigation is used by the plants or evaporates.

## Daily drinking water consumption

Changes in domestic daily drinking water consumption

Litres per inhabitant and per day



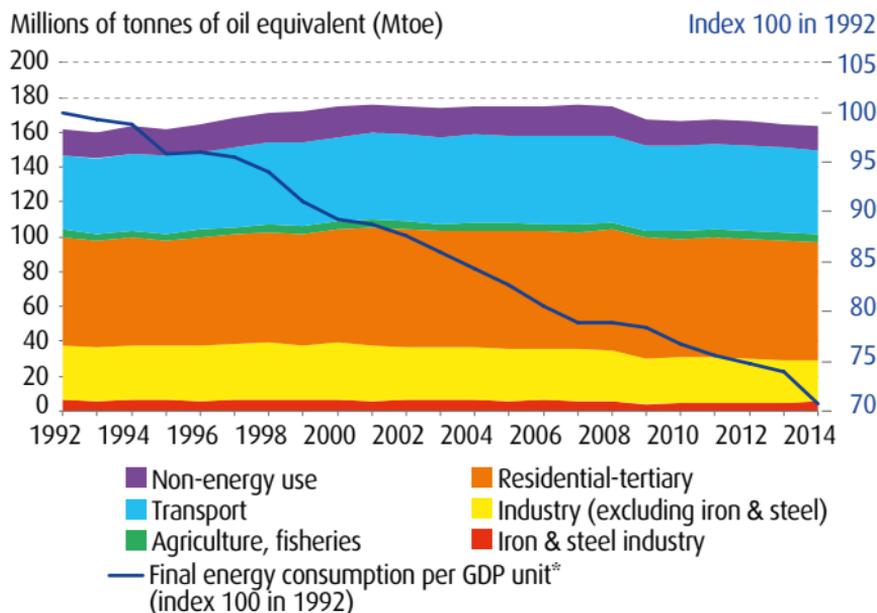
Scope: France.

Source: SOeS; SSP: Water surveys 1998, 2001, 2004 and 2008; From 2009 onwards: National water and sanitation public services observatory.

The consumption of drinking water in France has been decreasing since 2004. In 2012, 3.7 billion m<sup>3</sup> were billed for domestic use, compared to 4.1 in 2008. In addition to household consumption, these volumes include those for all activities and services connected to the public drinking water distribution system. On average, a French person thus consumed 145 litres of water per day in 2012, compared to 165 litres in 2004 and 151 litres in 2008. However, this average figure conceals major regional disparities as it is particularly dependent on the climate, pressures from tourism and the presence of swimming pools and gardens. Indeed, in 2008, the average consumption was 109 litres per day in Nord – Pas-de-Calais and 228 litres in Provence – Alpes – Côte d’Azur.

## Final energy consumption by sector

Changes in final energy consumption by sector and energy intensity



Note: \* or final energy intensity; data adjusted for climatic variations.

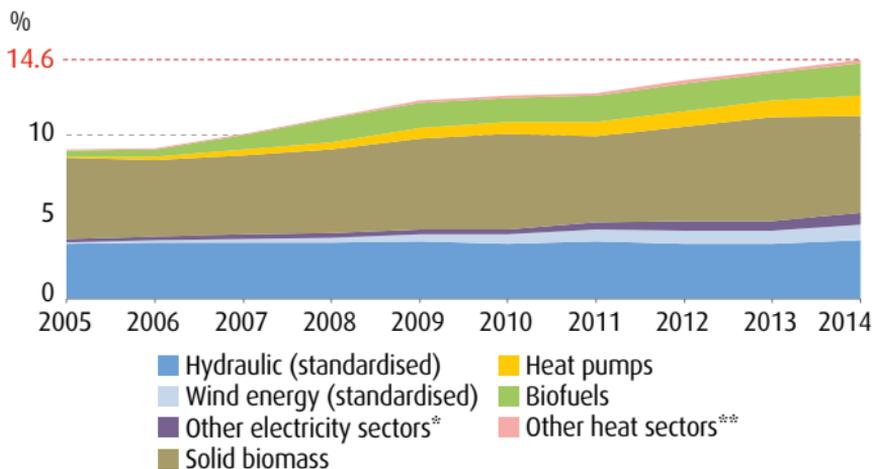
Scope: Metropolitan France

Source: SOeS; INSEE, 2015

After increasing during the 1980s and 1990s, and levelling off at around 160 Mtoe in the 2000s, final energy consumption, adjusted for climatic variations, has been stable at around 152 Mtoe since 2009, excluding non-energy-related use, which amounts to 2.34 toe per inhabitant. Since 1992, the consumption of the transport and residential-tertiary sectors increased by 9% and 13.6% respectively, whereas industrial consumption, including in the iron and steel industry, decreased by 41%. The residential and tertiary sector remains the main final consumer (45%), followed by transport (32.5%) and industry (19%). The final energy intensity of the economy is continuing to improve.

## Renewable energy sources

Changes in the proportion of renewable energy sources in the gross final energy consumption by sector



Note: \* solar photovoltaic, sea-based energy sources, geothermal electricity, biomass electricity (fuelwood, biogas, waste incineration, bagasse); \*\* solar thermal, geothermal and biogas. Scope: Metropolitan France and French Overseas Départements.

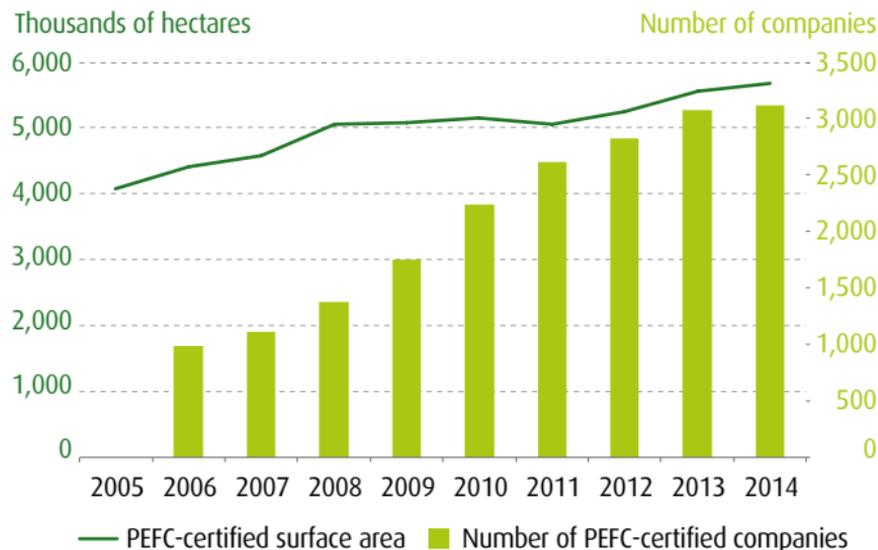
Source: SOeS, French energy report 2014, References, July 2015

Renewable energy sources (RES) are, by definition, derived from natural processes which are in a state of constant renewal. Their share of the gross final energy consumption in France increased from 9.1% in 2005 to 14.6% in 2014, to be viewed in light of the 16% target set by the trajectory of the National Action Plan for RES (target: 23% in 2020, taken from European Directive 2009/28/EC). In 2014, only the hydraulic, heat pump and biofuel sectors were ahead of their development trajectories.

The solid biomass and hydroelectricity sectors provided 65% of the 21.9 million tonnes of oil equivalent of renewable energy consumed in 2014. The progress observed since 2005 takes account of the increase in biofuel consumption (13.5% of the final consumption of renewables in 2014), heat pumps (8.2%), wind energy (6.8%) and other "electrical" sectors (4.8%), and "heat" (1.4%).

## Sustainable forest management

Changes in PEFC-certified businesses and surface areas



Scope: Metropolitan France

Source: Programme for the Endorsement of Forest Certification schemes (PEFC)

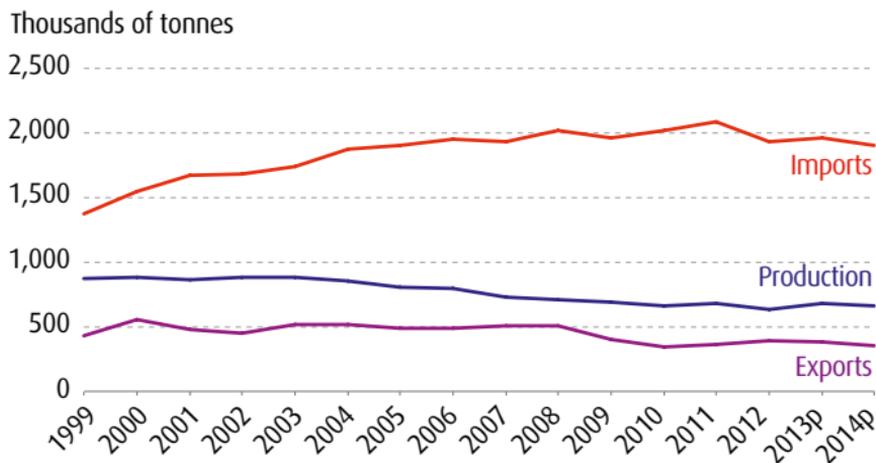
The PEFC programme is the world's biggest forest certification system and bears witness to the implementation of sustainable forest management practices. This certification forms part of a voluntary process undertaken by the forest owner who undertakes to comply with a requirements specification for five years.

After substantial increases between 2005 and 2008, the rise in the number of certified owners and forested areas in France has since slowed down - a trend which may be explained by the very large number of forest owners. At the end of 2014, 5.6 million hectares, or 35.1% of the exploitable forest, were PEFC-certified. This includes almost all of the state-owned forest. In France's overseas *départements* and territories, Guiana possesses 2.425 million hectares of this forest.

Since 2006, wood-based industries have formed part of a similar process with the tripling of the number of PEFC-certified businesses.

## Fishery resources

Changes in the production, imports and exports of marine products



Note: live weight equivalent/only for human consumption; p = provisional data.

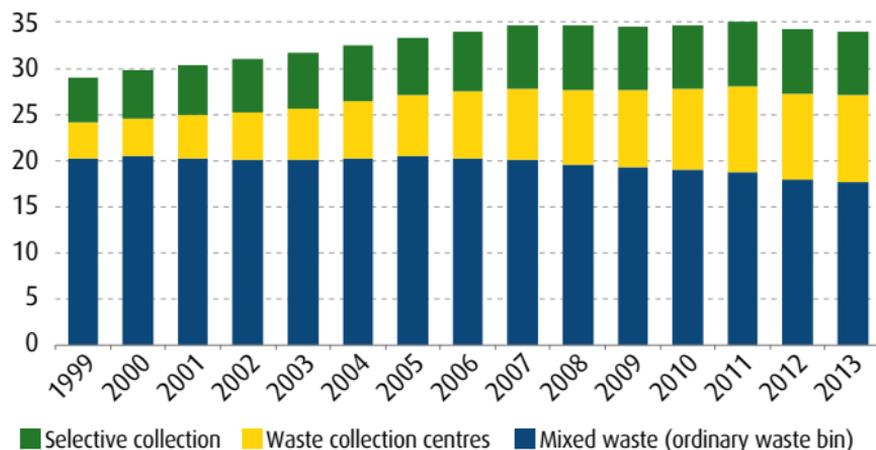
Source: FranceAgriMer, according to French customs and DPMA, 2015

From 1999 to 2014, the consumption of marine products increased by 24% in metropolitan France. It amounted to 35 kg per person and per year in 2014. The most commonly purchased species were mussels, oysters, cod, salmon, saithe and scallops. Over the same period, production dropped by 23% and exports by 19%. This high level of consumption induced high levels of imports, which accounted for 86% of the consumption in 2014 (compared to 77% in 1999). These imports corresponded to approximately 1.9 million live weight tonnes for a value of nearly €5 billion (primarily salmon, prawns and tuna).

## Municipal waste

### Changes in waste collected by municipalities

Thousands of tonnes



Scope: France. Excluding rubble and debris.

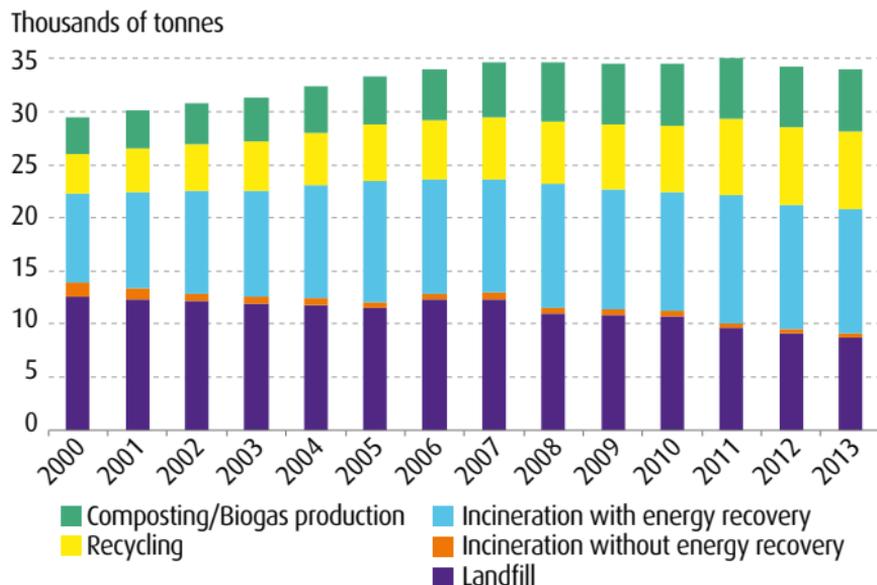
Source: ADEME. Processing: SOeS, 2015

After peaking in 2011, municipal waste production has since decreased, amounting to 34 million tonnes (Mt) in 2013, which equates to 518 kg per inhabitant. This change is mainly due to the reduction of residual household waste collected in mixed form, whose per capita production dropped from 326 kg in 2005 to 270 kg in 2013. The economic situation, the reduction of over-packaging and prevention campaigns explain this trend.

Selective collection, on a door-to-door basis or through voluntary disposal at waste collection centres, continues to increase: it covered nearly half of the household and similar waste collected in 2013. Disposals at waste collection centres (numbering 4,630 in 2013) have levelled off at 9.4 Mt, including 3.8 Mt of green waste and 3 Mt of bulky waste. 5 Mt of dry materials (glass, packaging, newspapers and magazines) were collected outside of waste collection centres.

## Municipal waste treatment

### Changes in municipal waste treatment



Scope: France. Excluding rubble and debris.

Source: ADEME. Processing: SOeS, 2015

There is a downward trend in the controlled landfilling of municipal waste, which dropped from 43% of the quantities processed in 2000 to 26% in 2013.

At the same time, the share of recycled waste rose from 12.5% in 2000 to 21.5% in 2013 and, in the meantime, the organic recovery rate (composting) increased by 6 points to 17.1%. Hence, the material and organic recycling rate for municipal waste amounted to 38.6% in 2013, with the Act of 3 August 2009 having set a target of 45% for 2015. The global recycling rate for packaging rose from 42% in 2000 to 65% in 2012; its total recovery rate amounted to 74.7%.

Since 2005, the share of waste that is incinerated with energy recovery has remained stable at 34% of waste treated.

## Waste and extended producer responsibility

### Changes in the main sectors of extended producer responsibility

Thousands of tonnes Type of waste	Tonnes collected		Tonnes recycled	
	2011	2013	2011	2013
Portable batteries and accumulators	215	208	175	163
Electrical equipment and household electronics	470	455	366	357
End-of-life vehicles (ELVs)	1,502	1,241	1,896	1,003 <sup>1</sup>
Lubricants	215	200	109	152
Household packaging	nd	nd	3,120	3,193
Unused medicinal products (UMP) from private individuals	14.5	14.7	0 <sup>2</sup>	0 <sup>2</sup>
Tyres	392	391	104	156
Household graphic paper	1,450 <sup>3</sup>	1,423 <sup>3</sup>	1,450	1,423
Household textiles, linen and shoes	146	159	38	52

Notes: nd = not determined; <sup>1</sup> 2012 data; <sup>2</sup> incineration; <sup>3</sup> recycled tonnages declared by local authorities.

Source: ADEME

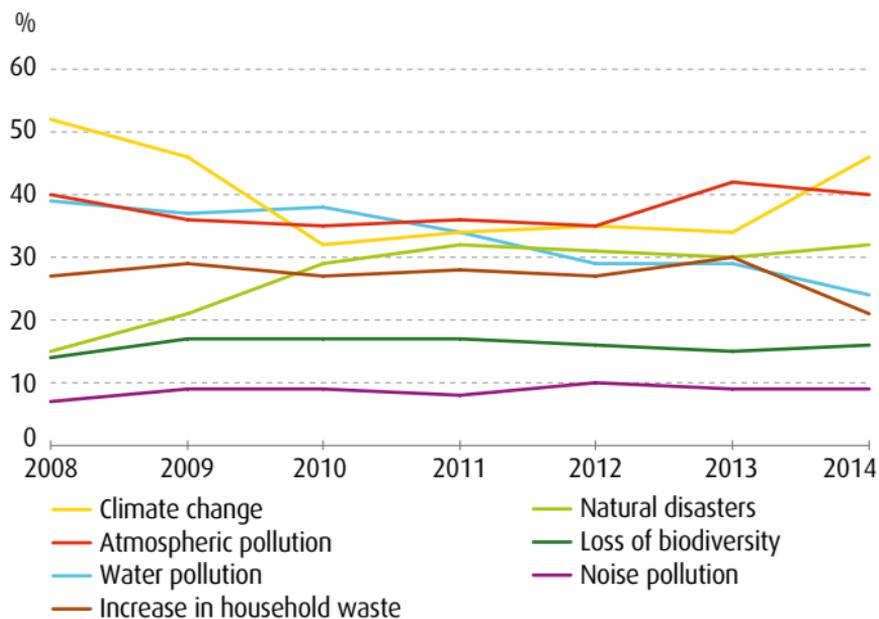
Extended producer responsibility (ERP) sectors meet the need to organise the management of certain waste flows, due to their quantity such as packaging, their specific nature such as end-of-life vehicles (ELVs) and their hazardousness such as lubricants.

In 2013, over 15 ERP sectors were already established. They either meet European-level (packaging and ELVs) or national-level (tyres and graphic paper) obligations, or form part of a voluntary approach (agricultural supplies and print cartridges).

In 2013, excluding the packaging sector, more than 4 million tonnes were collected for recycling purposes. €1 billion in eco-charges (*éco-contributions*) were collected by the bodies responsible for ERP schemes. In 2012, €968.5 million were allocated to waste management (of which €600 million were earmarked for local authorities).

## Environmental concerns of the French

Environmental problems considered to be the most worrying; changes between 2008 and 2014



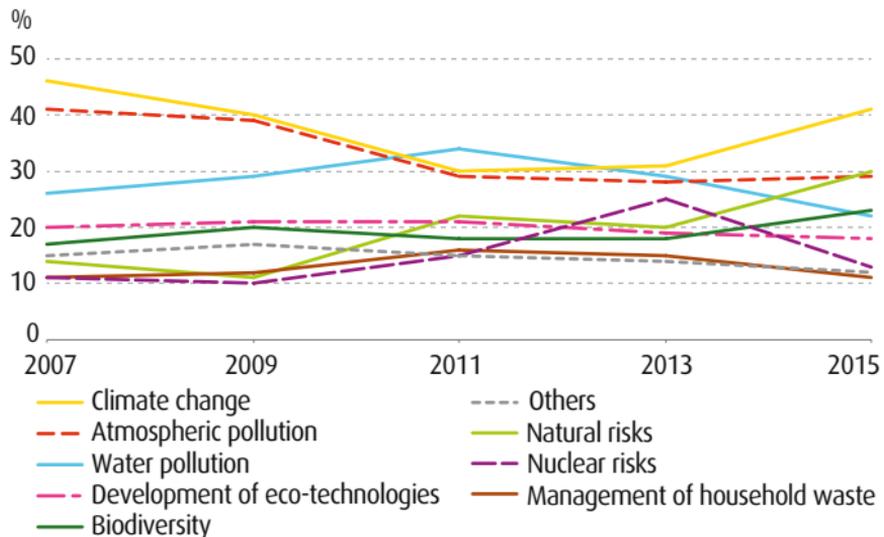
Note: aggregate of the first two responses.

Source: SOeS, Environment platform of the consumer confidence survey (INSEE)

Overtaking air pollution, climate change once again became the main environmental concern of the French in 2014. The occurrence of natural disasters and atmospheric pollution episodes in recent years would seem to explain the rise in the proportion of people concerned by these issues. Conversely, there has been a significant decline in concern over issues relating to water pollution and rising amounts of household waste. The other topics (biodiversity and noise) seem to cause less concern for the French.

## Expectations of the French vis-à-vis the State with regard to the environment

Changes in topics deemed to be priorities



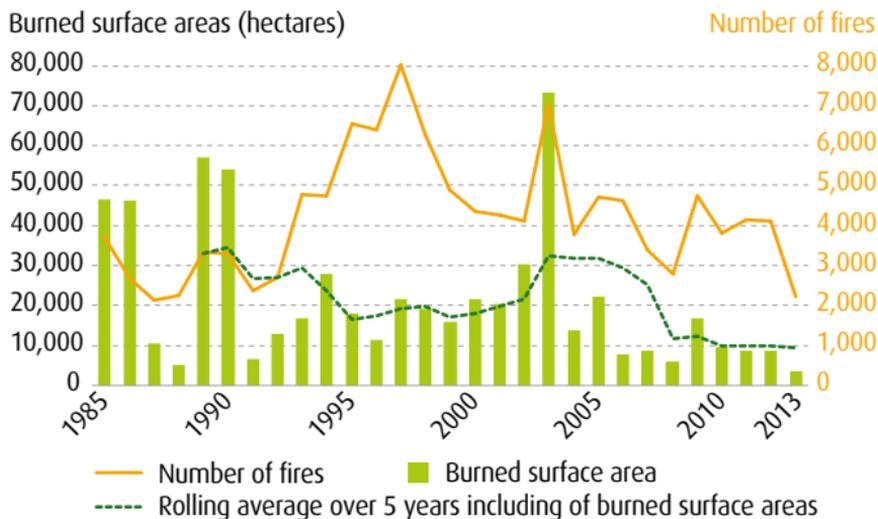
Note: aggregate of the first two responses.

Source: SOeS, survey of the living conditions and aspirations of the French (CREDOC)

Among the environmental protection actions that the State should carry out as a priority, two key issues increased by 10 points between 2013 and 2015: tackling climate change and preventing natural risks. Actions seeking to reduce air pollution remain at a high level whereas those concerning the deterioration of aquatic environments have significantly decreased (- 7 points). Furthermore, more and more French people expect the public authorities to take action to protect biodiversity (23%). On the other hand, the French appear to have fewer expectations concerning the development of environmentally friendly technologies (18%), nuclear risk prevention (13%) and household waste management (11%).

### Forest fires

Changes in burned surface areas and in the number of forest fires



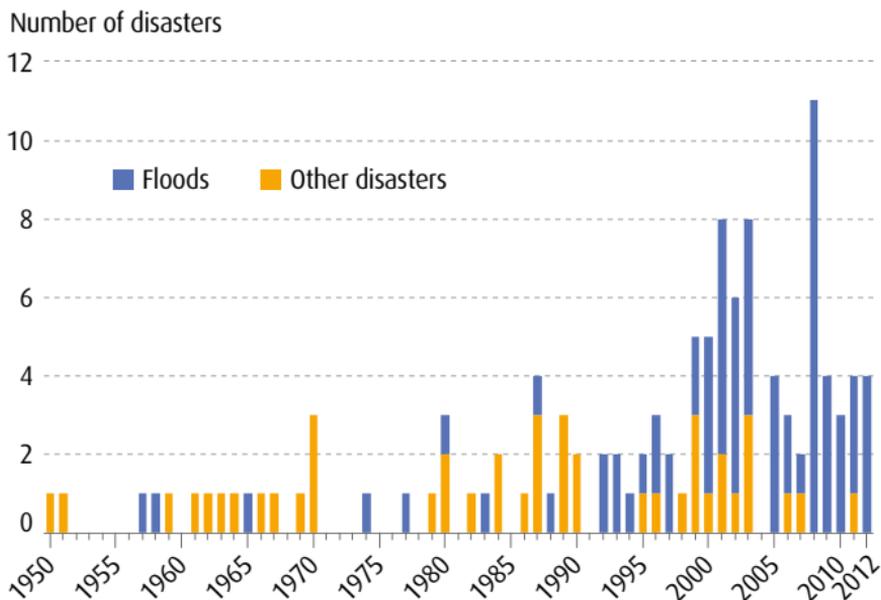
Scope: Metropolitan France (including Corsica).

Source: European Commission, European Forest Fire Information System (EFFIS, Fire History), 2015. Processing: SOeS, 2015

There has been a 50% drop in burned surface areas since the 1990s. The number of fires increased significantly between 1990 and 1997. Since then, the number of fires has decreased and has levelled out at an average of 4,600 fires per year thanks to early detection, improved fire-fighting systems and prevention. 2003 was an exception due to exceptional meteorological conditions which were conducive to outbreaks of fire. Drought conditions, combined with lightning, caused numerous simultaneous outbreaks of fire.

## Natural disasters

### Changes in the number of very severe natural disasters



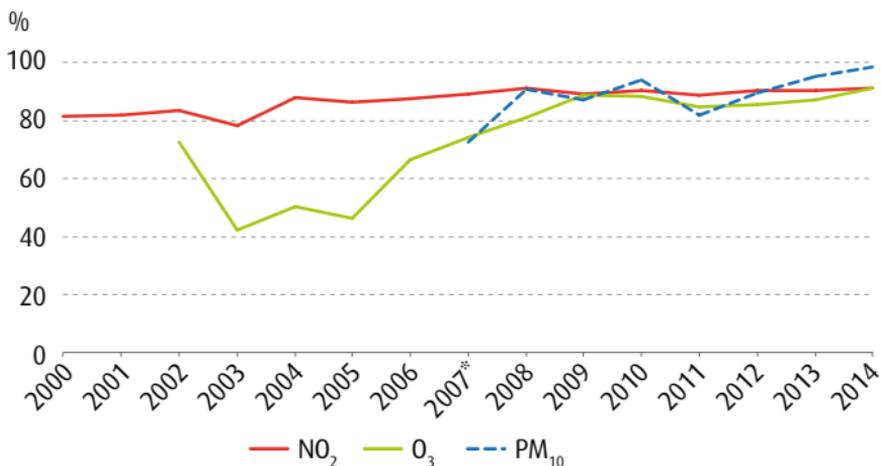
Note: disasters with a severity level of 3 or more (having caused more than 10 deaths or over €30 million in property damage); other disasters: landslides, earthquakes, avalanches, storms, forest fires and heat waves.

Source: MEDDE/DGPR, 2013. Processing: SOeS, 2015

Between 1950 and 2012, 117 very severe natural disasters occurred in France. 62% of these disasters were floods. Half of the floods have occurred during the last decade. This increase in the number of harmful floods can be explained primarily by the increased urbanisation on floodplains and therefore by the socio-economic assets that are likely to be at stake. Very severe natural disasters are also very often fatal. The heat waves of 2003 and 2006 took a particularly heavy toll (17,065 deaths during both of these periods).

## Exposure to outdoor air pollution

Changes in the percentage of monitoring stations conforming to the minimum regulatory thresholds for the protection of human health



Note: \* following a change in the PM<sub>10</sub> measurement methodology in 2007, the data for the 2000-2006 period were not comparable with those for 2007-2014 and are not shown in the diagram. The values exceeding the thresholds are calculated for all types of stations combined, except for O<sub>3</sub> for which only urban background stations are considered. Only stations concerned by reporting to the European Commission are included in the calculation; the chosen regulatory thresholds are defined in the glossary.

Scope: Metropolitan France and French Overseas Départements.

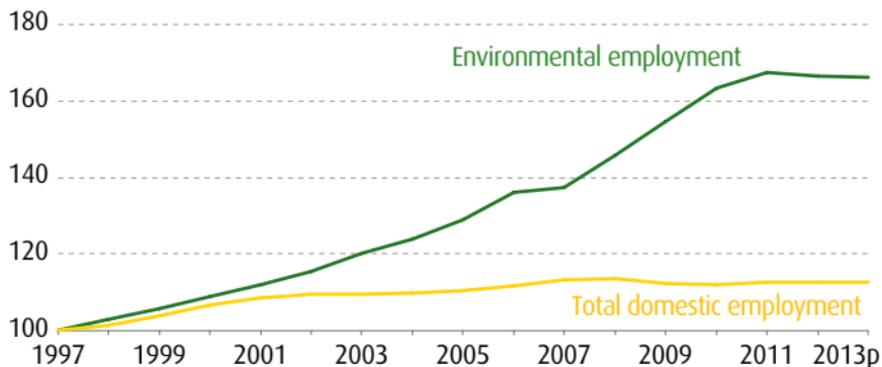
Source: Géod'Air, May 2015. Processing: SOeS, 2015

The air quality monitoring system relies on a network of fixed monitoring stations that are mainly situated in urban and industrial areas. Since 2009, all monitoring stations have reported compliance with the regulations on sulphur dioxide (SO<sub>2</sub>). The proportion of stations conforming to the regulatory human health protection thresholds has increased for particles with a diameter of less than 10 µm (PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>) and ozone (O<sub>3</sub>). This proportion amounted to 99% and 91% in 2014 for PM<sub>10</sub> and NO<sub>2</sub> respectively, and 91% on average in 2012-2013-2014 for O<sub>3</sub>.

## Environmental employment

Changes in environmental employment and total employment

Index 100 in 1997 (full-time equivalent)



Note: *p* = provisional data.

Scope: metropolitan France and overseas départements.

Source: SOeS; Insee (Esane, national accounts - 2010 database)

Between 2004 and 2013, the number of environmental jobs (full-time equivalent - FTE) rose in France by nearly 34%: an annual average increase of 3.3% and far greater than the rate for the rest of the economy (0.3%). In 2013, the environmental goods and services sector employed 442,400 FTEs, amounting to 1.7% of total domestic employment. Despite the increase in the workforce in the organic agriculture sector, environmental employment decreased slightly in 2013 due to the decline in employment in the photovoltaic systems installation sector (estimated loss of over 6,000 FTEs).

## Workforce enrolled on initial environmental training courses

Changes in the workforce enrolled in the final year of an initial training course



Scope: France.

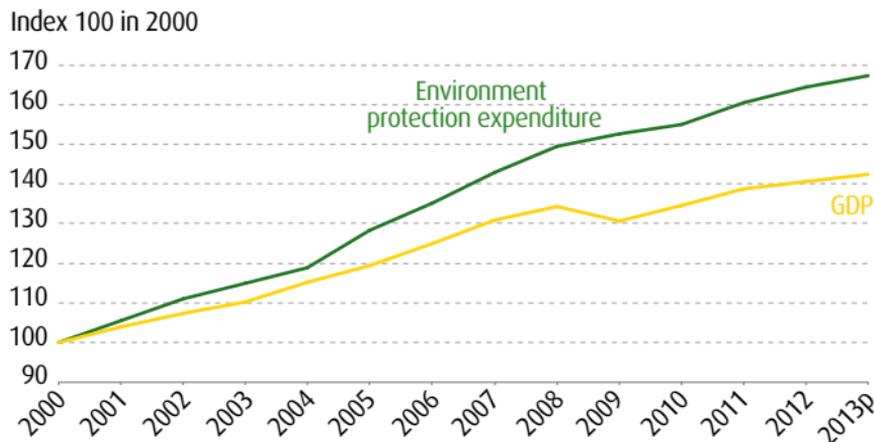
Source: according to CEREQ data, REFLET database; MESR, SISE and BCP databases.  
Processing: SOeS, 2015

In 2013, more than 95,500 pupils and students enrolled on the final year of one of the 1,152 environmental training courses, ranging from the CAP (*Certificat d'aptitude professionnelle*) vocational training course to Master, Doctorate and engineering degrees. The Environment sector accounted for 8% of the students enrolled on all training courses. In 2008, this proportion was only 5%. The "pollution, nuisance and risk prevention" and "energy" fields of study were the most attractive over the 2008-2013 period: the number of people enrolled on these types of courses increased by an average of 25% and 21% respectively per year.

This development has been mainly driven by the inclusion of four new *Baccalauréats technologiques* (technological vocational qualifications awarded at the end of secondary education) in the list of environmental training courses in 2012. The drop in student numbers observed in 2010 should be seen in light of the 2009 reform of vocational training and the disappearance of the *Brevet d'études professionnelles* (certificate of vocational proficiency) diploma which has been incorporated into the curricula of the *Baccalauréats Professionnelles* (technological vocational qualifications awarded at the end of secondary education). Over the 2008-2013 period, student numbers rose by 7% per year whereas they dropped by approximately 4% for non-environmental training courses. The attractiveness of environmental training courses for young people was maintained in 2013.

## Environment protection expenditure

Changes in environment protection expenditure and GDP



Note: p = provisional data.

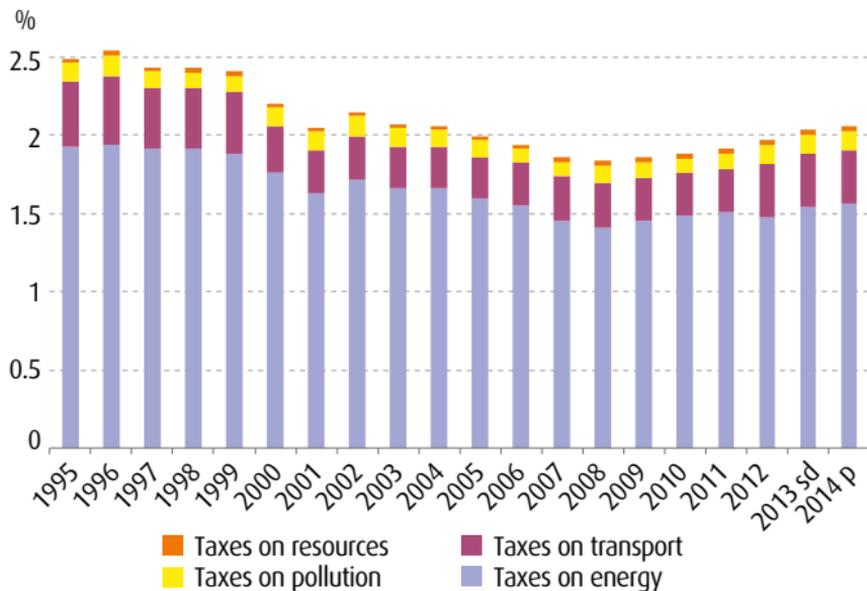
Source: SOeS, Environmental satellite account, 2015

In 2013, French public administrations, private companies and households spent €47.2 billion on preventing, reducing and repairing damage caused to the environment, particularly in the management of waste and waste water and the prevention of air and soil pollution, but also in biodiversity and noise control.

Between 2000 and 2013, this environment protection expenditure increased at a faster rate than the Gross Domestic Product (GDP), averaging + 4% annually in current euros compared to + 2.8%. Although environmental concerns have increased for all segments of French society, this sharp rise has been mainly driven by the public authorities. Incentive measures have been developed (bonus/malus scheme and the sustainable development tax credit), along with binding regulations (legislation requiring the conformity upgrading of industrial equipment). The quality of public services has also improved (implementation of selective waste collection).

## Environmental taxation

Changes in tax revenues in relation to the GDP



Note: sd = semi-definitive data; p = provisional data.

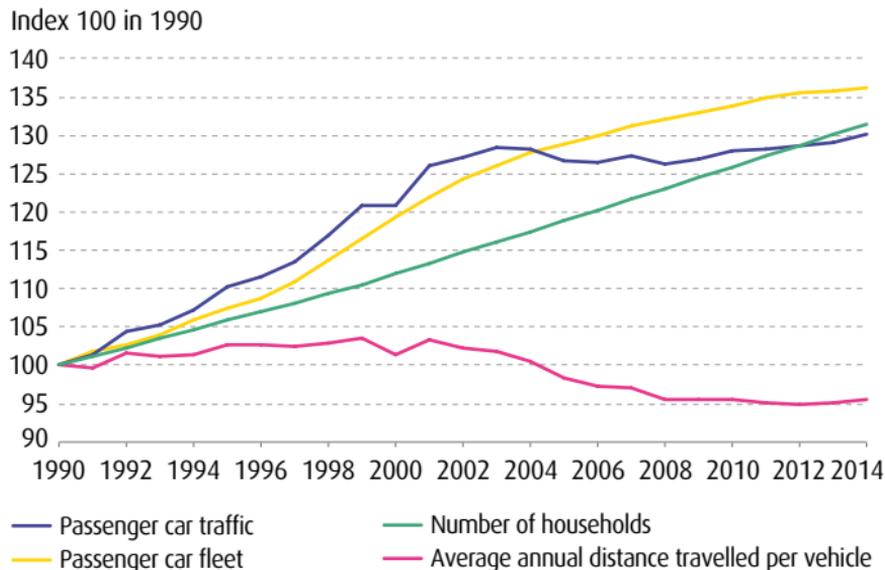
Source: INSEE, national accounts (2010 database). Processing: SOeS, 2015 (2015 database)

The yield from French environmental taxes amounted to 2% of the GDP in 2013: 76% of the revenues were generated by taxes on energy, 17% by taxes on transport, 6% by taxes on pollution and the remainder by taxes on resources (extraction of raw materials).

The ratio of environmental tax revenues in relation to the GDP was around 2.5% between 1995 and 1999, but dropped sharply from 2000 onwards, reaching its lowest level in 2008. This trend is partly explained by the fact that the rates of the domestic tax on the consumption of energy products (TICPE) were not reassessed for several years, and the drop in the final consumption of petroleum products from 2005 onwards. In 2014, this ratio exceeded its 2005 level (2%) due to the dynamism of the CSPE and the Flat-rate tax on network companies (IFER).

## Household car journeys

Changes in the fleet, traffic and mean annual distance travelled by passenger cars



Scope: Metropolitan France

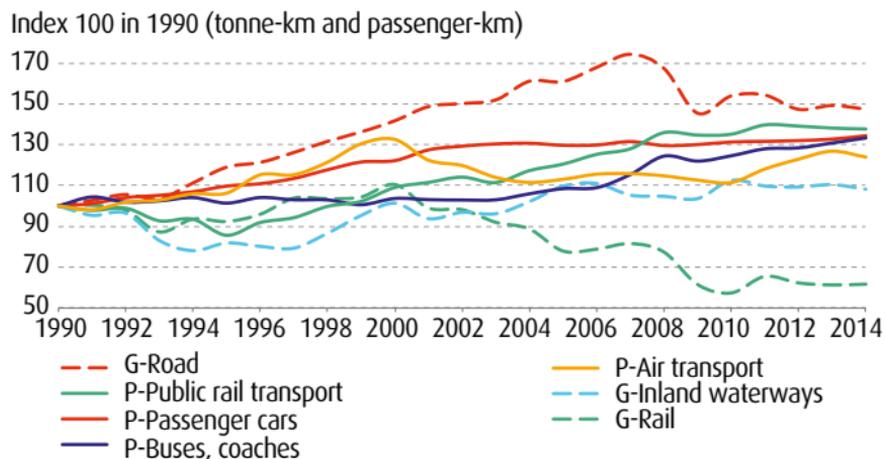
Source: INSEE; SOeS, CCTN, July 2015

After increasing by 28% between 1990 and 2003, the distances travelled by passenger cars have remained practically stable at nearly 405 billion vehicle-kilometres, while the national vehicle fleet has increased by nearly 36% since 1990, totalling 31.7 million in 2014.

Rising fuel prices, the development of a wider range of alternative modes of transport in urban environments (tramways, rapid transit buses, bicycle sharing systems, etc.) and car-sharing schemes are helping to change individual mobility behaviours. Since 2003, the national vehicle fleet has thus increased at a slower rate than the number of households. Similarly, a car travelled an average of 12,750 km a year in 2014, compared to 13,400 km in 1990.

## Modes of transport

Changes in the domestic transport of goods (G) and passengers (P) by mode



Note: including transit, excluding journeys between French overseas départements and territories and metropolitan France.

Scope: Metropolitan France

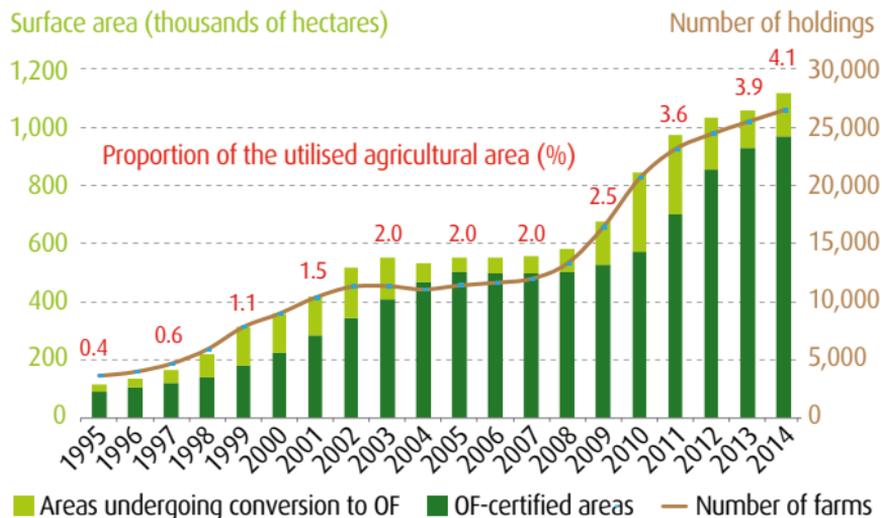
Source: SOeS, CCTN, July 2015

With 1,000 billion passenger.km in 2014, passenger transport in metropolitan France increased by 34% compared to 1990. Since 2010, domestic transport by aeroplane and by bus/coach has increased significantly, while it has increased slowly for rail and car. The modal breakdown has remained stable since 1990: 83.0% for cars, 10.2% for rail, 5.4% for buse/coaches, and 1.4% for air.

After increasing by 53% over the 1990-2007 period and then dropping by 17% in 2008-2009 due to the economic slowdown, freight transport (except for oil pipelines) has remained practically stable. 87.8% of the 340 billion tonne-kilometres were transported by road in 2014, corresponding to a rise of 47.4% compared to 1990. At the same time, inland waterway transport increased by 8.2%, with its share in transport excluding oil pipelines decreasing slightly to 2.4%. Conversely, rail transport decreased by 38.3%, with its share amounting to 9.8% in 2014 compared to 20.5% in 1990.

## Organic farming

Change in organic surface areas and organic farm holdings



Note: OF = Organic farming.

Scope: Metropolitan France and French Overseas départements.

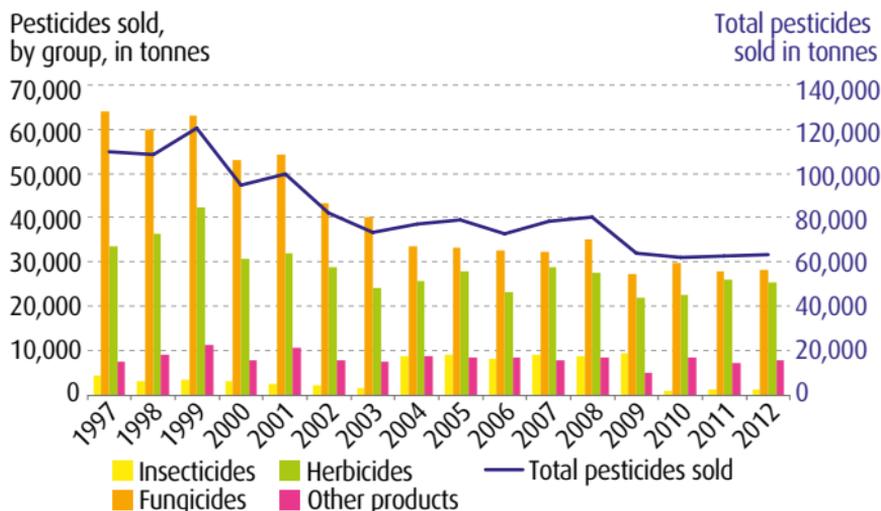
Source: Agence Bio, 2015. Processing: SOeS, 2015

At the end of 2014, 5.1% of French farms were involved in an organic farming policy. The 1,118,190 hectares concerned, 13% of which were undergoing conversion, amounted to 4.1% of the utilised agricultural area (UAA). Apart from areas allocated to meadows or forage crops (64%), 21% of "organic" areas concern arable crops, 6% vines, 5% fruits, fresh vegetables and perfume plants.

The sector is continuing to expand, with a recovery of the growth of areas undergoing conversion in 2014. The "Organic Ambition 2017" programme has set a target of 8% of the UAA to be organically farmed by 2017.

## Pesticides

Changes in the quantities of pesticides sold



Scope: Metropolitan France

Source: SSP; Union of plant protection industries. Processing: SOeS, 2014

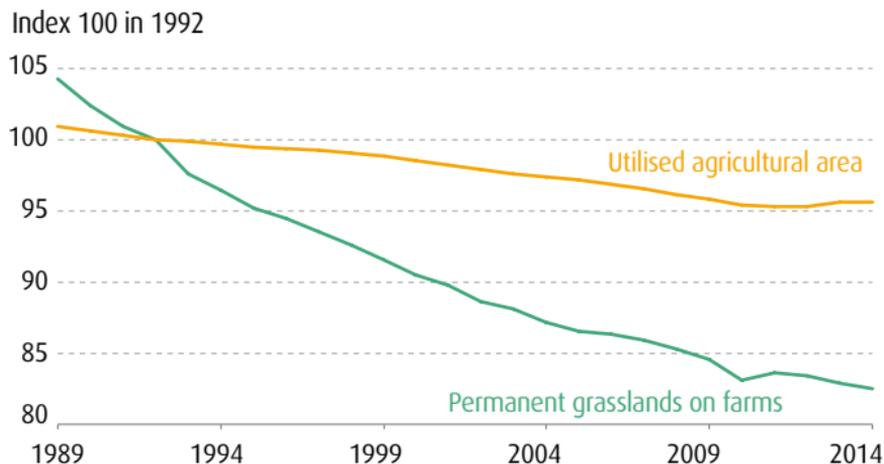
After falling significantly over the 1997-2009 period, especially due to a drop in the use of fungicides, the consumption of pesticides in Metropolitan France has since remained stable. This situation can be explained by changes in the prices of inputs, pathogen pressures and cultivation practices (especially crop rotation).

Tonnages are a relatively insignificant indicator, however, as lower tonnages could simply reflect the use of pesticides that are more efficient at low doses. Other indicators have thus been established: the number of unit doses (NODU) and the treatment frequency index.

Since 2008, the NODU has thus been increasing, with a marked rise of 9.2% in 2013. Likewise, there was little change in the average total number of phytosanitary treatments between 2006 and 2011 in the regions for which this analysis could be performed.

## Permanent grasslands

Changes in utilised agricultural area and areas of permanent grasslands



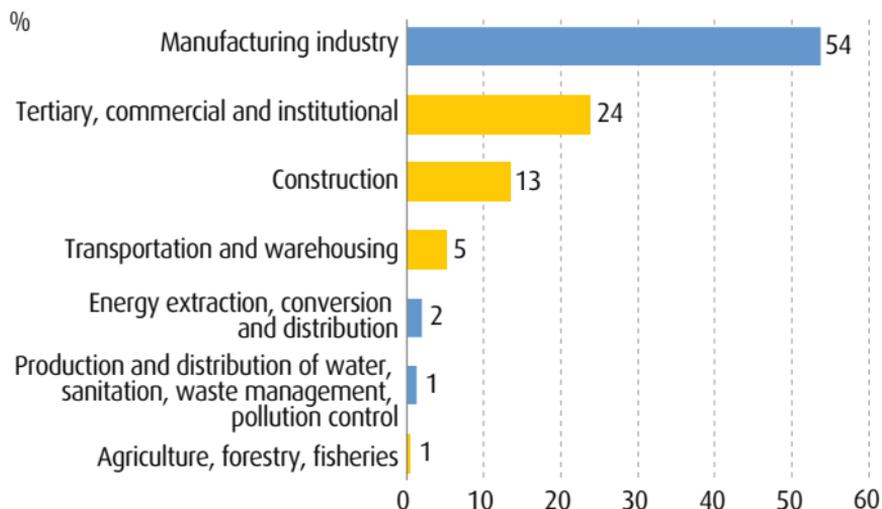
Scope: Metropolitan France

Source: SSP, Annual agricultural statistics, 2015. Processing: SOeS, 2015

Between 1989 and 2014, the utilised agricultural area (UAA) declined by 5.3%. It now occupies 49% of the French territory compared to 63% in 1950. Areas of permanent grasslands (PG) in farms (permanent meadows and high mountain pastures) represented 28% of the UAA in 2014. They provide numerous economic and ecological services: animal fodder, carbon storage, water quality, prevention of erosion, biodiversity, landscape quality, etc. Since 1989, their surface areas have decreased by 21%. Two million hectares (ha) of PG have thus been lost, amounting to approximately 80,000 ha per year, which have been replaced by cultivated areas, artificial areas, heathland, fallow land, brushwood, garrigue and forests.

## Corporate social responsibility

Distribution of ISO 14001 certificates in French businesses in 2013



Note: activities relating to industry are shown in blue.

Source: ISO Survey of Certifications, 2013. Processing: SOeS, 2015

The consideration by a business of the environmental impact of its activities may be reflected by the implementation of an environmental management system (EMS). This system can be certified. There are two official EMSs: the ISO 14001 standard and the European EMAS (Eco-Management and Audit Scheme) registration. The latter includes environmental performance objectives and provides for the annual publication of the company's environmental indicators.

In 2013, over half of the 4,900 French newly ISO 14001-certified companies performed an industrial activity. These were primarily manufacturing companies, especially in the metallurgy and equipment and machinery manufacturing sectors. With 7,900 currently valid ISO 14001 certificates in 2013—three times more than in 2003—France is ranked in 8<sup>th</sup> position worldwide.

## European comparisons

	Fr.	EU-28	Ger.	UK	Sp.	It.	Bel.
<b>Population density</b> (inhab./km <sup>2</sup> ) in 2013	103.8	116.3 a	230.0	262.7 a	92.9	199.4	368.8
<b>Gross domestic product (GDP)</b> (€/inhab.) in 2014	31,100	25,800	33,100	30,200	22,700	25,300	33,800
<b>Change in GHG emissions between 1990 and 2012</b> (%), domestic emissions excluding the LULUCF* sector	- 12.1	- 19.2	- 24.8	- 25.1	+ 20.1	- 11.4	- 18.5
<b>Renewable energy sources</b> Share of gross final consumption (%) in 2013	14.2	15.0	12.4	5.1	15.4	16.7	7.9
<b>Electricity derived from renewable sources</b> Share of gross consumption (%) in 2013	16.9	25.4	25.6	13.9	36.4	31.3	12.3
<b>Passenger cars</b> (no./1,000 inhab.) in 2012	496	-	530	448	476	621	487
<b>Nitrogen oxide (NO<sub>x</sub>) emissions</b> in 2013 (for a base index of 100 in 1990)	51.8	46.5	44.0	35.4	60.6	40.1	50.3
<b>Municipal waste</b> Generation per inhabitant (kg/inhab.) in 2013	530 e	481	617 e	482	449	491	439
<b>Quality of bathing water</b> Proportion of compliant sites (%) in 2014	94.2	95.1	97.6	98.9	95.3	96.0	97.3
<b>Resource productivity</b> (€/kg) in 2013	2.6 e	1.9 e	2.1 e	3.2 e	2.7 e	2.8 e	2.5 e
<b>Terrestrial surface areas with protection of biodiversity</b> under Nature Directives (%) in 2013	12.6	18.4	15.4	8.5	27.2	19.0	12.7
<b>Surface areas certified as being organically farmed</b> Share of utilised agricultural area (%) in 2012	3.6	5.7 e	5.8	3.4 e	7.5	8.9 e	4.4 e
<b>Environmental taxes</b> Share of PIB (%) in 2013	2.0	2.5 p	2.1	2.5	1.8	3.5	2.1
<b>Land take</b> Artificial areas (%) in 2012	5.8	4.6 c e	7.7	6.5	3.9	7.8	13.4
<b>Nitrate concentrations</b> in rivers (mg NO <sub>3</sub> /l) in 2012	9.3	8.1 d	12.5	18.4	-	5.6	16.0

Notes: a = 2012, b = 2011, c = EU-27, d = EEA-39, e = estimate, p = provisional data; \* land use, land use change and forestry.

Source: extracts from Eurostat and the European environment agency

# Glossary

## Aggregate

Small pieces of rock less than 125 mm in size (sand, chippings and pebbles) primarily intended for the construction of public works and civil engineering structures as well as buildings.

## Artificial areas

Loss of the natural or agricultural characteristics of an area, replaced by urban, industrial or commercial areas and transport infrastructures.

## Biofuels

Fuels derived from agricultural products.

## Contractual protection schemes and international commitments

Peripheral areas of national parks, regional natural parks, wetlands under Ramsar convention and biosphere reserves.

## DMI (Direct Material Input) / material requirement of the economy

Indicator combining all raw materials (agricultural, fossil fuels and mineral products) used in France, be they harvested/extracted from the national territory (metropolitan France and French overseas *départements*) or imported, in addition to imported products (finished and semi-finished).

## DMC (Domestic Material Consumption) / apparent national material consumption

Indicator combining all materials (fossil fuels, agricultural, forestry and mineral products), extracted from the national territory or imported in the form of raw materials or finished products, minus exports; (DMC = DMI – exported materials).

### **Energy intensity**

Relationship between the energy consumption (primary or final), adjusted for seasonal variations and the GDP (expressed in volume), showing the amount of energy required by the economy to produce one GDP unit.

### **Environmental goods and services**

Activities producing goods or services whose purpose is the protection of the environment or the management of natural resources.

### **Final energy consumption**

Consumption solely by final users (industries, households, services, agriculture, forestry, fisheries and transport), other than consumption by the energy sector (fuel for traditional power stations and refineries, losses from power stations and grids, pumping, etc.).

### **GDP (Gross Domestic Product)**

Total value of the production of wealth in a given country during the course of a given year by the economic agents residing within the national territory.

### **Greenhouse gas (GHG)**

Gas of natural or anthropogenic origin (associated with human activities) that absorbs and re-emits a proportion of the sun's rays (infra-red radiation), a phenomenon which leads to the greenhouse effect. The six main GHGs associated with human activities and recognised by the Kyoto Protocol are carbon dioxide ( $\text{CO}_2$ ), methane ( $\text{CH}_4$ ), nitrous oxide ( $\text{N}_2\text{O}$ ) and fluorinated gases: hydrofluorocarbon (HFC), perfluorocarbon (PFC) and sulphur hexafluoride ( $\text{SF}_6$ ) to which nitrogen trifluoride ( $\text{NF}_3$ ) has been added since 2013. To facilitate their comparison or addition, these gases are expressed in  $\text{CO}_2$  equivalent on the basis of their global warming potential (GWP).

### **Material intensity**

Relationship between the apparent consumption of materials by the economy (DMC) and the GDP (expressed in volume, *i.e.* excluding price changes), showing the average quantity of materials consumed to generate each GDP unit.

### **Municipal waste**

Any waste whose management is the local authority's responsibility.

### **Nitrates**

One of the forms of nitrogen, primarily of agricultural origin due to the use of nitrogenous fertilisers.

### **NODU (number of unit doses)**

Environmental pressure indicator used to assess the intensity of the use of plant protection products in agriculture.

### **NO<sub>x</sub> (NO and NO<sub>2</sub>): nitrogen oxides (mono- and di-).**

Atmospheric pollutants that originate mainly from road transport and combustion plants.

### **Organic material/organic carbon**

Material with an average composition of 58% organic carbon resulting from the processing of plant debris by living organisms - mainly micro-organisms.

### **Orthophosphate**

The simplest and most widespread form of phosphorus dissolved in water. Phosphorus-rich materials originate in almost equal proportions from soil erosion, agricultural activity (phosphatic fertilisers), industry and urban discharges due to the use of detergents.

### **O<sub>3</sub> (ozone)**

Secondary pollutant formed by chemical reactions between different precursor gases under the effect of solar ultraviolet radiation.

### **PM<sub>10</sub> and PM<sub>2.5</sub>**

Particulate matter with diameters of less than 10 and 2.5 respectively, which may be of natural origin (dust particles of desert, volcanic or biological origin and from forest fires, etc.) or due to human activities (heating, power stations, industries, motor vehicles, etc.).

### **Regulatory protection schemes**

Core areas of national parks, nature reserves, national hunting and wildlife reserves, biological reserves and prefectural biotope protection orders.

### **Regulatory air quality thresholds that apply (for human health protection)**

- 125 µg/m<sup>3</sup> of SO<sub>2</sub> as a daily average that must not be exceeded for more than three days per year
- 40 µg/m<sup>3</sup> of NO<sub>2</sub> on average per calendar year, in force since; 50 µg/m<sup>3</sup> of PM<sub>10</sub> as a daily average that must not be exceeded per calendar year
- 120 µg/m<sup>3</sup> for the maximum daily level of O<sub>3</sub>, taken as an average over 8 hours, which must not be exceeded for more than 25 days per year over three calendar years, in force since 2005.

### **SO<sub>2</sub> (sulphur dioxide)**

Atmospheric pollutant emitted mainly due to the use of sulphur-rich fossil fuels (coal, fuel oil, diesel) and by certain industrial processes.

### **Tonne of oil equivalent (toe)**

Quantity of energy contained one tonne of crude oil (7.3 barrels). The toe is used to express the energy value of different energy sources in a common unit.

### **Treatment frequency index (TFI)**

Index accounting for the number of approved doses used on a hectare of crops during a treatment campaign. This index can be calculated for a group of plots of land, a farm or a territory and can be broken down into large product categories (herbicides, fungicides, insecticides, acaricides and other products).

### **UAA (utilised agricultural area)**

Surface area consisting of permanent grassland areas (permanent meadows, high-mountain pastures) and arable lands (arable and market-garden crops, temporary meadows and fallow areas).

## Abbreviations and useful links

### **AAMP**

Agence des aires marines protégées (Agency for marine protected areas)  
[www.aires-marines.fr](http://www.aires-marines.fr)

### **ADES**

The national access portal for information about groundwater  
[www.ades.eaufrance.fr](http://www.ades.eaufrance.fr)

### **ADEME**

Agence de l'environnement et de la maîtrise de l'énergie (Environment and Energy Management Agency)  
[www.ademe.fr](http://www.ademe.fr)

### **Agence Bio**

National agency for the promotion and development of organic farming  
[www.agencebio.org](http://www.agencebio.org)

### **Agences de l'eau**

Water agencies  
[www.lesagencesdeleau.fr](http://www.lesagencesdeleau.fr)

### **Agreste**

See SSP

### **ARS**

Agence régionale de santé (Regional health agency)  
[www.ars.sante.fr](http://www.ars.sante.fr)

### **BDAT**

Soil analysis database (see GIS Sol)

### **BRGM**

Bureau de Recherches Géologiques et Minières (French geological survey)  
[www.brgm.fr](http://www.brgm.fr)

### **CCEE**

Commission des comptes et de l'économie de l'environnement  
(Environmental accounts and economics committee)

### **CCTN**

Commission des comptes des transports de la Nation (French national transport accounts committee)

### **CEREQ**

Centre d'études et de recherches sur les qualifications (Centre for study and research on qualifications)  
[www.cereq.fr](http://www.cereq.fr)

### **CITEPA**

Centre interprofessionnel technique d'études de la pollution atmosphérique  
(Interprofessional technical centre air pollution research)  
[www.citepa.org](http://www.citepa.org)

### **CLC (CORINE Land Cover)**

Geographical database, derived from visual interpretations of satellite images, produced as part of the European Copernicus programme.  
[www.statistiques.developpement-durable.gouv.fr/donnees-ligne/li/1825.html](http://www.statistiques.developpement-durable.gouv.fr/donnees-ligne/li/1825.html)

### **CREDOC**

Centre de recherche pour l'étude et l'observation des conditions de vie  
(Research centre for the study of living conditions)  
[www.credoc.fr](http://www.credoc.fr)

### **CSPE**

Contribution au service public de l'électricité (Contribution to the public electricity service)

**DEB**

Direction de l'Eau et de la Biodiversité (Directorate for water and biodiversity)(MEDDE)

**DGPR**

Direction générale de la prévention des risques (General directorate for risk prevention) (MEDDE)

**DPMA**

Direction des pêches maritimes et de l'aquaculture (Maritime fisheries and aquaculture directorate) (MEDDE)

**EEA**

European Environment Agency

[www.eea.europa.eu](http://www.eea.europa.eu)

**Eurostat**

Statistical office of the European Union

<http://epp.eurostat.ec.europa.eu>

**FPNR**

Fédération des parcs naturels régionaux de France (Federation of French regional natural parks)

[www.parcs-naturels-regionaux.tm.fr](http://www.parcs-naturels-regionaux.tm.fr)

**GASPAR (database)**

Assisted management of administrative procedures relating to natural and technological risks

<http://macommune.prim.net/gaspar>

**Géod'air**

National air quality database

[www.lcsqa.org](http://www.lcsqa.org)

### **GIS Sol**

Groupement d'intérêt scientifique sur les sols (Scientific interest consortium on soils - information system on soils in France)

[www.gissol.fr](http://www.gissol.fr)

### **IEA**

International Energy Agency

[www.iea.org](http://www.iea.org)

### **IFREMER**

Institut Français de Recherche pour l'Exploitation de la Mer (French research institute for exploitation of the sea)

[www.ifremer.fr/institut](http://www.ifremer.fr/institut)

### **INSEE**

Institut national de la statistique et des études économiques (National institute for statistics and economic studies)

[www.insee.fr](http://www.insee.fr)

### **IFER**

Imposition forfaitaire pour les entreprises de réseaux (Flat-rate tax on network companies)

### **IPCC**

Intergovernmental Panel on Climate Change

[www.ipcc.ch](http://www.ipcc.ch)

### **MEDDE**

Ministry of ecology, sustainable development and energy

[www.developpement-durable.gouv.fr](http://www.developpement-durable.gouv.fr)

### **MESR**

Ministère de l'Enseignement Supérieur et de la Recherche (Ministry of higher education and research)

[www.enseignementsup-recherche.gouv.fr](http://www.enseignementsup-recherche.gouv.fr)

### **MNHN/SPN**

Muséum national d'histoire naturelle/service du patrimoine naturel  
(Natural history museum/Natural heritage department)

[www.mnhn.fr/spn/](http://www.mnhn.fr/spn/)

### **Natura 2000**

Network of natural areas designated by the Member States in application of the EU "Birds" and "Habitats" directives.

### **OSPAR**

Convention for the protection of the marine environment of the north-east Atlantic/OSPAR ("Oslo-Paris") Convention.

[www.ospar.org](http://www.ospar.org)

### **PEFC**

Programme for the Endorsement of Forest Certification schemes (PEFC)

[www.pefc-france.org](http://www.pefc-france.org)

### **REFLET (database)**

Regards sur les flux de l'enseignement technique et professionnel  
(Analysis of flows in technical and vocational training)

<http://mimosa.cereq.fr/reflet>

### **RNF**

Réserves naturelles de France (French Nature Reserves)

[www.reserves-naturelles.org](http://www.reserves-naturelles.org)

### **ROCCH**

Réseau d'observation de la contamination chimique du littoral  
(Observation network for chemical contamination of the coastline)

### **SCHAPI**

Service central d'hydrométéorologie et d'appui à la prévision des inondations  
(Centre for hydrometeorology and flood forecasting support)

[www.vigicrues.ecologie.gouv.fr](http://www.vigicrues.ecologie.gouv.fr)

## **SECTEN**

Secteurs économiques et énergie (Energy saving sectors) (see CITEPA)

## **SFEPM**

Société française pour l'étude et la protection des mammifères (French society for the study and protection of mammals)

[www.sfepm.org](http://www.sfepm.org)

## **SSP**

Service de la statistique et de la prospective du ministère chargé de l'Agriculture (Department of Statistics and Foresight Analysis of the Ministry of Agriculture)

[www.agreste.agriculture.gouv.fr/](http://www.agreste.agriculture.gouv.fr/)

## **TERUTI-LUCAS**

Enquête annuelle sur l'utilisation du territoire (Land Use/Cover Area frame Survey)

## **TICPE**

Taxe intérieure de consommation sur les produits énergétiques (Domestic tax on the consumption of energy products [formerly called the taxe intérieure de consommation sur les produits pétroliers – TIPP])

## **UNFCCC**

United Nations Framework Convention on Climate Change

<http://unfccc.int/>

## **UNICEM**

Union Nationale des Industries de Carrières et Matériaux de Construction (French union of quarry and building materials industries)

[www.unicem.fr](http://www.unicem.fr)

## **UIPP**

Union des industries pour la protection des plantes (Union of plant protection industries)

[www.uipp.org](http://www.uipp.org)



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