EUROPEAN
COMMISSION

Brussels, 4.2.2025
SWD(2025) 16 final

COMMISSION STAFF WORKING DOCUMENT

Third River Basin Management Plans
Second Flood Hazard and Risk Maps and Second Flood Risk Management Plans
Member State: Belgium

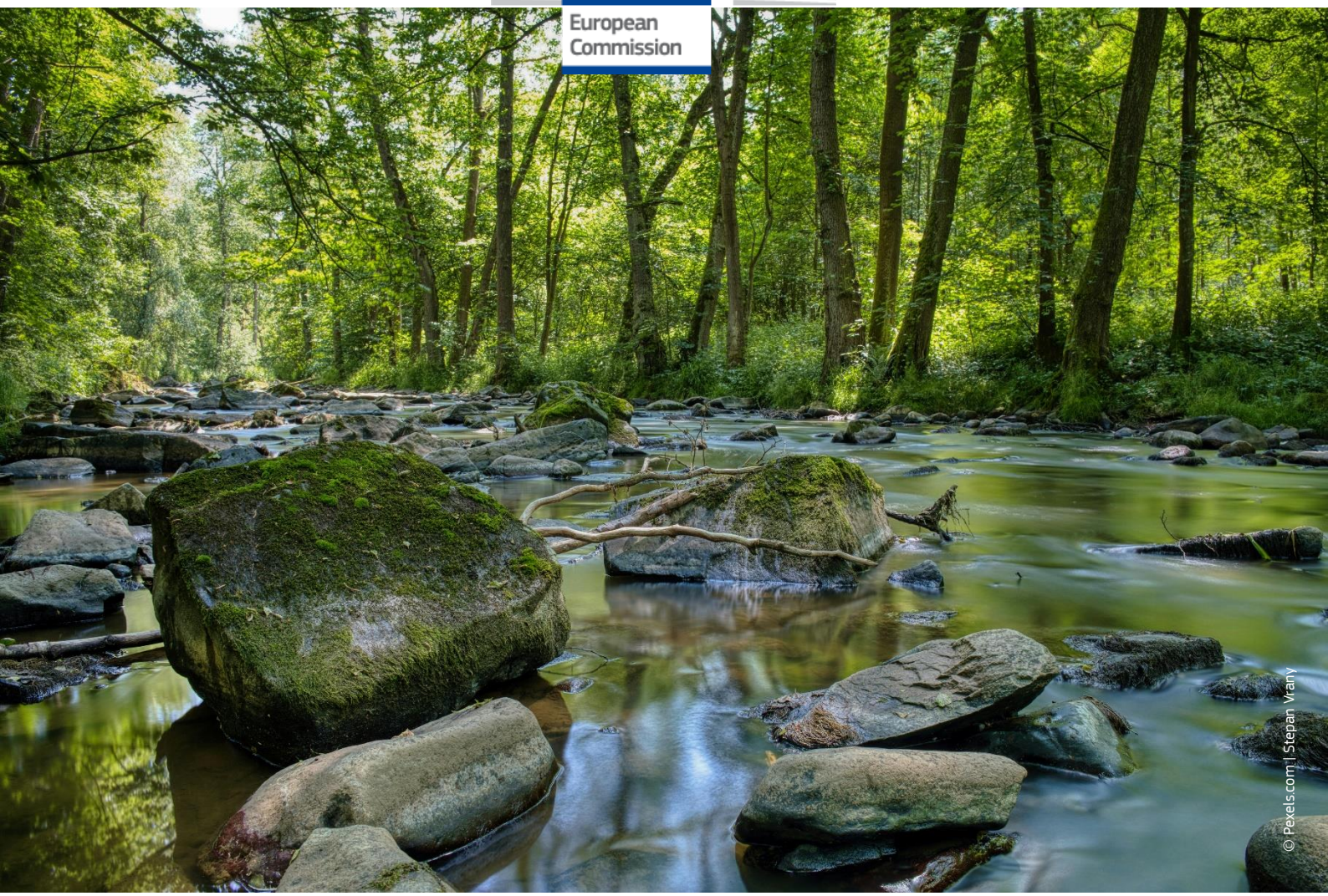
Accompanying the document

REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC)

Third River Basin Management Plans
Second Flood Risk Management Plans

{COM(2025) 2 final} - {SWD(2025) 13 final} - {SWD(2025) 14 final} -
{SWD(2025) 15 final} - {SWD(2025) 17 final} - {SWD(2025) 18 final} -
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Country specific staff working document

Belgium



ENVIRONMENT

Content

Content 2

SECTION A: WATER FRAMEWORK DIRECTIVE 3

1. General info, Member State characterisation 4

2. Horizontal aspects 8

2.1 Governance 8

2.2 Characterization of River Basin District 9

3. Policy elements contributing to biodiversity and climate change adaptation 10

3.1 Surface Water: what is their ecological status or potential 10

3.2 Hydromorphological changes and artificialization (HMWBs and AWBs) 12

3.3 Groundwater bodies - have they sufficient water – quantitative status 13

3.4 Protected Areas (identification, monitoring, objectives and measures) 14

3.5 What is being done to prevent/reduce hydromorphological pressures 15

3.6 What Belgium is doing for abstractions and water scarcity 16

3.7 Adaptation to climate change 18

4. Policy elements contributing to zero pollution 19

4.1 Surface Water: what is their chemical status 19

4.2 Groundwater Bodies: what is their chemical status 23

4.3 What Belgium is doing to combat pollution from agriculture 24

4.4 What Belgium is doing to combat pollution from other sectors 26

4.5 What Belgium is doing to combat significant pressures – overall assessment of the Programmes of Measures 27

5. Exemptions and economics 29

5.1 To what extent are exemptions applied in Belgium 29

5.2 Use of economic analysis and water pricing – cost recovery 31

6. WFD recommendations 33

SECTION B: FLOODS DIRECTIVE 36

7. Flood risk management under floods directive (FD) 37

7.1 Flood hazard and risk maps 37

7.2 Flood risk management plans 37

8. FD recommendations 40

SECTION A:

WATER FRAMEWORK DIRECTIVE

1. General info, Member State characterisation

Belgium consists of a coastal plain, a central plateau and the Ardennes upland area in the south east of the country. The highest point is Signal de Botrange at 694m. It is a very densely populated country with a population of 11,5 million with a density of about 380 persons per km2, more than three times the EU average, and it is slightly increasing. Belgium has one single coastal water body and the two most important River Basins are the Meuse in the east and the Scheldt in the west. The rainfed RBD Meuse is dominated by the old medium mountain range of the Ardennes, characterized by dark impermeable schists and sharp valleys. The Scheldt is a rainfed lowland river and has a long history of industrialisation and agriculture on the fertile floodplains. Flanders has a flat relief with lowland rivers with small flow rates and significant drainage and has a part of coast neighbouring with the North Sea. Wallonia features a much more complex mosaic landscape of valleys and hills. Given the distribution of competences, the management of the water bodies is quite compartmentalised. The pressures in different parts of the country are similar but their intensity varies considerably. Indeed, the population density in Flanders is more than twice the density in Wallonia. Belgium's main challenges relate to massive pressures from agriculture (nitrates and pesticides pollution), dense population (land use and wastewater discharges) and related hydromorphological pressures. Legacy pollution and transboundary pollution cause specific problems.



Reporting

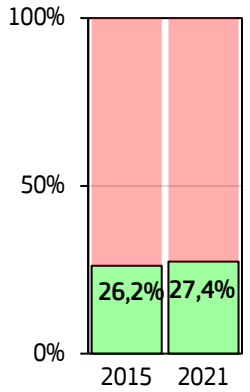
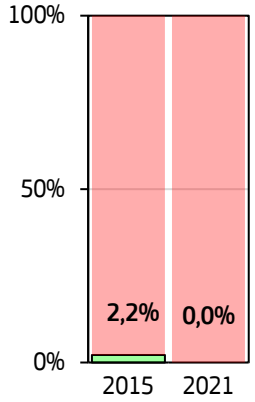
The deadline for reporting the 3rd RBMPs was in March 2022. The Commission and the EEA together with Member States developed an electronic reporting system in WISE (Water Information System for Europe). Its use was voluntary. Some Member States used it to fulfil their obligations, others

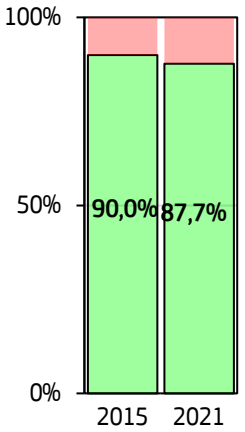
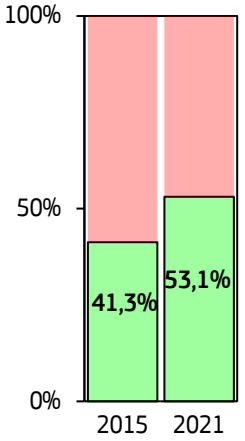
reported the plans in pdf format. The cut-off date for the WISE e-reporting was September 2023 and the MS were assessed based on the datasets available by this date.

By September 2023 Belgium have not submitted full electronic reporting, but data for majority of RBDs were available. Therefore, the assessment is based on the dataset available at that time and the missing RBDs are based on the data mining of the pdf RBMPs.

Despite the cut off dates for the production of this report, reporting continued and, for the State of Water report, the EEA aggregated the results available by July 2024 in their products and dashboards available at WISE Freshwater web portal.

Changes in Status, Pressures, Exemptions & Measures

Surface Water Bodies (560)	Trend (% good status/potential)	Main Pressures & Changes & Exemptions
ECOLOGICAL STATUS		The ecological status/potential of SWBs has slightly improved. Only 27,4% of water bodies are in good or better status/potential. Most of these are in Wallonia (43%), whereas Flanders only has 0,5%. All three Brussels' water bodies are below good potential, the North Sea coastal water body is in moderate status. General confidence in status assessment has decreased. The monitoring coverage of quality elements, especially biological quality elements, appears to have decreased. Main challenges relate to massive pressures from agriculture (nitrates and pesticides pollution), dense population (land use and wastewater discharges), and hydromorphological pressures. Legacy pollution and transboundary pollution are also a problem. Hydromorphological quality elements are not frequently used for status assessment. Exemptions: 172 SWBs (31 % of total SWBs) are exempted under Article 4(4) on the grounds of technical feasibility, 281 (50 % of total SWBs) on the grounds of disproportionate costs and 340 (61 % of total SWBs) on the grounds of natural conditions.
CHEMICAL STATUS		All SWBs are in poor chemical status in Belgium. The large majority are classified with high confidence. There are no longer water bodies in unknown status. The priority substances added to the EQSD in 2013 are included in the monitoring network in both Flanders and Wallonia; they also seem to contribute to chemical status assessment, although this is only required as from December 2027. The main reason for failing to achieve a good status is due to uPBT substances: in Flanders, these are mainly mercury, PFOS, and heptachlor, in Wallonia, mainly mercury and PBDEs. Non-uPBT substances causing poor chemical status are largely metals (lead, cadmium, and nickel) along with industrial chemicals (nonyl-phenol and DEHP). The expectation is that by 2027, there will still be less than 5% SWBs in good chemical status. managementExemptions: 200 SWBs (36 % of total SWBs) are exempted under Article 4(4) on the grounds of technical feasibility, 200 (36 % of total SWBs) on the grounds of disproportionate costs and 208 (37 % of total SWBs) on the grounds of natural conditions. No exemptions under Article 4(5) WFD.

Ground Water Bodies (81)	Trend (% good status/potential)	Main Pressures & Changes & Exemptions
QUANTITATIVE STATUS		There has been a slight decrease of GWBs in good quantitative status. 10 out of 81 GWBs are in poor quantitative status, 9 of which are in Flanders. 71 GWBs are in good quantitative status. There is a lack of consideration of Groundwater Associated Aquatic Ecosystems (GWAAEs) in all RBDS and a lack of consideration of Groundwater Dependent Terrestrial Ecosystems (GWDTEs) and of saline or other intrusions in the Brussels RBD. Water abstraction is identified as a significant, and increasing, pressure. As a result, 40 ouf of 81 GWBs (majority in Flanders) have been identified as at risk of failing to achieve good quantitative status by 2027 (49.4 % of total GWBs). Exemptions: 3 GWBs (4 % of total GWBs) are exempted under Article 4(4) on the grounds of technical feasibility and 7 (9 % of total GWBs) on the grounds of natural conditions. The electronic reporting identifies 3 GWBs as being subject to a temporary deterioration under Article 4(6) for quantitative status (in the Scheldt RBD (Flanders). This is based on natural conditions and force majeure. No exemptions under Article 4(5) WFD.
CHEMICAL STATUS		There has been an increase of GWBs in good chemical status. Impacts on GWAAEs have not been considered for chemical status assessment except in the Brussels RBMP. Bad chemical status is mainly due to non compliance with quality standards. Other reasons are the failure to achieve environmental objectives in associated surface water bodies or significant diminution of the ecological or chemical status of such surface water bodies, and significant damage to terrestrial ecosystems which depend directly on the groundwater body. For Flanders, the top five pollutants causing failure to achieve good chemical status are nitrate, potassium, pesticides, N,N-dimethylsulfamide and bentazone. For Wallonia, failures are mainly due to nitrate, phosphate, and pesticides, which are all associated with agricultural activities. According to the electronic reporting (covering all RBDs), there are 47 GWBs (58% of total GWBs) at risk of failing to achieve good chemical status by 2027. Exemptions: 5 GWBs (6 % of total GWBs) are exempted under Article 4(4) on the grounds of technical feasibility, 33 (40 % of total GWBs) on the grounds of disproportionate costs and 38 (47 % of total GWBs) on the grounds of natural conditions.

2. Horizontal aspects

2.1 Governance

Belgium is a federal state which has delegated competences with regard to water policy to the three regions, i.e. Brussels region, Flanders and Wallonia. This translates into a quite compartmentalised management of its water bodies. Belgium has one single coastal RBD (North Sea) under the Federal state and the two most important River Basins are the Meuse in the east and the Scheldt in the west. The three regions of Belgium manage different parts of these rivers. Belgium has eight River Basin Districts (RBDs), some of which cover the same River Basin: the Scheldt River Basin is divided into the 'Noordzee' Federal RBD, the Flemish Scheldt RBD, the Brussels Scheldt RBD and the Walloon Scheldt RBD. The Meuse River Basin encompasses the Flemish 'Maas RBD' and the Walloon 'Meuse' RBD. Wallonia manages two others much smaller RBDs, i.e. the Rhine and Seine RBDs. Despite this complex governance, there is cooperation among regions through the Steering Group on Water in the Coordination Committee for International Environmental Policy (CCIEP). Formal coordination also takes place within international RBD commissions, and bilateral consultations are held at regional and local level.

There are four RBMPs: one covering the North Sea – Scheldt RBD, one covering both Flemish RBDs (Scheldt and Maas), one covering all four Walloon RBDs (Scheldt, Meuse, Rhine and Seine) and one covering the Brussels Scheldt RBD.

It is noted positively that there is a good integration between the RBMPs and Flood Risk Management Plans under the Floods Directive (FD) and the North Sea RBMP is coordinated with plans under the Marine Strategy Framework Directive (MSFD), through streamlined objectives, joint plans[1] and combined monitoring.

The public and stakeholders were actively engaged and consulted on draft RBMPs and continue to be involved in their implementation. In Flanders and Brussels, 'co-creation' workshops have been set up to define measures, especially on urban resilience, water pricing, water in the urban environment (citizens and professional participation). Reporting took place between July 2022 and July 2023. The deadline for reporting the 3rd RBMPs was in March 2022. The Commission and the EEA together with Member States developed an electronic reporting system in WISE (Water Information System for Europe). Its use was voluntary. Some Member States used it to fulfil their legal obligations, others reported the plans in pdf format. The cut-off date for taking into account the WISE electronic reporting was September 2023. By that time, only Flanders, Brussels and the North Sea RBDs had finalised their electronic reporting. Therefore, the assessment of the latter RBDs is based on both pdfs and electronic reporting datasets, whereas for the four Wallonia RBDs, the assessment is based on data mining of the pdf RBMP.

Transboundary cooperation

As it is the case for its neighbour, the Netherlands, all the RBDs are international. This means that the state of water bodies in those river basins depend partly on the decisions taken by other Member States. Only for the Scheldt, Meuse and Rhine, international agreements and international

[1] see in particular as regards programs of measures, chapter 6 of the North Sea RBMP: stroomgebiedsbeheerplan_voor_de_kustwateren_iii_2022-2027.pdf

cooperation bodies are in place also elaborating an International River Basin Management Plan, whereas for the Seine RBD, cooperation is informal.

2.2 Characterization of River Basin District

The two most important RBD's in Belgium are the Meuse in the east and the Scheldt in the west. The rainfed RBD Meuse is dominated by the old medium mountain range of the Ardennes, characterized by dark impermeable schists and sharp valleys. The Scheldt is a rainfed lowland river and has a long history of industrialisation and agriculture on the fertile floodplains.

Belgium (all RBDs included) has delineated 560 surface water bodies and 81 groundwater bodies in its 3rd RBMPs There are 180 heavily modified surface water bodies (32%) and 79 artificial surface water bodies (14%). For national water body types where an intercalibration type was reported, there are 41 river types, 4 lake types (0 in Wallonia), 1 coastal type and 3 transitional types.

To benchmark and determine the status of water bodies, boundary values (reference conditions) are set for the high/good and good/moderate status classes. Good ecological status of water bodies is established by comparing monitoring data to these two boundary values. It is very welcome that Belgium has established reference conditions for all natural surface water body types for all biological and physico-chemical quality elements. These are coordinated with those in neighbouring Member States. However, reference conditions for hydromorphological quality elements are still missing for some river, lake and transitional water body types.

Table 1: Number of water bodies of rivers, lakes, coastal waters, territorial waters and groundwaters

		Number of bodies					
		River water	Lake water	Transitional water	Coastal water	Territorial water	Ground water
2021	BEESCAUT_RW	77	0	0	0	0	11
2021	BEESCAUT_SCHELDE_BR	3	0	0	0	0	5
2021	BEMAAS_VL	17	3	0	0	0	10
2021	BEMEUSE_RW	257	0	0	0	0	21
2021	BERHIN_RW	16	0	0	0	0	2
2021	BESCHELDE_VL	161	15	7	0	0	32
2021	BESEINE_RW	2	0	0	0	0	0
2021	BENOORDZEE_FED	0	0	0	1	1	0
2021	Total	533	18	7	1	1	81

Source: WISE electronic reporting

Pressures and impacts

As required by the law, the RBMPs establish the main pressures impacting their water bodies. In general, industry, heavy freight and passenger traffic, intensive livestock production and crop cultivation exert significant pressures on the Belgian environment.

Surface waters

In Flanders and Brussels, the most important pressures are diffuse pressures from atmospheric deposition, historical pollution, agriculture, and discharges not connected to the sewerage network and stormwater overflows. Flood protection and agriculture cause pressures on hydromorphology.

As shown in the below figure, agriculture is the biggest source of nitrogen deposition in Flanders: has the EU's second-highest livestock density, after the Netherlands, and the EU's highest pig density (75% of pork is exported).

In Wallonia, the pressures affecting most surface water bodies are from discharges from urban wastewater treatment plants and industrial activities.

Another pressure comes from the negative impact of invasive alien species (IAS) which is especially severe in aquatic ecosystems and alien crayfish species are one of the most destructive invasions known to date, locally depleting resources in aquatic environments and changing the fauna and flora of ponds and rivers.

Figure 1: showing the trophic status of surface waters in Flanders





Source: Joint Research Center of European Commission (n.d.). JRC NITRATES DIRECTIVE - Reporting Period 7 (2016-2019) Trophic Status. [online] water.jrc.ec.europa.eu. Available at: https://water.jrc.ec.europa.eu/portal/apps/dashboards/cb6034c2a75e4df282f8a62f90c16caa

Groundwaters

In Wallonia, the pressures affecting most groundwater bodies are abstraction for public water supply and alteration of water level or volume (due to quarry drainage). The highest impact on groundwater comes from nutrient pollution closely followed by chemical pollution (pesticides).

In Flanders, the highest pressures come from abstractions for agriculture, industry and public water supply. The impacts affecting the highest percentage of water bodies are water balance and diffuse pressures from agriculture.

In the North Sea, most pressures come from nutrient pollution from agriculture (nitrates and phosphates) and to some extent point source industrial pollution from upstream.

3. Policy elements contributing to biodiversity and climate change adaptation



3.1 Surface Water: what is their ecological status or potential

Monitoring

There are two types of monitoring: i) operational monitoring to determine the status and which covers all water bodies at risk and ii) surveillance monitoring aimed rather at identifying impacts and long-term changes.

In Flanders, there are 203 surface water bodies covered by 493 operational and 56 surveillance monitoring sites. In Wallonia, there are 352 surface water bodies covered by 384 monitoring sites. For the North Sea RBD, monitoring sites have been selected to take into account the anthropogenic gradient in the coastal zone caused by the Scheldt estuary. Biological, hydromorphological and general physico-chemical quality elements are monitored in each water category. There is however a general decrease in monitoring coverage across most quality elements, especially biological quality elements. It is welcomed that for all RBDs, monitoring frequencies follow the recommendations of the WFD.

Regrettably, not all quality elements are monitored as they should and the following gaps have been identified:

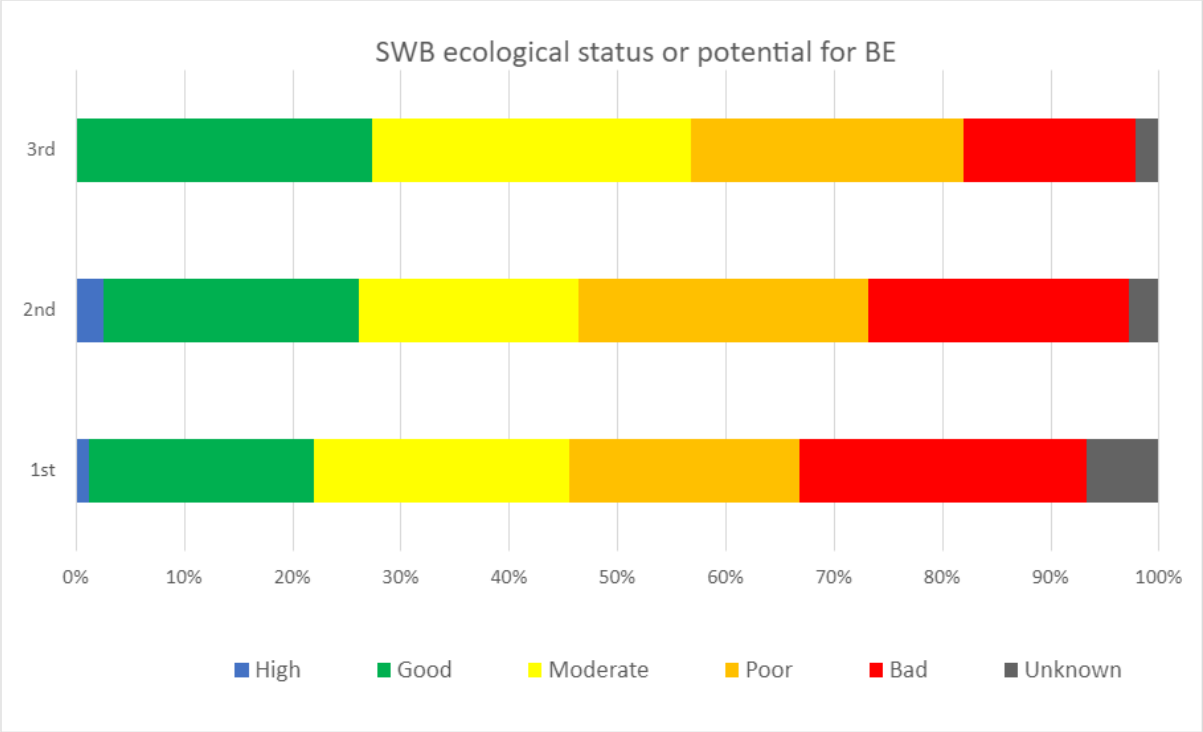
- hydromorphological quality elements: only morphological conditions are monitored, and only in rivers, transitional and coastal water bodies;
- the general physico-chemical quality elements: 'transparency' and 'thermal conditions' are not monitored in lakes and transitional waters and only in 0.6 % of river water bodies.

However, it is noted positively that the specific physico-chemical quality elements, i.e. the so-called 'river basin specific pollutants' (RBSPs), are monitored in all water categories.

Belgium is using grouping for the assessment of ecological status/potential, i.e. extrapolating the information from one water body to other water bodies subject to similar pressures. Expert judgment is almost no longer used for status assessment.

Status assessment

Figure 2: Ecological status or potential of surface water bodies (SWBs) in Belgium the 1st, 2nd and 3rd RBMPs



Source: WISE electronic reporting

While it is welcomed that some improvement can be seen compared to the previous cycle, moving from poor or bad ecological status/potential in the 2nd RBMPs to moderate ecological status/potential in the 3rd RBMPs, it is not good enough to make water bodies flip from bad to good. Thus, it must be stressed that only 27,4% of water bodies are in high/maximum or good status/potential. This is because, as required by the WFD, if one parameter is beyond the allowed limit, the status is considered bad (the 'one out all out' principle or in other words the status is determined by the quality of the elements in the lowest class). That means that even if the status is improving from bad to poor or from poor to moderate, this will not be reflected in the classification of the water body which would still not be 'good'. Thus, for Belgium this means there is only a small change of overall status between the 3 cycles.

The differences between regions are striking. Most of the water bodies in good status are located in Wallonia (44%), whereas Flanders only has 0,5%. All three Brussels water bodies are below good potential, the North Sea coastal water body is in moderate status.

Only about 20% of water bodies comply with the environmental quality standards set for the 'river basin specific pollutants' (RBSPs), which are the compounds for which the country considers there is a local problem, and which form part of its ecological status/potential. In Flanders, the most problematic RBSPs are: kobalt (52%), uranium, diflufenican, arsenic, flufanecet (14%) (metals and pesticides). The North Sea RBMP reports that the specific pollutants for the Scheldt region are copper, zinc and polychlorinated biphenyls (PCBs). Brussels has reported zinc, pCB's, acenaphtene and pyrene as the 4 RBSPs used for classification of ecological status. For Wallonia, the most problematic RBSPs are pesticides (linuron, dichloroaniline) as well as vinylchloride, cyanide, arsenic.

In Flanders, impacts from nitrates and phosphates coming from urban settlements have been reduced thanks to improved urban wastewater treatment and reduced discharges from industry. Unfortunately, the same cannot be said as regards the nutrient pollution from agriculture. In this

context, it is worth noting the relatively low share (approximately 7%) of total agricultural area used for organic farming[2]. Moreover, some general physico-chemical quality elements have worsened e.g., salinity and thermal conditions, most likely also as a result of dry and hot summers in 2018 and 2019.

It is welcomed that the overall knowledge of the state of the water bodies has improved throughout the cycles and the number of unknowns has steadily decreased. However, oddly enough the confidence in the classification has worsened between the 2nd and the 3rd RBMPs, since in the 3rd RBMPs, only moderate, poor, and bad classifications are classified with high confidence.



3.2 Hydromorphological changes and artificialization (HMWBs and AWBs)

The level of human intervention in Belgian water bodies is very important, affecting approximately 45% of all surface water bodies in Belgium and it has increased compared to the 2nd RBMPs. 179 water bodies (32.1 %) are designated as heavily modified (against 31.9 % in the 2nd RBMPs) and 79 (14.2 %) as artificial (against 13% in the 2nd RBMPs). Here again the differences between the regions are considerable. In Brussels, which is roughly an urban area, the case is extreme as 2 out of 3 river water bodies are heavily modified and the third one is artificial. In Wallonia, 72 water bodies (20.5 %) are heavily modified and 16 artificial (4.5 %). In Flanders, 106 water bodies are designated as heavily modified (52%) and 62 as artificial (31 %).

As regards the methodology for heavily modified water bodies' designation, prepared per region (yet coordinated), there have been no changes since the 2nd RBMPs.

Information is provided on 1) criteria for the identification of significant adverse effects of restoration measures on the use and the wider environment (e.g. navigation class for waterways or importance of land for agriculture in the case of floodplains), as well as on 2) the types of physical alterations (e.g., channelisation, straightening, bed stabilisation, bank reinforcement, dredging, channel maintenance) and 3) the water uses which are considered for the designation of heavily modified water bodies (e.g., agriculture, flood protection, navigation, water supply and hydropower).

No information could be found in the 3rd RBMPs as to whether it was checked if the beneficial objectives served by the modifications of the heavily modified water bodies could be achieved by other environmentally better means. However, this information may have been provided in earlier RBMPs.

[2] Developments in organic farming - Statistics Explained (europa.eu)

Defining Good Ecological Potential

According to the WFD, and given their very man-made characteristics, the HMWBs and AWBs must only meet the objective of good ecological potential (GEP) rather than good ecological status (GES). In the Flanders and Brussels RBDs, GEP is defined in terms of biology for rivers, lakes and transitional waters, taking as a reference similar natural water bodies but excluding elements/indicators for pressures that cannot be reversed without significant adverse effects on water use and wider environment (the 'reference approach'). In Wallonia, no methodology could be identified but it is likely therefore to be the same as that reported in the 2nd RBMPs, i.e. the 'mitigation measures' approach, i.e. starting from all relevant and ecologically effective measures that do not have a significant adverse effect on use or wider environment, and then excluding those measures that are predicted to deliver only slight ecological improvement. GEP is then defined as the biological values that are expected from implementing the remaining identified mitigation measures.



3.3 Groundwater bodies - have they sufficient water – quantitative status

In this cycle, 10 GWBs out of a total of 81 (i.e. 12.3 % of total GWBs) are assessed in poor quantitative status due to abstractions. Here again the differences between regions are very pronounced, 9 are in Flanders (Scheldt RBD) and one in the Wallonia (Scheldt RBD).

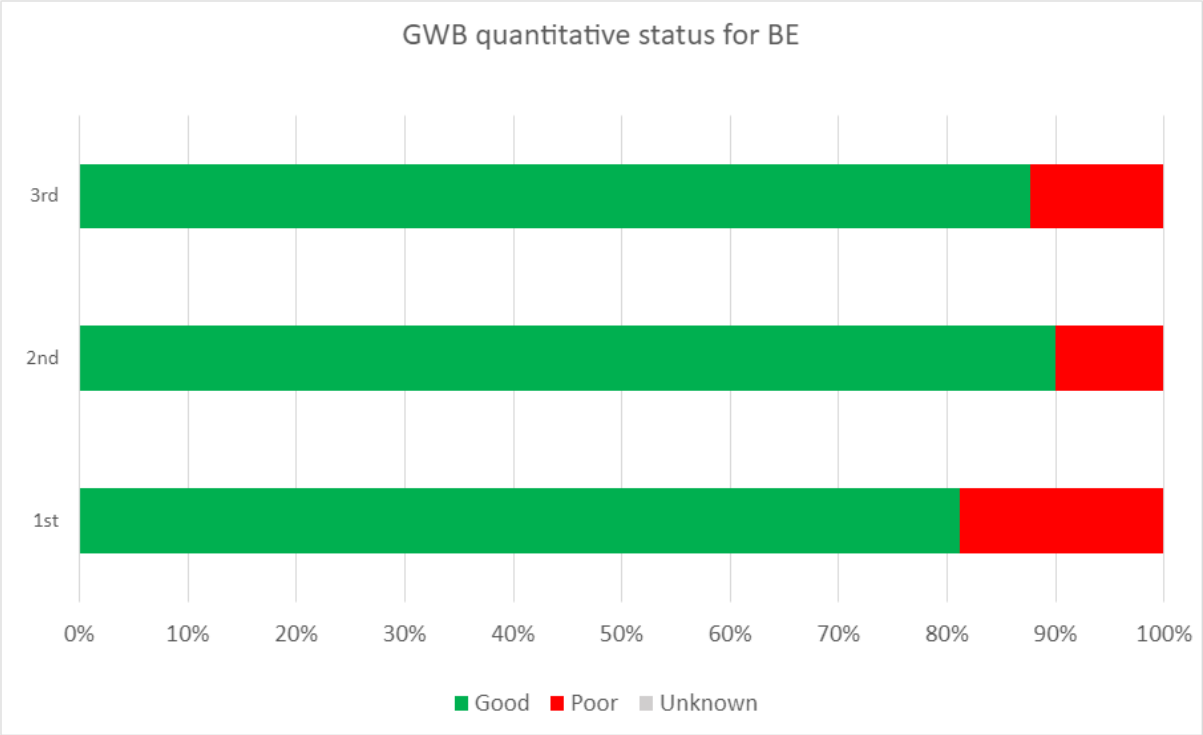
It is worth noting that 5% GWBs are also affected by saline or other intrusions from anthropogenically induced sustained changes in flow direction. The Walloon aquifer has recently deteriorated due to increased abstractions in Belgium and France to address water shortage as a result of droughts.

Because groundwater levels are important for Groundwater Associated Aquatic Ecosystems (GWAAEs), the status of the latter should be considered for quantitative status assessment, in accordance with Annex V, point 2.1.2. WFD. However, this has not been the case in any RBD[3]. The same applies for Groundwater dependent Terrestrial Ecosystems (GWTEs) and saline or other intrusions. These have been considered in most RBDs, but however not in the Brussels RBD.

Even if not necessarily resulting in bad quantitative status, water abstraction is still considered a significant pressure in 35 out of 42 GWBs in Flanders, in all 5 GWBs in Brussels and in 5 out of 34 GWBs in Wallonia. This means the long term annual average rate of abstraction exceeds the available groundwater resource, mainly due to energy, industry, public water supply and agriculture.

[3] although in Flanders they are indirectly considered through the consideration of surface water as a boundary condition for the assessment of water balances

Figure 3: Quantitative status of groundwater bodies (GWBs) in Belgium in the 1st, 2nd and 3rd RBMPs



Source: WISE electronic reporting

3.4 Protected Areas (identification, monitoring, objectives and measures)

There are different reasons why certain water bodies are protected under specific law. Belgium has identified protected areas associated with water bodies in the context of the Bathing Water Directive (bathing waters), the Drinking Water Directive (drinking water protected areas), the Birds and Habitats Directives (Natura 2000 areas), the Nitrates Directive (nitrate vulnerable zones) and the Urban Wastewater Treatment Directive (nutrient sensitive areas). No Shellfish protected areas have been identified in Belgium. The whole of Flanders and 57% of Wallonia are designated nitrate vulnerable zones and the whole of Wallonia and Brussels are designated nutrient sensitive area.

Currently, 14.7% of terrestrial area of Belgium is designated as protected areas[4], falling below the EU value of 26.4%. However, with a coverage of 37.79% in its marine waters[5], Belgium surpasses the EU value of 12.1%.

Table 2: Number of water bodies associated with protected areas

Protected area type	Number of water bodies associated with protected areas				
	Rivers	Lakes	Coastal	Transitional	Groundwater
Bathing waters		4			
Drinking water protection area	35	2			24

[4] Biodiversity Information System for Europe Protected Areas (europa.eu)
[5] Wise Marine water infromation system Belgium (europa.eu)

Drinking water protected area Wallonia RBDs	3	5			29
Natura 2000 protected site	81		1	3	1
Natura 2000 Wallonia	Natura 2000: 240 sites covering 13% of Wallonia				
Nutrient sensitive area	3				
Nutrient sensitive area Wallonia	All Wallonia				
Nitrate vulnerable zone					1
Nitrate vulnerable zone Wallonia	8 zones covering 57% of Wallonia				

Source: WISE electronic reporting for Flanders, Brussels and North Sea RBDs and background documents for Wallonia

Additional monitoring is applied for drinking water protection zones, in accordance with the law. There are also specific monitoring sites in relation to Natura 2000 protected areas and bathing waters, as well as for nutrient and nitrate vulnerable zones.

Additional objectives for protected areas have been set in all RBMPs but regrettably not for all water bodies associated with protected areas. It is noted with concern that these objectives have not been consistently met. This is particularly relevant for Natura 2000 areas which require good water quality for specific protected species, including enough flow diversity, depth variation, sedimentation, removal of fish migration barriers.

Additional measures have been planned in all RBMPs for Natura 2000 sites and for drinking water protection areas: this includes for instance developing specific standards for surface water quality in (the vicinity of) special protection areas with surface water-dependent habitats and species (including sufficient flow diversity, depth, sedimentation, removal of barriers). Another important measure consists in combating invasive alien species such as crayfish. For drinking water, measures may consist in the establishment of drinking water safeguard zones: these include the surface water bodies themselves but also the plots of land draining into these surface water bodies. For groundwater, this may also imply restrictions on use of surface and below ground to protect the quality of the groundwater that is being pumped.

3.5 What is being done to prevent/reduce hydromorphological pressures

In Flanders, significant hydromorphological pressures include flood protection, agriculture, navigation, and hydropower. In Wallonia, hydromorphological pressures are mostly associated with barriers preventing fish migration (40 major barriers are identified in navigable water bodies and 1 484 barriers in non-navigable water bodies). Hydropower is also an important pressure, with 21 hydropower stations located in navigable water bodies and 131 in non-navigable water bodies.

This results in hydrological alteration, physical alteration of channel, bed, riparian area and shore (Flanders); presence of dams, barriers and locks (Flanders and Wallonia); and physical loss of whole or part of the water body (Flanders and Wallonia).

Basic measures include permitting and general control regimes, in accordance with the WFD. In Flanders, a detailed guidance document[6] describes the procedures[7] to be applied in case of new projects resulting in non-temporary changes to surface or groundwater. However, these controls should regularly be reviewed, so as to enable their adaptation where so required to ensure better protection of water bodies. In this respect, no information could be identified on the periodic review of water permits as required by the WFD.

As mentioned earlier, the level of human intervention in the water bodies is quite considerable, so the country has embarked in some efforts to re-naturalise the water system.

The Flanders RBMP includes following measures: fish ladders; bypass channels; habitat restoration, building spawning and breeding areas; sediment/debris management; removal of weirs and barriers, reconnection of meander bends or side arms; lowering of riverbanks; restoration of bank/bed structure; channel narrowing; setting of ecological flows; flood plains; dredging minimisation and/or modification; control of invasive alien species; research, improvement of knowledge. Measures will also address soil erosion and sediment loads, but not those due to land drainage.

In Brussels measures include the improvement of the quality of riverbanks and beds, creation of meanders and development of areas conducive to the development of aquatic fauna and flora, as well as the removal of obstacles to the migration of fish and setting of ecological flows[8].

In Wallonia, measures include the restoration of longitudinal continuity of water bodies (removing a total of 89 obstacles in water bodies by 2027), restoration of lateral continuity by re-instating meandering in water bodies.

It is noted with concern that, whilst Flanders has developed a comprehensive methodology for defining ecological flows, the actual ecological flows still have not yet been defined. Also, it is unclear whether ecological flows are linked to water permits. No information was identified on ecological flows in the Wallonia RBMPs. A mention is made of 'reserved flows' which are the minimum flows to be guaranteed to support ecological functions in water bodies that seem to be applicable to hydropower.

Indicators on the gap to be filled for significant hydromorphological pressures by 2027 have not been identified in any of the RBMPs.

All RBMPs include 'win-win' measures to achieve objectives of the WFD and Floods Directive and address drought management in the form of 'natural water retention measures', 'nature-based solutions' and 'green infrastructure measures. These include nature-friendly design and management of shores and riverbeds; reduction of sediment supply to match the carrying capacity of the water system; development of space for sediments.

3.6 What Belgium is doing for abstractions and water scarcity

Considering the significant pressure due to abstraction in Flanders, it should report on consumptive uses and on the relevant estimation methods; this obligation was fulfilled through earlier reporting by Belgium to WISE State of the Environment (SoE)[9] on Water Quantity. This includes information on

[6] https://www.integraalwaterbeleid.be/nl/publicaties/afbeeldingen/handleiding-aanvragen-adviseren-en-verlenen-van-vergunningen-ifv-doelstellingen-kaderrichtlijn-water

[7] The Flemish authorities have indicated that it must be modified to take account of the most recent jurisprudence of the Court of Justice, considering that also temporary deterioration should be prohibited, unless justified in accordance with Article 4(7) WFD.

[8] In accordance with CIS guidance n° 31

[9] WISE-3: https://cdr.eionet.europa.eu/help/WISE_SoE/wise3

abstraction/consumption for agriculture, mining and quarrying, industry, energy (including cooling water) and public water supply both from surface water and groundwater.

Based on available statistics[10], the major users in Belgium are (in descending order): electricity generation including cooling water, industry, households and services, agriculture and mining and quarrying[11].

Since 2016, increasing trends are observed in agriculture (+25.3%), mining and quarrying (+12.3%), households and services (+2.7%) and industry (+2.5%). This is reflected by the fact that at least 35 GWBs in Flanders are considered at risk of failing to achieve good quantitative status by 2027.

Measures

Across the regions, there seems to be a good control and knowledge of the water abstractions which take place. Indeed, in Flanders, all abstractions are registered and above a certain volume a permitting regime applies (more than 500 m3/year for navigable surface water). It is welcome that in Brussels, currently the register and permitting regime applies to all abstractions, whereas in the previous cycle small abstractions were still exempted. In Wallonia, a register and permitting regime are in place to control all surface and groundwater abstractions and impoundments, without any threshold.

As required by the law, permits are generally issued for a fixed limited period, which varies depending on the region. However, in Flanders, permits for groundwater abstraction are granted for unlimited duration, unless the groundwater body is situated in a recovery area, in which case the permit is granted for 6 or 20 years. For surface water abstractions, the permits are granted for 1 year but automatically prolonged by payment of a fee. Permits which are granted for unlimited duration or automatically prolonged, should, according to the law, be at least subject to a periodic review. In all regions, permits can be refused or revised under specific conditions, in order to maintain or achieve the environmental objectives in the RBMPs. However, it is unclear whether there is a mandatory systematic review.

Oddly, there does not seem to be an explicit link between the implementation of ecological flows and the controls over abstractions and impoundments. On the other hand, risks to ecological conditions may be considered as a ground for restricting or banning abstractions temporarily (eg during droughts or at the occurrence of toxic algal blooms) or permanently (eg to protect ecologically highly sensitive non-navigable waterways or for the protection of navigation in navigable waterways).

Inspections are carried out to prevent cases of unauthorised abstractions or violation of permit conditions.

Basic and supplementary measures related to water efficiency, technical measures for irrigation, industry, energy and households have been implemented in the 2nd RBMPs and additional measures are planned for the 3rd cycle.

In Flanders, where water abstraction is a significant pressure, new measures are planned, including in the field of “Research, improvement of knowledge base reducing uncertainty” and “Adaptation to climate change”. Other measures aim to increase water supply through natural water retention

[10] https://ec.europa.eu/eurostat/databrowser/view/env_wat_abs__custom_8401102/default/table

[11] It should be noted however that conventional statistic abstraction data of Eurostat, EEA and OECD do not take account of evaporation /leakages of water stored in reservoirs further to abstractions. Leakage and evapotranspiration losses can however be significant in MSs with many reservoirs and/or older irrigation and distribution systems

measures / nature-based solutions (e.g. green-blue corridor through villages, cities and open spaces; large- and small-scale water buffers), water reuse and rainwater harvesting (eg from roofs).

3.7 Adaptation to climate change

The Flanders and Wallonia RBMPs prioritize measures through assessing, inter alia, the contribution of measures to climate mitigation and adaptation.

At the federal level, there is a measure to restore the estuarine tidal nature (i.e. mudflats/salt marsh vegetation to act as a buffer against disturbance in the nutrient balance, as a result of coastal erosion and disappareance/retraction of natural wetlands). Within the Flanders RBMP, multiple measures refer to the 2010 National Climate Change Adaptation Strategy and the Flemish 'Blue Deal'[12], which is an ambitious plan to combat water scarcity and manage drought risks. First and foremost, the Blue Deal aims to encourage a mindset shift: a new approach to water management. It focuses on retaining water locally wherever possible, using less water, reusing more water and tackling wasteful consumption e.g. by restoring groundwater resources (closed stock management), increasing water availability (through, inter alia, promotion of infiltration); and further studies and knowledge development.

The Flemish Blue Deal aims to tackle water scarcity and drought issues in a structural way, focussing on 1) increased climate resilience of the water system and 2) accelerated transition to economical, sustainable and circular water use. It forms the basis for the Water scarcity and Drought Risk Management Plan, which is integrated into the 3rd RBMP. That plan assesses the impacts of water scarcity and droughts, based on climate change related drought indicators (duration and intensity of dry periods). It shows the first results of the drought modelling and gives an overview of related economic costs for agriculture, shipping, industry.

The Brussels and Walloon RBMPs also include an assessment of the impact of climate change on water status, as well as measures to address increased risks of prolonged droughts and floods. The Wallonia RBMP includes a comprehensive drought strategy, setting out structural measures to address the findings of the effects of climate change and water resources, aimed at regulating water use and demands, protecting and enhancing resources and adapting the urban, rural and natural environment to future droughts. The North Sea RBMP assesses the main impacts of climate change on the coastal water body, e.g. storm related floods, coastal erosion and loss of natural wetlands.

Flood management

The Floods Directive requires to consider the impacts of climate change on the occurrence of floods, and therefore in the preparation of Flood Hazard and Risk Maps (FHRMs) and Flood Risk Management Plans (FRMPs). More information on these can be found in Section B. However, considering the close relationship between overall water management and floods management and the importance of climate change effects on both, consideration of these effects is jointly addressed in this section.

Consideration of climate change in the FHRMs

Since FHRMs are based on the Preliminary Flood Risk Assessments (PFRAs), it is important to assess first whether the latter consider the impacts of climate change on flood risk. It appears this has been done in all regions in Belgium at the time of the second PFRAs; however, the different regions all took

[12] 'Blue Deal'

a slightly different approach. In Flanders, altered precipitation and sea level rise as a result of climate change have been taken into consideration in the predictions of flood risks, e.g. the high impact scenario shows that the flood risk in Flanders will rise by a factor of 5 to 10 by 2100. In Wallonia, the results of the AMICE60 project to assess climate change impacts were taken into account, using the Holocene. Each of the four DHIs (District Hydrographique International) include a large, detailed chapter on climate change. The results show that a rise in flow rate of 15% can be expected in the period 2021-2050 and 30% in the period 2017-2100. The Brussels PFRA report only includes a short reference to climate change impacts; however, apart from this there is little information on the impact of climate change (e.g. no quantitative data).

As regards consideration of climate change effects in the actual FHRMs, for Flanders, the FHRMs now include three separate climate change scenarios, i.e. one for pluvial, one for coastal and one for fluvial flooding. Flanders has produced maps for pluvial and coastal flooding that include climate change. For Wallonia, the contextual information (various map layers) included since the 1st FHRMs has not changed and climate change has therefore not yet been considered explicitly on the maps for Wallonia. However, the maps now include a new 'extreme event' scenario, implicitly and potentially therefore including variations due to climate change. For Brussels, there is now one specific map for fluvial floods, for which one climate change scenario is included (extreme scenario). Climate change has however not been considered in the pluvial map.

Consideration of climate change in the FRMPs

The Flanders FRMP states that it is generally accepted that climate change will lead to larger and more frequent floods from fluvial, pluvial and seawater sources. For Brussels, the Water Management Plan describes meteorological variables observed in recent years, highlighting the already observable effects of climate change and recent scientific results, with a view to extrapolating expected climate change over the course of this century for the Brussels Region. In Wallonia, it is expected that both fluvial and pluvial floods will change under the long-term climate change scenarios. All three 2nd FRMPs prioritise addressing the impacts of climate change on flood risk to a greater extent. For example, the Brussels plan makes 'resilience to climate change' a core element. In contrast to the 1st FRMP, where Belgium's 2010 National Climate Change Adaptation Strategy was not mentioned in any plan, both Flanders and Wallonia now refer to Belgium's 2017 National Adaptation Plan. All three FRMPs also describe climate impacts on flooding.

4. Policy elements contributing to zero pollution



4.1 Surface Water: what is their chemical status

Monitoring

In the Flanders' and North Sea RBDs the scale of the monitoring network has slightly decreased for rivers, and remained the same for lakes, transitional and coastal/territorial waters. It is much more limited than for ecological status and focuses on the longer-term evolutions and less on assessments of (evolutions in) chemical status in individual water bodies. It is worth noting that the measurement results for the priority substances per water body are available in the water body fiches. Frequencies are in accordance with the law. All 53 chemical substances listed in Annex I of the environmental quality standards directive (EQSD) are monitored (including those added by Directive 2013/39/EC), but not in all water bodies. There are nevertheless 242 sampling sites for a total of 203 SWBs in Flanders. As regards long term trend monitoring of substances likely to accumulate in sediment or

biota, Flanders RBMP reports on monitoring in biota of only 6[13] out of the 20 substances likely to accumulate in sediment or biota.

It is very welcome that Flanders has reported a detailed emission inventory and fact files per substance[14] documenting uses, points of release, and relevant information. This detailed information is key for understanding the primary pressures and sources of release for the surface water environment.

The four Walloon RBDs comprise 384 monitoring sites covering 352 surface water bodies. All 53 chemical substances listed in the EQSD are covered. Monitoring in biota is done where required. No information on use of grouping approaches or expert judgement could be identified. Frequencies are in accordance with the law. Sub-chapters describe major point and diffuse source emissions.

In the Brussels RBD, 5 monitoring sites are used to assess chemical status of the three surface water bodies, all at risk of not achieving good status by 2027 (one currently not in good status). Monthly monitoring applies and grouping seems to be applied in the sense that not all substances are monitored in all three SWBs. For substances/parameters for which emissions are relatively constant, monitoring only occurs 5 times per year. Monitoring in biota applies where required.

As regards trend monitoring of substances likely to accumulate in sediment or biota, the Walloon and Brussels RBMPs report on monitoring in biota for 11 out of 20 substances concerned and monitoring in sediment of all 20 substances (once every three years, in accordance with the law).

Belgium has reported on emissions, discharges and losses of all relevant substances in accordance with the EQSD.

Status assessment

In the two Flemish RBDs, none of the surface water bodies is in good chemical status, compared to 93% in the 2nd RBMPs. This massive change is very largely due to a change in sampling procedures rather than actual deterioration. Indeed, in this cycle substances which tend to accumulate in biota, have been measured in biota instead of in water. Therefore, the assessments are not comparable between both RBMP cycles.

If we look at the status assessment excluding the ubiquitous Persistent Bio-accumulative and Toxic substances (uPBTs), the situation has also not improved, since 21% surface water bodies were not in good chemical status in the 2nd RBMP against 29% in the 3rd RBMP.

As not all water bodies are monitored for all substances, a system of grouping and extrapolation of results is applied in Flanders. This applies in particular for uPBTs, as it is presumed that exceedances occur in all water bodies where these are present. Hence there is no need to monitor all water bodies for them. However, in the presentation of the results, these 'non monitored' water bodies are marked as 'grey', which seems to presume their status is 'unknown' whereas the status should be marked as 'red', i.e. failing good status.

The most problematic substances are mercury, heptachlor and heptachlor epoxide, PFOS, brominated diphenyl ethers, Benzo(a)pyrene, fluoranthene, tributyltin and cadmium (Maas only), all exceeding standards in more than 50% of monitoring.

In the Walloon and Brussels RBDs, none of the surface water bodies are in good chemical status. Yet if uPBTs are not included, 68% of Walloon water bodies would be in good chemical status. Most failures are due to uPBTs: mercury, PBDEs, PAHs and tributyltin. A number of other priority substances

[13] anthracene, Di(2-ethylhexyl)phthalate (DEHP), hexachlorocyclohexane, lead, tributyltin, and quinoxyfen
[14] Inventaris Prioritaire Stoffen (integraalwaterbeleid.be)

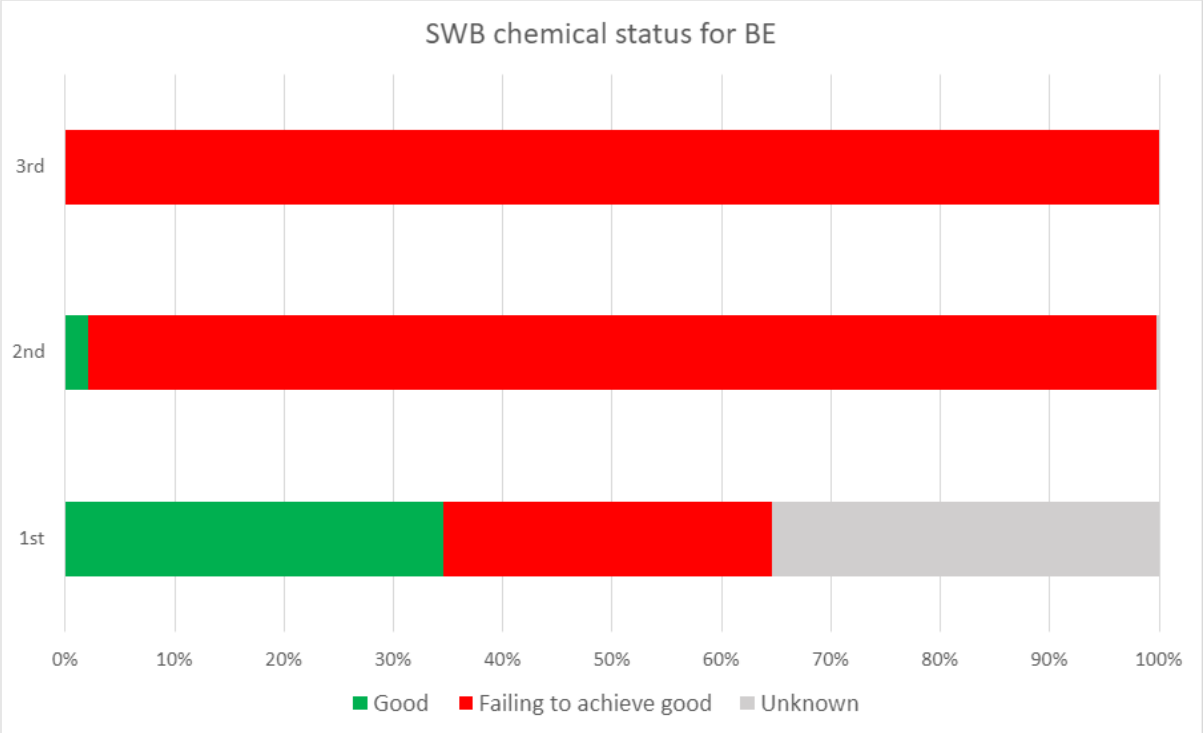
are also responsible for bad chemical status of 32 % of all surface water bodies, including nonylphenol, lead, cadmium, nickel, DEHP and also pesticides. For Brussels, most failures are due to mercury, PAHs, PFOS and tributyltin and, to a lesser degree, PBDEs, dioxins and furans, heptachlor and hexabromocyclododecane.

The North Sea coastal water body is also not in good chemical status, only because of uPBTs, in particular mercury, PAHs and PBDEs.

In conclusion, for all RBDs, the bulk of water bodies in poor chemical status is due to a small handful of chemicals, primarily uPBTs, in particular mercury. The latter is a common phenomenon in many Member States and has triggered a myriad of actions in the EU to act at source and prohibit its use in many products. A major source is however long-range transboundary air deposition coming from other continents.

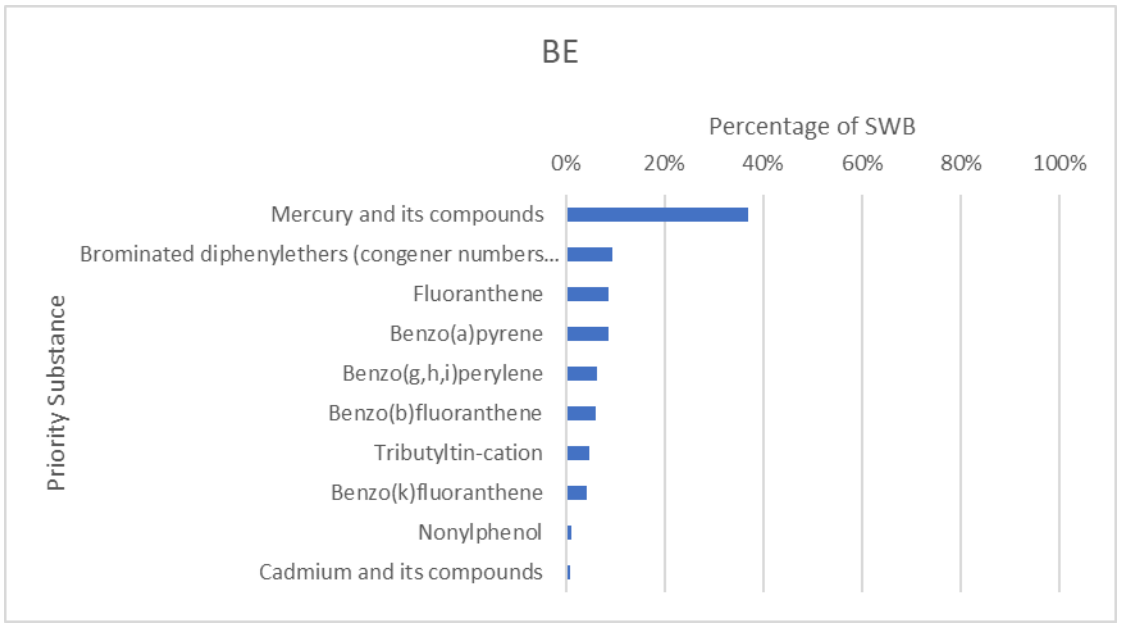
The expectations for 2027 are not promising: in Flanders less than 5% of all surface water bodies are expected to achieve good chemical status by 2027; in Wallonia close to 100 % of surface water bodies will remain in poor status by 2027, but 72% of all surface water bodies could reach good chemical status by 2027 (current 68%) if uPBTs were excluded. The same applies for Brussels, i.e. all 3 surface water bodies are likely to remain in bad chemical status due to uPBTs.

Figure 4: Chemical status of surface water bodies (SWBs) in Belgium in the 1st, 2nd and 3rd RBMPs



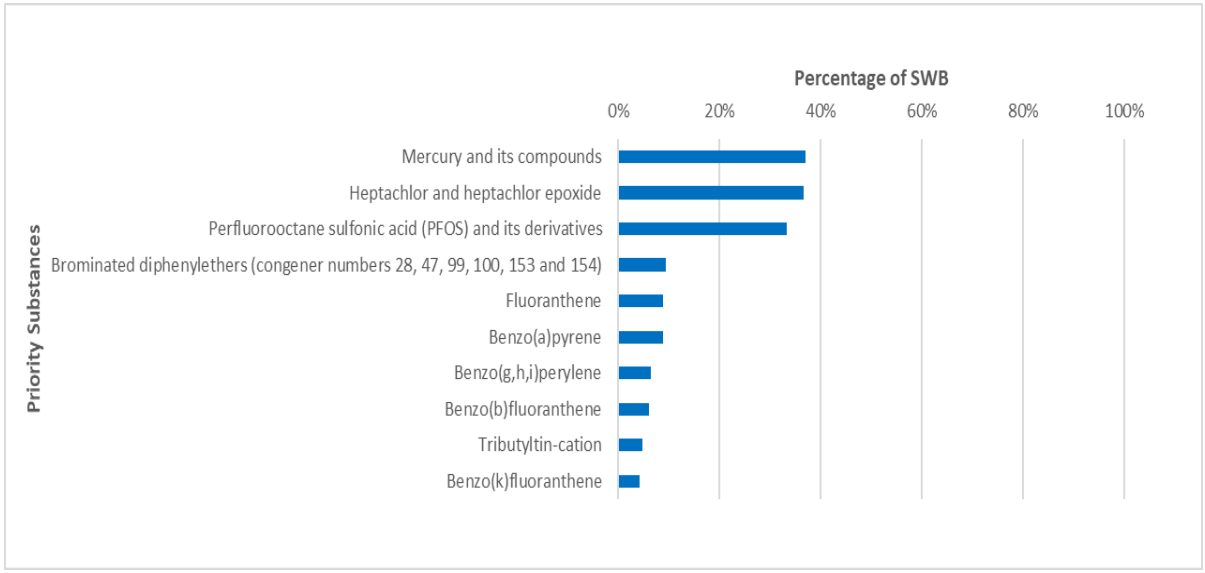
Source: Wise electronic reporting

Figure 5: Top-10 Priority Substances causing failure to achieve good chemical status[15] in surface water bodies in Belgium (Flanders, Brussels and North Sea RBDs)



Source: WISE electronic reporting in Flanders, Brussels and North Sea RBDs

Figure 6: Most problematic 10 substances taking also into account the 12 newly added priority substances in 2013[16] (Flanders, Brussels and North Sea RBDs)



Source: WISE electronic reporting in Flanders, Brussels and North Sea RBDs

[15] Only taking into account the 33 Priority substsances (out of list of 45) for which the deadline for compliance has passed; for substsances 34 to 45, whilst they must be monitored, their deadline of compliance is 2027

[16] Directive 2013/39/EU amending Directive 2008/105/EC added 12 new substances i.e. numbered 34 to 45 to the priority substances list. For the 3rd RBMP, Member States only had the obligation to monitor them. Compliance with the Environmental Quality Standard values for these 12 new priority substances will be assessed in 2027.

4.2 Groundwater Bodies: what is their chemical status

Monitoring

All groundwater bodies in Flanders and Brussels RBDs (47 out of the total of 81 GWBs in Belgium) are monitored for chemical status assessment, which is a slight increase compared to the 97.5 % in the 2nd RBMPs. There are 66 surveillance monitoring sites and 52 operational monitoring sites. All relevant substances (including GWD Annex I and Annex II (Part B) substances and WFD Annex V Point 2.4.2 core parameters subject to EU wide and national standards) are monitored.

In Wallonia, the number of surveillance monitoring sites has reduced from 463 in the 2nd RBMP to 397 in the 3rd RBMP. The number of operational monitoring sites depends on sites for which one or more parameters are of concern, eg because close to or exceeding the quality standard or the threshold value or because of a significant upward trend. Monitoring covers all relevant substances, i.e. 42 chemical substances in the 3rd RBMP compared to 29 in the 2nd RBMP, now also covering mercury and 12 pesticides.

As required under the Groundwater Directive (Art. 5), all regions apply trend monitoring and an assessment of environmentally significant sustained upward trends in pollutants in GWBs identified as being at risk.

Status assessment

The methodology for groundwater chemical status assessment is described in the 3rd RBMPs and considers general quality, impacts on drinking water protected areas and of saline or other intrusions in all RBDs. GWAAEs and GWDTEs have been reported for all RBDs but impacts on GWAAEs have not been considered for chemical status assessment except in the Brussels RBMP.

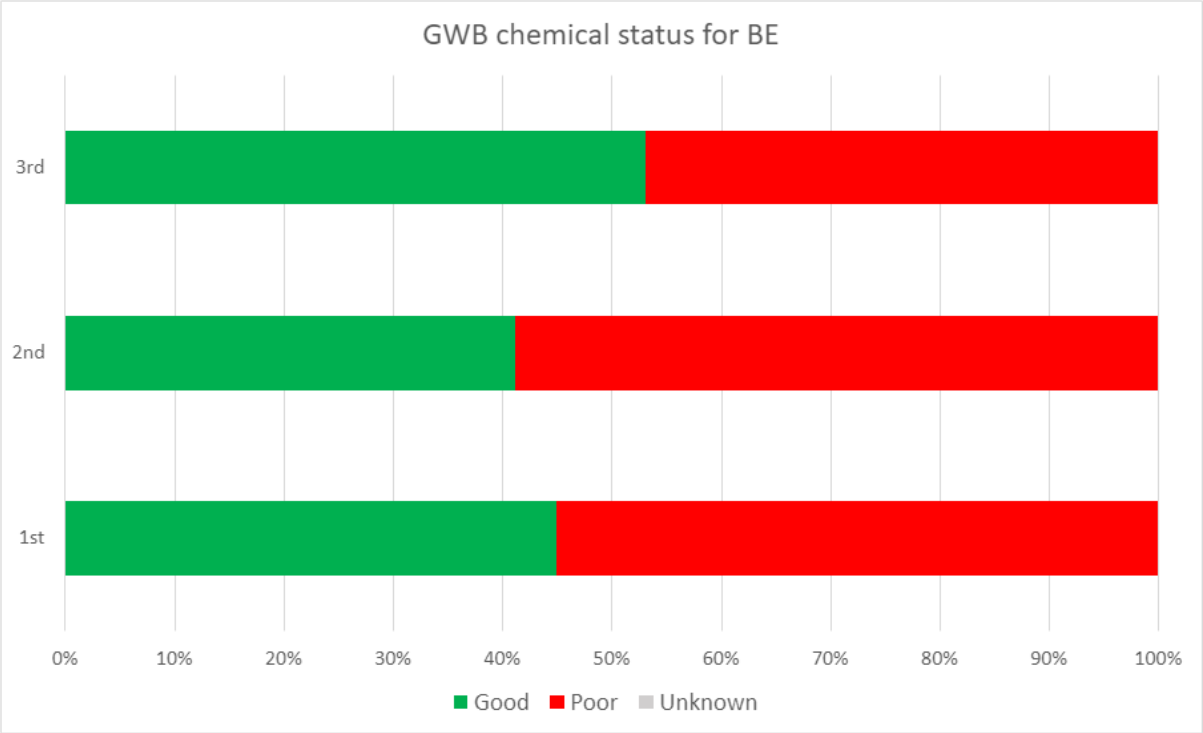
Grouping of GWBs is not used for the assessment of the chemical status of GWBs.

It is noted very positively that an improvement can be seen compared to the previous cycle: indeed the number of GWBs in bad status has dropped from 58.8 % in the 2nd RBMPs to 45.7 % in this cycle. Yet in Flanders, approximately 55% are still in bad status, in Brussels 20% and in Wallonia 41%.

In Flanders, the improvement is the result of effective measures to address pressures from pollution, but may also be linked to the exclusion of non-relevant metabolites of pesticides from the groundwater chemical status assessment, considering these are not subject to EU maximum limit values. On the other hand, in Wallonia, 5 non relevant metabolites of pesticides continue to be taken into account in chemical status assessment.

For 2027, 28 GWBs are still at risk of failing to achieve good chemical status (34,5 %): 25 out of 47 in Flanders and Brussels (or 53%) and only 3 out of 34 (or 8.8 %) in Wallonia.

Figure 7: Chemical status of groundwater bodies (GWBs) in Belgium in the 1st, 2nd and 3rd RBMPs



Source: WISE electronic reporting

Like for surface waters, a small subset of compounds is causing the problem: in all RBDs nitrates and pesticides; in Flanders and Brussels also potassium, pesticides, N,N-dimethylsulfamide and bentazone; and sustained upward trends are noted for nitrates, pesticides, tetrachloroethylene and ammonium; in Wallonia also ammonium, total phosphorus; and sustained upward trends are noted for nitrates, pesticides and bentazone.

For transboundary groundwater bodies, coordination of threshold values takes place in the context of the working program of the International Scheldt and Meuse Commissions.

4.3 What Belgium is doing to combat pollution from agriculture

Regrettably, the Flanders RBMP reports that only 63% of measures included in the 2nd RBMPs have been implemented. For the 3rd cycle, most measures will be implemented in the context of the action programme under the Nitrates Directive and the CAP Strategic Plan[17]. Focus is on intensive livestock farming and potato farming which are particularly susceptible to nitrates leaching into the environment. Other sources of nitrogen are industry and traffic[18].

The Flemish government has launched a special action plan "the great river acceleration"[19], including over 1000 actions to reduce, inter alia, the impacts from nitrates and phosphates from agriculture. This will be done by means of a revised manure policy (Manure Action Plan - implementation of the measures under the Nitrates Directive), which should have been in place in January 2023 but is still

[17] In this respect, it may be useful to refer to the recent study on 'Mapping and Analysis of CAP Strategic Plans - Assessment of joint efforts for 2023-2027'

[18] However, contrary to ammonia evaporating from manure reacting to nitrogen, the nitrogen formed by NOx can travel much longer distances before being deposited.

[19] conceptnota_grote-stroomversnelling.pdf (integraalwaterbeleid.be), see also in English River Basin Management Plan Scheldt and Meuse 2022-2027 (integraalwaterbeleid.be)

missing(), an erosion policy and a new agricultural policy (adjustment of conditionality linked to basic income support from CAP to reduce nutrients and pesticides, use of agri-environment climate interventions and eco-schemes, including an eco-scheme for buffer strips larger beyond the standard conditionality or small landscape features having the same buffering capacities which helps to avoid nutrient and pesticide leaching). Measures also aim towards crop optimisation on sensitive parcels. In erosion sensitive areas, subsidies will be conditional on implementation of measures to avoid erosion.

The Nitrogen Decree (approved January 2024[20]) aims to halve nitrogen emissions by 2030. However, as a result of massive farmer protests, it still includes a possibility for farmers to apply exemptions from the set threshold, on a case by case assessment. Also the most heavy polluters still get a last chance to seriously reduce nitrogen emissions, so as to avoid closure by 2030, e. g. by use of air scrubbers that remove nitrogen (ammonia) from the air. These are very costly but there will be compensation for reducing emissions. The effects of the Nitrogen Decree on improving water quality by reducing nitrogen deposition on surface waters are not provided. The obligation of zero fertilization in the VEN area (Flemish Ecological Network, valuable nature) seems to have been removed from the environmental impact report (MER) of the draft new manure action plan (MAP7). Notwithstanding an infringement procedure under the Nitrates Directive, Flanders is still running late with the review of its Nitrate Action Programme (NAP 7 =MAP 7). The last derogation under the Nitrates directive which allowed manure spreading above the limit of 170 kg N/ha expired end of 2022.

In the Wallonia RBMPs, agriculture is responsible for 50% of the gap for nitrogen and phosphorus, above wastewater treatment discharges (40%) and industrial emissions (10%). The measures are split between basic and supplementary.

Basic measures include implementation of the CAP (for the new programming period 2023-2027), planting of up to 4000 km of hedges to protect water resources from pollution from nutrients and pesticides, the Plan for Reduction of Pesticides implementing the EU objective of 50% reduction of the use and risks associated with pesticides, and the definition of zones vulnerable to pesticides.

Supplementary measures include adaptation of the general plan for reducing ammonia from agriculture to implement the Nitrates Directive, the objective to increase the 7,5%[21] of the agricultural land converted to organic farming to 30% by 2030, a ban of new agricultural draining in wet grassland, implementation of the CAP (for the new programming period 2023-2027) in respect of eco-schemes requirements on financial compensation for commitment by farmers not to use some pesticides and financial support for mechanical weeding of farm land), updating agricultural controls, measures helping to track evolution of use of pesticides by farmers, measures to reduce soil erosion in agricultural zones and sediments in water bodies.

It is noted positively that the RBMPs describe qualitatively the expected effectiveness of the measures.

It is also worth mentioning that about 1,5% of all agricultural land in Flanders is now[22] used for organic agricultural production (2/3 for grass and fodder and 1/3 for crops) and 12,5 % of all agricultural land in Wallonia.[23] Further growth in organic agriculture is expected in Flanders (with an objective of almost quadrupling their present area) and more moderately in Wallonia towards 18%, contributing to reducing use of fertilizers and losses of nutrients.

[20] The Decree has been challenged by both NGOs and Farmer's Unions in August 2024 before the constitutional court
[21] File:Organic-area-2022.jpg - Statistics Explained (europa.eu)
[22] Belgium (Flanders) - European Commission (europa.eu)
[23] Contexte et contenu du plan stratégique wallon de la PAC - Portail de l'agriculture wallonne (wallonie.be)

Funding

In Flanders, the basic measures under the Nitrates Directive and the CAP are born by the farming community. The supplementary measures are funded by the CAP and national funds. It is welcome that there is a detailed overview of the investment and operational costs, and funding, for all measures[24].

The Wallonia RBMP estimates the cost of implementing agricultural measures to be 6 million € per annum. It is noted positively that there is a detailed overview of the operationalisation of the measures and their financing.

Gap assessment

It is important to highlight that the Flanders RBMP includes a detailed gap assessment for nitrogen and phosphorous. This allows, in line with the requirements under the WFD, to identify the needs, as well as progress towards the achievement of the objectives. The agricultural sector is responsible for around 55% for N and 27% for P. It is very welcome that for each water body there is an estimation of the necessary reduction of N and P in order to achieve the status objective, including an identification of the key contributing sectors. This type of assessment is not seen in many countries. It is however not specified how much each sector should contribute.

Also in Wallonia, in contrast with other countries, there are detailed gap assessments of the need for nutrient reductions for each surface water body. It is however not specified how much each sector should contribute.

The North Sea RBMP includes basic and supplementary measures. Basic measures include the reduction of nutrients from agriculture. Supplementary measures include a prohibition to use active substances in aquaculture, e.g. pesticides, antimicrobial substances, disinfecting substances.

The program of measures of the North Sea RBD is based on the program developed in the framework of the MSFD. Good status largely depends on measures across borders, and upstream in Flanders, Brussels and Walloon RBDs.



4.4 What Belgium is doing to combat pollution from other sectors

Pollution in this context concerns nutrients, organic matter, sediment, saline discharges and chemicals (Priority Substances, river basin specific pollutants, groundwater pollutants and other physico-chemical parameters) arising from all sectors and sources apart from agriculture.

As pathways of pollution are very different, many different types of measures are needed.

The main measures reported in Flanders and North Sea RBMPs are:

- Construction or upgrades of urban and industrial wastewater treatment plants;
- Voluntary measures: e.g. toolbox for investment opportunities in remediation infrastructure and updating the Code of Good Practice in function of climate adaptation;
- Ensure smart wastewater and stormwater infrastructure;
- Remediation of (historical) contaminated sites (sediments, groundwater, soil);
- Improving riverbed quality by remediation of contaminated river sediments;
- Setting emission limits for problematic substances from industrial and other point sources, limiting emissions from mineral oil spills;

[24] See page 21 of River Basin Management Plan Scheldt and Meuse 2022-2027 (integraalwaterbeleid.be)

- for the North Sea RBD: prohibition to use tributyltin (TBT) in shipping, waste management plans in harbour areas, fishery and shipping bans and prevention of emissions from ships, quality control of sediments discharged in sea areas, incident management, development of environmentally friendly anti fouling substances, ban on use of certain pesticides in aquaculture, and of lead in fisheries;
- implementing and updating environmental permits for wastewater discharges (also from installations not covered by the 'Industrial Emissions Directive' (IED); systematic follow-up of 'Best Available Techniques' under the IED; address pollution from industrial disasters.

In the Walloon RBDs, main measures include:

- Measures related to wastewater treatment; including tertiary treatment to reduce nitrates, phosphates, and organic matter in more than 50% of urban wastewater treatment plants; construction/finalisation of new wastewater treatment plants; ensure conformity of individual treatment systems; assess the opportunity to revise the amount of industrial taxation to reconsider the contribution of industrial sector to water pollution;
- In addition, five supplementary measures are listed: management of water parasites in wastewater network; management of wastewater during rain events; optimize the energetic efficiency of wastewater treatment plan; improve maintenance of sewers; improve management of wastewater and rainwater;
- measures to address pollution from industrial sites, including the review and update of permits in line with environmental objectives and revision of general binding rules;
- measures to tackle point source and diffuse emissions of micropollutants;
- measures to connect more areas below 2,000 population equivalent. to the waste water treatment system.

The Brussels RBMP includes a total of 115 measures, focussing on eight areas, including improved urban wastewater treatment, increased connection to the urban waste water treatment network, addressing stormwater overflows and direct discharges. There is increased focus on the polluter pays principle, through measures to modify taxation of industry to enforce action to reduce pollution and water use and the aim to develop a new mechanism departing from purely consumption based tariffication so as to integrate, in the long term, environmental costs in the tariffication scheme.

It is worth noting that in all RBMPs, water pricing policy measures and measures for the implementation of recovery of cost of water services are listed.



4.5 What Belgium is doing to combat significant pressures – overall assessment of the Programmes of Measures

Gap assessment

All RBMPs include quantitative or qualitative gap assessments. No gap has been observed in the implementation of the WFD provisions related to governance and public participation.

Cost-effectiveness

All RBMPs include a detailed cost-effectiveness analysis, using qualitative, quantitative or a combination of both qualitative and quantitative assessments.

In general, the cost-effectiveness analysis is based on a solid impact assessment of main pressures/impacts, a thorough assessment of the effectiveness of existing measures and an identification of the main shortcomings (gap analysis), and the identification of a longlist and

selection of possible additional measures (shortlist) based on effectiveness, technical feasibility, support, costs and benefits. Cooperation with experts and consultation of sectors, stakeholders and citizens is likely to contribute to successful implementation.

Financing of measures

A critical factor in the success of the measures is the availability of budget/funding.

In all RBMPs, detailed tables show overviews of costs and funding, distinguishing according to the type of measures.

As regards the North Sea RBMP, measures are taken from the program of measures developed in the framework of the MSFD, including costs and -mostly national- funding of measures.

For the Flanders RBDs, costs include limited costs for private operators and more extensive costs for remediation operators. In addition to the EU funds, the Flanders region uses regional and local budgets. The RBMP includes an estimation of investment costs and operational costs for the 1100 actions required for achieving good status, including for all cases the available share of the investment and operational budgets, so as to estimate the total cost for the period 2022-2027, and what part of those estimated costs is considered available and what part is not. The largest costs are for investment in sanitation projects (expansion and optimisation of water treatment) and flood protection. It follows from the figures[25] provided that it will not be possible to achieve good status due to a considerable lack of available funding.

In the Walloon RBMP[26], the cost estimation is based on the costs for implementing the measures during the 2nd cycle, subdivided between sectors according to the polluter pays principle. The financial impact on each sector is estimated in order to determine and eliminate measures that would be considered disproportionately costly. The resulting total annual budget (budget based on 'public consultation') for Wallonia for the period 2021-2027 has been estimated at 32 million euro. It should be noted that costs were considered disproportionate only for the agricultural sector. This was not the case for the costs on households and industry.

Prioritisation of measures

Flanders has a specific approach for prioritising measures, based on a distinction between types of areas: priority water bodies, focus water bodies and other water bodies[27]. The classification of the 203 Flemish surface water bodies into area classes was based on various criteria: current condition (physico-chemical and biological) and distance to target, trend, existing pressures, presence of protected areas, potential for realizing win-wins, presence of valuable local water bodies, terrain knowledge, current and planned projects (remediation infrastructure and others), local dynamics within the area, modelling results, etc. Only for the first three classes of surface water bodies, it is aimed to reach good status by 2027, for class 4 water bodies, 50% should reach good status by 2027, the rest by 2033 and for class 5 and 6, 33% should reach good status by 2027 and the others beyond 2033. Groundwater bodies activities were not prioritized based on areas.

[25] For the Flanders RBDs, a more detailed table is available which distinguishes between types of measures; see page 21 non technical summary River Basin Management Plan Scheldt and Meuse 2022-2027 (integraalwaterbeleid.be)
[26] See page 27 of non technical summary Wallonie fiche non technique Enjeux PG3 -Wallonie (1).pdf
[27] A priority area is a surface water body for which good status was expected to be reached in 2021, but has not been. There are 57 such priority water bodies (speerpuntgebieden) corresponding to Classes 1-3. There are also 97 focus areas (aandachtsgebieden) corresponding to Class 4 and 5. These are Flemish water bodies where good status is considered achievable by 2027 or where there is a strong local dynamic to implement actions that contribute significantly to an improvement. There are also 41 other water bodies (Class 6).

In the Walloon RBMP, since costs of measures to address pressures from agriculture are considered disproportionately costly in the 3rd RBMPs, these are not prioritised. Focus is on improving/expanding the urban wastewater treatment network, on measures for industry and on measures to protect water as a resource.

Scenario beyond 2027

Both the Flanders and Walloon RBMPs seem to consider the possibility of reaching good status beyond 2027, through additional measures not yet implemented during the 3rd RBMP because of a lack of funding. Whilst the aim to keep a high level of ambition is positive, this further postponement is not in accordance with the WFD objectives since, after 2027, the WFD only allows for time exemptions for 'natural conditions', or exemptions based on Article 4(5) WFD, i.e. for a 'lowered' objective as a result of disproportionate costs/unfeasibility. This requires demonstration that all technically feasible and not disproportionately costly measures have been put in place but that either nature takes more time to recover or that it is still not possible to achieve good status. For exemptions under Article 4(5), the assessment of disproportionate costs should be based on an objective comparison between costs and benefits and cannot be purely based on lack of available funding.

5. Exemptions and economics

5.1 To what extent are exemptions applied in Belgium

Belgium makes considerable use of different exemptions which are possible. Indeed according to the law, where the objective of good status is not yet achieved, exemptions can be applied in accordance with Article 4, paragraphs 4, 5, 6 and 7.

Exemption grounds

All surface water bodies are in poor chemical status and 25 % of surface water bodies are in good ecological status / potential. For groundwaters, 87 % of groundwater bodies are in good quantitative status and 54 % are in good chemical status.

Considering the important amount of water bodies not yet in good status, a significant number of exemptions are still applied. All exemptions are either time related or for (temporary) deterioration. It is very welcome that no exemptions according to Article 4(5) have been applied in any of the RBMP cycles, meaning that Belgium does not intend to lower its objectives under the WFD, as for now. It follows from the Flemish[28] and Walloon[29] RBMPs that the aim is to achieve good status though beyond 2027. This would only be possible if justified on the basis of natural conditions, i.e. where it can be demonstrated that all measures are in place and implemented prior to the end of the third cycle (end 2027), but that nature takes more time to recover. However, as not all non disproportionately costly measures will be implemented during this cycle, it will be problematic to justify an extension in 2027.

Table 3: Reasons for exemption under Article 4(4) for each region in Belgium (more than one exemption can apply per water body)

Region	Technical feasibility	Disproportionate costs	Natural conditions

[28] 4-visievorming.pdf (integraalwaterbeleid.be)
[29] See page 178 RBMP wallonie.pdf

Wallonia - SWB - ecological status	84	93	137
Wallonia - SWB - Chemical status	113		
Wallonia – GWB – quantitative status	1		1
Wallonia – GWB – chemical status	2	13	14
Brussels Capital - SWB - ecological status	3	2	2
Brussels Capital - SWB - chemical status	3	2	3
Brussels Capital – GWB – chemical status	1	1	1
Federal – SWB – Ecological status	1	1	1
Federal – SWB – chemical status		2	2
Flanders - SWB – ecological status	84	196	202
Flanders – SWB – chemical status	84	196	203
Flanders – GWB – quantitative status	2		6
Flanders – GWB - chemical status	2	19	23

Source: WISE electronic reporting for Flanders, Brussels and North Sea RBDs and background documents for Wallonia RBDs

(temporary) deterioration due to 'force majeure' – Article 4(6) WFD

In Flanders, 47 water bodies have deteriorated status compared to the 2nd RBMPs. However, according to the RBMP, for 16 of those there has not been an actual deterioration but the change seems to stem rather from a 'misclassification'; for 27 water bodies deterioration was justifiable under Article 4(6) WFD. For four water bodies no justification can be provided. The most common reasons for deterioration are related to limited flows due to dry summers, management works, floods and a massive invasion of crabs.

It is worth noting that no Article 4(6) exemptions are reported in the 3rd RBMPs of Brussels and Wallonia.

Deterioration as a result of new projects - Article 4(7) WFD.

It is worth stressing that no exemptions according to Article 4(7) have been applied in any of the three cycles of RBMPs. This may point to an under-implementation of the requirements of Article 4(7) according to which any new project potentially affecting water body status should be assessed upon its impacts and, where so required because of potential deterioration or preventing the achievement of good status, be justified in accordance with the detailed criteria set out in Article 4(7) WFD.

The Flanders RBMP refers to a new approach[30] and guidance for justifying potential deterioration, to take account of the Weser ruling in which the Court has given a strict definition to the notion of deterioration of status. It cannot yet be concluded if there will be a need for exemptions in the course of the 3rd cycle, because relevant policy decisions have not been taken or the assessment is still to be or being carried out. If exemptions are applied, they will probably be reported in the next cycle RBMPs. The Walloon RBMP also includes detailed guidance for implementing Article 4(7) and only refers to one case in which a preliminary assessment was carried out but it was concluded that either

[30] Toetsing aan doelstellingen kaderrichtlijn Water — nl (integraalwaterbeleid.be)

deterioration of status was unlikely or that further assessments would be required for the more specific projects to be carried out under the plan.

Level of justification for all exemptions applied

In the Flanders RBMP, detailed justification of the exemptions at the level of the individual water body is only provided for the 17 surface water bodies which had been identified in the 2nd RBMPs as priority areas for which good status was considered achievable by 2021. However, de facto this was not the case by the time of drafting the 3rd RBMP. For these water bodies, there is a detailed explanation of the reasons for the (continued) application of the exemption and why planned measures have not been implemented (i.e. for budgetary or technical reason), or have not yielded the expected results.

For all water bodies, natural conditions are reported in addition to disproportionate costs or technical feasibility. Technical feasibility is mostly related to difficulties with land acquisition or additional time required for project implementation (acquisition, research and study, tendering, etc.). There are also new challenges related to invasive alien species and droughts. According to a Background document on exemptions[31], disproportionate costs under Article 4(4) WFD can be justified either because 'unreasonable', i.e. costs are not proportionate to the benefits (not only monetary but also qualitatively described benefits), or because not proportionate to the financial capabilities of industry, agriculture, households and government. This is mainly documented in the Program of Measures which also makes references to the background document on funding of measures[32].

The Wallonia RBMP includes information on the justification of the disproportionate costs, natural conditions and technical feasibility. The information is specific to the water bodies concerned with relatively more information presented for groundwater bodies. Disproportionate costs are invoked when the cost of additional measures is disproportionate in relation to the ability to pay of the stakeholders concerned, or in relation to the expected environmental benefit. The RBMP includes information on values that are used as part of disproportionality assessments, these are specific by sector (e.g. over 2% increase in water services bill for household with small revenues is considered to be disproportionate).

The Brussels RBMP reports detailed information on Article 4(4) exemptions, applied to individual water bodies. The approach to assess disproportionate costs considers the availability of funds and budgetary capacities of the economic actors (households, businesses, public authorities). This implies e.g. an evaluation of the impact of a 100% cost recovery rate on average taxable income for households and on added value for businesses. It also considers the impact on public expenditure.

The electronic reporting suggests that the coastal surface water body is exempted for ecological status on grounds of technical feasibility, disproportionate costs and natural conditions and is exempted for chemical status on grounds of disproportionate costs and natural conditions. However, regrettably, the North Sea RBMP does not include information on exemptions. This would also be very important for the implementation of the Marine Framework Strategy Directive.

5.2 Use of economic analysis and water pricing – cost recovery

All RBMPs report progress in the economic analysis and information in accordance with WFD Annex III, including as regards key cost estimates associated with the various water services, differentiated over user types/sectors, price estimates associated with the various water services, estimates of the investments needs and of the potential costs of relevant measures, as well as judgements about the

[31] https://sgbp.integraalwaterbeleid.be/beheerplan/achtergronddocumenten/afwijkingen
[32] https://sgbp.integraalwaterbeleid.be/beheerplan/achtergronddocumenten/ad_financiering-van-water-2017.pdf

most cost-effective combination of measures. For the North Sea RBMP, the information is integrated for measures under the MSFD, the WFD and the Natura 2000 Directives. In general, the 3rd RBMPs do not include clear estimates on consumptive water uses, their shares and the respective long-term trends. However, the available statistics suggest an increasing trendin water demand in many sectors (e.g. agriculture, mining and quarrying, households and services and industry). Yet, without a quantitative confrontation of long-term supply and demand, the economic analysis does not sufficiently explore when and where bottlenecks may occur beyond 2027.

Water pricing and price incentives to efficient water use

The Flanders RBMP distinguishes four water services (public drinking water supply and distribution, public wastewater collection and sanitation, self-abstraction and self-service with regards to sanitation), broken down in the three broad water user sectors: industry, households and agriculture.

This RBMP clarifies how pricing policies aim to influence water consumers towards a more efficient water use. There are four groups of water pricing:

- The integrated water bill covering water supply and sanitation. The water tariff consists of a fixed access fee and a volumetric component with an increasing rate over two rate brackets for households, but for industry and agriculture a fixed unit rate independent of consumption volume. The latter dents the incentive to use water efficiently. In addition, annual abstractions of less than 500m3 per year are exempt of a tariff. The social correction for vulnerable groups is set at 80 % for the total amount.
- Charges/levies: for companies extracting water or discharging wastewater, charges apply. They reflect environmental and resource costs but are not precisely tied to recoverable expenses, therefore not constituting a clear application of the polluter-pays-principle; the pricing scheme for irrigation has a volumetric component but only when groundwater or surface water is used from a navigable waterway (water use from non-navigable waterways is free of charge).
- Self-services are considered covered by the cost recovery principle insofar as the users in question bear all costs directly associated with these activities.
- General government funds cover the cost of water system management by the Flemish government, provinces, municipalities, etc. Contributions come from various water-use sectors through different types of taxes, unrelated to individual consumption or environmental pressures.

The other RBMPs do not have a similar overview of water pricing policy. In general, an explicit account as to whether these policies provide an adequate incentive to efficient water use, appears absent.

Cost recovery and the contributions by water use sectors

The Flanders RBMP reports full and nearly full cost recovery rates for the three broad water use sectors and for each water service identified. For water supply, the cost recovery rate exceeds 100 % for industry and the agricultural sector and is 91% for households (suggesting a cross-subsidy from the former two to the latter sector). For sanitation, households achieved 95% cost recovery in 2017, and industry 115 % (respectively 98% and 110% when looking at municipal sanitation costs). In the case of self-service for water supply (pumping groundwater), since sectors do not receive subsidies for the infrastructure, the cost recovery rate is considered 100%. In the case of self-service for waste-water sanitation, this varies across municipalities for what concerns households; whereas companies generally do not receive financial support therefore assuming a 100% cost recovery. Farmers have the option to seek assistance, often in the form of subsidies covering up to 30% of the initial investment.

The Wallonia RBMP reports that for water supply services, there is a cost recovery of 100% across sectors, with cost recovery from agricultural and industrial sectors above 100%, while for households it is slightly below 100%. Concerning the sanitation service, the cost recovery rates are significantly lower for the industrial sector (between 9%-57% depending on the RBD), whereas for the household sector, cost recovery rates are significantly higher than 100% (they vary between 117-135% depending on the RBD).

The Brussels RBMP calculates cost-recovery rates for 3 aggregated water uses (industry, households, agriculture).

In all RBMPs, there doesn't seem to be an explicit account whether this variation in sectoral cost recovery rates reflects adequate contributions of water user sectors to the water services' cost. There does not seem to be a comprehensive discussion either on the factors allowing mitigation of the cost recovery efforts as listed in article 9 of the WFD (albeit the social tariff and subsidies mentioned above are in place for socio-econimic reasons).

Environmental and Resource cost (ERC) and application of the Polluter Pays Principle (PPP)

The Flanders RBMP provides quantitative estimates for ERC drawing on a general exercise to estimate the value of access to sufficient and clean water, at macro-level (eg for various topics, such as health benefits, benefits for tourism and nature and biodiversity, for property value of being close to water, and carbon retention and ecology). But it is not clear to what extent the ERC estimates have informed the rates of the reported abstraction and environmental charges.

The Wallonia RBMPs report that their ERC estimates largely reflect the costs of pollution abatement and prevention measures.

None of the RBMPs appear to go much further than a general assurance that the PPP has been applied, and no direct links are made between the pressures and impact assessment. The Flanders RBMP provides a qualitative explanation of how PPP has co-shaped the structure of water bill, and refers to the wastewater charge. Similarly, the Walloon RBMP refers to the 'ecotoxicity' parameter which is now taken into account in the setting the tax rates for industrial wastewater.



6. WFD recommendations

Belgium should urgently address problems including hydromorphology (river dynamics, bank characteristics, etc.), concentrations of nutrients and chemicals in surface water, as well as, to a limited extent, in groundwater, and water shortages during dry periods. Considering that availability of funding seems to be a major problem for implementing measures, better use should be made of the cost recovery and polluter pays principle, in relation to all water services and all water users. Permits for abstraction, impoundment and discharges should be subject to mandatory periodic review.

More in particular, Belgium should:

1. increase the level of ambition and accelerate action to reduce the compliance gap as much as possible by 2027. This implies:
    a) the development of more robust Programmes of Measures based on a clearer assessment of the gap to be bridged to reach good status and a clearer prioritization of measures.
    b) tackling decisively obstacles identified in the implementation of measures, such as insufficient administrative capacities and resources.

c) Ensure that all permits related to abstractions and discharges are strictly enforced, better linked to the status of the impacted water bodies, include conditions to ensure appropriate ecological flow and water balance where so required, and be subject to periodic review so as to avoid deterioration of status.

2. increase investments and ensure adequate financing to effectively implement the Programmes of Measures to reach the objectives of the WFD. This involves in particular:

   a) Continue to carry out appropriate and sufficiently detailed cost-benefit analysis of proposed measures and explain how this has led to the final selection of those measures.

   b) Make further efforts towards full application of the cost recovery principle to all water use activities that have an impact on water bodies and ensure that also self-abstractions (from non-navigable waterways) are subject to water pricing.

   c) Make all sectors (also industry and agriculture in Flanders) subject to fixed and variable price per unit of water used.

   d) Consider funding of measures to address pollution from agriculture, including through the implementation of the Cohesion Policy.

3. identify and put in place, as appropriate, additional measures to reduce existing persistent environmental challenges (pressures) preventing the achievement of good status based on robust gap analyses, and taking particular account of the fact thatthose pressures are aggravated by climate change. This implies, inter alia:

   a) Stepping up action to reduce nutrient and pesticides pollution, including through continued close cooperation with the farming community and the authorities in charge of the implementation of the CAP, through implementing additional mandatory measures if voluntary measures appear insufficient and through securing greater synergies between the WFD goals and other policies and instruments, including CAP, MSFD and NiD.

   b) Continue to show ambition and pragmatism in tackling chemical pollution, by developing a more substance-specific approach both in surface and groundwater, with focus on Priority Substances, river-specific and groundwater specific pollutants; look for solutions to address pollution from ubiquitous substances.

   c) Ensure that ecological flows, i.e. the level of water that must be left in the water body for the ecosystem to properly function, are set out in the legislation or general binding rules so as to facilitate their implementation in permitting.

4. Where the objectives of the Directive for a specific water body cannot be met and exemptions are invoked, Member States should do so in line with ECJ jurisprudence on the restrictive interpretation of exemptions and better justify the use of exemptions, providing sufficiently detailed justifications at the level of the water body and ensure that their application is regularly reviewed. This implies:

   a) Recognising that the possibilities for time related exemptions (Article 4 (4)) are extremely limited and will no longer be allowed after 2027 (except if duly justified for natural conditions); in particular in Flanders there should be a more transparent and detailed justification of exemptions, since in Flanders such justifications are only provided for 17 prioritised water bodies; as well as in the North Sea RBD which does not provide any justification for exemption.

   b) Much more information on the exemptions under Article 4(7) WFD for new projects, including new dams and water transfers. This includes better justifications of the use of these exemptions by detailing cumulative effects, the assessment of better environmental options, and the measures taken to mitigate the adverse impacts of new developments.

5. As regards monitoring, assessment, data management and reporting, Member States should:

   a) In cooperation with the Commission and the EEA, ensure timely reporting in line with WFD requirements and more complete electronic reporting for future cycles (in particular the Brussels and Walloon Regions).

   b) further strengthen monitoring systems to close gaps both in terms of geographic coverage, water types and parameters covered and improve confidence in the status assessment, by reducing reliance on expert judgement or grouping of different water bodies and completing the work on setting up reference conditions for all quality elements (including hydromorphological).

   c) More systematically include the water needs of groundwater dependent aquatic ecosystems in the assessment of the quantitative and chemical status of groundwater bodies and include the water needs of groundwater dependent terrestrial ecosystems for the purpose of quantitative status assessment in the Brussels Region.

SECTION B:

FLOODS DIRECTIVE

7. Flood risk management under floods directive (FD)

The Directive requires each Member State (MS) to scan its territory for flood risks, assess the potential adverse consequences of future floods for human health, the environment, cultural heritage and economic activity, identify the significant risks, map the flood extent and the potential adverse consequences, and take measures to reduce the flood risk. These activities are reflected in (a) the preliminary flood risk assessments, or PFRAs (including the identification of areas of potential significant flood risk, or APSFRs), (b) the preparation of flood hazard and risk maps, or FHRMs, and (c) the establishment of flood risk management plans, or FRMPs. The preliminary assessments, mapping and planning for flood risk are repeated in six-yearly cycles.

There are seven Units of Management (UoMs) in Belgium, which are the same as the Water Framework Directive's River Basin Districts (RBD). Fluvial, pluvial, sea water, and Artificial Water Bearing Infrastructure types of floods are considered as potentially significant sources of flooding in Belgium. Belgium has designated 27 Areas of Potential Significant Flood Risk (APSFRs).



7.1 Flood hazard and risk maps

There are three different FHRM viewers for the three regions (Flanders[33], Wallonia[34] and Brussels[35]), with different approaches. Coastal flooding is only relevant for Flanders and these maps are included in the FHRM viewer for Flanders. The viewers provide maps for floods with low probability (1/1 000 years for all regions), with medium probability (1/100 years for all regions, only 1/25 – 1/50 years for pluvial floods in Brussels) and with high probability (1/25 years for Wallonia, 1/10 years for Brussels and Flanders). All maps show flood extent and water depth. However, for Wallonia, water levels are shown in lieu of depths for large parts of the river network. All maps also show the number of inhabitants and the type of economic activity potentially at risk, including installations regulated under the Industrial Emissions Directive (IED). Finally, the FHRMs also show the potentially affected protected areas identified in Annex IV(1)(i), (iii) and (v) to Directive 2000/60/EC.

In terms of changes in the contextual information (i.e. the way in which information about the maps is conveyed to the public) since the 1st FHRMs, the most important changes per region relate to the consideration of climate change scenarios. For more information, reference is made to section 3.7 on 'adaptation to climate change'.

In terms of methodologies used to prepare flood hazard maps and methodologies used to prepare flood risk maps, there has been no change since the 1st FHRMs.



7.2 Flood risk management plans

Objectives and measures

[33] https://www.waterinfo.be/default.aspx?path=Public/Kaarten/P01_Overstromingsrichtlijn
[34] Flood Hazard Map: https://geoapps.wallonie.be/Cigale/Public/" \l "VIEWER=ZI Flood Risk map: https://geoapps.wallonie.be/Cigale/Public/#VIEWER=RI
[35] https://geodata.environnement.brussels/client/view/1a3cae6b-dd04-4b28-a3e2-c432dc83e24f?_ga=2.30736700.2008677153.1662963503-1915286757.1661152750 and https://geodata.environnement.brussels/client/view/7bbf42dd-1042-482a-958d-e40981592507

The FRMPs can be found on the web pages of Belgium's three regional governments, Brussels[36], Flanders[37], and Wallonia[38].

Objectives

Each of the FRMPs have reported one overall objective accompanied by a series of sub-objectives.

For Flanders, the FRMP's main objective calls for protection from floods and a sub-objective calls for reducing flood damage. The main objective refers to protection of economic activity, the environment, cultural heritage and people.

For Wallonia, the FRMP's main objective calls for reducing adverse consequences of floods, including those on economic activity, the environment, cultural heritage and human health. The Wallonia FRMP also lists objectives at sub-basin level.

For Brussels, the FRMP's main objective calls for reducing the frequency and magnitude of flooding. A sub-objective of the Brussels FRMP calls for reducing vulnerability to flooding. The objectives however do not specifically refer to protection of economic activities, the environment, cultural heritage or human health.

All three FRMPs also set objectives for non-structural initiatives such as raising awareness, enhancing knowledge, or improving crisis management.

Measures

Belgium reported 1 531 measures to EIONET, from all three FRMPs. Wallonia has also reported measures at sub-basin level to EIONET. The Flanders FRMP refers to sub-basin plans but the sub-basin measures are not reported to EIONET.

EIONET provides for prioritisation categories for measures, ranging from critical to low. Belgium (all three regions) has reported priorities for 1 453 measures out of 1 531 (95 %), with 776 measures (51 % of prioritised measures) categorised as critical; 325 as very high (21 %); 30 as high (2 %); 32 as moderate (2 %); 290 as low (19 %). All three FRMPs outline the prioritisation process used: multi-criteria analysis (MCA) is used in Flanders and Wallonia.

The Brussels and Wallonia FRMPs provide detailed information on the costs of their measures but not an overall budget. The Flanders FRMP, on the other hand, provides an overall budget. Public budgets appear to be the main source of funding for measures in all three Belgium FRMPs. However, on the whole, information regarding the financing of the measures within the three plans is either lacking (for the Wallonia FRMP) or limited (for the Brussels and Flanders plans). The Flanders FRMP describes a social cost-benefit analysis method used for the Sigma Plan for the Scheldt estuary; it is not clear to what extent it was used for the FRMP itself.

The three FRMPs include nature-based solutions in their measures. The Flanders plan has a sub-objective to 'give space to water' and the Wallonia plan has a sub-objective for riverbeds and floodplains. Both the Flanders and Wallonia FRMPs also include measures for natural water retention, while the Brussels FRMP notes that the urban nature of the region does not allow the identification of new natural water retention areas. None of the plans provide detail on how nature conservation is addressed in their other measures.

[36] https://environnement.brussels/citoyen/nos-actions/plans-et-politiques-regionales/plan-de-gestion-de-leau
[37] https://sgbp.integraalwaterbeleid.be/
[38] https://inondations.wallonie.be/home/directive-inondation/plans-de-gestion-des-risques-dinondation/pgri-2022-2027.html.

While the Brussels and Flanders FRMPs are integrated into the RBMPs, neither these plans nor the Wallonia FRMP provide detail on how the WFD objectives were addressed.

All three regions have reported prevention, protection and preparedness measures. The Flanders FRMP refers to protection from flooding in its main objective. The Brussels and Wallonia FRMPs have objectives for crisis management. All three FRMPs include measures related to land use and sustainable spatial planning.

Progress

The plans for Flanders and Wallonia provide detailed information on progress in implementing the measures under the 1st FRMPs and describe how progress is monitored. However, they do not specifically assess progress towards the objectives of the 1st FRMPs. The Flanders FRMP[39] shows that by the end of 2020, for Measure Group 6 (the FRM measures) about 20 % of all actions in the first FRMP had been implemented, 10 % were being implemented, 30 % were in preparation, and 15 % had been abandoned, interrupted or were considered not relevant (no information was found in the Flanders FRMP why certain actions were designated into the last category). The remaining measures, about 25 %, were either in progress, including continuous measures, or not classified. The Wallonia plan provides, in its chapter 4, a graph for each of the four UoMs showing the number of measures from the 1st FRMP that have been extended to the second FRMP by sub-basin, according to their type and their progress of implementation. The 2nd FRMP notes that 53 out of 491 general and local projects in the 1st FRMP were abandoned. The plan lists[40] these projects and the reasons for not implementing them, including a lack of financing, or the project was not considered a priority or assessed as not effective. For the 42 global measures, eight were completed, four abandoned, and the remainder either started or in implementation, including continuous measures. The Brussels FRMP lacks a systematic overview of progress of measures and only discusses it to some extent, without however describing the mechanisms for monitoring progress. It identifies the measures under the 1st FRMP that were not taken forward. As regards the progress of measures under the 1st FRMP that were taken forward, these are only covered for the WFD.

Belgium has reported the information on progress of implementation to EIONET as follows: ongoing construction (20 measures, 1% of all measures); ongoing (recurrent e.g. maintenance works) (113 measures, 7 %); in preparation (9 measures, 1 %); not started (1 389 measures, 91 %). No measures were reported as being abandoned/interrupted or as completed.

All Wallonia UoMs reported measures as either ongoing or not started. For the two Flanders UoMs (BESCHELDE_VL and BEMAAS_VL) and the Brussels UoM (BEESCAUT_SCHELDE_BR), measures are reported as under ongoing construction or in preparation. In the Flanders UoMs only 3 % of measures were reported as not started (one measure in each UoM), compared to 21 % in Brussels (three measures) and between 66 % and 96 % in the Wallonia UoMs.

Governance

All three FRMPss refer to international coordination and cooperation, mainly through the international river commissions. The Flanders plan also refers to bilateral exchange and coordination undertaken with France and the Netherlands. No further details are provided on the contents or results of this coordination.

For Flanders, the Committee on Integrated Water Policy (CIW) provided a specific website for the public consultation process with all information centralised including the draft plan, the SEA report

[39] Flanders FRMP, chapter 6.2.
[40] Wallonia FRMP, chapter 4, Table 41.

and the non-technical summary. The Brussels and Wallonia FRMPs provide an overview of the comments received in the public consultation and how they were addressed. The Brussels FRMP provides detailed information on feedback from the public consultations, something not found in the 1st FRMP.

Consideration of climate change

As regards the consideration of climate change effects in the preparation of flood risk management plans, reference is made to section 3.7 on 'adaptation to climate change'.

Progress identified in the 2nd FRMPs

All of Belgium's FRMPs include a clear and explicit description of the measures with regard to their aims, location, implementation process and timeline. Belgium has provided information on the costs of measures, for the FRMP as a whole in the case of Flanders, and for individual measures, for all three regions. Also, all three FRMPs report geographic coverage for all measures. The FRMPs also describe climate impacts on flooding and prioritise addressing the impacts of climate change on flood risk to a greater extent. Each FRMP provides an overview of international cooperation, though they do not provide details on the contents or results of this cooperation. All three FRMPs refer to bilateral consultations with the other regions. The Flanders FRMP states that cooperation and participation between the three regions has been strengthened since the 1st FRMP, including via the creation of a consultation platform on water under the Water Steering Group. The Brussels and Wallonia FRMPs both describe broad ranges of activities for stakeholder involvement for the development of the second plans. The Brussels FRMP provides detailed information on feedback from the public consultations, something not found in the 1st FRMP.

8. FD recommendations

Based on the assessment of the reported FHRMs and FRMPs, Belgium should consider the following recommendations to enhance flood risk management:

- The three regions' FHRM viewers have varying degrees of user friendliness. Considering that all three viewers concern regions of the same country, and that flood risk knows no borders, the next update of each of the three viewers should foresee a level of harmonisation amongst them. Ideally there should be one all-encompassing FHRM.
- All Flood Hazard Maps should show either water depths or water levels as per Article 6 of the Directive.
- It should be clear in the FHRM whether climate change has been considered and future impacts of climate change presented.
- The three FRMPs each state that the whole region has been designated as an APSFR, at the same time, 27 APSFRs were identified and the FHRMs show different parts of the three regions subject to flooding under different scenarios. Hence there seems to be a discrepancy which should be clarified.
- The Brussels and Wallonia FRMPs should include summary maps of their APSFRs.
- The FRMP should provide detail on how the FHRM was used in the choice of objectives and measures.
- Provisions for the protection of cultural heritage at risk from flooding should be discussed in the FRMP.

- The FRMP's objectives should be made more specific, where possible linked to quantitative indicators and be timebound, and better coordinated between the regions. An assessment of the progress made towards the achievement of the objectives should be included in all three FRMPs.
- The FRMP should set out the methods used to monitor progress of measures and explain clearer the actual progress of the measures (including those finished in the course of the first FRMP).
- Where relevant, the FRMP should incorporate CBA for the prioritisation of measures that lend themselves to it and provide a clear description of the methodology used.
- The consultation periods for the draft FRMPs should be coordinated between the three regions.
- The FRMP should set out clearly the coordination with the WFD.
- The FRMP should set out clearly the international cooperation and coordination activities carried out.
- Where appropriate, the FHRM should consider flow velocity or relevant water flow and the FRMP flood conveyance routes, as these are relevant to emergency response.