Criterion 5

Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)

INDICATOR 5.1

Area of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions, part of MCPFE Class "Protective Functions"

Physical protection (soil and water) in public forests

Objective	state-owned forests* (ha)			other public forests governed by forest regulations (ha)			total public forests (ha)			annual variation rate
	1994	1999	2004	1994	1999	2004	1994	1999	2004	1994-2004
priority physical protection	79,500	84,300	87,000	106,100	139,500	153,000	185,600	223,800	240,000	2.6%
secondary physical protection (protection & wood supply)	201,500	201,700	212,000	405,400	445,700	488,000	606,900	647,400	700,000	1.4%
total	**281,000**	**286,000**	**299,000**	**511,500**	**585,200**	**641,000**	**792,500**	**871,200**	**940,000**	**1.7%**

* including state-owned forests allocated to various ministries

(Source: ONF, for all wooded land governed by forest regulations; the percentage of wooded land in the total area for 2004 was applied to the total areas for 1994 and 1999.)

Commentary: public forests, whose key function is to protect the physical environment, now cover an area of 240,000 ha, two-thirds of which is found on non-state-owned property. These are mainly mountain and coastal forests. This area has increased by around 55,000 ha in 10 years, currently accounting for 6% of the total wooded area within public forests. Only the wooded area was considered in the table, with the total protection area (wooded and non-wooded) currently being 380,000 ha. These forests also have a partial role in the protection of infrastructures and inhabitants against natural hazards, but it is impossible to differentiate these different functions– data presented in Indicator 5.1 thus partially overlap those of Indicator 5.2, for which no detailed data is available.
Public forests also include 700,000 ha that serve a dual role as a source of wood supply while providing physical protection.

The French government has been rehabilitating mountain land since 1860. Under this policy it has been acquiring highly degraded areas and subsequently reforesting and developing them in order to boost their protective role. The Office national des forêts has set up mountain landscape rehabilitation services (RTMs) in 11 departments located in mountainous regions (Alps and Pyrenees). These RTMs conduct prevention activities in all public forests. They also provide support for local communities (expertise, work planning, technical assistance) and public security authorities.

A major programme to stabilise coastal dunes was also undertaken by the state in the 19th century, through afforestation, plant cover and civil engineering works. This large coastal area is currently managed by the Office national des forêts and includes 380 km of coastal dunes and 120 km of rocky coast.

Coastal environments are subject to very rapid natural dynamics (erosion, vegetation successions, etc.) and to considerable human pressure (urbanisation, tourism, etc.). Their management is no longer solely focused on dune protection, it also includes biodiversity and landscape protection initiatives.
Since 1975, the Conservatoire de l'espace littoral et des rivages lacustres has been actively acquiring highly threatened coastal sites.

Drinking and mineral water quality protection (all properties)

	Forest area within protection zones
drinking water reservoirs	around 200,000 ha
commercial mineral water springs	around 600,000 ha
total	**around 800,000 ha**

(Source: DRAF and DDAF 1994 estimate, with extrapolation of the extended drinking water reservoir protection zones on a prorata basis with wooded areas for the missing regions (except Rhône-Alpes, which is an exception due to the extent of its mineral water spring protection zones). The 2004 update is not available.)

Commentary: around 200,000 ha of forest are found in drinking water reservoir protection zones that are clearly delineated in the landscape and have special easements.
Moreover, almost 600,000 ha of forest are located within mineral water spring protection zones and thus have a specific role in water quality protection, without any special forest management requirements.

INDICATOR 5.2

Area of forest and other wooded land designated to protect infrastructure and managed natural resources against natural hazards, part of MCPFE Class "Protective Functions"

Commentary: as noted in § 5.1, the proportion of forests designated for the protection of infrastructures and managed natural resources is currently unknown. These forests are partially accounted for in Indicator 5.1 since erosion control, especially in mountain regions, also provides protection for infrastructures and inhabitants against potential floods and landslides, etc.

Since 1995, the French Ministry of the Environment has been drawing up predictable natural hazard prevention plans (PPR). Under these PPRs, natural hazard zones are mapped and regulations are enforced for all existing and future urbanism, construction and management initiatives. Prevention, protection and safety measures to be taken by inhabitants and territorial communities are also drawn up. Although flooding is the most prevalent natural hazard in France, PPRs can take all potential hazards into account, including landslides, avalanches, earthquakes, forest fires, etc.

On 31 March 2003, PPRs were approved for 3,775 urban and rural districts, including 80% for flood hazards. The overall aim is to have 5,000 PPRs set up by 2005 for the most exposed French districts.

In addition, the French Ministry of the Environment is coordinating the development of mountain hazard databases along with permanent avalanche monitoring systems.