4. Biodiversity

This chapter assesses Belgium's performance in protecting its marine and terrestrial ecosystems and managing its trade impacts on global biodiversity, as well as the combination of biodiversity policy instruments. The chapter examines spatial planning policy, agricultural policy, forest policy and climate policy as key catalysts for mainstreaming biodiversity into decision making.

4.1. Introduction

Although it is a small territory, Belgium has a remarkable diversity of species. The total number of species living in Belgium is probably over 55 000. However, the Royal Belgian Institute of Natural Sciences estimated in 2013 that between 20% and 70% of species per main group of organisms were threatened, depending on the group and the region of the country (RBINS, 2013).

Economic considerations call for a more proactive policy in favour of biodiversity. For example, the Flemish Institute for Technological Research (VITO) and the universities of Antwerp and Ghent have assessed the value of the Natura 2000 network in Flanders. The 168 000 hectares (ha) of the network have been shown to provide the following benefits, among others: over 34 million tonnes of carbon dioxide (CO_2) stored each year, 4 000 to 8 000 tonnes of fine dust removed from the air each year, 16 million cubic metres of water purified each year, a gain of 2 100 years of healthy life years (for approximately 1.8 million people), and of 26 to 43 million visitors per year. The authors concluded that Natura 2000 areas in Flanders have a total value to society of EUR 800 million to 1.2 billion. This is considered an underestimate as only 11 of the 36 known ecosystem services were considered (RBINS, 2019).

4.2. Institutional and policy framework

Nature conservation in Belgium is under the responsibility of the three regions with the exception of two exclusive federal competencies: the import, export and transit of non-native plant species, as well as non-native animal species and their remains, and nature conservation at the North Sea. In 2006, the Federal Committee for Sustainable Development approved the first Belgian National Biodiversity Strategy for a period of ten years (NBS 2006-16). The implementation of the strategy was evaluated at mid-term in 2011. However, it is difficult to have a synthetic overview of the progress made for terrestrial ecosystems in the absence of common monitoring indicators between the regions (FPSHFCSE, 2019a). In 2013, the Inter-ministerial Conference for the Environment, composed of the competent ministers of the federal government and the three regions, approved the updating and extension of the NBS until 2020. The extension, under the title "*Biodiversity 2020, update of Belgian NBS*", sought to align with the Aichi targets of the United Nations Convention on Biological Diversity (CBD) (RBINS, 2013).

Belgium's updated NBS includes quantitative targets, as recommended in the 2007 OECD Environmental Performance Review (EPR). In particular, operational objectives under strategic objective 3 of "maintaining or restoring biodiversity and ecosystem services in Belgium in a favourable state of conservation" require the following:

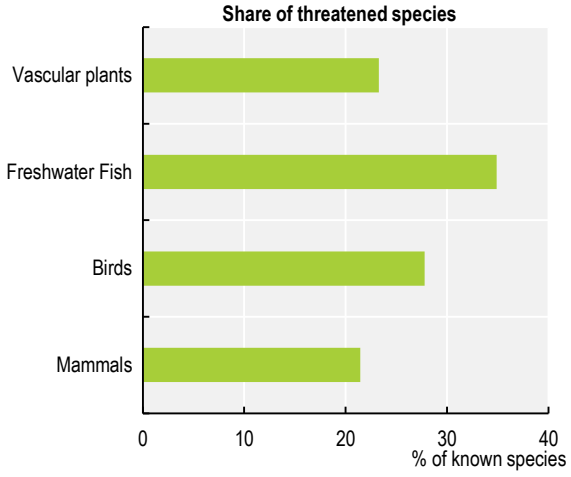
- At least 17% of terrestrial and inland water areas and at least 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and are integrated into the wider landscapes (seascapes for coastal and marine areas).
- Ecosystems, their resilience and their services are maintained and enhanced by establishing, inter alia, a green infrastructure and restoring at least 15% of degraded ecosystems.

Belgium will have to align its NBS and regional biodiversity policies with the ambitions of the new EU Biodiversity Strategy for 2030. At EU level, this new strategy aims to turn 30% of land and sea into protected areas; strictly protect 10% of land and sea, including all old growth forests; plant 3 billion trees; restore 25 000 kilometres (km) of rivers to a free-flowing state; halve pesticide use; reduce fertiliser use by 20%; and turn 10% of agricultural area into high-diversity landscape features and 25% into organic farming (EC, 2020a).

4.3. State, pressures and trends

The state of biodiversity is not good, as evidenced by the high percentage of threatened species. According to OECD data,[1] more than a third (35%) of freshwater fish species are threatened, 28% of bird species, 23% of vascular plant species and 21% of mammal species (Figure 4.1). In 2013-18, the share of habitat types of (European) Community interest in favourable conservation status was low (7% in Flanders, 2% in Wallonia). The same was true for the share of species of Community interest (26% in Flanders, 14% in the Atlantic biogeographic region and 21% species in the continental biogeographic region for Wallonia). Compared to 2007-12, the number of species in an unfavourable conservation status increased in both regions.[2]

Figure 4.1. A significant number of species are threatened

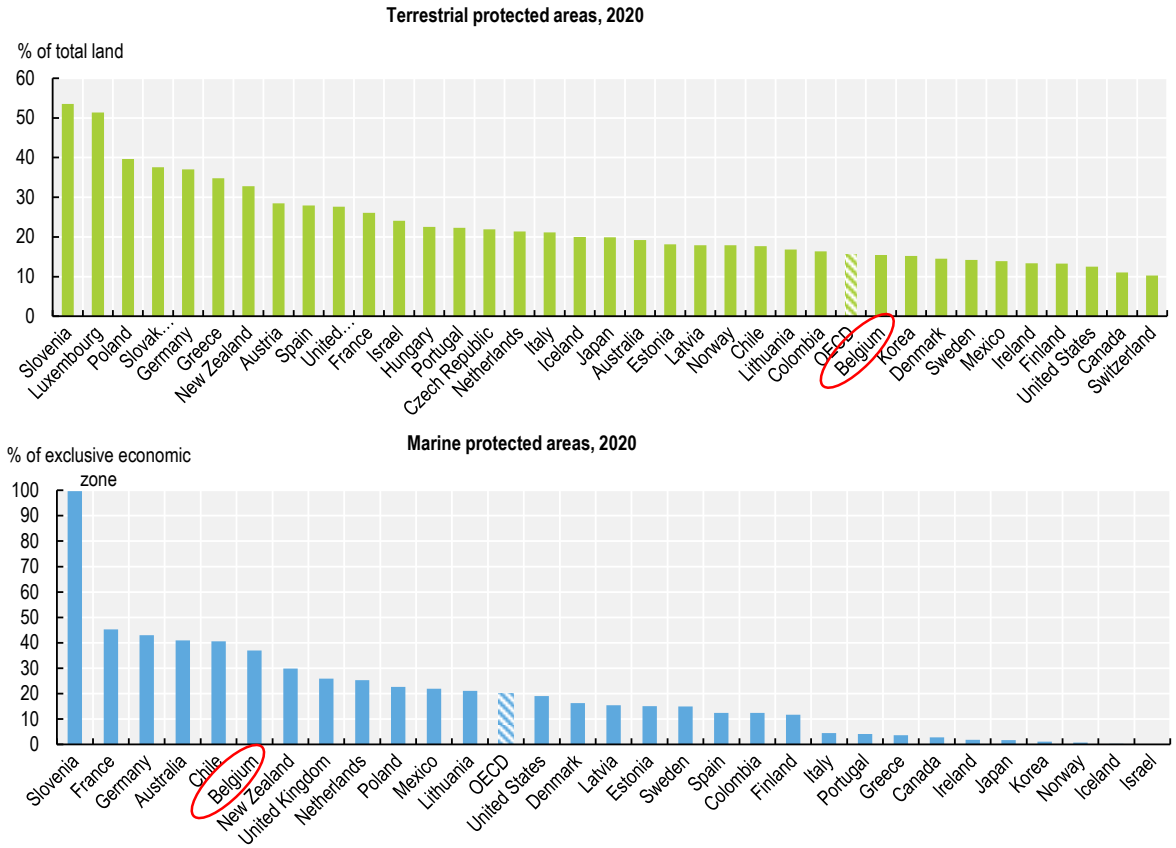


Note: 2016 data or latest available year.
Source: OECD (2020), OECD Environment Statistics (database).

StatLink https://doi.org/10.1787/888934231136

Overall, protected areas have increased significantly in Belgium since 2007. In 2020, the coverage of protected areas almost meets the Aichi target of 17% of land area and far exceeded the 10% target for coastal and marine areas (Figure 4.2). However, none of the marine protected areas and only 1% (Wallonia) to 2% (Flanders, Brussels-Capital) of terrestrial protected areas have an effective (strict) level of protection. The harmonised system of differentiated nature management plans (NMPs) recently implemented in Flanders is a step in the right direction by allowing increased levels of ambition on biodiversity. This new approach of shifting public financial support from land acquisition to management of nature responds well to the 2007 OECD EPR recommendation to strengthen the management of protected areas through agreements with landowners/land users.

Figure 4.2. Protected areas have increased



Source: OECD (2020), OECD Environment Statistics (database).

StatLink https://doi.org/10.1787/888934231155

Efforts have also been made to respond to the 2007 OECD EPR recommendation to strengthen connectivity between protected areas through enhanced regional co-operation (Box 4.1). According to the Digital Observatory of Protected Areas of the European Commission's Joint Research Centre, the connectivity of terrestrial protected areas is relatively high compared to EU-27 countries: 18.55% of Belgian territory is covered by "protected and connected lands".[3]

However, at 195 m^2/km^2 between 2012 and 2018, land converted to artificial land ("land take") is high by EU-28 standards despite progress in re-cultivation of urban areas to semi-natural land (66 m^2/km^2 during the period) (EEA, 2019). Landscape fragmentation remains a major concern in Belgium; it is among the highest in the EU-27 and continued to increase between 2009 and 2015 (EEA, 2019). Defragmentation is a top priority for the Flemish government. In Wallonia, the fragmentation of the landscape is mainly due to the conversion of permanent meadows to annual crops or to temporary meadows (SPW, 2017a). The planting of grass strips in annual crops, with the support of agricultural policy, has helped to mitigate this trend somewhat. The Brussels Ecological Network seeks coherence between nature protection and land-use planning. It is nonetheless essential, in the three regions, to further mainstream biodiversity policy into other policies – notably land use, agricultural and forestry policies (Section 4.5) – and to extend connectivity management to the management of green infrastructure and ecosystem services

(nature-based solutions). It is about managing nature wherever possible, including in agricultural, forest and urban areas, and not just in protected areas.

Box 4.1. The Sonian forest: An example of regional co-operation

In 2008, the three Belgian regions approved a framework document to co-ordinate the management of the 5 000 ha of the Sonian forest and associated parks (Solvay park, Tervueren park) by public administrations and stakeholders. The Flemish Region (the Agency for Nature and Forests, ANB) administers 56% of the Sonian forest, the Brussels-Capital Region (Brussels Environment) 38% and the Walloon Region (Nature and Forests Division) the remaining 6%. The Tervueren park is managed by the Royal Donation and the Solvay park by the Solvay Foundation. The framework document has been translated into site management plans and, recently, the regions have created a legal person (the Sonian Foundation) to ensure co-ordination. The challenge is to strengthen the protection of the ecological core of the forest and stem the fragmentation due to the transport infrastructure (restoration of dry valleys, creation of "ecoducts"). Efforts are also needed to implement the Natura 2000 network and to involve relevant authorities. In 2017, the nature reserves of the Sonian forest were inscribed on the UNESCO World Heritage List, among 78 exceptional beech forests in 12 European countries.

4.3.1. Marine biodiversity

In 2016, a programme of measures was published to implement the 2008 EU Marine Strategy Framework Directive (EU MSFD) over a period of six years (2016-22). However, about 30% of the Belgian part of the North Sea (BPNS)[4] still does not reach the target of good environmental status set for 2020 by the EU MSFD, especially the coastal waters (first nautical mile) (FPSHFCSE, 2019b). This indicates problems of eutrophication and marine litter. Satellite monitoring of coastal water eutrophication has been set up (the MULTI-SYNC project). A risk assessment of eutrophication and marine litter pollution could be undertaken. This could follow the example of the North Sea pollution risk assessment carried out between 2012 and 2015 within the framework of the Bonn Agreement: Area-Wide Assessment of Risk Evaluations project.[5] The analysis should cover land-based sources of nutrients and litter from the Scheldt, the Rhine-Meuse basin and the Seine-Somme basin, which all influence the water quality of the BPNS (Belgian State, 2018a). This would respond to the 2007 OECD EPR recommendation to continue efforts to reduce pollutant releases to the North Sea.

Belgium has made significant efforts to improve protection of marine ecosystems through the creation of new marine nature reserves, as recommended in the 2007 OECD EPR. In 2010, marine protected areas (MPAs) increased from 10% to 37% of BPNS, beyond the new objectives of the EU Biodiversity Strategy for 2030. Four Natura 2000 sites have been designated in the BPNS. These include three special protection areas (SPA) under the 1979 EU Birds Directive along the coast (total area of 309 km²) and one special area of conservation (SAC) under the 1992 EU Habitats Directive at the French border (1 177 km²), partially overlapping (the Natura 2000 network covers 1 238 km² or 36% of BPNS). A 2016 royal decree regulates management of these sites, while a 2017 ministerial decree sets their conservation objectives. In early 2018, the competent minister adopted their management plans for 2018-23, after public consultation. Certain activities (such as fishing, sand and gravel extraction) are subject to restrictions to conserve or restore protected habitats (sandbanks, gravel beds and banks of sand mason worms) and measures are taken to limit disturbance of birds and marine mammals (porpoise, the common and the grey seal), including reduction of underwater noise (Belgian State, 2018b). However, their effective level of protection raises questions: the International Union for Conservation of Nature (IUCN) considers that they fall into either (low) protection category IV (habitat or species management area) or none of the six IUCN categories. Indeed, MPAs only exclude economic activities deemed likely to harm species and habitats, on the basis of an “appropriate assessment” (FPSHFCSE, 2020).

In 2014, the Marine Spatial Plan (MSP) with legal authority replaced the indicative "master plan" that had prevailed since 2003. Belgium was among the first countries to implement such an integrated and multipurpose sea-use planning on its territorial waters (12 nautical miles) and exclusive economic zone (200 nautical miles) (FPSHFCSE, 2020). The development of offshore wind energy (construction of wind farms) and the protection of designated Natura 2000 sites have been the main drivers for strengthening planning for the use of the sea. In terms of biodiversity protection, in addition to Natura 2000 sites, the MSP provides for the sustainable extraction of sand and gravel (prohibited during fish spawning seasons), the mapping of marine habitats, the protection of wrecks valuable for biodiversity and the management of land-based activities affecting the marine environment. Beyond the offshore wind farms and despite its small surface area, the BPNS supports many economic activities regulated by the MSP. These include commercial fishing, offshore aquaculture, maritime transport, dredging, sand and gravel extraction, pipelines and cables, military activities, tourism and leisure and science and research. The MSP undertook strategic environmental assessment (SEA). Cross-border consultation was carried out with the Netherlands, France and the United Kingdom. In 2019, following public consultation process in 2018, a second MSP was released for 2020-26. The new MSP provides for a new MPA at the Dutch border and to merge a Flemish nature reserve and a federal SPA to optimise monitoring, scientific research and enforcement. In addition, three “search zones” have been designated (mostly within the current MPA). These allow restrictions on activities that affect the seabed to ensure nature restoration and conservation.

4.3.2. Terrestrial biodiversity

Flanders

Protected areas

In 2019, considering overlaps, the areas with approved nature management (6.9% of Flanders), the Flemish Ecological Network (VEN) (7%) and the Natura 2000 network (12.3%) covered 17% of Flanders, reaching the CBD Aichi target of 17% for 2020. The areas under a management plan with clear objectives on biodiversity and/or nature conservation targets increased from 63 000 ha in 2011 to 94 060 ha in 2019. This increase responded to the 2007 OECD EPR recommendation to continue efforts to create nature management areas. However, areas under strict protection (i.e. nature reserves) represent only 1.9% of the land area, far from the EU target of 10% by 2030. The Flemish energy and climate plan 2021-30, published at the end of 2019, provides for 20 000 ha of additional areas under effective nature management by 2024. It also provides for 10 000 ha of additional forest by 2030[6] to implement the EU "no debit rule" for the land use, land-use change and forestry (LULUCF) sector.[7]

In 2017, the Flemish government approved the Natura 2000 programme for the first cycle 2016-20. However, to date, the Flemish Region still does not have a general nature conservation strategy. Yet, the Nature Decree (articles 11 and 12) provides for such a "nature plan". With around 29 000 ha of nature and forest reserves in 2019, Flanders is well below the target set in 1997 by the Spatial Structure Plan (RSV) of 38 000 ha. The target date of 2007 was postponed initially to 2012 and then until the next revision of the RSV (which is in progress). The 1997 RSV also aimed to increase the forest area by 10 000 ha. The second forest inventory (in 2009-19) revealed the Flemish forest area has remained practically unchanged since the first inventory (in 1997-99), at around 140 000 ha, or 10% of the territory.

The demarcation of the VEN is late. At the end of 2018, 74% of the VEN (93 000 ha) had been demarcated, against 87 000 ha in 2007, of which only 2 000 ha were covered by approved spatial implementation plans (RUPs). The RUP is the legally binding tool to implement spatial planning policy at regional level. The 1997 Nature Decree and the RSV, the strategic tool for spatial planning policy at regional level, provide for the delimitation of a VEN of 125 000 ha (9.2% of Flemish territory) by 2003. According to the Nature Decree, the VEN should be made up of sites where nature conservation takes precedence over all other activities.

In 2018, a new classification of nature management areas was adopted – based on types of NMP – in which all areas will be distributed by 2030. The logic is to shift public financial support (PFS) for nature conservation from the (costly) acquisition of land to incentives for landowners (to which all landowners are eligible upon request). The NMP types distinguish four levels of ambition for the protection of nature. In Type 1 areas, preserving existing nature is required, while higher nature quality is sought in Type 2, 3 and 4 areas. The higher the ambition, the higher the PFS (Table 4.1).

Table 4.1. Financial incentives increase with the level of nature protection in Flanders

Type	1	2	3	4
Main objective	Maintain current nature values	• Meet N2000 objectives on 25% of the area • Meet INM criteria	• Meet N2000 objectives on 90% of the area • Meet INM criteria	• Status "nature reserve" • Meet INM criteria with easement
Public financial support	n.a.	Inheritance tax exemption	Inheritance and gift tax exemptions	Inheritance, gift and property tax exemptions
	Visitor access: EUR 40/ha/year for roads and trails (EUR 70/ha the first year)	Same as Type 1 plus: • One-off support to draw up a NMP • Basic support for INM • Additional support[1] • Ad hoc support (up to 50% of the cost)[2] • 60% of purchase price of land for afforestation (up to EUR 2.5/m²)	Same as Type 2 plus: • Ad hoc support (up to 80% of the cost)[2]	Same as Type 3 plus: • Ad hoc support (up to 90% of the cost)[2] • 100% of purchase price of land to create a nature reserve

Notes: n.a. = not applicable. N2000 = Natura 2000. INM =integrated nature management (INM principles are enshrined in the Nature Decree – Chapter IIIbis, articles 12bis to 12 novies). NMP = nature management plan (Flemish government decrees of 2017 govern the preparation of NPMs, see www.natuurenbos.be/beleid-wetgeving/natuurbeheer/natuurbeheerplan/wetgeving/het-nieuwe-natuurbeheerplan-geldig-van).
1. For costs such as the conversion of a forest into a Natura 2000 site; protection of species; monitoring of performance indicators, reaching climax vegetation.
2. For specific measures aimed at achieving EU nature conservation objectives.
Sources: ANB (2019, 2018).

The ANB is progressively evaluating the management plans drawn up before 2019 for forests (basic plan and extended plan), forest reserves, nature reserves and parks (harmonious park and green space management plan) to convert them to NMPs. This should make nature planning more transparent (single procedure for all types of ecosystems such as forest, heather, open environments), organised (private owners, nature organisations and local governments use the same procedure[8]), linked to PFS and long term (the NMP is valid for 24 years,[9] with evaluation by the ANB every six years).

The NMP of land located in a SPA or in the VEN must be at least Type 2. The management of Type 2 habitats and beyond must comply with "integrated nature management" (INM) criteria approved by the Flemish government. In 2017, INM criteria replaced the criteria for sustainable forest management (SFM) on which they are based. Thus, forest management plans for Type 2, 3 and 4 areas must comply with the INM criteria.[10]

Connectivity

To counteract the fragmentation of nature areas and create larger and connected habitats for plants and animals, the Nature Decree and the RSV provide for supplementing the VEN with the "integral nesting and support network" (IVON) and other nature protection zones (such as forest areas). IVON is made up of nesting areas and connecting areas. In nesting areas, nature conservation takes place in parallel with other activities such as agriculture, forestry, military use or the abstraction of drinking water. The connecting

areas aim to allow the dispersion of plants and animals between the various nature protection sites; these are small linear or ribbon landscape elements. The Nature Decree set the target of demarcating 150 000 ha of nesting areas by 2003. By the end of 2018, only 5 700 ha, or 4% of the target, had been demarcated, compared to 1 000 ha in 2007.

Efforts have been made to respond to the 2007 OECD EPR recommendation to strengthen connectivity between protected areas through the use of rivers as biodiversity corridors (Box 4.2).

Box 4.2. Using rivers as biodiversity corridors

The Flemish Waterway (VW) manages and operates the navigable inland waterways. VW protects aquatic life by building spawning areas along the canals. It monitors their effectiveness in collaboration with the Nature and Forest Research Institute [INBO] and ANB. VW also protects aquatic life by facilitating migration by fish ladders along the Meuse (at the mouth of the tributaries). VW also applies ecological management of the vegetation on the edges (berms) of waterways and towpaths in accordance with the 1984 Roadside (verge) Decree that regulates the mowing dates. VW has approved roadside management plans for each of the canals under its management. Finally, VW restores natural flood plains as part of the Sigma plan (1977, updated in 2005, to be completed by 2030), which aims to protect Flanders from the floods of the Scheldt and its tributaries.

In addition to controlling the quantity and quality of surface water and groundwater, the Flemish Environment Agency (VMM) manages the main non-navigable inland waterways and aims for their ecological recovery, in particular by restoring the flood plains to limit flood damage.

Maintaining extensive meadows and planting trees on the banks of rivers in the Brussels-Capital Region, is provided for in the second water management plan (2016-21). This should strengthen ecological continuity between the Natura 2000 sites, nature reserves and forest reserves, as shown by an *ex ante* SEA. According to the SEA, the plan should also improve aquatic life by tackling the eutrophication of water bodies (Stratec, 2015).

Wallonia

Protected areas

With overlaps considered, the protected areas under the Nature Conservation Act (0.9% of Wallonia) and the main ecological structure (18%) cover 16.6% of Wallonia. This is close to the CBD Aichi target of 17% for 2020. Protected areas under the 1973 Nature Conservation Act increased from 10 400 ha in 2007 to 16 000 ha in 2019. This increase responded to the 2007 OECD EPR recommendation to continue efforts to create protected areas. However, in 2019, nature areas under strict protection (i.e. nature reserves) represented only 0.8% of the land area (1.1% if integral forest reserves under the Forest Code are included). This remains far from the EU target of 10% by 2030. Wallonia aims to provide its city dwellers with green spaces within a quarter of an hour's walk.

Connectivity

The main ecological structure (SEP) (around 300 000 ha) consists of Natura 2000 sites (221 000 ha or 13% of Wallonia) and sites of great biological interest (sheltering at least one rare, threatened or protected species or at least one rare, threatened habitat). It includes 46 500 ha of agricultural areas with high natural value (HNV) (6.1% of the utilised agricultural area, or UAA). [11] The SEP includes areas of current biological interest ("ecological infrastructure") or potential biological interest. It includes central zones (ZC), in which nature conservation has priority, and development zones (ZD), in which the conservation of species and

habitats goes hand in hand with economic activity. The SEP embodies the three key objectives of the EU Biodiversity 2020 Strategy: going beyond the framework of the Natura 2000 network; considering restoration of ecosystem services; and strengthening the contribution of agriculture and forestry to the protection of biodiversity. Wallonia aims to transform the SEP into a functional ecological network with legal status.

Brussels-Capital Region

Protected areas

With overlaps considered, the nature and forest reserves protected under the 1973 Nature Conservation Act (1.8% of Brussels-Capital) and the Natura 2000 sites (14.3%) cover 14.5% of Brussels-Capital. This is below the CBD Aichi target of 17% for 2020. Nature and forest reserves increased from 229 ha in 2007 to 291 ha in 2019, responding to the 2007 OECD EPR recommendation to continue efforts to create protected areas. However, in 2019, nature and forest reserves represented only 1.8% of the land area, far from the EU target of 10% for strict protection of nature by 2030. Only one Natura 2000 site, the Sonian forest, has a management plan (adopted in 2019). The site covers more than 70% of the surface area of Natura 2000 sites.

The region's first Nature Plan, adopted in 2016, sets targets for improving public access to green spaces by 2020. By 2020, each Brussels resident should have access to a green space within 200 metres of their home (400 metres for a green space of more than 1 ha) (Brussels Environment, 2016). This is a very ambitious target; on average, only 44% of the population is within 300 metres from a public park in EU-28 core cities (Maes et al., 2019). The forthcoming update of the State of Nature report, published at regional level for the first time in 2012, should assess the extent to which the target has been reached. Brussels-Capital could draw inspiration from the Japanese city of Yokohama which, since 2009, has imposed a green tax on residents – JPY 900 (EUR 7.5)/inhabitant/year – and on urban businesses (9% of the municipal tax) to finance development and management of green spaces (Takagi, 2015).[12]

The Regional Sustainable Development Plan (PRDD), last revised in 2018,[13] sets an aspirational goal of maintaining 50% of undeveloped land (not built) by 2040, despite the densification of housing that will occur. Green infrastructure (green spaces and natural and semi-natural ecosystems) occupy 54% of the region, including 44% of closed (dense) environments and 10% of open environments (Brussels Environment, 2013). This is above the EU average of 40% in core cities (Maes et al., 2019). There is, however, a huge disparity: the city centre (the pentagon) has few green spaces, while the periphery forms a veritable green belt around the city (the Sonian forest alone represents more than 10% of green spaces). According to the PRDD, the creation of new green spaces must be done primarily in the city centre; in the first ring, the “green islands” in both built and undeveloped land should be strengthened and in the second ring the "green belt" should be protected.

Connectivity

The fragmentation of green spaces is a source of concern, including in the green belt (Brussels Environment, 2013). The PRDD defines the Brussels Ecological Network (REB) as all nature reserves, forest reserves and Natura 2000 sites, as well as sites of high biological value in the sense of the Regional Land-Use Plan (PRAS, Section 4.5.1) and elements of the urban and rural landscape (isolated and linear) that favour the movement of species. The REB is made up of central zones, development zones and connection zones. However, the PRDD does not provide a quantified target for the REB. The green network (all green spaces) and the blue network (hydrographic network made up of rivers, ponds and wetlands) contribute to the implementation of REB. Both the PRDD and the Nature Plan aim to consolidate the regional green network. The PRDD also proposes to strengthen the continuity of the blue network, in particular to allow rivers to flow into the Senne. However, neither plan proposes to revisit the concept of

"green and blue network" developed in Brussels-Capital in 2001. This network is based on the principle that connecting different green spaces and bodies of water can contribute effectively to nature protection by creating biodiversity corridors.

4.4. Policy mix

The main instruments of biodiversity policy are direct environmental regulation and public financial support. Belgium has also used some pricing instruments (taxes, tradable permit systems) and payments for ecosystem services (PES), including Natura 2000 payments under agricultural policy (Section 4.5.2). Commendable efforts have been made to develop information measures and voluntary schemes (Table 4.2). The 2007 OECD EPR recommendation to introduce a local natural tax on building permits, as is the case in France, has not been followed up.

Table 4.2. A fairly diverse set of biodiversity policy instruments but few payments for ecosystem services

Type	Federal	Brussels-Capital Region	Flanders	Wallonia
DER	Nature Conservation Act (1973)	► Nature Conservation Act (1973) ► Ordinance on nature conservation (2012) ► Pesticides strictly prohibited in public spaces since 1 January 2019 and prohibited in sensitive private areas (proximity to fresh water, nature reserves)	► Nature Decree (1997) ► On-site inspection by forest rangers and ANB nature inspectors; failure to comply with the law is liable to administrative measures and non-compliance fines or even criminal prosecution (Environmental Enforcement Decree) ► EIA on the location of wind turbine masts	► Nature Conservation Act (1973)
T&C	From 2017, charge on offshore wind farm to finance marine pollution abatement and (EUR 100 000/year) nature		► Access fee for few high conservation value areas ► User charge for commercial activities in ANB nature areas (e.g. music festivals, nature runs, cyclo-cross) ► Fishing and hunting license fees allocated to funds dedicated to fishing ("Visserijfonds") and game management ("Jachtfonds")	► Municipal tax on wind turbine masts over 1 MW (EUR 12 500-17 500/year depending on the power) ► Tax on the environmental load from agriculture: EUR 10/unit of environmental load (EUR 1.1 million in 2019) ► Fishing and hunting license fees (EUR 12-37/year depending on type of fishing; EUR 223/hunting season) ► Inspection fees to be paid annually by organic farmers (to check compliance with Regulation (EC) 834/2007)
TPS			From 2007; tradable nutrient emission rights In 2019, feasibility study of a system of habitat banking (experiments to be set up)	
PFS	► In 2019, EUR 430 million to implement the Habitats and Birds Directives, the Marine Strategy Framework Directive and the federal action plan to combat marine litter in the BPNS (EUR 150 to 225 million in 2016-18) ► EUR 2 billion/year in ODA for	► In 2016-19, total of EUR 1.7 million to NGOs and EUR 0.6 million to municipalities for activities related to biodiversity ► From 2009, urban green roofs	► Until 2018, EUR 250-300/ha/year to manage nature reserves (EUR 7 million in 2015) ► From 2018, according to nature management plan in protected area (Table 4.1) ► In 2014-20, EUR 32 million/year by CAP Rural Development Programme (RDP III)	► From 1986, purchase of land to create nature reserves ► In 2010, DGARNE budget having a positive impact on biodiversity was estimated at EUR 60 million ► In 2014-20, EUR 51 million/year by CAP Rural

Type	Federal	Brussels-Capital Region	Flanders	Wallonia
	biodiversity ► African Elephant Fund under CITES ► African Carnivores Initiative under CMS ► International Whaling Commission (IWC) ► Marine Protected Area Fund under CCAMLR ► REDD+ under UNFCCC		(Table 4.7)1 ► 130 green jobs in nature areas and forests for people who have difficulty accessing the labour market due to limited skills or qualifications ► Protective enclosure to protect sheep from wolf attacks ► In 2019, EUR 2 million for urban green spaces (“Nature in Your Neighbourhood” programme) ► In 2001, Compensatory Afforestation Fund	Development Programme (RDP III) (Table 4.7)1
PES			Late mowing of meadows to protect nesting birds	From 2016, planting of hedges (+ 25% if it aims to improve biodiversity, landscape or soil quality or to produce biomass for energy)
IM	► "BiodiversiTree" Internet tool (concrete examples for companies wishing to become more involved in biodiversity) ► Capacity building of Belgian co-operation partners (CEBioS)	In 2018, a five-year structural biodiversity monitoring scheme was adopted	► Every two years, INBO report on the state of nature (NARA); the NARA 2014-19 cycle was designed as an ecosystem assessment ► State of the Environment Report (MIRA) covers biodiversity and biodiversity policy ► MINA and NARA jointly monitor the impact of climate change on nature[2]	State of the Environment reports have been published for 35 years; the last one in 2017
VS	► In 2017, #Bebiodiversity website platform (brings together administrations, business, trade unions and NGOs) to encourage voluntary initiatives from the private sector (respond to GPBB) ► In 2014, horticultural sector adopted a voluntary code of conduct (a charter) on IAS as part of the LIFE + project "Alternatives to IAS"	As part of the 2016 nature plan, BE has signed specific biodiversity agreements with other regional public administrations (Brussels Mobility for public transport, INFRABEL for the rail network, CITYDEV for urban renewal and Port of Brussels) and an agreement is being prepared with the Housing Corporation (SLRB)	► ANB finances a "contact point for private management" to foster co-operation with private landowners in nature and forest policies ► ANB has a specialised team and a consultation platform (“Natura2000 locally”) to foster co-operation with local communities ► In 2018-21, Omgeving, ANB and NGOs launched a "green deal business and biodiversity": 133 companies have voluntarily committed to increasing biodiversity on their land/business parks (1 900 ha)	From 1996, the Trade Union Environmental Awareness Network (RISE) has been promoting environmental action in businesses

Notes: T&C = Taxes and charges. TPS =Tradable permit system. DER = Direct environmental regulation. PFS = Public financial support. PES = Payments for ecosystem services. IM = Information measures. VS = Voluntary schemes.
Omgeving = Flemish Department of Environment and Spatial Development. ANB = Omgeving's Agency for Nature and Forests. INBO = the Nature and Forest Research Institute. SPW = Wallonia Public Service. DGARNE = SPW's Directorate-General for Agriculture, Natural Resources and the Environment (oversees environment, agriculture and forestry policies). BE = Brussels Environment (originally Brussels Institute for Environmental Management). BPNS = Belgian part of the North Sea. MINA = Flemish Environment and Nature Council.
ODA = official development assistance. CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora. CMS = Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention). CCAMLR = Commission for the Conservation of Antarctic Marine Living Resources. REDD+ = Reducing Emissions from Deforestation and Forest Degradation. UNFCCC = United Nations Framework Convention on Climate Change. GPBB = Global Partnership for Business and Biodiversity under the Convention on Biological Diversity. CAP = Common Agricultural Policy. IAS = invasive alien species. EIA = Environmental impact assessment. CEBioS = Capacities for Biodiversity and Sustainable Development (development co-operation programme implemented by the Royal Belgian Institute of Natural Sciences - RBINS).
1. Part of the RDP budget devoted to "restoring, preserving and enhancing ecosystems", which relates to improving biodiversity, soil and water quality.
2. Through four indicators: dragonfly species from southern Europe; development of oak and beech leaves; share of damaged forest trees; and peak moment of pollen production in birch and grasses
Source: OECD Secretariat.

4.4.1. Towards more payments for ecosystem services

Recent developments in the three regions could pave the way for more PES, a key instrument for financing biodiversity in a cost-effective way. In Flanders, the 2019 INBO report ("Nature Outlook 2050") assesses nature-based solutions for key environmental and well-being challenges (Table 4.3). Four scenarios reflect different visions of the future regarding nature and society. In the "letting nature find its way" scenario, natural spaces represent almost a quarter of Flanders, with a tendency to large contiguous forests. Nature also expands in the "working with nature" scenario, but the expansion is more targeted to meet local needs such as protection against erosion. In the "strengthening of cultural identity", natural spaces extend slightly (almost a fifth of the territory); the expansion consists not only of forests, but also of meadows, moors and dunes, forms of nature that correspond well to the regional identity of Flanders. Natural spaces hardly increase in the perspective of "using the economic flow", because many extensive meadows have an economic (agricultural) function.

Table 4.3 shows the prospects of "working with nature" and "strengthening cultural identity" are more promising than those of "letting nature find its way" and "using the economic flow". This shows that nature conservation policy must target not only the quantity of nature, and its connectivity, but also the quality of the environmental and well-being services provided. VITO[14], an independent Flemish research organisation, developed an online calculation tool in 2011 at the request of the Flemish Department of Environment and Spatial Development ("Omgeving") and the ANB. The "Nature Value Explorer" quickly assesses the monetary value of ecosystem services of green-blue spaces in cities and the countryside as a decision-making aid for spatial planning. Ecosystem services cover food production, cooling, recreation, water infiltration, air and water quality, and health benefits.

Table 4.3. Nature-based solutions to environmental and well-being challenges in Flanders

Environmental and well-being challenge		Perspective (scenario)			
		Strengthening cultural identity	Letting nature find its way	Using the economic flow	Working with nature
Halting the loss of biodiversity	Connectivity	↑	↑↑	~	↑
	Space	↑	↑↑	~	↑
	Environmental pressure	~	↓↑	↓	↑
Guaranteeing a healthy living and working environment	Air quality	~	~	~	~
	Heat stress	↑	↑↑	↑	↑↑
	Space	↑↑	↑↑	~	↑↑
Coexisting and living consciously	Safety and social cohesion	↑	↓↑	↓↑	↑
Using natural resources sustainably	Biomass	↑	↓	↑	↑↑
	Soil	↑	↓	↓↑	↑↑
	Water quality	↑	↓↑	↓↑	↑↑
	Water quantity	~	~	~	~
Dealing with a changing climate	Flood risk	↑	↑↑	↓	↑↑
	Resilience	↓↑	↑↑	↓	↓↑
	Carbon storage	~	↑	~	~
	Drought	↑	↑↑	↓	↑↑
Ensuring food security	Space	↓	↓	~	↓
	Resilience	↑	↓	↓	↑
	Dependence on imports	↓↑	↓	~	↓↑

Notes: Effect of green infrastructure on mitigating the challenge: very positive ↑↑, positive ↑, neutral ~; variable ↓↑; negative ↓.
Based on quantitative analysis and expert assessment.
Source: INBO (2019).

In Wallonia, in 2014, the Wallonia Public Service (SPW) and universities launched the Wal-ES platform to develop tools for public decision making using the concept of ecosystem service (ES). During its 2014-16 pilot phase, Wal-ES defined ES and how to evaluate it. A typology of ES adapted to the Walloon context defines ES as provisioning services, regulating services and cultural services. Mapping and evaluation of ES at regional level are underway. A tool for assessing the environmental and socio-economic impact of rural land development projects based on the concept of ES has been developed. Wal-ES has broad potential scope (e.g. cost-benefit analysis of green infrastructure projects for the regulation of run-off, mudslides and erosion, for socio-economic development in land-use planning and for the development of brownfields). Identifying the many ES of nature, many of which are not remunerated today, does not mean granting PFS to all. The PFS is only justified for ES that are not (or cannot be) remunerated by the market and go beyond legal requirements (no one is supposed to be paid to comply with the law). For example, PFS could apply to farmland that provides an ecological corridor service and nature reserves that provide a habitat service (ensuring effective conservation of biodiversity). In addition, PFS must not go against the polluter pays principle (e.g. when seeking a biodiversity co-benefit of PFS to mitigate water pollution or greenhouse gas [GHG] emissions).

Brussels-Capital plans to develop its own method of evaluating the ecosystem services provided by nature by involving regional urban planners. Beyond habitats for biodiversity, urban green spaces provide multiple ecosystem services that should be valued and managed (air purification, mitigation of heat islands and retention of stormwater, improving resilience to climate change). Nature also provides “well-being services” - the containment linked to the 2019 COVID-19 epidemic highlighted the essential contribution of the green and blue networks to the physical and mental health of the urban population - as well as “economic services” with nature contributing to urban attractiveness. For example, in 2017 VITO developed the “Green Tool” (Groentool) for the city of Antwerp. The tool aims to make better use of urban greenery and water bodies in urban developments. To that end, it assesses their impacts on air quality, heat stress, sound, water management, biodiversity, carbon capture and recreation, from street level to city scale. The tool can estimate the effects on property prices and the distributive effects of an improvement in the quality of the urban environment.

4.5. Mainstreaming biodiversity in other policies

4.5.1. Spatial planning policy

In the 1970s and 1980s, before regionalisation, Belgium adopted legally binding “sector plans” to plan the specific uses of land throughout the country. Most of the land use in Belgium is still planned by sector plans. From the mid-1990s each region introduced its own spatial planning system, a two-stage system (strategic plan and legally binding executive plan) supplemented by urbanistic rules at regional and local levels (Table 4.4).

Table 4.4. Each region has its own spatial planning instruments

Region		Brussels-Capital	Flanders	Wallonia
Legal framework		Brussels Spatial Planning Code (CoBAT) 2004	Flemish Code on Spatial Planning (VCRO) 2009	Spatial Development Code (CoDT) 2017
Regional level	Strategic plan	Sustainable development plan (PRDD)	Spatial structure plan (RSV)	Development scheme (SDT)
	Executive plan	Land-use plan (PRAS)	Spatial implementation plans (RUPs)	Sector plans (PS)
	Urbanistic rules	Planning regulations (RRU)	Planning regulations (GSV)	Planning guide (GRU)
Provincial level	Strategic plan		Spatial structure plan (PRS)	Development scheme (SDP)[1]
	Executive plan		Spatial implementation plans (RUPs)	
	Urbanistic rules		Provincial planning regulations (PSV)	
Municipal level	Strategic plan	Development plan (PCD)	Spatial structure plan (GRS)	Development scheme (SDC)
	Executive plan	Special land-use plan (PPAS)	Spatial implementation plans (RUPs)/ Special plans of construction (BPAs)	Local orientation scheme (SOL)
	Urbanistic rules	Planning regulations (RCU)	Planning regulations (GSV)	Planning guide (GCU)

Note: 1. Multi-municipal level (the province has no longer direct responsibility for spatial planning).
Source: Adapted from Hanocq (2011).

Brussels-Capital

Defined by article 16 of the Brussels Spatial Planning Code (CoBAT), the PRDD sets long-term objectives and priorities for spatial planning according to economic, social, environmental and mobility needs. The PRDD provides for the creation of new "quality districts" offering housing, public facilities, activities and green spaces (principle of reasoned densification). Another priority is to develop a pleasant living environment (public spaces, green networks, rivers, biodiversity, no noise and air pollution), manage the risks of flooding, and develop urban agriculture and circular economy. Although having only an indicative value, the PRDD is the regional development planning tool to which lower ranking plans or municipal plans must comply.

The PRAS, which came into force in 2001, is legally binding. It defines "green spaces" (vegetation and bodies of water) as spaces intended for the conservation of the natural environment whose development must preserve scientific or aesthetic interest or their social or educational role. Green spaces hosting rare animal and plant species or with significant biological diversity are declared to be of high biological value. Only developments for the protection of the natural environment, species or connection to the green network are authorised. PRAS defines "forest areas" as wooded areas whose development must preserve the ecological, economic and social functions of woods and forests. The "park areas" (vegetation, water bodies and relaxation facilities) have a social, recreational, educational, landscaping or ecological function.

PRAS provides legal protection of biodiversity, to varying degrees, to much of the region (Table 4.5). Creating new green spaces in the city centre, as foreseen by the PRDD, can prove to be extremely challenging. Instead, the region could entrust Brussels Environment with supervising nature management in the 5 000 ha of undeveloped land legally protected by PRAS, and not only in the 2 400 ha of reserves and Natura 2000 sites. With the blue network, these 5 000 ha would form the REB. A benchmark for ecological management of green spaces, which is being drawn up,[15] could lead to the certification of "sustainable green spaces". The value of landscape and biodiversity services could be estimated for each green space in PRAS (e.g. using the Nature Value Explorer tool).

Table 4.5. Spatial planning in Brussels-Capital regulates green spaces beyond just protected areas

Type	2015		
	ha	% land area	Provisions relating to the protection of biodiversity
Nature and forest reserves	296		Strict nature protection
Green areas of high biological value	179		Strict nature protection
Forest areas	1 680		Non-building area of 60 metres from the edge of the forest
Park areas	930		Ban on converting land to other uses
Royal domain	171		Strict nature protection
Agricultural areas	228		Ban on converting land to other uses
Outdoor sports or leisure areas	340		Ban on converting land to other uses
Cemetery areas	152		Ban on converting land to other uses
Sub-total[1]	*3 976*	*24.6*	
Natural heritage areas[2]	2 735	16.9	Strict nature protection
Drinking water abstraction zone[2]	770	4.8	Ban on fertilisers and pesticides

Notes: 1. Including Natura 2000 sites; 2. There is partial overlap between natural heritage areas, drinking water abstraction zone and other green spaces.
Source: Brussels Environment.

In addition, biodiversity should be mainstreamed into urbanistic rules. The region has already taken steps in that direction. In particular, beyond the protection of trees and hedges in gardens, regional planning regulations (RRU) provide for green roofs on constructions (renovations or new) with a flat roof of more than 100 m^2. Since 2009, green roofs have been subsidised for thermal insulation service through a renovation premium and an energy premium (EUR 15/m² for an extensive green roof, EUR 30/m² for an intensive green roof) up to 100 m² per dwelling and 50% of the cost. The tax credit of 40% of eligible expenses (up to EUR 2 650/year) has been abrogated, as in Flanders (it is still in force in Wallonia). Some municipalities offer a premium, ranging from EUR 7.5 to EUR 15/m². In addition to improving thermal insulation, green roofs improve biodiversity, air quality and the microclimate and slow the flow of storm water.

Brussels Environment awards up to EUR 15 000 for “sustainable district” projects. This aid is intended for groups of citizens, collectives or co-ownerships for projects relating to the environment and biodiversity (e.g. greening of façades, sidewalks and balconies to create “green neighbourhoods”). Since 2008, the region has subsidised the three-year process of launching the Local Agenda 21 (LA21) with up to EUR 50 000/year/municipality (the municipality is required to add 10%). This grant covers the salary of the LA21 co-ordinator and the costs of the participatory process and communication. One of the objectives of LA21 is the creation of a municipal nature plan (MNP). The MNP must respect the provisions of the region’s nature plan but is only an indicative management tool (not legally binding).

Beyond financial incentives, a number of information measures have promoted urban biodiversity. Brussels Environment, in collaboration with design offices, developed the Sustainable Building Guide to support construction professionals in the design of buildings of high environmental quality (42% of Brussels' green infrastructure is in buildings). The guide proposes to measure the coefficient of biodiversity by surface (CBS +).[16] This represents the ratio of areas promoting biodiversity to the total surface of the plot, including garden areas, wetlands, permeable mineral zones and green roofs. It does not, however, consider the fauna, the economic dimension, the cultural dimension or the green façades.

In addition, Brussels Environment has published simple technical sheets to promote the coexistence of biodiversity and buildings, for example in terms of fences, lighting, nest boxes and climbing plants. Be

Sustainable, a knowledge exchange platform created in 2020 at the initiative of the region, aims to help create "sustainable neighbourhoods". The platform offers a "quickscan" of sustainability criteria for neighbourhood projects that considers the protection of nature and the water cycle.

Flanders

According to the 1997 Nature Decree, spatial planning policy should concretise the VEN, the IVON and the other nature protection zones. The provinces are legally responsible for ensuring the connectivity of the VEN, through their spatial planning policy (articles 27 and 30 of the Nature Decree). In 1997 Flanders introduced a two-stage planning system (structure plan and implementation plan) at three administrative levels (region, province and municipality) (Table 4.4). The delimitation of the "agriculture and nature structure" (AGNAS) in the regional RUPs, which are legally binding, started in 2003. This was in pursuant to the regional RSV objective of increasing the area of forests and nature reserves. The AGNAS demarcation procedure underwent SEA.[17] The Flemish government approved the strategic vision for spatial policy planning in 2018. It proposes that consumption of additional space decreases from 6 ha/day or approximately 2 000 ha/year in 2013 to 3 ha/day by 2025 and 0 in 2040. This target, called "construction shift" ("bouwshift"), is more ambitious than the EU target of no net land take by 2050 (EC, 2016). The vision provides a basis for the ongoing development of a regional spatial policy plan (BRV) that is to replace the RSV.

Introduced in Belgium in the mid-1950s to improve agricultural productivity, the scope of the land consolidation policy has gradually been extended to other rural development objectives. Since 1978, 2% of the productive farmland concerned by a land consolidation project must be allocated to nature or leisure. In 1998, Flanders gave a legal basis to the concepts of "integrated land development" (ILD – "landinrichting") and "nature development" (ND – "natuurinrichting") as tools for implementation of spatial planning projects. Beyond promoting agricultural productivity, the ILD involves restoring the landscape, improving ecological functions (e.g. nature buffer strips along rivers), as well as infrastructure for water management, rural mobility and leisure. The Flemish Land Agency (VLM) implements the ILD and ND projects under the supervision, respectively, of Omgeving[18] and ANB. In general, VLM covers 50 to 70% of the investment costs for ILD projects and 100% for ND projects. In 2006, a land bank law instructed VLM to create local land banks to facilitate land consolidation projects.

However, this land consolidation policy with three instruments (ILD, ND and land bank) has proved difficult to implement. Acquisition by the land bank requires a lot of money and time, and expropriation is difficult to justify or has no local political support (Pauwels, 2014). A new land development law was passed in 2014 to facilitate access to a set of tools (toolbox) to acquire land, develop land and/or manage it in a certain way. The tools, which can be combined, include land development measures, land mobility such as land banking, pre-emption right (e.g. in land consolidation and in nature development), relocation or reconversion of farms, management agreements, compensations for loss of value, compensations for delivering services and ownership exchange in combination with an exchange of spatial zoning. The choice of tools is evaluated for each land development project. The law allows the provincial or municipal authorities to use the toolbox for their own land development projects. To that end, it introduced more flexible procedures under a three-pronged approach. First, provinces and municipalities can submit a request for a "land development" project to the Flemish government. Second, provinces and municipalities can draw up a "development note" in consultation with VLM; the approval process is simpler than for land development projects. Third, VLM can prepare a "management vision" for a specific area.

VLM's management agreements, introduced in 2000 as part of rural development policy (Section 4.5.2), have particular relevance for biodiversity. They aim to compensate financially, over a period of five years, land users who go beyond legal requirements to control soil erosion, manage water quality and, more particularly, protect biodiversity (for example, management agreements for flower strips, field birds, meadow birds, small landscape elements, species-rich grassland or parcel borders). The area under VLM

biodiversity management agreements increased from 4 000 ha in 2007 to 9 000 ha in 2020 and from 180 km to 500 km for hedges and hedgerows (planting and maintenance).[19] These increases responded to the 2007 OECD EPR recommendation to enhance nature conservation on farmland.

At the regional level, Omgeving supervises both spatial planning policy (through VLM) and biodiversity policy (through ANB), which facilitates joint governance of nature development and nature management. VLM can acquire land and execute development works on the ground. VLM also provides the secretariat of the land commissions which carry out land consolidation operations by virtue of the law and determine compensation for loss of land value and for the voluntary relocation of businesses. In 2014, the Flemish High Council for Environmental Law Enforcement, which started operating in 2009, was given additional spatial planning responsibilities. It became the Flemish High Enforcement Council for Spatial Planning and the Environment (VHRM). VHRM thus became responsible for enforcement of both the Nature Decree and the Flemish Code on Spatial Planning. In 2020, VHRM was integrated into Omgeving's new department on environment and spatial planning.

Wallonia

Built-up (artificialised) land has increased by almost 40% over the past 30 years (since 1985) to house a growing population. This has come mainly at the expense of agricultural land, which has decreased by 6%. The loss of agricultural land has decreased, however, from -23 km^2/year in 1985-95 to -18 km^2/year in 1995-2005 and -13 km^2/year in 2005-15 (SPW, 2017a).

The sector plan (PS) is the legally binding tool for managing the expansion of artificial land ("land take") at the regional level. The region is covered by 23 PSs, adopted between 1977 and 1987. According to the data available in 2015, the PSs allocate 15% of Wallonia to areas intended for urbanisation (AIU) (SPW, 2017a). In 2015, two-thirds of AIU was artificialised and a third still available for urbanisation (still used mainly for agriculture). The PSs also provide that 1.3% of the land, the "concerted municipal development zones" (ZACC), is left to municipalities that may want it for urbanisation. In 2015, most of this land was not yet artificialised.

Pursuant to the Nature Conservation Act (article 29), plans and projects having negative impacts on the biodiversity of Natura 2000 sites may be authorised provided they are of major public interest, including social or economic, that there are no alternative solutions and that compensation (offsetting) be provided to preserve the coherence of the Natura 2000 network. The offsetting principle was enshrined in legislation in 2005. In accordance with the Walloon spatial planning policy,[20] any new AIU with significant environmental impacts can be offset either at the planning level (by converting an existing AIU or ZACC into an area not intended to urbanisation) or on the ground.

The Permanent Conference on Territorial Development, a multidisciplinary research platform created by the Walloon government in 1998, has developed a methodology to identify the areas most suited to urbanisation. The establishment of the SEP should also guide land-use planning decisions, including offsetting decisions. Initiated in 1995, the Municipal Nature Development Plan (PCDN) contributes to the establishment of SEP at the local level. However, like the Brussels-capital MNP, the PCDN is a voluntary management tool. Only 100 Walloon municipalities (out of 262) have committed to the PCDN approach despite the regional incentive (up to EUR 5 000 per year) to carry out SEP projects. The PCDN should be an integral part of the development of a functional ecological network with legal status. This would speed up the establishment of the network and its consistency at the regional level. It could be inspired by Denmark's progressive development of a "green map" at the national level as municipal land-use plans are revised.

However, the introduction in 2017 of the Territorial Development Code (CoDT) put an end to binding land-use plans at municipal level (Table 4.6). The Walloon government argued that the binding nature of the plans led to countless derogations (SPW, 2017b). The CoDT has also weakened urbanistic rules, which are now only indicative (Table 4.6).

Table 4.6. Spatial planning policy has weakened in Wallonia

CoDT (2017)		CWATUP (2009)	
	Status	**Measure**	**Status**
Regional scale			
Regional development scheme (SDT)	Indicative	Regional space development scheme (SDER)	Indicative
Sector plan (PS)	Binding	Sector plan (PS)	Binding
Regional planning guide (GRU)	Indicative & binding	Regional planning regulations (RRU)	Binding
Supra-municipal scale			
Multi-municipal development scheme (SDP)	Indicative	n.a.	
Municipal scale			
Municipal development scheme (SDC)	Indicative	Municipal structure scheme (SSC)	Indicative
Local orientation scheme (SOL)	Indicative	Municipal simple development plan (PCA)	Binding
		Urban and environmental report (RUE)	Indicative
Municipal planning guide (GCU)	Indicative	Municipal planning regulations (RCU)	Binding

Notes: CoDT = Territorial Development Code; CWATUP = Walloon Code of Spatial Planning, Town Planning and Heritage; n.a. = not applicable.
Source: SPW (2017b).

Moreover, the CoDT replaced the principle of land sparing from its predecessor, the Walloon Code of Spatial Planning, Town Planning and Heritage (CWATUP), by that of "rational use of land". Land sparing meant that the inclusion of new AIUs in PSs should only take place in the most severe cases of land scarcity. The CWATUP's regional space development scheme (SDER) aimed to combat the dispersal of housing, to densify the AIU, to recycle abandoned land and to protect nature areas. The new (rational) approach to land use could jeopardise these laudable commitments.

The CoDT has simplified the procedures for revising the PSs. The establishment of the SEP must be an integral part of the revision process if Wallonia is to reach the EU target of no net land take by 2050 (EC, 2016).

4.5.2. Agricultural policy

UAA in Belgium increased by 2.3% between 2005 and 2016 compared to a decrease of 0.6% in the EU-28 (Eurostat, 2019b). Unlike the EU-28 average, arable land is increasing (+ 1.2% in 2005-16), while permanent grassland and meadows are decreasing (-7.9% in 2005-16). In 2016, arable land covered 63% of the Belgian UAA, meadows and permanent grassland 35% and permanent crops 2%. Livestock density increased by 1.7% from 2013 to 2016 to 2.8 livestock units (LU)/ha of agricultural area, among the largest shares in the EU-28 (Eurostat, 2019c). In 2016, 47% of livestock in Belgium was made up of cattle, 40% of pigs and the remaining 13% of poultry. The number of farms in Belgium decreased considerably (by 30%) in 2005-17 (UNFCCC, 2019). The share of mixed crop-livestock farms remained low: 20% of the UAA in 2016 compared to 51% of farms specialising in livestock and 29% in crops (Eurostat, 2019b).

The trend in agricultural biodiversity is not good. According to OECD data,[21] common farmland bird populations (39 species) declined by almost half (49%) in 2000-18, the worst trend among the 22 OECD countries with such data. This reflects strong pressures. In particular, in 2011-15, with nearly 5 kg/ha of agricultural land, pesticide sales were the highest in the OECD after Israel, Japan, Korea and the Netherlands (OECD, 2019). In 2012-14, the nitrogen balance/hectare of agricultural land (138 kg) was the highest in the OECD after Japan, Korea and the Netherlands and twice the OECD average (67 kg) (OECD, 2019).

The area of organic farming (converted and under conversion) increased from 60 000 ha in 2012 to 89 000 ha in 2018, reaching the Belgian 2020 target of 88 000 ha (Eurostat, 2020). In 2018, 6.6% of the Belgian UAA was in organic farming (compared to 7.5% for the EU-28). This broke down to 64% permanent

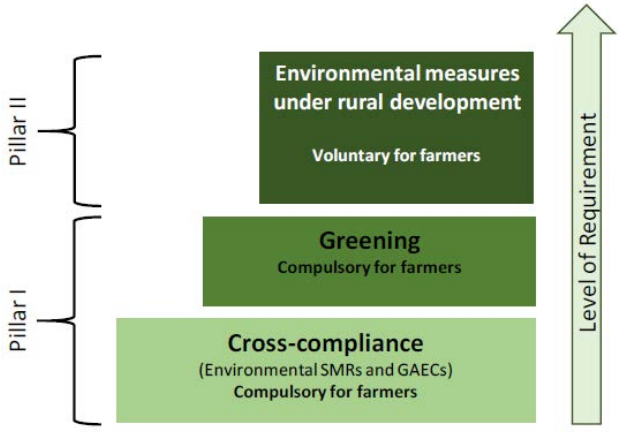
grassland, 35% arable land and 1% permanent crops (Eurostat, 2020). The share of Belgian UAA in organic farming rose to 6.9% in 2019 (11.5% in Wallonia) (Statbel, 2020).

In Wallonia, the General Directorate for Agriculture, Natural Resources and the Environment (DGARNE) of the SPW supervises both environmental policy and agricultural and forestry policies, which facilitates joint governance. In Flanders, agricultural and environmental policies are the responsibility of two different ministries, the Department of Agriculture and Fisheries (LV) and Omgeving respectively.

The framework of EU's Common Agricultural Policy

The EU's Common Agricultural Policy (CAP) influences biodiversity through the conditionality and greening of direct payments in Pillar I (which aims to support income) and the arbitration by member countries between the three rural development objectives of Pillar II – competitiveness, environment and climate, social inclusion (Figure 4.3). At EU-28 level, it is estimated that 30% of Pillar II spending (European Agricultural Fund for Rural Development – EAFRD)[22] and 12% of Pillar I (European Agricultural Guarantee Fund – EAGF)[23] contribute to the protection of biodiversity (EC, 2019).

Figure 4.3. Environmental provisions of the EU Common Agricultural Policy



Notes: SMR = Statutory Management Requirements; GAEC = standards for Good Agricultural and Environmental Condition of Land.
Source: Lotz et al. (2019).

All EU farmers are expected to comply with statutory management requirements (SMRs), irrespective of whether they receive support under the CAP. The SMRs cover compliance with the Natura 2000 legal framework (SMR3) and the 1992 Nitrates Directive (SMR1), the latter contributing to aquatic life by improving water quality. In addition to the SMRs, farmers receiving CAP support have to respect standards of good agricultural and environmental condition of land (GAEC). GAEC standards cover landscape features such as hedges, ponds, ditches, trees and field margins (GAEC 7) and contribute to the protection of water-dependent life through buffer strips along watercourses (GAEC 1) and the control of water withdrawal for irrigation (GAEC 2) and of groundwater pollution (GAEC 3).

The CAP 2014-20 supplemented the basic income support of Pillar I ("basic payment" based on the number of hectares cultivated) with "green direct payment"[24] (or "greening") to foster agricultural practices beneficial for the climate and the environment. Farmers receive green direct payment if they comply with three mandatory practices going beyond SMRs and GAEC standards: crop diversification (to make the soil more resilient), conservation of permanent grassland (to support carbon sequestration and protect

biodiversity) and ecological focus area – EFA (to create habitats for biodiversity). EU countries must allocate 30% of their Pillar I payments to "greening".

As part of greening, farms with more than 15 ha of arable land must devote at least 5% of the land to an EFA. The concept of EFA starts from the premise that many valuable habitats for biodiversity depend on appropriate farming practices not recognised by markets and therefore not reflected in the prices farmers receive for their produce (EC, 2017b). EFAs directly target biodiversity, such as fallow land, agroforestry, buffer strips, afforestation or landscape features, or indirectly, by reducing the use of inputs and/or improving soil protection, such as catch crops or nitrogen-fixing crops. The farm's EFA is based on the estimated impact of each type of EFA on biodiversity, using weighting factors between 0.3 (catch crops) and 2 (hedges), including 0.7 for nitrogen-fixing crops. In 2015, Belgian EFAs consisted mainly (87%) of catch crops and, to a much lesser extent, landscape features (4%), nitrogen-fixing crops (3%), fallow land (3%), buffer strips (1%) and bands along the forest (1%) (EC, 2017c).[25] Belgium is one of the few EU countries to impose additional criteria to improve the effectiveness of EFAs. Of the 31 EU-27 member states/regions, only Flanders, Wallonia, Germany and the Netherlands impose restrictions on inputs in catch crop areas (EC, 2017b).[26] However, the European Court of Auditors (ECA) has criticised the low level of requirements of the greening approach, which has not encouraged substantial changes in agricultural practices (ECA, 2017). The draft CAP 2021-27 proposes voluntary "eco-schemes" in Pillar I to support precision farming, organic farming, agro-ecology and agroforestry, as well as other approaches or specific practices relevant to climate change, management of natural resources and biodiversity (EC, 2020b).

Pillar II of the CAP (Rural Development Programme – RDP) encourages farmers (through specific direct payments on a voluntary basis) to implement biodiversity-friendly practices beyond those imposed by Pillar I (Figure 4.3). At least 30% of the Pillar II budget must be devoted to measures that benefit the environment and climate change. Belgium has gone beyond. More than half (52%) of the Belgian RDP 2014-20 budget (RDP III) is devoted to environment and climate, compared to 39% for competitiveness and 9% for social inclusion (Table 4.7). However, at 37%, the share of the RDP devoted more specifically to biodiversity, soil and water ("restoration, preservation and improvement of ecosystems") is lower than the EU-28 average (46%) (ENRD, 2016). This translates into a lower share of agricultural land under management to restore, preserve and improve biodiversity and landscapes[27] (11% compared to 18% at EU-28 level) (ENRD, 2016). In 2018, 7% of the Belgian UAA was under agri-environment-climate measures (AECM), well below the EU-27 average (13%)[28] and the Belgian target of 18.8% for 2020.

Table 4.7. Half of the Belgian rural development policy budget is devoted to the environment and climate

Measures of the Rural Development Programme 2014-20 (RDP III)	Policy priority[1]					Total	
	Competitiveness	Food chain organisation	Restoring, preserving and enhancing ecosystems	Resource efficiency and climate	Social inclusion and local development	(EUR million)	%
1. Knowledge transfer & information actions	28		11	2		41	3
2. Advisory services	11		11			22	1
3. Quality schemes							
4. Investments in physical assets	421	33	5	199[2]		658	42
5. Damage restoration & prevention actions							
6. Farm & business development	101			5	9	115	7
7. Basic services & village renewal			22		43	65	4
8. Investments in forest areas			5	7	4	16	1
9. Producers groups & organisations		2				2	0.1
10. Agri-environment-climate[3]			317	27		344	22
11. Organic farming			110			110	7
12. Natura 2000 & WFD			40			40	3
13. Areas with constraints			58			58	4
14. Animal welfare							
15. Forest-environment-climate							
16. Co-operation	0.5		0.5	0.5	14	15	1
17. Risk management		5				5	0.3
18. CLLD					65	65	4
Total EUR million %	561 (36%)	40 (3%)	579 (37%)	240 (15%)	135 (9%)	1 555 (100)	100
Of which, Flanders	386	16	223	236	55	924[4]	
Of which, Wallonia	175	25	355	5	79	654[5]	

Notes: WFD = EU Water Framework Directive. CLLD = Community-Led Local Development (initially known as LEADER from the French acronym for "Links between the rural economy and development actions").
1. No budget allocation shown for the priority “knowledge transfer and innovation”, as it is distributed across other policy priorities.
2. Including EUR 67 million for energy efficiency and EUR 131 million for GHG/ammonia mitigation.
3. Introduced in the early 2000s, the agri-environmental measures of the CAP were renamed agri-environment-climate measures (AECM) from the CAP 2014-20.
4. Including EUR 8 million in “technical assistance” and EUR 384 million in EU co-financing (EAFRD).
5. Including EUR 15 million in “technical assistance” and EUR 264 million in EU co-financing (EAFRD).
Sources: ENRD (2016); EC (2015a, 2015b).

There is, however, a great contrast between regions. In Flanders, the main priority of the RDP is to improve the viability and competitiveness of farms, in particular by supporting innovation and education, and young farmers (EC, 2015a). The RDP aims to help half of Flemish farms to restructure and modernise, while the

AECM aims to preserve biodiversity, water and soil on 8% of farmland (EC, 2015a). On the other hand, 44% of the Walloon RDP budget aims to protect the environment by supporting AECM, organic farming and Natura 2000 (EC, 2015b). Flanders pays as much attention to climate and air as it does to biodiversity, soil and water, which account for 26% and 24% of its RDP III budget respectively, compared to 1% and 54% respectively for Wallonia (Table 4.7). The Walloon RDP is more oriented towards the protection of biodiversity than water management (ADE-ULg-GxABT-Spices, 2019). The Walloon Region aims to put 20% of the UAA under management contract to enhance biodiversity against only 2% in Flanders (EC, 2015a, 2015b). The vast majority (92%) of the organic farming area in Belgium is in Wallonia (only 8% for Flanders). At the end of 2013, organic farming represented only 0.8% of the Flemish UAA (Flanders Government, 2015) against 11% for Wallonia (EC, 2015b). The same is not true for the Natura 2000 network, which covers around 5% of the Walloon UAA (Walloon Government, 2017) against 8% for Flanders. In 2018, the UAA covered 43% of the Walloon territory and the forests and moors 33% (SPW ARNE, 2020), against 31% and 14% in Flanders.

According to ADE-ULg-GxABT-Spices (2019), 15.5% of Walloon UAA was under biodiversity management contracts in 2017. This percentage includes AECM targeting biodiversity, Natura 2000 payments and part of organic farming, and considered the overlaps between them.[29] As provided for in Regulation (EU) 1305/2013, Natura 2000 payments have obvious benefits for biodiversity. They aim to compensate for additional costs and income forgone linked to the implementation of the Birds and Habitats directives. In accordance with the 2007 EU legislation on organic production,[30] organic farming also has a positive impact on biodiversity by limiting the use of synthetic pesticides. As AECM is based on the choice of agricultural practices and not on environmental performance (on results), it is less simple to assess its biodiversity effectiveness. As is the case for organic farming, Regulation (EU) 1305/2013 requires that AECM goes beyond the requirements of Pillar I and minimum requirements for use of fertilisers and pesticides established by national legislation, which can be expected to have a positive impact on biodiversity. However, Belgium should carefully identify the agricultural practices beneficial for biodiversity, including as co-benefits, based on the recent assessment by the European Court of Auditors of the effects of the CAP 2014-20 on biodiversity (ECA, 2020b). It is the most cost-effective way to steer agricultural policy towards incentivising biodiversity-friendly practices.

Farm nutrient management

Excessive use of nutrients in agriculture affects water-dependent biodiversity through water pollution (especially nitrates) and terrestrial biodiversity through air pollution (especially ammonia). Despite a 45% drop since 1990, ammonia emissions from Belgian agriculture remain well above the EU-28 average (44 against 20 kg/ha in 2015), among the highest levels of the EU-28 (Eurostat, 2017). In Flanders, the monitoring points for nitrates in surface water and groundwater with at least an overshoot of 50 mg/l were reduced from 36% in 2007 to 20% in 2015, but rose to 38% in 2018 (VLM, 2019). Nitrates pollution in Walloon groundwater has decreased, with poor quality monitoring points in the nitrates survey network decreasing from 8.2% in 2007-10 to 6.8% in 2015-18 (ADE-ULg-GxABT-Epices, 2019).

In response to the 2007 OECD EPR recommendation to revise nitrogen policies to reduce nutrient loading in water, several manure action programmes (MAPs) have been implemented since 2007. MAP 3 (2007-10) designated the entire Flemish territory as a nitrate vulnerable zone (NVZ) within the meaning of the EU Nitrates Directive. It also set up a system of tradable nutrient emission rights (NERs), administered by a manure bank.[31] MAP 4 (2011-14) introduced “focus areas” (“focusgebieden”)[32] where stricter standards for the use of manure apply depending on the type of soil and crop.[33] MAP 5 (2015-18) introduced the principle of in-depth evaluation of farms with the highest risk of nutrient loss (based on administrative data). Field checks of the NERs by the manure bank have been strengthened. MAP 6 (2019-22) is replacing the approach of the focus areas with a system of differentiation of watersheds into four types according to the distance to the EU Water Framework Directive (WFD) target. Type 0 watersheds are only subject to water quality monitoring. Requirements for catch crops or grassland apply

to watersheds of types 1, 2 and 3. Stricter N fertilisation standards apply to watersheds of types 2 and 3 and approved carriers must now transport the slurry. In addition, the second River Basin Management Plan (RBMP 2016-20) under the WFD delimits areas with insufficient surface water quality as spearhead areas ("speerpuntgebieden") and areas of attention ("aandachtsgebieden") depending on whether the WFD target of achieving good ecological status was set in 2021 or 2027.

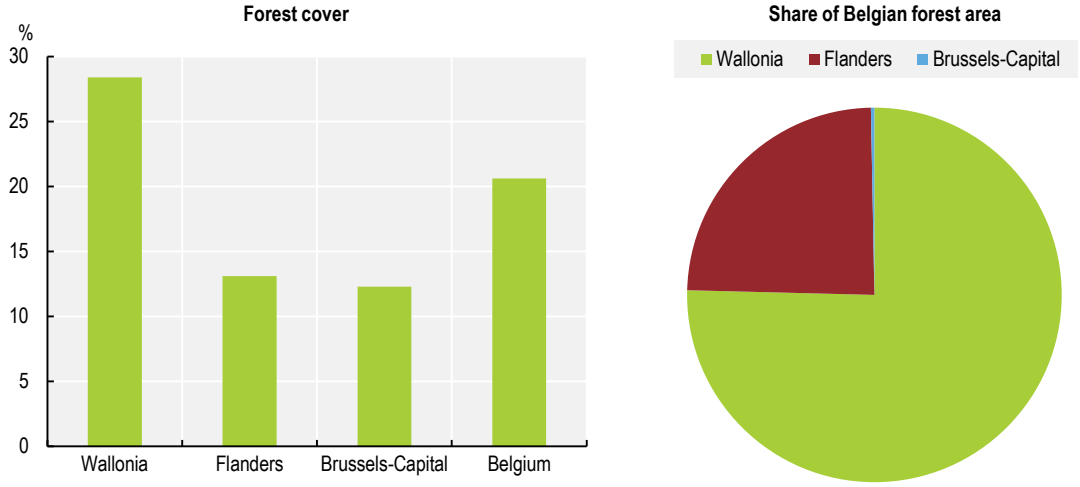
In Wallonia, the Sustainable Nitrogen Management Programme in Agriculture (PGDA) implements the Nitrates Directive. The third programme (PGDA III) has been in effect since 2014. NVZ covers 60% of the UAA. Each farm in the NVZ must have sufficient area to spread manure at an average rate of 170 kg N/ha/year. Restrictions also apply in terms of manure spreading periods and plant cover; in addition, residual nitrogen in the soil must be monitored each year in 5% of farms (Protect'Eau, 2017). In 2015, Wallonia introduced a tax on livestock effluents, fertilisers and pesticides (the "tax on the environmental burden generated by agricultural activities") (Section 4.4).

Manure policy in Flanders is largely based on direct regulation (Wiering et al., 2020). VLM is responsible for applying the 2006 Flemish Parliament Act on Manure.[34] In 2019, 47% of the administrative fines imposed by VLM concerned the stocking density (more animals than NERs), 25% nitrogen and phosphorus balances and 11% non-compliance obligations on manure processing (VLM, 2020). Flanders plans to introduce a "programmatic approach to nitrogen" (PAS) to regulate ammonia emissions from livestock farms located near the SACs. The approach is intended to be progressive so as not to jeopardise the continuity of operating licences; the PAS would provide for an initial period from 2020 to 2025, which could be extended to 2026-31. The measures (a combination of direct regulatory and financing instruments) would address housing standards, manure management and the quality of animal feed.

4.5.3. Forest policy

Three-quarters of Belgian forests are in Wallonia (Figure 4.4) and private forests (50% of Walloon forests, 60% of Flemish forests) are larger there than in Flanders (3.2 ha on average compared to 1.0 ha). Deciduous trees dominate in Wallonia (60% of the forests) whereas they are equally split with conifers in Flanders. Only 1 027 ha of the 544 000 ha of Walloon forests are forest reserves within the meaning of the law on nature protection, plus 5 544 ha of integral forest reserves under the Forest Code. Only 3 186 ha of the 140 000 ha of Flemish forests have the status of forest reserve, a status that will be re-evaluated according to the new types of nature management (Table 4.1). In addition, the trend in Belgian forest biodiversity is not good. According to OECD data,[35] forest bird populations declined by 18% in 2000-17, the worst trend of the 16 OECD countries with such data.

Figure 4.4. Three-quarters of Belgian forests are in Wallonia



Source: UNFCCC (2020).

StatLink https://doi.org/10.1787/888934231174

The Flemish Forest Decree of 1990 distinguishes only two categories of forests: public and private. Since 2016, the Flemish government has started mapping the "most vulnerable and valuable forests" (biological value), whose deforestation will be prohibited. Any deforestation of more than 3 ha must be compensated in kind. For stands that contribute to conservation objectives (according to article 2 of the Nature Decree), compensation must represent three times the area deforested. Deforestation of less than 3 ha can be compensated through a "contribution to forest conservation". This feeds a Compensatory Afforestation Fund (CAF), created in 2001, whose resources are allocated to afforestation by public entities. The contribution to CAF is calculated using a "forest offset factor", which can vary between 1 (an offset forest of the same size) and 3 (the offset forest is three times the size of the area felled) according to the type of forest and its ability to achieve conservation objectives. CAF money has been used since 2011 to fund afforestation projects that involve the purchase and afforestation of areas of at least 0.5 ha. Anyone who submits a project and meets these requirements is eligible for a grant regardless of the ecosystem services provided. The offset factor is applied to a fixed rate of EUR 3.66/m². However, a fixed rate does not guarantee the same number of hectares can be bought as that which has been deforested. Therefore, the contribution to the CAF should compensate for the market value of the land (deforested).

On the other hand, the Flemish RDP supports afforestation and reforestation to promote mixed forests compatible with the Natura 2000 objectives. For afforestation, the amount of aid is based on the average afforestation costs (plus compensation for loss of income for farmers) and management costs in the first years of afforestation. Flemish RDP III aims to afforest 1 400 ha of agricultural land and to reforest 1 900 ha with respective budgets of EUR 7.6 million and EUR 5.5 million over 2014-20. The financial support covers the planting and maintenance of trees and, for afforestation, the loss of agricultural income for 12 years after planting. VLM management contracts support the protection of biodiversity in 0.6% of productive forests (EC, 2015a). In 2016, Wallonia introduced a reforestation subsidy (up to 3 ha/forest owner) to stem the trend of deforestation in small private forest properties (less than 5 ha). RDP III supports the creation of long-term agroforestry systems (for at least ten years) and plans to increase their area by 150 ha for Flanders and by 3 000 ha for Wallonia.

The Walloon Forest Code provides for exemption from inheritance and gift taxes and, for Natura 2000 sites, from property taxes. In Flanders, inheritance, gift and property tax exemptions are linked to the extent

of nature protection (Table 4.1). The exemption from inheritance tax based on the value of standing timber, as is the case in Wallonia, encourages long-lived forest species. In Wallonia, the first 20 years of planting (or natural regeneration) are almost exempt from the property tax (EUR 2.5/ha/year).

In 2006, Flanders opted for group certification of forests within the framework of a regional scheme of the Forest Stewardship Council (FSC) managed by the ANB. In 2018, 14% of the Flemish forest was FSC-certified, including public and private forests. FSC certification requires a forest management plan according to the criteria for SFM set by the Flemish government. Wallonia is committed to the Programme for the Endorsement of Forest Certification (PEFC) for SFM. In 2014, 54% of the Walloon forest area was PEFC-certified (including more than 90% of public forests managed by the Department of Nature and Forests). The federal law of 1999 supported the creation of forest groups (FG), non-profit organisations that receive provincial support for their contribution to SFM.[36] In all, 37% of Flemish private forests and 4% of Walloon private forests have entrusted their management to FGs. This responds well to the 2007 OECD EPR recommendation to promote joint management of private forests to create economies of scale and foster SFM.

A 2011 voluntary agreement between the Federal Public Service Health, Food Chain Safety and Environment (FPSHFCSE) and the wood industry provides that at least 35% of primary wood products (round wood, sawn timber, wood-based panels) sold on the Belgian market come from sustainably managed forests by the end of 2018. The target was quickly exceeded, with a share of 40.5% in 2012. A new agreement is being prepared to extend the scope to secondary wood products (furniture, paper). Since 2015, Flemish communities have been encouraged to use certified wood in their public procurement, on a voluntary basis; the ANB has developed information material for this purpose.

In Wallonia, the 2008 Forest Code prescribes leaving dead or fallen trees in place, keeping at least one tree of biological interest per 2 ha, and the creation of integral forest reserves in deciduous stands. The Code recommends a forest of mixed species and ages for better resistance to storms, droughts and heat waves. Flanders decided in 2017 to gradually merge, by 2024, the Forest Decree of 1990 and the Nature Decree of 1997. Since 2017, the INM criteria have replaced the SFM criteria for the management plans of natural forest areas in Type 2, 3 and 4 (Section 4.3). In Flanders, the right to collect seeds from seed stands can be auctioned. The selection of seed stands in old growth forests is a good way to protect forest biodiversity; these stands are de facto protected and often harbour abundant biodiversity due to their age. Belgium is an active member of the OECD Scheme for the Control of Forest Reproductive Material Moving in International Trade, which advocates the delimitation of seed stands in the participating countries.

4.5.4. Climate policy

A means of private financing for biodiversity is to remunerate the service of carbon sequestration by ecosystems. Three levers can reduce GHG emissions/increase removals from the LULUCF sector, all of which can be expected to have co-benefits for biodiversity:

- carbon stocks in forests – sustainable forest management, afforestation, changes in forestry practices, adaptation to climate change, protected areas, incentives for long-term use of wood (harvested wood products)
- agricultural practices – increase long-term carbon storage in soils or reduce soil emissions (reduced fertilisation and associated N_2O emissions)
- replace fossil fuels with sustainably produced biomass.

Forests remain the largest carbon sink in Belgium (-1 250 Gt CO_2 eq in 2018), followed by grasslands (-810 Gt CO_2 eq), whose carbon removal has increased steadily since 1990 (UNFCCC, 2020). Harvested wood products remain a sink (-280 Gt CO_2 eq) despite a significant reduction in removal since 1990. Wetlands are carbon neutral. GHG emissions from cropland have increased steadily since 1990, reaching +840 Gt CO_2 eq in 2018. The steady increase in urbanisation since 1990 has resulted in emissions from

soil carbon stocks of + 500 Gt CO_2 eq. Nitrous oxide (N_2O) and methane emissions increased steadily from 2-3% in 1990 to around 6% of LULUCF sources in 2018, mainly due to N_2O emissions from agricultural soils. Overall, LULUCF removals have decreased significantly from 3 200 to 1 000 Gt CO_2 eq between 1990 and 2018.

Several CAP measures are expected to help improve LULUCF carbon uptake. In cropland and grassland, the key voluntary carbon removal measures are the AECM and organic farming (Pillar 2 of the CAP), in addition to the greening and cross-compliance requirements (Pillar 1 of the CAP). In cropland, nutrient management to improve water quality also helps mitigate GHGs as a co-benefit.

Under the EU Effort Sharing Regulation (ESR), Belgium must reduce its GHG emissions outside the EU Emissions Trading System (ETS) by 35% between 2005 and 2030 (Chapter 1). Non-ETS emissions cover the agriculture, housing, transport and waste sectors. The 35% reduction target does not apply to emissions and removals from LULUCF, which are covered by the Kyoto Protocol of the United Nations Framework Convention on Climate Change and from 2021 by the LULUCF Regulation.[38] The LULUCF regulation requires that emissions from land use be fully offset by an equivalent removal in the land-use sector (the "no debit" rule), while allowing for some flexibility. In particular, “managed forest land flexibility” can be used to comply with the LULUCF no debit rule, up to 2.2 million tonnes of CO_2 offset for 2021-30 (compared to a 1990 baseline of forest emissions).

LULUCF net emissions can be transferred to the ESR (i.e. in non-ETS sectors) to meet the “no debit” commitment. This means that emissions from deforestation can be offset by reducing emissions in the agricultural sector. Conversely, efforts in the LULUCF sector (increasing removals or reducing emissions) can contribute to the agricultural sector's compliance with the ESR. Flexibility also translates into the possibility of exchanging (borrowing of transferring) net removals between EU countries.[39] It is an incentive to remove CO_2 beyond the no debit commitment and therefore to afforest, but also an opportunity to offset net LULUCF emissions and therefore to deforest.

In Belgium, exceedances of the annual allocation for non-ETS emissions can be offset by removals from the LULUCF sector up to 3.8 million tonnes of CO_2 over 2021-30, provided these removals result from the no debit rule and no net removals have been acquired from other member states. The LULUCF sector includes the following components: afforested land, deforested land, managed cropland, managed grassland, managed forest land and managed wetland.

The revision of the EU ETS directive in 2009 (addition of article 24a) opened the possibility of offsetting ETS emissions by reducing non-ETS domestic emissions. In other words, carbon credits can be used for compliance purposes within the framework of the EU ETS. The objective is to facilitate the achievement of the EU reduction commitment economy wide (the non-ETS sectors represent around 55% of all EU’s GHG emissions).[40]

The Belgian National Energy and Climate Plan (NECP) aims to prevent the LULUCF sector from being a net source of emissions (thus complying with the EU no debit rule) (CONCERE-NCC, 2019). Any LULUCF net carbon sink can be used to offset emissions under the ESR, with a cap. Conversely, any LULUCF net carbon emission must be offset within the ESR. However, the NECP does not quantify the removals required for each LULUCF component, or the measures to achieve it, for the sector to remain a net sink until 2030.[41]

Flanders has set the target of a neutral or positive LULUCF balance (satisfying the no debit rule) in 2021-30 (CONCERE-NCC, 2019). Therefore, neither the purchase of an additional LULUCF emission quota in Belgium or in other EU countries, nor drawing from the annual ESR (non-ETS) emission allowances should be necessary. To comply with the no debit rule, a LULUCF action plan will be drawn up by 2021. The measures envisaged include the development of a soil carbon monitoring network and short- and medium-term strategies in the fields of forestry and nature, agriculture, water and space.

In Wallonia, forest management, the largest carbon sink, aims to avoid being a net source of emissions (CONCERE-NCC, 2019). Recent measures encourage the adaptation of Walloon forests to climate change to maintain or improve their carbon sequestration. This includes information measures (treatment standard for black spruce, Walloon Forest Health Observatory since 2011, "Climate change and its impact on Walloon forests" published in 2017, ecological file of species[42] revised in 2017), as well as provincial incentives for reforestation. However, future land-use changes, in particular the conversion of forests and grasslands, could make the LULUCF sector a (relatively low) source of emissions rather than a carbon sink. The 2008 Walloon Forest Code introduced incentives for better conservation of forests and forest carbon (Section 4.5.4). Incentives for the production of high quality wood fosters wood as a substitute for less carbon-friendly materials. Shorter rotation conifer plantations aim to increase the supply of wood and the storage of carbon in harvested wood products.

4.5.5. Pesticide policy

Pesticide sales in Belgium decreased by 5% between 2011-13 and 2016-18.[43] Three-quarters of sales are fungicides and herbicides. Belgium is one of the few EU countries (along with Denmark, France, Greece and Germany) to have set high-level measurable targets for pesticides as part of its National Action Plan for the sustainable use of pesticides (NAPAN) (EC, 2017a). However, the data collected to measure the environmental risks and impacts of the use of plant protection products are not sufficient to allow effective monitoring (ECA, 2020a).

Since 2013, NAPAN has brought together the objectives and measures of pesticide reduction programmes at the federal and regional levels[44] and includes joint actions. NAPAN covers a period of five years (2013-17 and 2018-22).[45] Federal and regional authorities are responsible, within their respective areas of competence, for implementing NAPAN. Co-ordination is ensured by a NAPAN Task Force comprising representatives of each competent authority. Stakeholders are represented on the NAPAN Advisory Council, which meets quarterly. NAPAN implements Directive 2009/128/EC establishing a framework for Community action to achieve sustainable use of pesticides.

Directive 2009/128/EC requires farmers to apply integrated pest management (IPM)[46] and non-chemical alternatives. This means they should only turn to pesticides if prevention and other methods fail or are ineffective. Although it is mandatory for farmers to apply IPM, they are not required to keep records of how they applied it and enforcement is weak (ECA, 2020a). The CAP encourages the sustainable use of pesticides by supporting advisory services, the acquisition of precision farming and mechanical weeding equipment, organic farming, AECM and Natura 2000 sites. However, IPM is not part of the cross compliance or green payment requirements. In Brussels-Capital, subsidies for the Good Food Strategy[47] (EUR 2.5 million in 2018) are subject to compliance with the IPM. Wallonia is setting up pilot farms to disseminate the IPM practice for the main crops. In Flanders, IPM is required by law through the 2013 Decree on Sustainable Use of Pesticides; agricultural practice centres ("praktijkcentra") disseminate IPM guidelines (IPM-richtlijnen). The main agricultural organisations, processors and traders in Belgium set up in 2003 a common quality control system called "Vegaplan", which covers IPM. More than 44% of Belgian farms are Vegaplan-certified. The Vegaplan standards reproduce the sector guides of the Federal Agency for the Safety of the Food Chain (AFSCA); AFSCA annual fees and inspection frequency are reduced for Vegaplan-certified farmers.

NAPAN provides for the development of IPM directives and, more generally, directs risk management on direct regulation and information measures. In addition to wildlife protection measures (Table 4.8), NAPAN regulates the inspection of sprayers, the handling and storage of pesticides, and the use of pesticides in public spaces. NAPAN also applies to drinking water protection areas, which contributes to the preservation of water-dependent ecosystems.

Table 4.8. The national pesticides action plan addresses the protection of wildlife

Competent authority	Target	NAPAN 2018-22 measures	Key success factor
Federal	Pollinators	Pesticide authorisation procedure (DER)	Second Federal Action Plan for bees
Brussels-Capital	Protected natural areas	Raise awareness of the ban on pesticides in these areas (IM & DER)	List of residents and neighbours within 60 m of protected natural areas
		Limit derogations to the Pesticides Order (DER)	Use of pesticides authorised by derogation
	New potential areas for the REB	Raise awareness of the biodiversity benefits of protecting these areas from pesticides (IM)	Communication on the list of areas of interest for the REB
	Pollinating insects	Monitor habitat and nesting areas (IM)	Adopt an action plan for bees and wild pollinators
Flanders	VEN	Raise awareness of the ban on pesticides in VEN (IM & DER)	Awareness-raising materials developed
	Protected species	Raise awareness of the benefits for protected species of restricting the use of pesticides in their habitat (IM)	Create an inventory of protected species' habitats affected by pesticides
Wallonia	Buffer zones along watercourses	Simplify and harmonise technical prescriptions (regulations on nitrates, pesticides, cross compliance, ecological focus areas) (DER)	Amend legislation, where appropriate

Notes: NAPAN = National Action Plan for the Sustainable Use of Pesticides. DER = direct environmental regulation; IM = information measure. REB = Brussels Ecological Network. VEN = Flemish Ecological Network.
Source: FPSHFCSE (2018).

Measures have been taken to follow up on the 2007 OECD EPR recommendation to bolster efforts to reduce pesticide contamination of water sources. In Brussels-Capital, the ban on the use of pesticides in close protection zones for drinking water intakes, in force since 2013, was extended to the entire protection zone in 2016. In Wallonia, in 2019, “prevention and surveillance zones” were defined around drinking water intakes. These zones prohibit use of pesticides and fertilisers 6 m on each side of watercourses (a buffer zone covered with permanent vegetation is set up for this purpose).

Since 2013, Wallonia has prohibited use of pesticides in public spaces (“zero phyto”). Municipalities must report annually on the use of pesticides to the SPW (by keeping a register). In 2018, the federal government banned the use of synthetic herbicides such as glyphosate for home gardens.

In 2015, Wallonia introduced a tax on livestock effluents, fertilisers and pesticides (the “tax on the environmental burden generated by agricultural activities”). The initial tax rate of EUR 10 per “environmental load unit” (UCE) is indexed annually to inflation. The UCE for livestock is estimated by applying a coefficient to each type of livestock based on annual nitrogen production, with decreasing rate from cattle to pigs and poultry. The crop UCE applies a multi-criteria coefficient (residual nitrogen in the soil, use of pesticides, risk of soil erosion) with a reduced rate for organic farming (by half) and for meadows (five times lower than for annual crops). The calculation of the UCE does not apply to farms with manure storage facilities conforming to the law and to the first 30 ha of crops; a derogation is granted. Tax revenue increased from EUR 0.9 million in 2016 to EUR 1.1 million in 2019. The instrument aims to reduce water pollution by nitrates, pesticides and soil erosion. However, even with a reduced rate, the tax goes against the CAP financial support for organic farming as prescribed by Regulation (EC) 834/2007. It does not consider the possible side effects of nitrate abatement measures on air pollution (ammonia) and GHG emissions (N_2O) given the nitrogen cycle.

At the federal level, however, reduced VAT rates are granted to fertilisers (6%) and pesticides (12%). Pesticide taxation is a regional responsibility, with the federal government ensuring that pesticides on the market comply with health and environmental standards. The principle of risk-based taxation of pesticides, as implemented in Denmark (Box 4.3), could be introduced as part of the Belgian strategy for the protection of pollinators, which is being drawn up (Box 4.4).

Box 4.3. The Danish tax on pesticides

In 2013, the pesticide tax – introduced in 1996 – was changed from a value tax to a weight tax differentiated according to load indicators. The new tax has four elements:

- health tax (for the health of farmers spraying the pesticides)
- environmental tax (for the toxic effects on biodiversity)
- general pollution tax
- basic tax of DNK 50 (EUR 6.7)/kg or l of active substance.

The rates and the many factors and parameters used to calculate the load are calibrated so that the basic tax is 10% of total revenue and the three other taxes are around 30% each.

For health effects, each effect (e.g. toxic is swallowed, toxic is inhaled, may cause harm to breast-fed children) is assigned a load value. The loads for all effects that apply to a given pesticide are added and multiplied by the tax rate (DNK 107 (EUR 14.4)/kg of pesticide). For environmental effects, each species (birds, mammals, bees, earthworms, fish, aquatic plants, algae, daphnia) is assigned i) a reference value; ii) a parameter specific to the pesticide; and iii) a load factor set in the tax bill. For each species, the load is the division of the first two multiplied by the third. The loads of all species are added and multiplied by the tax rate (DNK 107 (EUR 14.4)/kg of active ingredient). For general pollution, each effect (persistence, risk of leaching into groundwater, bioaccumulation) is assigned i) a pesticide-specific value; ii) a reference value; and iii) a weight. The load is the division of the first two multiplied by the third. The loads for the three effects are added and multiplied by the tax rate (DNK 107 [EUR 14.4]/kg of active ingredient).

The tax rates will increase in 2021 and 2024, respectively DNK 52.75 and 55.65 (EUR 7.1 and EUR 7.5) for the basic tax and DNK 112.88 and DNK 119.09 (EUR 15.2 and EUR 16.0) for the other three taxes.[48] Tax revenues are returned to farmers through reduced property taxes.

Box 4.4. Belgium pays special attention to pollinators

NAPAN 2018-22 pays particular attention to pollinators, following the adoption in 2017 of a new national risk assessment procedure for bees.[49] A working group on pollinators created within the framework of the federal plan 2012-14 "The health of bees, our health too" has become the national concertation body for the preservation of bees (wild and domestic). The second federal bee plan 2017-19 is under evaluation.

Brussels-Capital is working on a pollinator strategy to prevent honeybees from depriving wild bees of floral resources. Neonicotinoid insecticides have been banned since 2017 and similar active substances (such as sulfoxaflor and flupyradifurone) since 2019. An atlas of wild bees in the region (wildbnb) is in preparation (193 species listed in late 2019). Several research projects focus on urban pollinators, stressors and conservation measures (Brubees, Urbeestress, Toxiflore, StreetBees).

4.5.6. Economy, development co-operation, science policy and transport

The 2009-13 Federal Plan for the Integration of Biodiversity in Four Key Federal Sectors (PFIB) was drawn up in response to the second Federal Sustainable Development Plan 2004-08 (FPSHFCSE, 2015). In the PFIB, the federal government proposed developing action plans to integrate biodiversity into the economy,

development co-operation, science policy and transport. Discussions are underway to follow up on the PFIB as part of the implementation of the updated NBS.

4.5.7. Trade and biodiversity

Positive steps have been taken to better control trade in endangered species, invasive alien species and illegal timber. Belgium could usefully assess the effectiveness of such measures to reduce the risk of a global health crisis. It could consider, as appropriate, introducing criteria of co-benefits for human health in trade measures to protect biodiversity.

In 2017, a "species inspection" unit was created within the Directorate-General for the Environment of the FPSHFCSE. This unit monitors compliance with i) the EU Wildlife Trade Regulations (1997, 2006),[50] which implement the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); ii) the EU Timber Regulation (2010),[51] which promotes due diligence in placing timber on the EU market to avoid the marketing of illegally harvested timber inside or outside the EU; and iii) the EU Invasive Alien Species Regulation (2014). This has led to a considerable increase in the number of inspections and of sanctions. The implementation of CITES is co-ordinated at the federal level between the FPSHFCSE, Customs and Excise (C&E) and the Federal Agency for the Safety of the Food Chain (FASFC). However, there is still no co-operation agreement between the federal authority and the regions on the distribution of powers (in particular, issuing permits and organising controls). This hampers more effective implementation of the CITES Convention, which is all the more necessary: it is a means of reducing the risk of a pandemic linked to contact between wild species and humans in the tropics.

Since 2006, federal authorities can only buy certified wood from sustainably managed forests as part of their procurement policy. A circular sets the criteria to be respected by wood certification systems. Federal controls and sanctions imposed on the import and marketing of illegally harvested timber have been strengthened. This contributes to reducing the destruction of natural environments and the migration of wild animals due to deforestation. Therefore, it also reduces the risk of transmission of human infectious diseases by wild animals in the tropics.

In 2018, a co-operation protocol was signed between FPSHFCSE, C&E and FASFC to improve border controls to prevent the introduction of invasive alien species (IAS) in Belgium. In early 2019, a co-operation agreement was signed between the federal level, the regions and the communities[52] on preventing the introduction and managing the spread of IAS. In 2017, an innovative partnership between public agencies, academics and non-governmental organisations gave birth to the Tracking Invasive Alien Species (TrIAS) research project. TrIAS assesses the impact of climate change on the emergence of new IAS and the risk they may represent for Belgium (Vanderhoeven et al., 2017). The National Adaptation Plan (to climate change) 2017-20 resulted in federal funding[53] for the expanded TrIAS project (2017-21).

Recommendations on biodiversity

Institutional and policy framework

- Align objectives of the Belgian National Biodiversity Strategy and regional biodiversity policies with those of the EU Biodiversity Strategy for 2030; mainstream the new biodiversity objectives in Belgium's strategic plan to implement the post-2020 Common Agricultural Policy by setting biodiversity targets for agriculture and identifying beneficial agricultural practices to achieve them.

Policy mix

- Extend biodiversity and climate policy to a nature-based solution approach, combining the objectives of environmental services and well-being with that of protecting nature; promote payments for these nature-based environmental and well-being services.
- Introduce a tax on the use of pesticides based on health and environmental risks (as in Denmark); accelerate the development and adoption of a Belgian pollinator strategy introducing the principle of risk-based pesticide taxation.
- Introduce a tax on grey infrastructure (e.g. tax on building permits as in France, housing tax as in Japan), the proceeds of which could be used to finance nature protection.

Mainstreaming biodiversity in other policies

- Further mainstream biodiversity in spatial planning, in particular to improve ecological connectivity and avoid further fragmentation of habitats; in Flanders, speed up the release of the regional spatial policy plan to achieve the objective of no net land take by 2040; in Wallonia, extend the concept of "Main Ecological Structure" to that of a functional ecological network with legal status; in BCR, protect and manage nature on undeveloped land for which the Regional Land-Use Plan provides for legal protection of biodiversity.
- Assess and promote the biodiversity co-benefits of policy measures aimed at achieving net carbon sequestration in the land use, land-use change and forestry sector.
- Develop a national policy on the trade in exotic animals and plants to promote synergies between federal and regional policies for a more effective implementation of the CITES Convention.
- Develop a national policy to tackle imported deforestation; consider joining the Amsterdam Declarations Partnership.

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Notes

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[2] www.inbo.be/nl/natuurindicator/de-staat-van-instandhouding-van-de-habitattypen-van-de-habitatrichtlijn, www.inbo.be/nl/natuurindicator/de-staat-van-instandhouding-van-de-soorten-van-de-habitatrichtlijn, http://etat.environnement.wallonie.be/contents/indicatorsheets/FFH%201.html, http://etat.environnement.wallonie.be/contents/indicatorsheets/FFH%206.html (accessed 6 July 2020).

[3] https://dopa-explorer.jrc.ec.europa.eu/ (accessed 7 June 2020).

[4] The BPNS covers 3 454 km².

[5] The Bonn Agreement (1969) aims to combat pollution of the North Sea by oil and hazardous and noxious substances.

[6] Targets in line with the new 2019-24 coalition agreement; the plan also provides for carbon sequestration in agricultural soils, the preservation of open spaces, the multifunctional management of wetlands and the greening of cities.

[7] EU law requires that GHG emissions from the LULUCF sector be offset by actions in the sector during 2021-30.

[8] Local governments can only develop NMPs of Type 2 and higher.

[9] In case of sale of the land, the NMP is transferred to the new owner.

[10] The creation of ANB in 2006 enabled joint governance of biodiversity and forestry.

[11] High nature value (HNV) farmland indicates the area where farming systems are sustaining a high level of biodiversity.

[12] https://translate-en.city.yokohama.lg.jp/kurashi/koseki-zei-hoken/zeikin/midorizei/midorizei.html.

[13] Following the PRDD of 1992 and 2002.

[14] VITO stands for Vision on Technology for a Better World.

[15] Inspired by that developed by Plante & Cité in France.

[16] Drawing on the CBS tool developed in Berlin.

[17] Other SEAs have been carried out or are in progress concerning SIPs relating to energy, transport and agricultural infrastructure.

[18] Land and Soil Protection, Subsoil and Natural Resources Division (ALBON).

[19] www.inbo.be/nl/natuurindicator/oppervlakte-beheerovereenkomsten-met-natuurdoelen (accessed 7 July 2020).

[20] Within the Wallonia Public Service (SPW), the Directorate General for Agriculture, Natural Resources and the Environment (DGARNE) oversees environmental policy (as well as agricultural and forestry policies), while spatial planning policy is the responsibility of the Directorate General for Territory, Housing, Heritage and Energy (DGTLPE).

[21] http://dotstat.oecd.org/ (accessed 6 June 2020).

[22] Regulation (EU) 1305/2013 of the European Parliament and of the Council on support for rural development by the EAFRD.

[23] Regulation (EU) 1306/2013 of the European Parliament and of the Council on the financing, management and monitoring of the CAP (CAP horizontal regulation).

[24] Regulation (EU) 1307/2013 of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the CAP.

[25] Denmark, Germany, Luxembourg and the Netherlands also mainly use catch crops for their EFAs.

[26] Wallonia also imposes restrictions on inputs in areas of nitrogen-fixing crops.

[27] Including Natura 2000 areas, areas facing natural or other specific constraints and high nature value (HNV) farmland.

[28] https://agridata.ec.europa.eu/extensions/DashboardIndicators/Environment.html?select=EU27_FLAG,1 (accessed 23 October 2020).

[29] 23.4% of the AECM surface is part of the Natura 2000 network.

[30] Council Regulation (EC) No 834/2007 on organic production and labelling of organic products.

[31] In 2018, 20% of the 310 million NERs available were not used (VLM, 2019).

[32] Areas where nitrate concentrations exceed 50 mg/l in surface water or do not improve sufficiently in groundwater.

[33] Derogations by plot are possible, as long as the limit of 170 kg manure N/ha/farm imposed by the Nitrates Directive in the NVZ is not exceeded; in 2018, 14% of agricultural land requested derogations.

[34] Law on the protection of water against pollution caused by nitrates from agricultural sources.

[35] http://dotstat.oecd.org/ (accessed 6 June 2020).

[36] Each forest owner can join a FG free of charge and without obligation.

[38] Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land-use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0841&from=EN.

[39] Up to 10% of the annual allocation for the following year between 2021 and 2025 and up to 5% from 2026 to 2029.

[40] Unlike Clean Development Mechanism (CDM) and Joint Implementation (JI) credits, this mechanism is independent of the Kyoto Protocol.

[41] See https://ec.europa.eu/energy/sites/ener/files/documents/necp_factsheet_be_final.pdf.

[42] A tool to assess the suitability of species for different ecological conditions.

[43] http://dotstat.oecd.org/?lang=en (accessed 12 September 2020).

[44] The Federal Plan for the Reduction of Plant Protection Products, the Brussels-Capital Region Pesticide Reduction Programme, the Flemish Action Plan for the Sustainable Use of Pesticides and the Walloon Pesticide Reduction Programme.

[45] The first five-year federal action plan on pesticides was launched in 2005; it was extended until 2012.

[46] IPM involves agricultural practices (for example, crop rotation, stale seedbed, date and density of sowing, under-sowing, conservation tillage, balanced fertilisation) and protection of beneficial organisms by ecological infrastructures.

[47] Co-funded by EU cohesion policy, the strategy promotes local food supply chains (targeting producers in the Flemish provinces neighbouring Brussels).

[48] https://skat.dk/skat.aspx?oid=1946630 (accessed 12 September 2020).

[49] https://fytoweb.be/fr/nouvelles/nouvelle-approche-nationale-pour-levaluation-du-risque-pour-les-abeilles.

[50] The “suspension regulation” (2019) updates the list of species whose introduction into the EU is prohibited, with an indication of their country (ies) of origin.

[51] Timber and timber products covered by permits under the Forest Law Enforcement, Governance and Trade FLEGT Regulation (2005) or CITES are considered to comply with the requirements of the EU Timber Regulation; in late 2016, Indonesia became the first country to issue FLEGT licences.

[52] Dutch, French and German speaking communities.

[53] Via the Belgian Science Policy Office (BELSPO), who manages research programmes on behalf of the federal government, under the BRAIN programme (Belgian Research Action through Interdisciplinary Networks).