River Basin Management Plan for the International Meuse River Basin District, 3rd cycle of the Water Framework Directive (2022-2027)

March 2022

English not being one of the IMC's official languages, the English version of this report is not an official translation and is only provided to make this report more widely available.

Table of contents

List of figures

List of tables

0. Foreword

This report is the roof part of the management plan for the International Meuse River Basin District (Meuse IRBD), established under the 3rd cycle of the Water Framework Directive (WFD) for the period 2022-2027.

With the updated management plan of the Meuse IRBD, the IMC Contracting Parties strengthen their cooperation in order to jointly meet the ambitious challenge of the WFD for surface and groundwater and associated aquatic ecosystems.

The important issues of the Meuse IRBD are the following:

(1) Impact of hydromorphological changes on the free flow of fish;

(2) Nutrient discharges from point and diffuse sources;

(3) Discharge of pollutants from point and diffuse sources;

(4) Impact of priority substances and other pollutants (pesticides, solvents, heavy metals, hydrocarbons, medicines) on the aquatic environment;

(5) Diffuse discharges of nitrogen and pesticides mainly from agriculture;

(6) Increased frequency and severity of low flow periods;

(7) Increased risk of flooding.

1. Introduction

1.1. Context and mandate

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000, the so-called Water Framework Directive (WFD), establishes a framework for Community action in the field of water policy. It aims to prevent, preserve and enhance aquatic ecosystems and to reduce and prevent pollution and overexploitation of groundwater for sustainable water use.

The Meuse and its tributaries, together with the corresponding groundwater, transitional and coastal waters, form the Meuse IRBD. It is spread over the territory of five EU Member States (France, Luxembourg, Belgium, Germany and the Netherlands) that are responsible for the implementation of the WFD at national level. The multilateral coordination of this implementation in the Meuse IRBD is organised by the International Agreement on the Meuse, signed in Ghent in 2002, whose Contracting Parties are France, Luxembourg, the Belgian Federal State, the Walloon Region, the Flemish Region, the Brussels Capital Region, Germany and the Netherlands (annex 1). This agreement provides that international coordination in implementation of the WFD will take place within the International Meuse Commission (IMC) and that the management plan of the Meuse IRBD will be composed of the national and regional management plans and a roof part. This is in order to meet the obligations of Article 3(4) of the Directive.

More generally, the agreement also covers other areas, such as the coordination of measures for the prevention of and protection against floods, the mitigation of the effects of floods and droughts including preventive measures, the coordination of measures to prevent and combat accidental water pollution and the transmission of the necessary information during such pollution episodes.

The roof part of the management plan focuses on important water management issues of common interest at the Meuse IRBD level that were identified and agreed upon during their review and update in 2019.

It includes the relevant elements for the Meuse IRBD as a whole (e.g. an overview of the status of both surface[1] and groundwater[2] bodies, the objectives to be achieved by 2027 and a summary of the national programmes of measures and the multilateral coordination activities carried out at the level of this district.

This report complements the national reports drawn up by the Contracting Parties to the IMC. It has been built up as the national and regional work progresses, on the basis of ongoing exchanges that make it possible to assess their compatibility and the coherence of the whole. It attests to the coordination of the plans and the efforts to harmonise them, particularly with

[1] *Body of surface water means a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water.*

[2] *Body of groundwater means a distinct volume of groundwater within an aquifer or aquifers.*

a view to taking into account the issues that are important for water management at the level of the Meuse IRBD.

In addition to multilateral coordination, the plans developed by the States and Regions for their territories were coordinated as far as necessary at bi- or trilateral level for transboundary sub-basins and/or specific themes (e.g. groundwater). The States and Regions reported to the IMC and exchanged views on the subject.

1.2. WFD coordination process at the Meuse IRBD level

1.2.1. Agenda

The international coordination of the WFD at the level of the Meuse IRBD took place in several stages, according to a precise schedule:

- 22 December 2005: publication of the characteristics of the IRBD (art. 5);
- 16 March 2007: publication of the report on the coordination of monitoring programmes within the Meuse IRBD;
- 22 December 2009: publication of the first roof management plan for the period 2010-2015;
- 22 December 2015: review and update of the roof management plan for the period 2016-2021.

This roof report is written in the context of the second update of the management plans and the third planning period in which WFD measures are taken (River Basin Management Plan (RBMP) 3, 2022-2027).

This drafting took place in an unprecedented context of a global pandemic due to Covid-19, which explains some possible delays in relation to the official deadlines prescribed by the directive.

1.2.2. Involved bodies

Multilateral coordination work has been carried out within the IMC through the establishment of several working groups and ad-hoc expert groups (Figure 1).

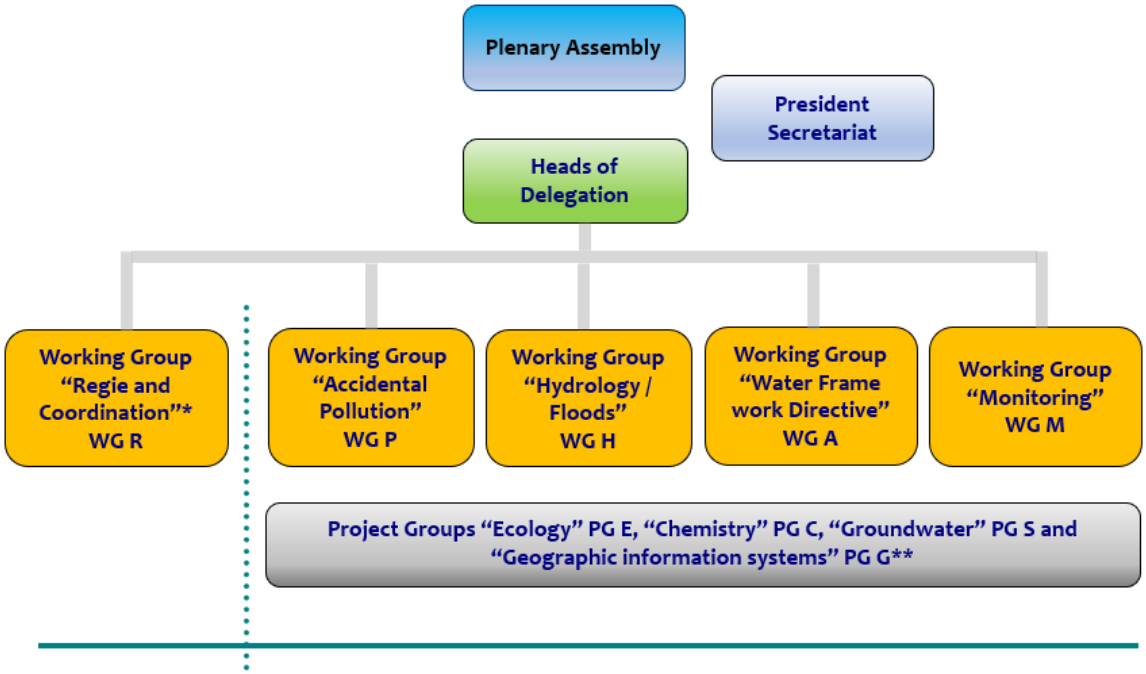

Figure 1: IMC organisation chart

1.2.3. Coordination with the Flood Risk Assessment and Management Directive (FRD)

The IMC plays a coordinating role in achieving the objectives of the WFD and the FRD. In this context, it acts as a platform for the exchange of information and the necessary coordination at the level of the Meuse IRBD.

The IMC Contracting Parties have developed and also updated a roof part of the Meuse IRBD Flood Risk Management Plan (FRMP) for the implementation of the FRD. Coordination of the implementation of the two directives and their programmes of measures was carried out in order to improve efficiency and information exchange and to achieve synergies and shared benefits.

To this end, a review of potential synergies between possible measures that could reduce flood risks and contribute to the WFD objectives (in accordance with WFD, art. 4) has been carried out. As a result of this work, it is proposed to give priority to measures that have a synergy with the environmental objectives of the WFD.

The results of this review are described in the 'Report on the coordination between the Flood Directive and the Water Framework Directive in the Meuse IRBD'[3].

1.2.4. Coordination with the Marine Strategy Framework Directive (MSFD)

The IMC also plays a coordinating role in achieving the common objectives of the WFD and the MSFD. The implementation of this task mainly concerns the strategic points associated with the following areas of action of the MSFD: restoration of the free movement of fish species, reduction of eutrophication and discharges of polluting substances and waste/floating waste.

The first analyses show that the measures launched by the Contracting Parties in the framework of the implementation of the Water Framework Directive also contribute to the improvement of the situation at sea and to the achievement of good status of the aquatic environment in accordance with the Marine Strategy Framework Directive.

The WFD does not provide for monitoring of microplastics in rivers. Nor is waste taken into account when assessing the status of water bodies under the WFD. Within the IMC, however, it has been recognised that micro- and macroplastics are a problem for the aquatic world and the food chain. For this reason, the IMC has been actively following developments in this area for some years. It also regularly organises exchanges of information on national and international studies and initiatives that test new monitoring methods or analyse the pathways into waterways and the effects of plastic waste and microplastics on ecosystems and organisms.

Among these studies is the Interreg EMR LIVES (Litter Free Rivers and Streams) project. The LIVES project focuses on the reduction of plastic waste in the River Meuse. It aims to reduce plastic waste at the end of the project period. LIVES supports cross-border ecological cooperation by bringing together ten project partners from the entire Euregio Meuse-Rhine. The implementation of the project will consist of a detailed analysis of the current waste situation in the river, measures against waste production, including awareness campaigns and the installation of five different types of plastic traps, as well as institutional arrangements to ensure the sustainability of the project. While several initiatives already exist at the local level, the LIVES project aims for a more coherent cross-border approach, taking into account the wider impact of waste on the Meuse. For more information:

https://www.interregemr.eu/projets/lives-1-fr

For inland waters, the accumulation of microplastics in rivers and lakes and along their shores is analysed at national and international level in a limited number of studies. However, the results of these studies are not comparable, as there are currently no consistent definitions or methods of analysis.

[3] *Report on the coordination between the Flood Directive and the Water Framework Directive in the Meuse IRBD (IMC 2021)* *http://www.meuse-maas.be/CIM/media/PUBLICATION-RAPPORT-DCE-DI-JUIN-2021/Rapport_DCE_DI_en.pdf*

2. Description of the Meuse River Basin District (Meuse IRBD)

2.1. General description

The total area of the Meuse IRBD is 34,347 km². It has about 8.8 million inhabitants.

The Meuse rises at an altitude of 384 m in Pouilly-en-Bassigny in France. From its source to its mouth in the Netherlands, it is 905 km long. The Meuse basin consists of the main river and also tributary streams and branches.

The general characteristics of the Meuse IRBD are summarised in Table 1. Detailed descriptions can be found in the national and regional management plans.

	Area (km²)	Population (x 1000 inhabitants)	Population density (inhab/km²)	Surface waters		Groundwater
				Number of water bodies	Length of watercourse (km)	Number of water bodies
France	8,919	671	75	153	3.305	8
Luxembourg	75	62	832	3	22*	0
B- Wallonia	12,278	2,285	186	257	4.860	21
B- Flanders	1,601	440	275	18	273	10
Netherlands**	7,500	3,500	467	153	2.288	5
Germany	3,976	1,897	477	229	1.567	32
TOTAL	***34,349***	***8,855***		***813***	***12.315***	***76***

** This information relates to the length of the surface water body and not the length of the watercourse*
*** including 1 transitional and 1 coastal water body*

Table 1 : Main characteristics of the Meuse IRBD

The downstream part of the Meuse basin is characterised by intense economic activities and a higher population density than the upstream part of the river, whose landscape structure is similar to that of the mid-mountain region with a strong predominance of agricultural and forestry activities. These differences have a major impact on water use and the problems encountered upstream and downstream of the basin.

The water from the Meuse IRBD is used for:

- Hydraulic regulation of the river (retention, storage, discharge)
- Supply of water for human consumption (drinking water)
- Agriculture
- Industry (including hydroelectric production and cooling of nuclear power plants)
- Navigation (freight transport and recreational boating)
- Recreation

The majority of the population of the Meuse IRBD consume drinking water produced from surface water and groundwater in the catchment area. In addition, large quantities of water are abstracted and transported by canal or pipeline to produce water for human consumption for over 6 million people outside the Meuse IRBD.

The Meuse is a major ecosystem in North-Western Europe: not only is it a habitat for the fauna and flora characteristic of the large rivers of North-Western Europe, but it is also an important migration route for amphihaline fish that breed in the Meuse, its tributaries or in the sea.

2.2. Surface water

The competent authorities of each State/Region of the Meuse IRBD have delimited surface water bodies within the meaning of the Framework Directive according to their typology and the pressures they are subject to.

Table 2 and Figure 2 show the total number of surface water bodies per State/Region of the Meuse IRBD and their distribution into natural and heavily modified or artificial surface water bodies. The table shows a marked difference between the upstream part of the basin, where the majority of the water bodies are natural, and the downstream part of the basin, where a large proportion of the water bodies are heavily modified or artificial. This can again be correlated with the greater anthropic pressure and population density in the downstream parts of the basin.

In the Netherlands, the number of water bodies that have been designated as "natural" is higher compared to 2015:

Seven water bodies that were previously considered "heavily modified" are now designated as "natural", while at the same time only one water body (the Niers) that was considered "natural" is now designated as "heavily modified".

	Number of water bodies		
	Total	**Natural**	**Heavily modified/Artificial**
France	153	142	11
Luxembourg	3	2	1
B-Wallonia	257	210	47
B-Flanders	18	9	9
Netherlands	153	12	141
Germany	229	77	152
Total	***813***	***452***	***361***

Table 2 : Number of natural, heavily modified or artificial surface water bodies

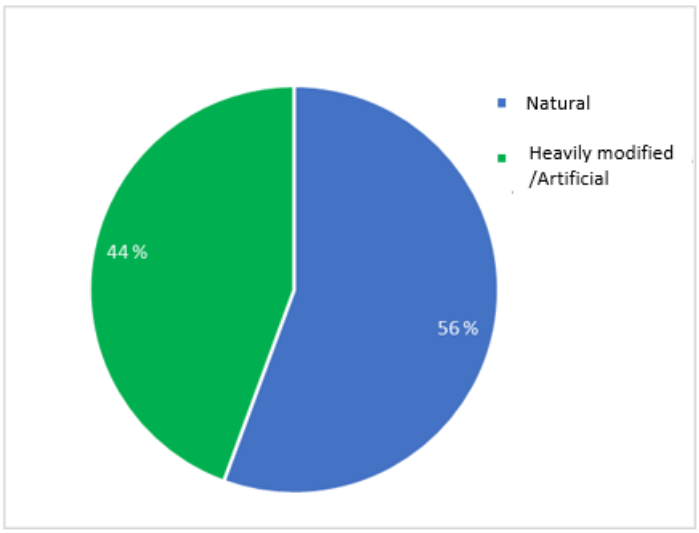

Figure 2 : Distribution of the surface bodies of the Meuse IRBD according to their classification

The most important sub-basins of the Meuse IRBD are the Chiers, Semois, Lesse, Sambre, Ourthe, Rur, Schwalm, Niers, Dommel, Gueule and Mark. Several of these are transboundary (Annex 2).

No border or transboundary lakes (> 50 ha) in the Meuse IRBD are considered for bi- or multilateral coordination.

2.3. Groundwater

The Meuse IRBD also has a large number of aquifers in different geological layers, some of which have a transboundary character.

Table 3 below shows the national/regional surface of the groundwater bodies and the surface of the transboundary aquifers.

	Groundwater bodies		Transboundary aquifers
	Number	Surface (cumulative if overlapped) Km²	Surface (cumulative if overlapped) Km²
France	8	10.833	2.889
Luxembourg	0	/	/
B-Wallonia	21	12.435	6.209
B-Flanders	10	3.503	3.503
Netherlands	5	12.247	10.797
Germany	32	3.987	3.862
Total	**76**	**43.005**	**27.260**

Table 3: Number and area of transboundary groundwater bodies and aquifers of the Meuse IRBD

Annexes 3 and 4 present, in map form, these geological differences for these groundwater bodies and their transboundary character.

3. Summary of significant pressures and impacts of human activities on the status of surface water and groundwater

3.1. Introduction

Over the past decade, the water uses responsible for the major pressures on the rivers of the Meuse IRBD have changed little in terms of population, settlement activities, urbanisation, industrialisation, agriculture and navigation. The priority problems requiring multilateral and/or bilateral coordination in the WFD-required development of monitoring programmes, programmes of measures and management plans are essentially still those described in the roof report « Characteristics, environmental impact assessment and economic analysis of water use » of 23 March 2005, available in French[4], Dutch[5] and German[6].

In the year 2019, the Contracting Parties to the IMC, each in its own right, reviewed and, if necessary, updated their 2013 status report in accordance with article 5, paragraph 2 of the WFD. The results of this work were discussed within the IMC and constitute an essential basis of information for the roof part of the Meuse IRBD Management Plan.

The pressures include:

- Hydromorphological pressures in the form of engineering structures for flood protection, navigation and/or hydropower generation (locks, dams and dikes) as well as channelling, bank artificialisation and embankments;
- Discharges, emissions and losses of harmful substances;
- Water abstraction (e.g. for canal supply, agriculture, industry and drinking water production);
- Mine water.

[4] *Rapport faîtier sur la coordination internationale conformément à l'article 3 (4) de l'analyse requise par l'article 5 de la directive 2000/60/CE établissant un cadre pour une politique communautaire dans le domaine de l'eau (CIM 2005). (http://www.meuse-maas.be/CIM/media/Rapport-faitier-2005/Version-4-0-FR_23032005____4Mb.pdf)*

[5] *Overkoepelend rapport over de internationale coördinatie overeenkomstig artikel 3 (4) van de analyse zoals vereist door artikel 5 van de richtlijn 2000/60/EG tot vaststelling van een kader voor communautaire maatregelen betreffende het waterbeleid (IMC 2005). (http://www.meuse-maas.be/CIM/media/Rapport-faitier-2005/Version-4-0-NL_23032005____4Mb.pdf)*

[6] *Übergeordneter Bericht über die internationale Koordinierung gemäß Artikel 3 (4) der von Artikel 5 der Richtlinie 2000/60/EG zur Schaffung eines Ordnungsrahmens für Maßnahmen der Gemeinschaft im Bereich der Wasserpolitik geforderten Analyse (IMK 2005).* (*http://www.meuse-maas.be/CIM/media/Rapport-faitier-2005/Version-4-0-DE_23032005____4Mb.pdf)*

These pressures result in the following potential impacts and consequences, either individually or in combination:

For surface waters:

- ✓ Modification and alteration of ecosystems, including water-related terrestrial ecosystems;
- ✓ Obstacles to the free migration of fish;
- ✓ Eutrophication, especially in the main river and in transitional and coastal waters;
- ✓ Risks to water quality and water uses.

For groundwater:

- ✓ Quantitative imbalances in groundwater and altered exchange between surface water and groundwater;
- ✓ Damage to dependent terrestrial ecosystems;
- ✓ Risks to groundwater quality and uses.

3.2. Hydromorphological alterations

Hydromorphological damage exists along the course of the Meuse and some of its tributaries. In particular, the development of the Meuse and some of its tributaries into navigable waterways has involved extensive modification of the bed and banks, and the construction of sluice dams which are used to maintain water levels and, in some cases, to generate hydroelectric power. In the Netherlands, many tributaries and streams have been channelled, widened and deepened to provide fast flows and groundwater regulation for intensive agriculture and construction. Dams, as well as other cross-cutting structures throughout the river system, can constitute difficulties or obstacles to the movement of fish, especially migratory fish (Annex 21).

Although the number of returning salmon observed remains (overall) low, in recent years there has been an upward trend in the number of returning adults (Figure 3), probably as a result of increased stocking in the basin.

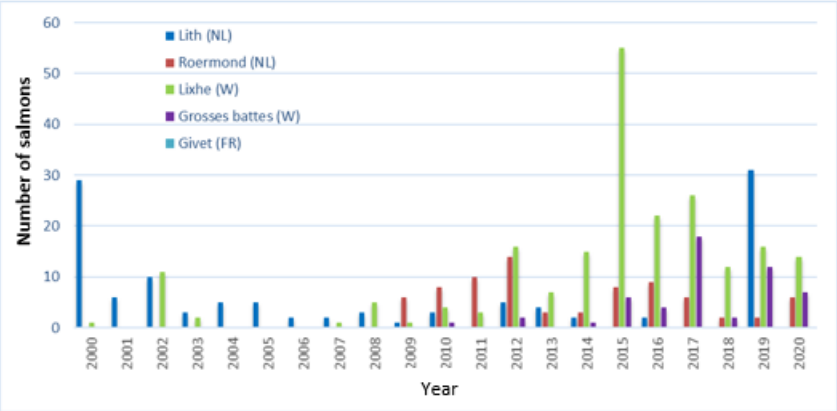

Figure 3: Returning salmons observed in the Meuse IRBD

The situation with regard to yellow eels is less positive, since the population observed has fallen in recent years in the Meuse IRBD (Figure 4), despite the stocking of glass eels for several years.

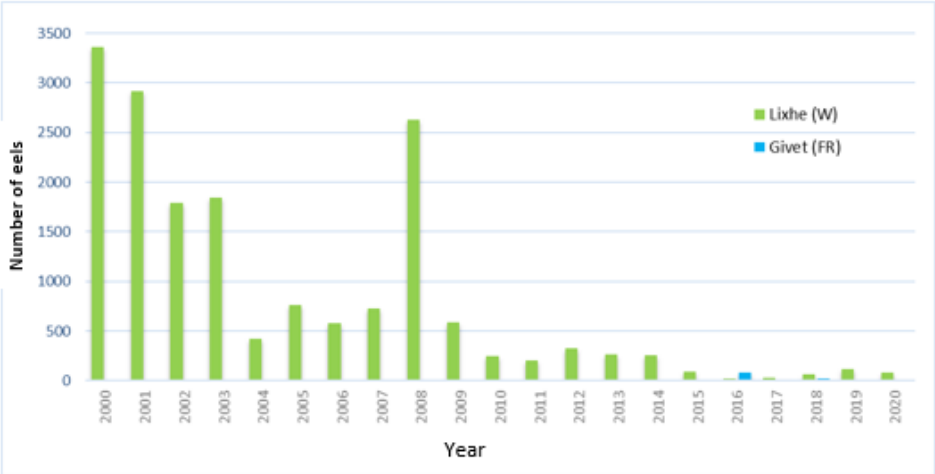

Figure 4: Upstream-migrating yellow eels observed in the Meuse IRBD

3.3. Physico-chemical and chemical pressures in surface waters

3.3.1. Macropollutants and physico-chemical parameters

Macro-pollutants are substances that occur naturally in watercourses and are non-toxic in low concentrations. It is only at high concentrations of the order of one milligram per litre - usually because of human activities - that they harm aquatic plants and animals. These include nutrients such as nitrogen and phosphorus, but also chloride and organic pollutants. Physical parameters such as pH, oxygen concentration and conductivity are also discussed under this section.

3.3.1.1. Organic matter

Surface waters are complex ecosystems capable of self-purification, allowing them to recycle organic matter (especially lipids, carbohydrates, proteins; essentially carbon-based molecules) produced by biological activity. This self-purification is mainly based on the presence of oxygen (O2) which ensures, through multiple biochemical reactions, the transformation of organic matter into carbon dioxide (CO2). This degradation is carried out by aerobic micro-organisms that use biodegradable organic compounds as their main source of energy.

In their natural state, surface waters reach a state of ecological equilibrium, but this can be profoundly disrupted when anthropogenic inputs of nutrients and exogenous organic matter exceed the assimilation and self-purification capacities of the environment.

Numerous efforts have been made to reduce anthropogenic discharges of organic matter into the rivers of the Meuse IRBD. These efforts have focused on all sources of organic matter pollution and more particularly on the treatment of urban wastewater, but also on the reduction of industrial and agricultural organic inputs.

However, the excess of organic matter and the resulting decrease in oxygen concentrations remains an important pressure on rivers.

3.3.1.2. Phosphorus and nitrogen emission flows in the Meuse IRBD

The States and Regions have jointly assessed the phosphorus and nitrogen emission flows in the Meuse IRBD and their evolution over time. The year 2018 was chosen as the reference year to describe the current situation. However, depending on the information available, some States or Regions referred to older data (2015 for Germany and 2017 for Flanders).

Absolute evolution of phosphorus emissions

Phosphorus emissions have decreased significantly in the Meuse IRBD since 2005, mainly due to reductions in agricultural and urban discharges. Emissions from industries have remained relatively stable over the same period.

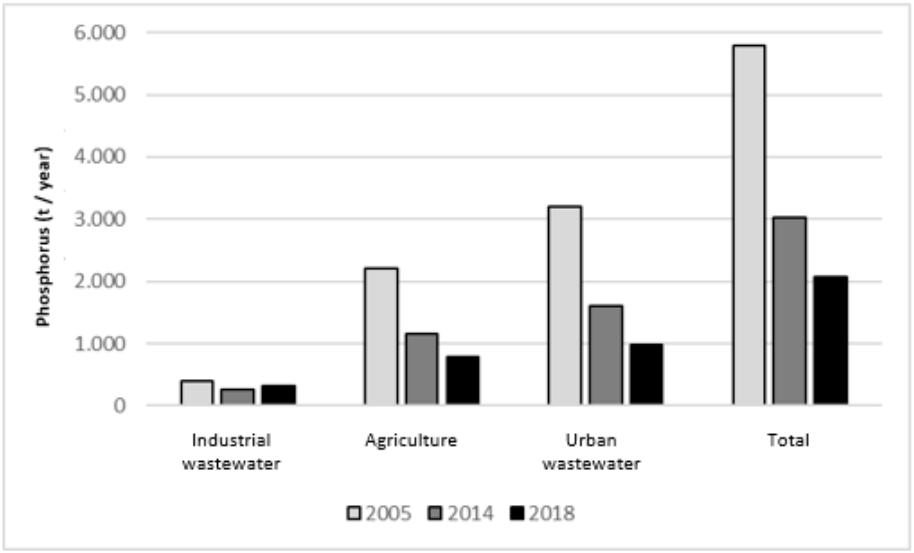

Figure 5: Absolute evolution of phosphorus emissions in the Meuse IRBD

Relative evolution of phosphorus emissions

In the Meuse IRBD, based on current data, phosphorus in surface waters is mainly due to human activities: domestic, industrial and agricultural wastewater. Approximately 47% of the phosphorus in the water comes from domestic wastewater, 38% is attributed to agriculture and 15% to industry.

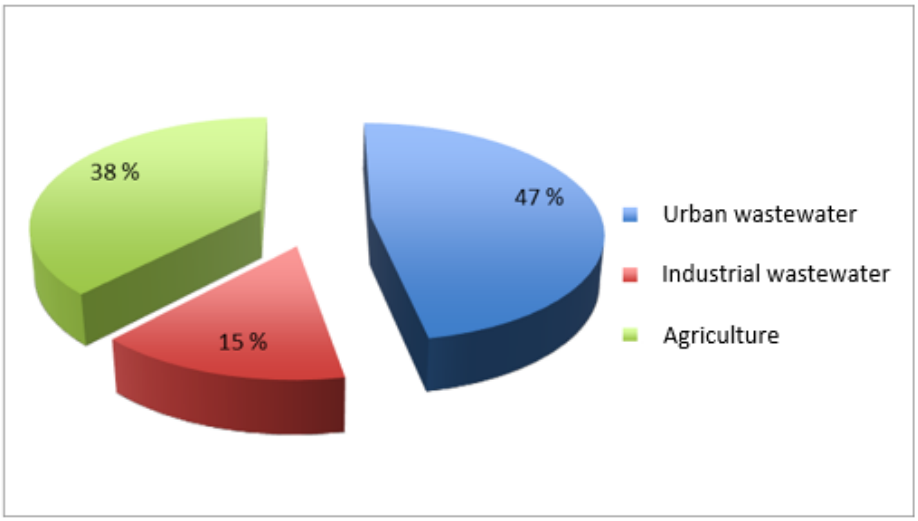

Figure 6: Relative phosphorus emissions - Inputs from sources (current status)

The relative share of phosphorus emissions from urban wastewater has decreased significantly since 2005, while the share attributed to industrial wastewater has doubled over the same period (although in absolute terms, emissions from industrial wastewater have decreased by about 85 t/year between 2005 and 2018). The contribution of agriculture to phosphorus emissions has remained constant.

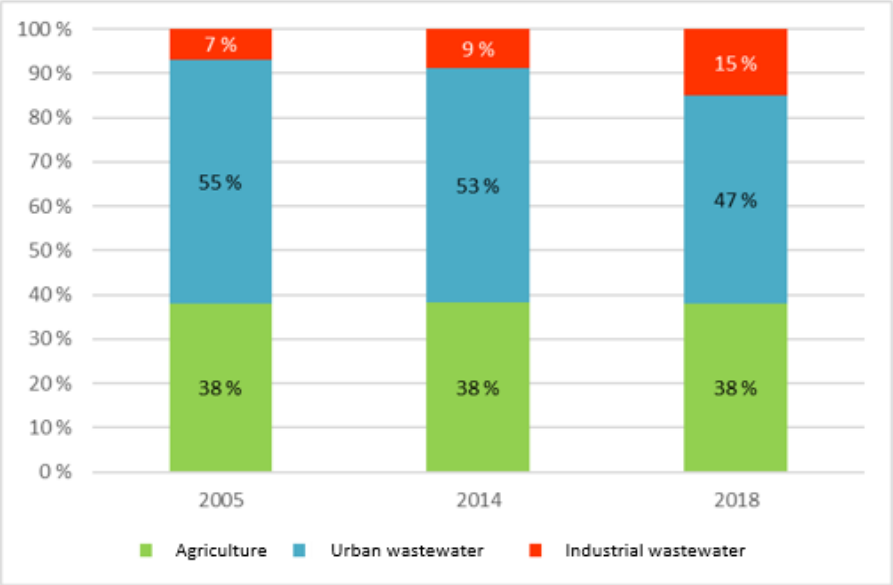

Figure 7: Relative phosphorus emissions - Evolution of source inputs

Absolute evolution of nitrogen emissions

A decrease in nitrogen emissions in the Meuse IRBD can also be observed over the last 15 years, although this is less significant than for phosphorus. Again, this reduction is mainly the result of a decrease in agricultural and urban emissions.

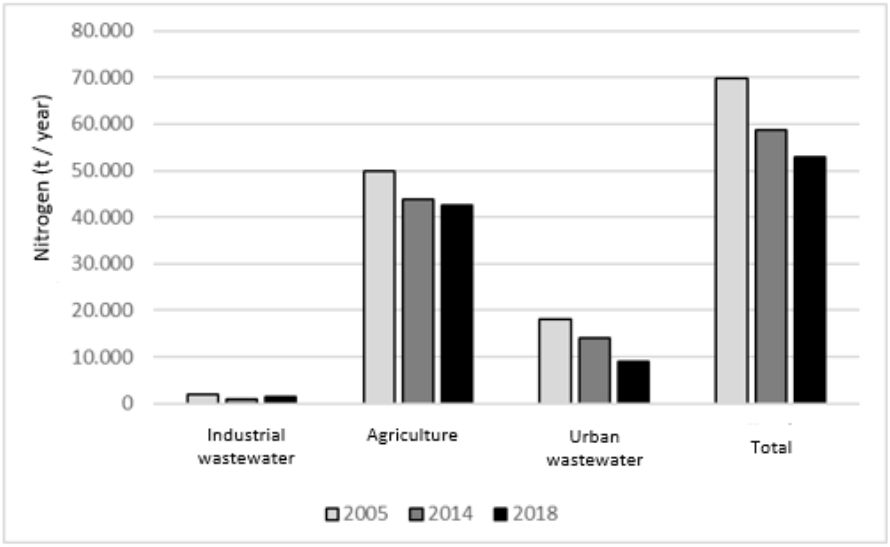

Figure 8 : Absolute evolution of nitrogen emissions in the Meuse IRBD

Relative evolution of nitrogen emissions

As regards the relative sources of emissions, the situation is slightly different with regard to phosphorus: about 4/5 of the inputs are due to agriculture, while the share attributed to urban wastewater amounts to 17%, with industry accounting for 3%.

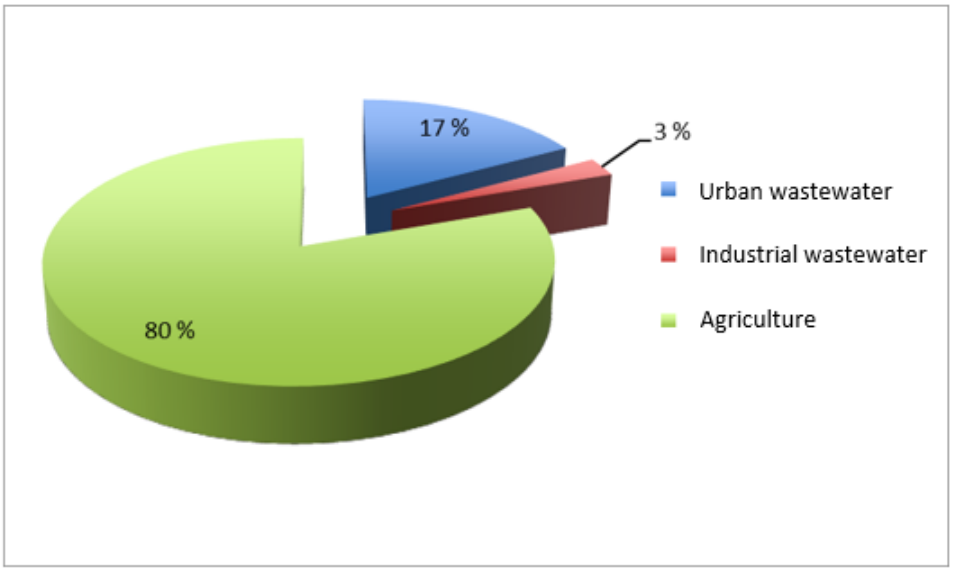

Figure 9: Relative nitrogen emissions - Inputs from sources (Current status)

The relative share of nitrogen emissions from agriculture is higher than in 2014 when it contributed to 66% of these emissions (despite a decrease in discharges of more or less 7000 T/year between 2005 and 2018). The relative share of urban wastewater has been gradually decreasing since 2005.

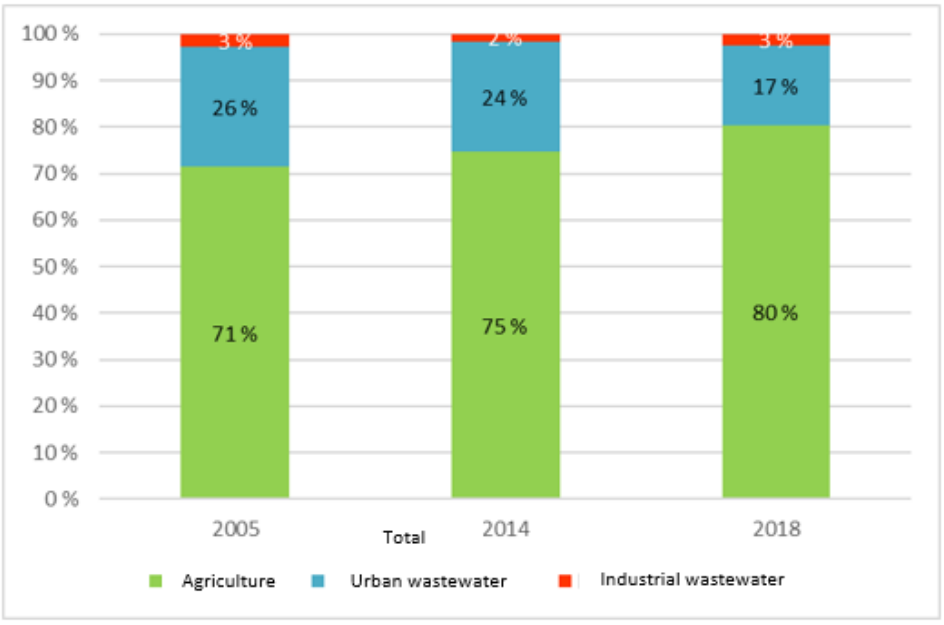

Figure 10: Relative Nitrogen Emissions - Evolution of Source Inputs

3.3.2. Micropollutants

In contrast to macropollutants, micropollutants are substances that are present in water in concentrations of the order of micrograms or nanograms per litre and can be toxic even at low concentrations. Micropollutants include a wide range of substances, from metals and pesticides to a whole series of natural or man-made organic compounds (e.g. medicines, household chemicals, cosmetics).

3.3.2.1. Metals

The concentration of some metals can be a significant pressure for some rivers in the Meuse IRBD. For example, some metals are not degraded in the environment and can be taken up by aquatic organisms. Problems with metals can be caused by point source discharges, e.g. from industrial activity, leaching from building materials, erosion, atmospheric deposition, transport or historical pollution that is still having an effect today.

Under Directive 2013/39/EU, mercury is classified as a substance that behaves like ubiquitous persistent, bioaccumulative and toxic (PBT) substances. Ubiquitous PBT substances as well as other substances that behave as ubiquitous PBTs can occur for decades in the aquatic environment in quantities that represent a considerable hazard, even when significant measures have already been taken to reduce or eliminate emissions of such substances. Some of these substances can also spread over large areas and are therefore widely disseminated in the environment.

When mercury concentrations in biota are compared to the prescribed standard, mercury has a negative impact on the vast majority of water bodies in the Meuse IRBD; this corroborates the classification of mercury as a ubiquitous PBT substance.

3.3.2.2. Pesticides

The situation with regard to pesticides varies according to the molecules investigated. Some pesticides, such as diuron or atrazine, which are now banned, are detected less or no longer at all in surface waters and no longer generate significant pressure. This can be explained by the implementation of specific legislation (ban on use at European level) or by an adaptation of use behaviour.

On the other hand, other pesticides still have a significant impact on the rivers of the Meuse IRBD. In the most recent RIWA-Meuse annual report, the following pesticides (or their metabolites) are described as problematic: (Aminomethyl)phosphonic acid (AMPA), desphenyl-chloridazon, prosulfocarb, glyphosate, thiabendazole, metolachlor - esa, C metabolite of metazachlor, S metabolite of metazachlor dimethenamid-p, terbuthylazine, metolachlor-OA, metolachlor, (dimethylsulfamoyl)amine (DMS), 2,4-dinitrophenol, metobromuron and 2,4-dichlorophenoxyacetic acid.

3.3.2.3. Other micropollutants

Other micropollutants can cause more or less significant pressure on the surface water bodies of the Meuse IRBD. PAHs, PCBs, PFOS, PBDEs, heptachlor and tributyltins can be mentioned.

3.4. Chemical and quantitative pressures on groundwater

The pressures exerted by substances on the groundwater bodies of the Meuse IRBD are mainly related to nitrogen and pesticides. These pollutants originate in particular from agricultural activities, which are very present in certain parts of the river basin district. Quantitative imbalances in the groundwater bodies may result locally from abstractions or mining activities (mine water) and may be further reinforced by climate change.

4. Important water management issues in the Meuse IRBD

A number of important water management issues have been identified by each of the Contracting Parties to the International Agreement on the Meuse for their part of the river basin. Some of these have a transboundary aspect and are therefore briefly described below. These relate to hydromorphological alterations, surface water, groundwater and water quantity.

On the basis of the (known or potential) effects of climate change on water management (quantity, quality, use of water), the necessary and possible adaptation measures and the resulting need for coordination, climate change is an important issue for the IMC.

It is clear that climate change and possible adaptation measures are key issues in all the states/regions of the Meuse IRBD. All climate scenarios are more or less heading in the same direction. The need to initiate an exchange of information and cooperation on adaptation to the consequences of climate change is recognised by all.

The effects of climate change will, if necessary, lead to an increase in certain management problems, such as water quantities.

4.1. Hydromorphological alterations

Hydromorphological alterations include the modification of the structure, the absence or disruption of continuity and the modification of the natural flow or dynamics of watercourses.

<u>Key issue 1: Impact of hydromorphological changes on the free movement of fish</u>

Hydromorphological damage exists along the course of the Meuse and some of its tributaries. In particular, the development of the Meuse and some of its tributaries into navigable waterways has required major modifications to the bed and banks, as well as the construction of lock dams which are used to maintain water levels and, in some cases, to produce hydroelectric power.

Dams, hydroelectric power stations and other transverse structures throughout the river system may create difficulties or obstacles to fish movement.

4.2. Surface waters

In addition to the hydromorphological pressures, the discharge of nutrients and pollutants from point and diffuse sources causes significant pressure/pollution on the surface waters of the Meuse IRBD. As a result, around three quarters of the surface water bodies in the Meuse IRBD have not yet achieved good ecological status or good ecological potential (Annex 5).

In addition, numerous historical pollutions can also be the cause of significant degradation of the water bodies, which may even lead to a failure to achieve good status at present.

Key Issue 2: Nutrient discharges from point and non-point sources.

Excessive nutrients can lead to eutrophication.

This eutrophication has potentially harmful effects on the biocenoses and various use functions of the Meuse. In addition, nutrients from the Meuse basin also contribute to the eutrophication of the North Sea.

Key Issue 3: Pollutant releases from point and diffuse sources.

In the field of urban and industrial wastewater treatment, major efforts have been made which have led to a significant improvement in the situation, particularly for conventional pollutants or macropollutants. However, the discharge of pollutants from point or diffuse sources remains a major problem for the water courses of the Meuse IRBD.

Key issue 4: Impact of priority substances and other pollutants (pesticides, solvents, heavy metals, hydrocarbons, medicines) on the aquatic environment.

Micropollutants such as heavy metals and pesticides can have a significant impact, even at low concentrations, on the aquatic ecosystem or on the uses of water resources, particularly in the production of drinking water.

Modern society generates and uses a multitude of substances in various fields: industry, human health (medicines, radiological contrast products) and animal health (medicines), cosmetics and cleaning products. These emerging substances can find their way into watercourses via various input routes.

Achieving good status for rivers will therefore continue to require major efforts in the future to minimise the remaining historical pollution and to meet the new challenges that have emerged in recent years.

4.3. Groundwaters

Key issue 5: Diffuse discharges of nitrogen and pesticides mainly from agriculture.

There is strong pressure on a significant number of groundwater bodies in the Meuse IRBD (Annexes 11 and 12), mainly due to diffuse discharges of nitrogen and pesticides, mostly from agriculture.

Historical pollution can also be the cause of degradation of groundwater bodies.

4.4. Water quantity

Key issue 6: Increased frequency and severity of low flow periods.

Periods of low water flow are likely to be more frequent and of longer duration. This means that there will probably be more frequent restrictions on the use of water for certain functions such as agriculture, industry, navigation and energy production (cooling water) than at present. The impact of this trend on water quality suggests that periods of restricted surface water abstraction for drinking water production will also become more frequent and last longer. Higher water temperatures during heat waves will also have an impact on the aquatic ecosystem.

Key issue 7: Increasing flood risk.

Climate change is also likely to lead to more intense and prolonged rainfall and may increase the flood risk in terms of both frequency and magnitude. The development of river basin management plans and flood risk management plans under their respective directives, 2000/60/EC and 2007/60/EC, is part of integrated river basin management. The potential for synergies and mutual benefits in both processes should therefore be exploited to achieve the environmental objectives set out in the Water Framework Directive.

5. Register of protected areas

The registers of protected areas according to Article 6, paragraph 1 of the WFD have been established by the States/Regions, each in respect of its territory.

There are few protected areas for which bi- or multilateral coordination is necessary. A concrete case is the Common Meuse, which forms the border between Maastricht and Maasbracht for about 50 km. In the Flemish Meuse River floodplains areas have been designated as Natura 2000 areas, under the name “Uiterwaarden langs de Limburgse Maas and Vijverbroek”. In the Netherlands, the Common Meuse is designated as a Natura-2000 area. Coordination for these areas is carried out by the Flanders-Netherlands Bilateral Maas Commission (Vlaams Nederlandse Bilaterale Maascommissie).

Both the Netherlands and Flanders are carrying out work in the Common Meuse to improve flood protection and promote nature development. These Flemish and Dutch plans are harmonised both in terms of content and planning. In this way, a cross-border area of great ecological value is developed which protects the population and infrastructure against flooding in a sustainable manner. The projects are being implemented on the Flemish side, but the problem areas are already being considered so that additional projects will be launched in the future. On the Dutch side, projects will be implemented until 2023.

6. Status of water bodies

6.1. Introduction

The WFD aims for all waters (surface and groundwater) in the Member States to achieve, in principle, good status by 2015. This objective could be subject to justified extensions of good status until 2021 or 2027, the second and third implementation cycles of the Directive respectively.

For surface waters, status is defined on the basis of criteria relating to ecological status and chemical status; for groundwater on the basis of criteria relating to chemical status and quantitative status.

The States/Regions have identified surface water bodies (813) and groundwater bodies (76) and established monitoring programmes to help assess the status of each water body.

To help determine the status of surface and groundwater bodies, the experts used hydrological system models and set up monitoring programmes for chemistry, physico-chemistry and/or biological quality elements at a large number of stations.

6.2. Multilateral monitoring programmes

6.2.1. Homogeneous surface water measurement network

Each State/Region has set up monitoring programmes for the status of the Meuse IRBD water bodies located on its territory. From these monitoring programmes, a number of monitoring sites for surface water quality were selected to form the IMC's homogeneous measurement network (HMR).

These monitoring sites were selected for their representativeness and their relevance to the Meuse IRBD. The HMR thus constituted provides a global image of the quality of rivers at the international level and a temporal follow-up of its evolution.

There are 39 HMR monitoring sites spread over the main course of the Meuse (16 monitoring sites) but also over its tributaries (23 monitoring sites). A map showing the HMR is shown in Annex 14.

A number of data relating to chemical, physico-chemical and biological parameters are exchanged in the HMR. These exchanges enable the drafting of a periodic report on the quality of the waters of the Meuse[7].

[7] *Assessment report on the water quality of the Meuse based on data from the International Meuse Commission's HMR network (IMC 2021) (*http://www.meuse-maas.be/getattachment/696fa181-9ae0-46fb-9d46-cf22fbf45b39/Rapport-triennal-2017-2019_Mmonitor_21_1def_en.aspx)

Every three years, the IMC publishes this report presenting the main results of the parameters measured at each site. The topics covered are chosen according to the important water management issues at the river basin district level. These key water management issues are themselves the basis for coordinated programmes of measures on international issues to improve water quality. The published results concern a limited number of parameters that illustrate the long-term evolution of water quality on the main course of the Meuse and its tributaries. These reports are available on the IMC website.

6.2.2. Substances relevant to the Meuse IRBD

In 2009 the States and Regions Parties to the IMC established a list of relevant substances that are of transboundary interest and for which multilateral coordination of measurement programmes is deemed necessary.

The criteria for listing a substance implied that at least two IMC contracting parties had indicated an exceedance of the limit value, the presence of an anthropogenic source and that the reduction programme required bilateral or multilateral coordination. However, a substance can also be defined as relevant on the basis of an expert assessment.

The 2020 review of this list of substances relevant to the Meuse shows that several new substances meet these criteria. These are mercury, nickel, fluoranthene, perfluorooctane sulphonic acid, heptachlor + heptachlorpoxide, polybrominated diphenyl ethers, arsenic, tributyltin cation and uranium.

Although the parameter "chemical oxygen demand" is likely to be dropped in the future, it has been retained for the time being in the list of relevant substances for the Meuse IRBD. In addition, the parameter "dissolved organic carbon" has also been added to the list.

Finally, it appeared that some substances on the list no longer met the criteria. However, they were retained on the basis of the experts' opinion that they were still relevant.

Today, the list of relevant substances for the Meuse is set out in table 4. This table also shows, for each of these substances, the number of States or Regions of the Meuse IRBD that consider them to be of interest, whether as a result of standards being exceeded or on the basis of expert opinion.

	CAS No.	Name of substance	Number of states/regions in the Meuse IRBD that consider the substance to be of interest*
General parameters that can support the assessment of ecological status (WFD Annex V)		Total nitrogen	4/6
		Total phosphorus	6/6
		Chemical oxygen demand	3/6
		Dissolved organic carbon	-
Specific parameters that can support the assessment of ecological status (WFD Annex V)	7440-50-8	Copper	4/6
	7440-66-6	Zinc	5/6
	7440-48-4	Cobalt	3/6
	7440-38-2	Arsenic	3/6
	7440-61-1	*Uranium* **	3/6
		PCBs (28, 52, 101, 118, 138, 153 et 180)	2/6
Parameters included in the list of priority substances (WFD Annex X)	7440-43-9	Cadmium and its compounds	3/6
	7439-92-1	Lead and its compounds	2/6
	7439-97-6	Mercury and its compounds	5/6
	7440-02-0	Nickel and its compounds	4/6
	34123-59-6	Isoproturon	3/6
	2921-88-2	Chlorpyrifos	2/6
	1763-23-1	Perfluorooctane sulfonic acid and its derivatives	4/6
	50-32-8	Benzo(a)pyrene***	6/6
	205-99-2	Benzo(b)fluoranthene	-
	191-24-2	Benzo(k)fluoranthene	-
	207-08-9	Benzo(g,h,i)perylene	-
	193-39-5	Indeno(1,2,3-cd)pyrene	-
	206-44-0	Fluoranthene	6/6
	76-44-8 / 1024-57-3	Heptachlor and heptachlor epoxide	4/6
	32534-81-9	Brominated diphenylethers	4/6
	36643-28-4	Tributyltin cation	4/6

*On the basis of exceedances of standards or expert opinion, bearing in mind that not all of these substances are standardised in each State/Region.

**The addition of uranium to the list of relevant substances for the Meuse must be the subject of a more in-depth technical analysis (identification of sources, measures to be implemented, etc.) to be carried out during the 3rd cycle of the WFD management plan

*** On the basis of Directive 2013/39/EU, benzo(a)pyrene can be considered as a marker for other PAHs (group of priority substances No. 28) and therefore only benzo(a)pyrene should be monitored for comparison with the corresponding EQS for biota or AA-EQS in water.

Table 4: Updated list of substances relevant to the Meuse

6.3. Surface waters

The operational objective of the WFD is to achieve 'good status' of all water bodies (WBs), i.e. both good chemical status (WFD Annex X substances) and good ecological status or potential (in case of heavily modified water bodies) in principle by 2015.

The chemical status of a water body is determined on the basis of compliance with environmental quality standards (EQS) for a list of priority substances common to all Member States (Annex X of the WFD).

As soon as a substance or group of substances exceeds the EQS, good chemical status is not achieved ("one out, all out").

The States/Regions of the Meuse IRBD assess the chemical status on the basis of the EQS values of Directive 2013/39/EU. Directive 2013/39/EU also allows the chemical status to be mapped without taking into account ubiquitous PBT substances. The IMC uses this possibility (see chapter 6.3.1. and annex 7).

The ecological status of a water body (very good, good, average, poor or bad) or its ecological potential (good, average, poor or bad) includes three elements of its quality: the biological, physicochemical and hydromorphological components.

To define the status or ecological potential of a water body, the biological component, reflecting the proper functioning of the aquatic flora and fauna as a whole, is combined with the physico-chemical and hydromorphological components, the latter two being considered as parameters supporting the biological parameters.

It should be noted that the hydromorphological component is only used in the final diagnosis of ecological status to determine the very good ecological status of a natural water body.

6.3.1. Current status of surface water bodies

The maps in annexes 5, 6 and 7 present the status of the surface water bodies in the Meuse IRBD (catchment area > 100 km²) and detail respectively the ecological status/potential, the chemical status and finally the chemical status excluding ubiquitous PBT substances.

These maps are based on the most recent data available at the time of drafting the management plan, namely:

- Data 2016-2018 for the French part;
- Data 2014-2018 for the Walloon part;
- Data 2015-2018 for the German part;
- Data 2016-2018 for the Flemish part;
- Data 2015-2020 for the Dutch part;
- Data 2015-2020 for the Luxembourg part.

A generalized exceedance of some EQS is evident from the monitoring data of the contracting parties, indicating pollution by ubiquitous PBT substances. For the Meuse IRBD, the chemical status should, according to these data, be classified as "not good" in nearly all cases, as shown in table 5, figure 11 and annex 6.

	FR	WL	LU	VL	NL	DE	Meuse IRBD
Number of water bodies	153	257	3	18	153	229	813
Good	40	0	0	0	81	0	121
Not good	67	257	3	18	70	229	644
Unknown	46	0	0	0	2	0	48

Table 5 : Current chemical status of surface water bodies

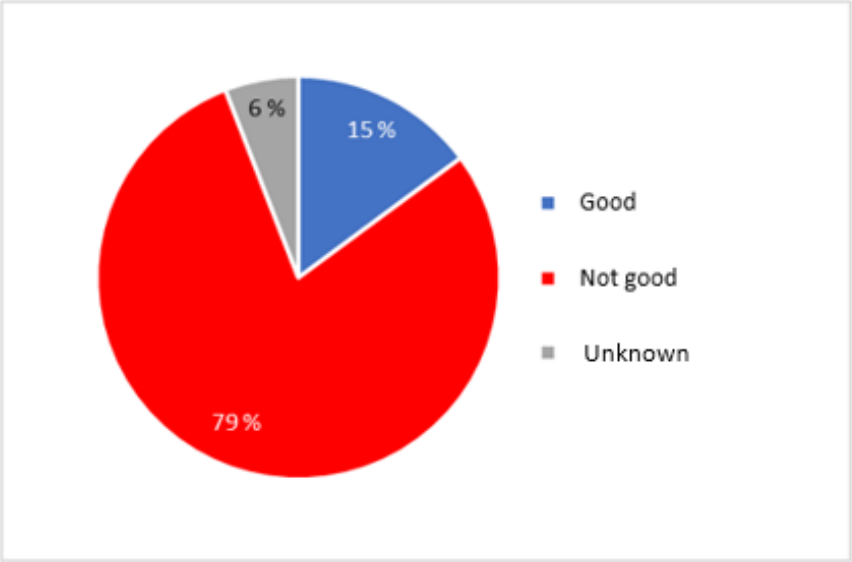

Figure 11 : Chemical status of surface water bodies - Distribution according to status classes

In order not to hide the considerable efforts made by the IMC Parties for the other priority substances, in accordance with Directive 2013/39/EU, it was decided in addition to present a mapping of the chemical status of the water bodies without taking these ubiquitous PBT substances into account (Annex 7). If these ubiquitous PBT substances are not taken into account, the percentage of surface water bodies with good status increases to 64% of the surface water bodies of the Meuse IRBD (Table 6 and Figure 12).

	FR	WL	LU	VL	NL	DE	Meuse IRBD
Number of water bodies	153	257	3	18	153	229	813
Good	67	196	1	14	106	138	522
Not good	40	61	2	4	45	58	210
Unknown	46	0	0	0	2	33	81

Table 6: Current chemical status of surface water bodies excluding ubiquitous PBT substances

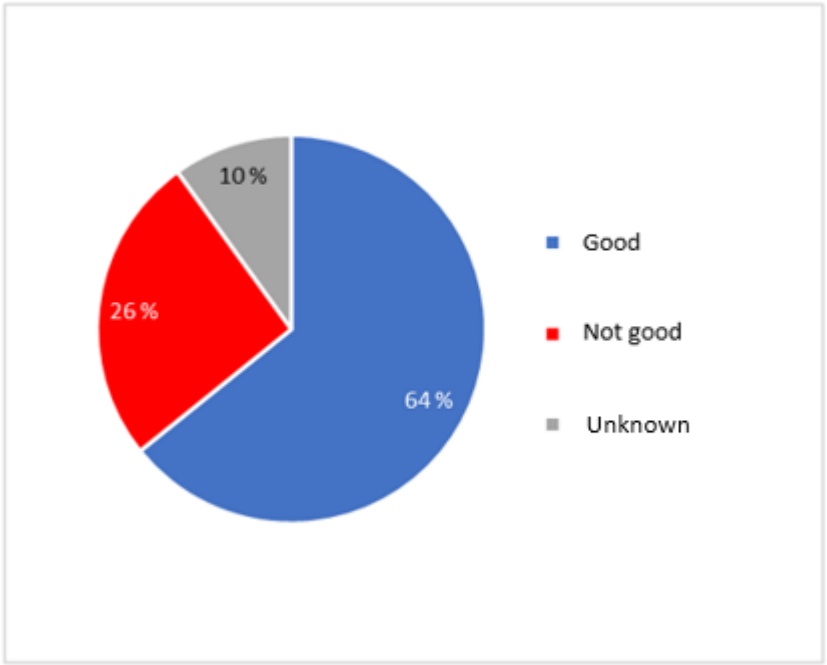

Figure 12: Chemical status of surface water bodies excluding ubiquitous PBT substances - Distribution according to status classes

With regard to ecological status/potential, 30% of the surface water bodies have a good or very good status (Annex 5). The distribution of the surface water bodies of the Meuse IRBD according to status classes is presented in Table 7 and Figure 13.

.

	FR	WL	LU	VL	NL	DE	Meuse IRBD
Number of water bodies	153	257	3	18	153	229	813
Very good	0	14	0	0	0	0	14
Good	76	123	0	1	0	30	230
Moderate	51	66	0	12	87	46	262
Poor	17	26	0	5	54	70	172
Bad	9	16	3	0	7	66	101
Unknown	0	12	0	0	5	17	34

Table 7 : Current ecological status/potential of surface water bodies

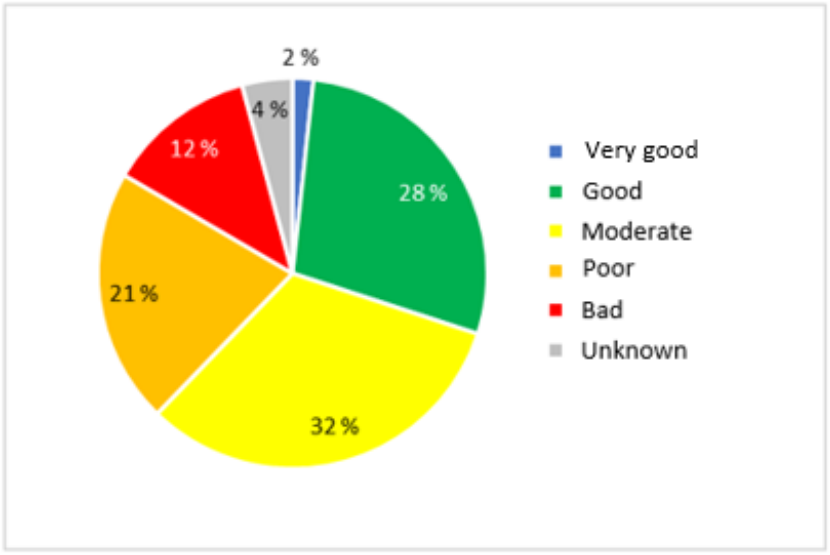

Figure 13 : Ecological status/potential of surface water bodies - Distribution according to status classes

In summary, at the time of publication of this report, 30% of surface water bodies achieve at least good ecological status/potential and 15% achieve good chemical status. Excluding ubiquitous PBT substances, 64% of surface water bodies achieve good chemical status (Annex 15).

There has been a slight improvement compared to the 2nd cycle[8] : in 2015, 27% of surface water bodies were assessed as good or very good in terms of ecology and 12% achieved good chemical status.

[8] *Roof part of the management plan of the Meuse IRBD, 2nd WFD cycle, IMC 2015.* http://www.meuse-maas.be/CIM/media/Rapport-faitier-dec-2015/Rapport_faitier_Magua_15_1rev11_f_.pdf

6.3.2. Boundary surface water bodies

Additional coordination work has been carried out for surface water bodies located at the borders in order to achieve consistency in their assessments or, at least, to explain any differences.

This could be due to different pollution situations or different assessment methods on either side of the border. The States and Regions have exchanged information on this subject and reported it to the IMC (see chapter 7.3).

The tables in Annexes 8, 9 and 10 detail the ecological status/potential and chemical status of water bodies located at the borders (catchment area > 10 km²), taking into account ubiquitous PBT substances or not.

6.4. Groundwater

The status of groundwater bodies is assessed on the basis of criteria for chemical status and quantitative status.

The criteria for the assessment of groundwater status are laid down in the WFD, the Groundwater Directive[9] and the corresponding national and regional provisions.

The quantitative status of groundwater is assessed by all States and Regions on the basis of piezometric levels and their evolution.

The chemical status of groundwater is assessed on the basis of quality standards and threshold values established by the different States/Regions.

6.4.1. Current status of groundwater bodies

In order to provide a basis for planning measures (see chapter 9.2.), the states and regions have updated the assessment of the status of groundwater bodies.

Annexes 11 and 12 detail the status of groundwater bodies.

The current status of groundwater bodies based on the updated data is summarised in table 8 and figures 14 and 15.

[9] *Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration.*

Groundwater bodies, current status								
		FR	**WL**	**DE**	**LU**	**VL**	**NL**	**Meuse IRBD Total**
Good status		**5**	**14**	**12**	**-**	**5**	**3**	**39**
Not in good status		**3**	**7**	**20**	**-**	**5**	**2**	**37**
a.	Qualitative issues	3	7	6	-	5	1	**22**
b.	Quantitative issues	0	0	2	-	0	1	**3**
c.	Qualitative and quantitative issues	0	0	12	-	0	0	**12**

Table 8: Groundwater bodies, current status

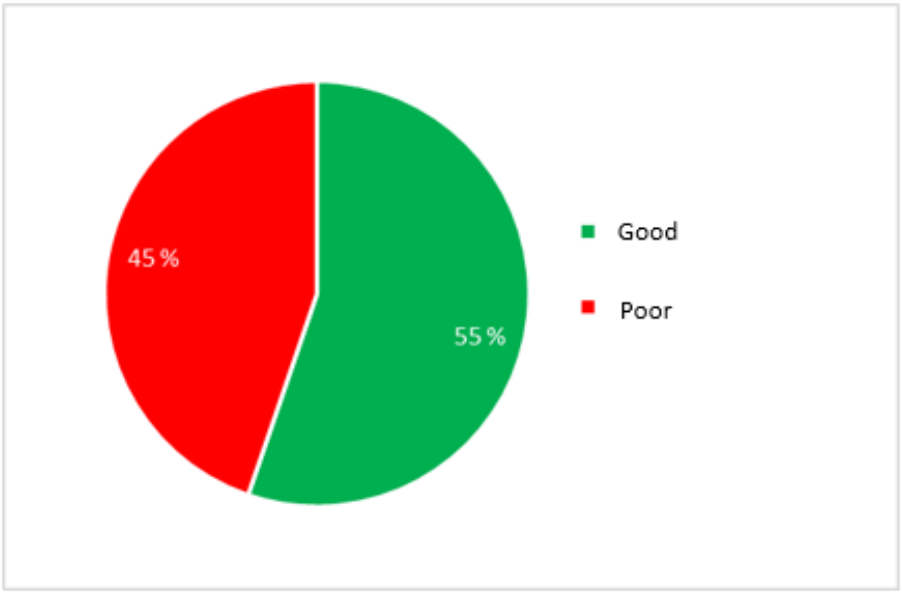

Figure 14: Chemical status of groundwater bodies - Distribution according to quality classes

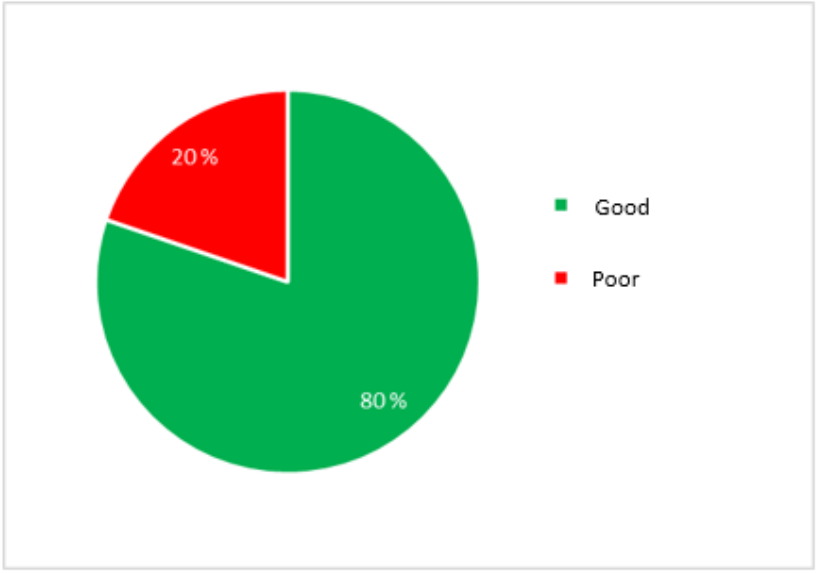

Figure 15: Quantitative status of groundwater bodies - Distribution according to quality classes

Just over half of the groundwater bodies in the Meuse IRBD are in good status, both in terms of quantity and quality, and currently meet the WFD objectives. This represents an improvement compared to 2015, when less than half of the groundwater bodies in the Meuse IRBD achieved good status[10].

One cause of the failure to achieve good status of groundwater bodies is in most cases poor chemical quality.

In the entire Meuse basin, the main problems are groundwater contamination by nitrates and pesticides, partly from urban areas and mainly from agricultural activities.

Other problems related to chemical quality are local and therefore do not need to be addressed in the Meuse IRBD.

Finally, as a result of pumping for open-cast lignite mining, some groundwater bodies in the German part of the Meuse basin have been in poor quantitative and/or chemical status for many years. For these, derogations have been used, namely the setting of less stringent objectives and the derogation from the requirement to prevent any deterioration in the status of the water bodies.

Groundwater bodies in the Netherlands are mainly a regional issue. For more detailed information, see the Dutch part of the Meuse IRBD Management Plan.

6.4.2. Groundwater bodies belonging to transboundary aquifers

Groundwater bodies belonging to transboundary aquifers are subject to bi- and trilateral coordination between the States/Regions concerned. Particular attention is given to the assessment of "border" groundwater bodies whose status is classified differently on either side of the border.

The IMC States and Regions have exchanged information on monitoring programmes and assessment methods.

The problems on both sides of the border are often comparable. They mainly concern the chemical status and in particular pollution by nitrates and plant protection products.

The differences in assessment on either side are explained by the degree of pollution measured on both sides and by the differences in the characteristics and scale of the groundwater bodies.

The status of groundwater bodies belonging to transboundary aquifers is summarised in the table in Annex 13.

[10] *Roof part of the management plan of the Meuse IRBD, 2nd WFD cycle, IMC 2015. http://www.meuse-maas.be/CIM/media/Rapport-faitier-dec-2015/Rapport_faitier_Magua_15_1rev11_f_.pdf*

7. Environmental objectives

7.1. Introduction

In addition to the management objectives already mentioned above - the achievement of good surface and groundwater status by the end of 2015 - the WFD requires Member States to preserve the status of watercourses (prohibition of deterioration). The WFD allows for an extension of the deadline for achieving good status beyond 2015 to 2027 at the latest. By then, all measures required to achieve good status must be taken.

These exceptions must be justified.

Possible reasons are:

- Technical feasibility
- Natural conditions
- Disproportionate costs

Beyond 2027, the extension of the deadline can only be applied due to "natural conditions".

The WFD also allows for less stringent objectives than good status.

7.2. Reasons for derogations from the objectives, exceptions and extensions of deadlines

Due to the numerous pressures on the water bodies, many measures are necessary and their implementation requires more time.

For a large number of water bodies that are not at good status/potential by 2021, extensions of the deadline under article 4 paragraph 4 of the WFD are therefore necessary.

Most of the extensions are based on technical feasibility and/or disproportionate costs (note: to be adapted if necessary, if all the States' data on the achievement of the objective are transmitted and can be evaluated for the whole basin!). The number of water bodies and the reasons given for the derogation from the environmental objectives in 2021 are listed in Annex 17. However, despite many efforts, the achievement of good status/potential will not be possible by 2027 for all water bodies in the Meuse district.

The approach of the States and Regions of the Meuse catchment area, some of whose water bodies will probably not be able to achieve good status in 2027, is set out below.

France

In France, it was decided that for those water bodies that could not achieve good status by 2027, the use of less stringent objectives seems reasonable in view of the efficiency of previous programmes of measures and in view of the method used to define status objectives. The latter is considered to be rigorous and transparent and has already been tested in previous management plans.

However, the definition of a less stringent objective for the 2027 deadline is to be considered as a step on the path towards good status of water bodies after 2027, as the WFD requires the objective to be reviewed every 6 years.

Luxembourg

In the third management plan, Luxembourg made use of derogations under Article 4(4) of the WFD, namely the extension of deadlines for achieving good status or potential. The use of deadline extensions is based on natural conditions, technical feasibility and disproportionate costs. The deadline extension under Article 4(4) of the WFD is claimed up to and beyond 2027 (due to natural conditions).

It is already foreseeable for many water bodies that they will not be able to achieve good or potential status within the set deadlines despite the efforts already made and future measures planned. However, it seems possible to achieve the environmental objectives within the WFD deadlines, so these are not fundamentally questioned. The focus will be on these objectives and an attempt will be made to achieve them within the deadlines set by the WFD. Luxembourg will therefore also have recourse to deadline extensions beyond 2027, which cannot be justified exclusively by natural conditions. For this reason, the third management plan will transparently specify the deadline by which the various water bodies are likely to achieve good status or good potential. The appropriate measures required according to the current level of knowledge are already provided for in the programme of measures.

Luxembourg has not made use of derogations under Article 4(5) of the WFD and therefore no less stringent objectives will be targeted.

Belgium – Wallonia

The "state of play" approach is followed for this third cycle of management plans in Wallonia, i.e. it is the achievement of the environmental objectives by 2021 that will be reported. However, projections for achieving the objectives by 2027 are also presented in the Plans, for transparency purposes, in order to judge the ambition of the proposed new programme of measures. During its implementation, derogations for less stringent objectives will be studied and justified for the water bodies furthest from the objectives, and then requested in 2027.

Belgium – Flanders

In Flanders, the application of derogations in RBMP3 is based on the "state of play" approach. In this approach, a member state evaluates during the drafting of the 2022-2027 RBMP whether the objectives will be achieved in 2021 (instead of 2027 in the case of the ''forecast" approach). This implies that every water body that does not reach good status in 2021 will be subject to a derogation. In order to provide the necessary transparency on what will be achieved with the actions and measures planned in RBMP3, adapted planning objectives are formulated. These adapted planning objectives are grafted onto a basin-oriented prioritisation. In the basin-oriented prioritisation, water bodies are divided into 6 classes depending on the expected timing for achieving good status (2021, 2027, 2033 or after 2033).

Germany

In Germany, it is assumed that the prerequisites of the WFD for justifying deadline extensions or less stringent environmental objectives for some water bodies where the objectives are not achieved by 2027 are not fulfilled. The WFD does not provide a robust solution for this after 2027. When the WFD was adopted, now 20 years ago, the practical implementation problems and their extent were not all foreseeable. However, the ambition pursue the full achievement of the objectives of the Water Framework Directive in these water bodies shall be maintained. For this, however, more time is needed beyond 2027.

In this context, the problems and the chosen approaches to solving them are presented in the national management plans in a transparent and comprehensible manner. It is explained on the basis of which data and which methodology which measures for achieving the objective have been identified, for which reasons their complete implementation by 2027 is not achievable, combined with an assessment of when, from today's perspective, the measures can be implemented and the objective can be achieved.

It must be made clear what gap exists between the measures already implemented and their impact, and consequently what measures are still needed to achieve the objectives (deficit analysis). The working documents of the Water Directors (CIS WD 2017a and 2017b) as well as the assessments of the EU Commission on the management plans submitted so far make it clear throughout that the application and justification of deadline extensions should be carried out with a high degree of transparency.

Netherlands

The parties involved have agreed that a decision to lower the objectives will only be taken by 2027 if the objective cannot be met in 2027. The background to the fact that this derogation has not yet been used is that maximum effort is being made to achieve the objectives.

7.3. Surface water objectives

7.3.1. Overview of the Meuse basin

An extension of the deadline beyond 2021 has been foreseen for 70.0% of surface water bodies with respect to achieving good ecological status/potential and 85.1% with respect to achieving good chemical status (35.8% if ubiquitous PBT substances are not taken into account).

Based on assessments, at least 59 additional surface water bodies[11] will achieve good ecological status/potential by 2027. For the remainder, additional deadline extensions or less stringent objectives are set (Annexes 15 and 17).

7.3.2. Reduction objectives

7.3.2.1. General parameters that may support the assessment of ecological status: Nutrients

As part of the international coordination of the nutrient problem and in order to evaluate the combined effect of the programmes of measures, a scenario study[12] was carried out, as in the previous planning period, which gives an idea of the state that will be achieved in 2027 in coastal, transitional and marine waters.

The study focused on the concentrations of total nitrogen and total phosphorus in the water bodies of the main course of the Meuse and some important tributaries. N and P data from Dutch waters from 2015 (scenario A) and N and P data from upstream areas mainly from 2015 (scenario A+) were used as references.

[11] *These statistics do not take into account the surface water bodies located in Wallonia for which data were not available at the time of publication of this document.*

[12] *Ex ante evaluation of nutrients in fresh, coastal and marine waters with a focus on the Meuse basin (Deltares 2021) (http://www.meuse-maas.be/CIM/media/Documents-ChefDeDelegation/R%c3%a9union%20(visio)%20du%2025%20juin%202021/10_Ex-ante-evaluation-of-nutrients-in-fresh,-coastal-and-marine-waters_Mchem_20_39def.pdf)*

The baseline data was compared to the following scenarios:

- Scenario B: water entering the Netherlands meets the standards set by the Netherlands and nutrient pollution in the Netherlands decreases as expected.
- Scenario C: water entering the Netherlands meets the standards of upstream partners and nutrient pollution in the Netherlands decreases as expected.
- Scenario D: expected reductions by upstream parties are combined with expected reductions in the Netherlands.

The analysis of the scenarios shows that the current and planned programmes of measures (scenarios D) only lead to a reduction of a few percent of the N and P concentrations in the inflowing water with a very limited effect on the coastal waters. Scenario B (inflow meets NL standard) provides the most significant reduction for water bodies in the Dutch part of the Meuse basin, as the Dutch standards for N and P are more stringent than the Flemish and Walloon standards. Nevertheless, even in scenario B only slightly more than 60% of the Dutch water bodies in the Meuse catchment area will meet the standards for N and P. As the previous study in 2015 already showed, it is demonstrated that even if the nutrient concentrations in the Meuse estuary meet the standards, the standards in the coastal waters are not necessarily met.

Transboundary cooperation in the field of river analyses and data exchange between states and regions will be continued in order to gain further knowledge about the reduction of nutrient concentrations in order to achieve good ecological status in the Meuse basin and in coastal waters.

7.3.2.2. Specific pollutants that may support the assessment of ecological status

Copper and zinc loads in the Meuse IRBD are largely discharged with rainwater into watercourses and from roofs according to current knowledge.

With the exception of France, the countries or regions of the Meuse IRBD have not set reduction targets for these substances.

7.3.2.3. Priority and priority hazardous substances

For certain pollutants or groups of pollutants presenting a significant risk to the aquatic environment, and certain water uses, in particular waters used for the abstraction of drinking water, Article 16 of the WFD requires the European Commission to submit proposals for control measures to ensure that Member States progressively reduce discharges, emissions and losses of priority substances on the one hand, and to cease and progressively eliminate discharges, emissions and losses of priority hazardous substances on the other.

Table 4 in chapter 6.2.2 shows the list of specific pollutants and priority and hazardous priority substances that are relevant on a transboundary scale in the Meuse basin and for which multilateral coordination of programmes of measures is deemed necessary in 2020. The table also indicates in how many states and regions of the Meuse IRBD these substances are

currently relevant, either because of exceedances of the border values or on the basis of expert opinion.

7.3.3. Assessment of progress in achieving environmental objectives in surface waters

Progress towards the environmental objectives is assessed by each party.

France

The quality of the rivers (general parameters) in the Rhine and Meuse basins has been improving steadily for 30 years. Two periods of strong improvement are to be noted, corresponding on the one hand to the implementation of the first Master Plan for Water Development and Management (SDAGE) of 1996 and the provisions of the Urban Wastewater Directive between 1992 and 2003 and on the other hand to the implementation of the programmes of measures linked to the WFD between 2007 and 2018.

The raw figures from the status maps of the 2015 management plan and the 2019 status report show a rapid increase in the status of surface water bodies, from 23% of water bodies in good status in 2015 to 27% in 2019. This improvement is attributed to the effect of the actions of the programmes of measures.

Industrial pressures are currently limited. Today, the issues are more related to atmospheric inputs (PAHs in particular) and the release of persistent pollutants from sediments (metals, PFOS, PCBs, dioxins and furans).

Concerning urban issues in the Rhine-Meuse basin, sanitation has developed in three major phases of construction of facilities, during the 1970s with the establishment of the first set of wastewater treatment plants, in the 1990s with the implementation of the provisions of the Urban Wastewater Directive and finally with a very large construction programme of small and very small facilities during the first two programmes of measures from 2007 to 2019. More than 500 treatment plants have been built from 2010 to 2019.

The impact of diffuse agricultural pollution, which was a non-existent issue in the 1970s in the face of the omnipresence of urban and industrial pollution, emerged in the 1980s with the increase in nitrate concentrations in water and then in the 1990s with the increase in the use of pesticides and their appearance in resources intended for drinking water supply.

Faced with this situation, the policy of preserving aquatic environments was based on an increasingly strict regulatory framework for agricultural practices (implementation of grassed strips, storage of livestock effluents, banning of the most dangerous pesticides and stricter control of the periods and doses of use, etc.) and actions to improve agricultural practices based on voluntary action (Agrimieux, MAE, ecophyto, etc.). In a context of significant agricultural development, this strategy has produced results, but not always up to the challenges.

Surface waters do not benefit from the filtering role of soils and are much less well protected from pollutant inputs than groundwater. However, the whole of the French part of the Meuse basin is a zone that is very well protected from the impact of pesticides.

Luxembourg

For surface water bodies, a comparison of the results of the status assessment, both for ecological status or ecological potential and for chemical status, between the second and third management plans is only possible to a limited extent. This is due, among other things, to the continuous development of assessment methods, which allow for a more accurate assessment of status, and to changes in the basis for assessment (e.g. new or extended lists of substances, new or more stringent environmental quality standards, new assessment procedures for certain biological quality elements). Furthermore, due to the "one out - all out" principle, progress already made in status assessment is often not visible.

Considering only the results of the status assessment, no improvement in the status of surface water bodies can be identified.

It should also be noted here that many Luxembourg surface water bodies are often subject to multiple pressures (e.g. diffuse and/or point source pressures, plus morphological and/or hydrological pressures) which have a negative impact on their status. As a general rule, all these problems must be solved before an improvement can be seen in the status assessment.

Belgium – Wallonia

In 2018, 50% of the surface water bodies in the Walloon part of the Meuse IRBD had achieved their environmental objective, whether good status, good potential, or very good status. The Lesse, Ourthe and Amblève sub-basins show the best rates of water bodies having achieved their objectives, with 90%, 86% and 70% compliance respectively. On the other hand, 78% of the water bodies of the Sambre and 77% of the water bodies of the Meuse-aval have not reached their objective of good ecological status or good potential, due to a denser population and greater agricultural pressure. Hydromorphological changes partly explain these results.

The most significant progress has been achieved through the compliance of domestic wastewater treatment or the reduction of some industrial discharges, but the environmental objective has not been met. It is only through the joint efforts of all responsible sectors that improvements will be more noticeable.

Belgium – Flanders

Of the 18 surface water bodies in the Flemish part of the Meuse IRBD, 4 have the same ecological status. For 11 water bodies, the ecological status improves compared to the previous cycle, while the ecological status deteriorates for 3 water bodies (from moderate to poor in each case). Only one surface water body has achieved good ecological status.

When looking at the individual quality elements and considering only significant progress and deterioration, then:

- for phytobenthos, progress is made in 7 water bodies; the other water bodies remain status quo or no comparison is possible
- for phytoplankton, a (temporary) deterioration is identified in 3 water bodies; in the other water bodies phytoplankton is not relevant or there is a status quo
- for macrophytes no deterioration is observed, but also no progress at all (all water bodies status quo or no comparison possible)
- for macroinvertebrates, progress is observed in 4 water bodies and a (temporary) deterioration has been observed in 2 water bodies; the other water bodies remain status quo
- for fish, progress is made in 1 water body and deterioration in 1 water body. The other water bodies remain status quo or no comparison is possible.

The quality elements phytobenthos and macroinvertebrates therefore improve the most. Phytoplankton, on the other hand, often scores worse than in the previous cycle; it is suspected that this is mainly due to the dry summers of 2017 and 2018.

With regard to the physico-chemical assessment, 14 water bodies are improving, while the physico-chemical status remains the same for 4 water bodies. In most cases, there is 1 class, but for 2 water bodies the physico-chemical status has progressed by 2 classes and for one even by 3 classes.

Thus, progress is more evident at the physico-chemical level than at the biological level.

As in the previous cycle, the chemical status is not good for any surface water body, mainly due to the presence of ubiquitous substances.

Germany

The share of heavily modified surface water bodies in the North Rhine-Westphalian part of the Meuse catchment is approx. 60 %, that of artificial surface water bodies is approx. 6 %. Overall, 12.2 % of the length of the water bodies studied are currently in good or very good ecological status or potential. The overall ecological status shows a clear tripartite structure: The catchment area of the upper Rur has an outstandingly high proportion of water bodies with good or very good status. It consists mainly of forested low mountain ranges and therefore has the lowest proportion of structurally impaired watercourse sections. Nutrient loads are also low. The lower Rur and the catchment area of the Schwalm, on the other hand, are clearly influenced by anthropogenic factors. The Niers catchment area and parts of the lower Rur show the greatest impairment: here, the good ecological status is not achieved in any case. The watercourses here have been developed in a way that is far from their natural state in accordance with the prevailing uses, are in part intensively maintained, and the ratings are predominantly in the "moderate", " poor" and "bad" range. This is mainly a consequence of the intensive agricultural use over a large area and locally as a consequence of the degradation in residential, industrial and commercial areas.

13 % of the total of 229 surface water bodies achieve the objective of good ecological status/potential.

The reason for the failures in the remaining 87 % is the macrozoobenthos for 136 surface water bodies, the fish fauna for 88 surface water bodies and the macrophytes for 72 surface water bodies. Due to the area-wide exceedance of the environmental quality standard for mercury in biota and the pollution with other ubiquitous PBT substances such as PBDE and PAH, no surface water body achieves the objective of good chemical status, including none of the 2 lakes and 5 dams. Excluding ubiquitous PBT substances, 73% of surface water bodies achieve good chemical status. Reasons for failing to achieve the objective for the remaining 27% are contamination with metals (for 36 surface water bodies), with plant protection products (for 9 surface water bodies), with nitrates (for 15 surface water bodies) and other substances (for 20 surface water bodies).

Numerous measures to reduce pollution, especially from wastewater disposal, hydromorphological degradation and substance discharges, were implemented in the second management cycle. This has led to a slight improvement in water body status. However, the effect of many measures is long-term, so that further improvements as a result of the measures already implemented will only become apparent in a few years' time.

Netherlands

The implementation of many measures in RBMP 2 (2016-2021) is well advanced, especially if the "in progress" part is included. However, it is noticeable that for measures in the category "regulation of water circulation and hydromorphology", as in 2018, implementation is the least advanced. In this category of measures - more so than in other categories - the acquisition and or redevelopment of land/water bodies is an important component. The pace of construction of nature-friendly banks also seems to be lagging behind compared to RBMP 1 (2009-2015).

By 2020, 95% of the assessed water bodies in the Meuse basin will comply with the environmental quality requirements for priority substances excluding ubiquitous PBTs and 66% if ubiquitous PBTs are included. In 2015, this was 59% for priority substances excluding ubiquitous PBTs and 53% if ubiquitous PBTs are included.

Because of the one-out-all-out method used in the WFD, the percentage of water bodies that meet all the WFD objectives is low, because if one parameter does not meet the objectives, the entire water body does not meet them.

Furthermore, the biological status has improved compared to previous planning periods. In the Meuse basin, the individual biological parameters of the water bodies are in good status for between 19% (for the worst parameter) and 68% (for the best parameter). Similarly, the biological parameters for 76 - 98 % of the water bodies score good to moderate in the Meuse basin. In 2015, the biological parameters were in good status in only 15 % - 53 %.

With regard to the free migration of fish, the start of the partial opening of the Haringvliet sluices (De Kier project) in 2018 deserves special mention. The first real opening operations could only be carried out in January 2019 due to the persistent drought. The launch of the "De Kier" project thus made it possible to tackle a major obstacle to the free migration of migratory fish, as the Haringvliet locks are truly the gateway to the entire hydrological system of the Meuse and Rhine rivers.

7.4. Objectives for groundwater bodies

7.4.1. Overview of the Meuse basin

To date and on the basis of provisional assessments, between 58 and 67 %[13] of the groundwater bodies in the Meuse IRBD will achieve the WFD objectives by 2027 (Annex 16). For the others, a further delay or a less stringent objective will be necessary, mainly due to the non-achievement of the chemical status (annex 17).

7.4.2. Reduction objectives

The improvement of the chemical status of groundwater bodies is necessary. This mainly involves reducing pollution by nitrates and pesticides. Achieving the quantitative objective

[13] *Depending on the natural recovery rate.*

does not seem to require specific action by the IMC. This point is addressed at the national or bilateral level.

7.4.3. Assessment of progress towards environmental objectives for groundwater

Progress towards the environmental objectives is assessed by each party.

France

Controlling nitrate concentrations in water has been a priority for more than 25 years, notably with the adoption of the Nitrates Directive in 1991. For groundwater, which produces 90% of the water consumed in the Rhine-Meuse basin, compliance with the quality objectives for drinking water is the major challenge. 6% of the monitoring points in the Rhine-Meuse basin have exceeded the maximum authorised value of 50 mg/l of nitrates for drinking water distribution at least once in the last 5 years and 6% are located in a risk zone (40 to 50 mg/l).

However, three quarters of the points comply with the objective of 25 mg/l set by the Scientific Council of the Rhine-Meuse Basin Committee, which aims to limit very significantly the risk of a one-off exceedance of 50 mg/l.

The analysis of trends in the impact of pesticides on water remains very delicate to measure reliably, due to numerous technical difficulties, diversity of the molecules to be taken into account, absence of analytical protocols for monitoring metabolites that are little or poorly known, changes in analytical performance, changes in monitoring networks, monthly sampling intervals (…).

A global index to show the evolution of pesticide toxicity in water, taking into account all the pesticides mentioned above, has been developed. This index seems to show a slight decrease in groundwater between 2007 and 2016 (Figure 16) as well as a strong interannual variability.

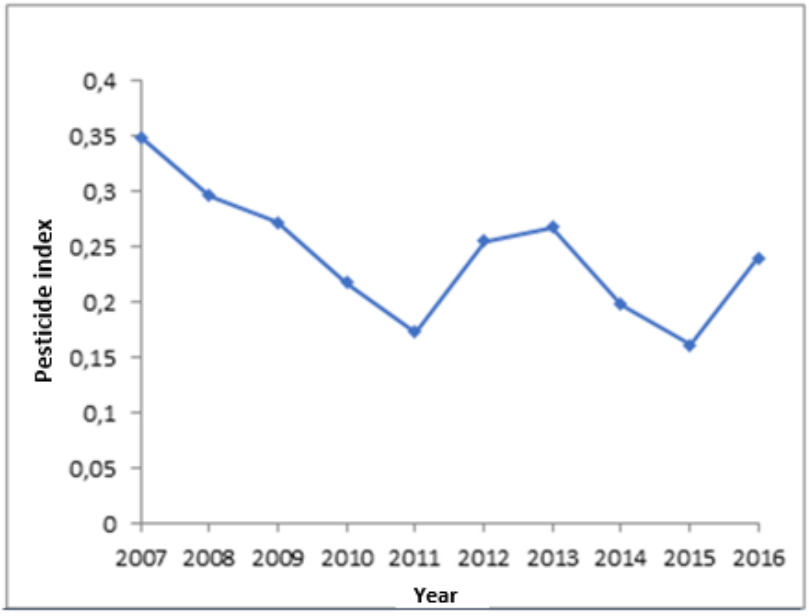

Figure 16: Pesticide index in groundwater in the French Rhine-Meuse basin

Luxembourg

In Luxembourg, all groundwater bodies are assigned to the international river basin district of the Rhine, so no data are available for the international river basin district of the Meuse.

Belgium – Wallonia

Of the 21 groundwater bodies in the Walloon part of the Meuse IRBD, 14 are in good status. 7 water bodies are in poor chemical status (none are in poor quantitative status). This number did not change between the 2nd and 3rd RBMPs.

Of these 7 groundwater bodies with poor status, 3 are poor for nitrates only, 2 for nitrates and pesticides, 1 for pesticides only and 1 for ammonium.

Trend analyses were carried out on the time series of all pollutants observed in the water bodies with poor status or where a risk was identified. These trend analyses, at the scale of the water body, were carried out not only by expert judgement, but also on the basis of a purely statistical methodology, developed in 2014 for nitrates and extended in 2020 to all other parameters.

For the 3 groundwater bodies downgraded by nitrate, we observe:

- A trend reversal of the nitrate concentration in the water body RWM142 (limestone and sandstone of the Vesdre basin). The downward trend is statistically confirmed and indicates that good status will be achieved shortly after 2021 if the downward trend continues;
- Stabilisation of nitrate concentrations in the RWM041 water body (sands and chalk of the Méhaigne basin), which was observed during the period 2014-2019;
- An upward trend in nitrate concentrations to the west of the water body RWM151 (Cretaceous of the Pays de Herve), while elsewhere concentrations are decreasing significantly.

On the 2 groundwater bodies downgraded by nitrates and pesticides:

- Nitrate concentrations in the RWM052 water body (Bruxellian sands of the Haine and Sambre basins) continue the slow but significant decrease already observed at the beginning of the 2nd RBMP; the trend analysis also shows a very slow decrease in pesticide concentrations;
- An increasing trend of nitrates and bentazone is clearly identified for the water body RWM040 (Cretaceous Geer Basin).

The groundwater body downgraded solely by pesticides, RWM011 (limestone of the North Meuse basin), which showed an upward trend in bentazone concentrations at the beginning of the 2nd RBMP, shows, during the period 2014-2019, a stabilisation, or even a significant decrease in concentrations at several monitoring sites.

Concerning the pesticides that downgrade certain water bodies, desphenyl-chloridazon (a pesticide metabolite) has only been compulsorily measured since 2018 in the Walloon groundwater monitoring network. The trend analysis for this parameter could therefore not be performed due to the short monitoring period.

For the groundwater body M073 (alluvium and gravels of the Meuse between Engis and Herstal) downgraded for ammonium, no significant trend could be identified at the scale of the water body.

Belgium – Flanders

Of the 10 groundwater bodies in the Flemish part of the Meuse IRBD, the status of one groundwater body (Kempen Aquifer System in the Central Slope) has improved, due to an improvement in the chemical status. The status of none of the groundwater bodies is worse than at the time of the status assessment in the context of RBMP 2.

With regard to the chemical status, a trend analysis was carried out for nitrate and pesticides for the phreatic groundwater bodies. (Note, however, that the trend assessment was carried out on a limited dataset, i.e. on the measuring series for which a statistical analysis could be carried out. The dataset for which the trend assessment was determined is therefore smaller than the dataset with which the status assessment was done).

Of the 5 phreatic groundwater bodies currently in poor nitrate status, 4 groundwater bodies show a sustained upward trend in nitrate concentration on more than 20 % of the monitoring series.

Of the 3 phreatic groundwater bodies currently in good nitrate status, 1 groundwater body shows a sustained upward trend in nitrate concentration on more than 20 % of the monitoring series.

For 2 groundwater bodies in good status for nitrate, no statement could be made regarding the trend.

For pesticides, no trend could be determined for the groundwater bodies in the Meuse IRBD (due to a large number of measurements below the detection limit).

Germany

A good third of the groundwater bodies (area share) in the North Rhine-Westphalian part of the Meuse catchment have a good status with regard to groundwater quality. The number of groundwater bodies (GWB) in poor chemical status has not yet been reduced. In total, 18 out of 32 GWB and almost 60 % of the GWB areas are currently chemically polluted. In the border area with the Netherlands, the groundwater bodies are in poor chemical condition almost everywhere due to nitrate from intensive agricultural land use. It has been possible to reduce nitrate pollution to some extent, but not yet to any significant extent. In many groundwater bodies there is stagnation at a high pollution level, and in 9% of the GWB (area share) there

are even currently still persistently rising nitrate trends relevant to measures. Only in 3 GWB are the chemical loads not due to nitrogen inputs from agriculture (nitrate), but to mining (pyrite oxidation, spoil tips). In addition, there are local pressures from plant treatment and pesticides, ammonium and metals.

Numerous measures were implemented to reduce the impact on groundwater. In particular, intensive advice was given to farmers and agri-environmental measures were implemented.

Netherlands

The general chemical status is assessed as good in 4 of the 5 groundwater bodies of the Meuse.

The quantitative status is good in 4 of the 5 groundwater bodies of the Meuse. In the deep "Maas-Slenk" aquifer in Brabant and Limburg, the quantitative status is insufficient and the abstraction exceeds the groundwater recharge. There, the assessment of the trend in the level of the groundwater head is also inadequate. The interaction between groundwater and groundwater-dependent terrestrial ecosystems is insufficient in two groundwater bodies.

7.5. Coordination of the status and objectives of surface and groundwater bodies at borders

In order to ensure a coherent definition of the status/potential of water bodies at the borders, bi- and trilateral coordination has been organised between the States and Regions.

Where possible, the Contracting States and Regions of the IMC exchanged information on the status of surface water bodies and on the objectives for 2027, including specific problems hampering the achievement of the objectives. Wherever possible, they harmonised the objectives for 2027; any differences were discussed and explained. It should be noted that not all of the exchanges could be carried out due to the absence of certain Walloon data because of delays in the establishment of national management plans by Wallonia. The result of these exchanges was summarised in the consultation sheets for surface water bodies provided for this purpose.

The Parties continue to exchange information on the progress of the programmes of measures and the results of the monitoring programmes.

8. Economic analysis

In accordance with article 5, paragraph 2 of the WFD, the IMC States and Regions have reviewed and updated the economic analysis of water use in order to

- Take into account the principle of recovery of the costs of water services (WFD, art. 9) in accordance with the polluter pays principle;
- Assess the most cost-effective combination of water use measures to be included in the programme of measures (referred to in Article 11).

States and Regions of the IMC have exchanged information on the updated economic analysis of water use. A summary of the cost recovery analysis is presented below for each State or Region of the Meuse IRBD.

In conclusion, the exchange of information by the IMC contracting parties has shown that the watercourses in the downstream section of the Meuse IRBD are subject to intensive economic activities and that this part of the basin is densely populated (see Table 1). In the national forecasts of future developments, it is clear that the significant pressures on water resources will not change fundamentally in the future.

France

In accordance with the requirements of the Directive, the analysis of cost recovery in the Rhine-Meuse basin focuses on the water use services associated with these three sectors (industrial, agricultural and household sectors), from which it has also been possible to distinguish between domestic equivalent production activities (APAD).

The amount of financial flows between categories of actors was also highlighted. To complete the range of monetary exchanges, two other categories of actors, "the taxpayer" representing natural persons and "the environment" representing the protection of natural environments, were added.

Recovery of the costs rates per user

The recovery of the costs rate measures the ratio of transfers paid to transfers received. For each user category, two recoveries of the costs rates were calculated. A first recovery of the costs rate, excluding environmental costs, comprising users' expenditure on public services, plus own-account costs, plus all transfers paid and transfers received. A second rate, comprising the same elements as the first, but with the inclusion of environmental costs.

Summary of recovery rates with and without environmental costs

	Meuse District (2009)	Meuse District (2009)	Meuse District (2013-2016)	Meuse District (2013-2016)
	Without environmental costs	With environmental costs	Without environmental costs	With environmental costs
Household	98%	93%	97%	75%
APAD	98%	102%	92%	69%
Industries	99%	98%	100%	90%
Agriculture	91%	38%	102%	60%

Table 9: Summary of the evolution of recovery rates with and without environmental costs

Overall in the Rhine-Meuse basin, the recovery rates have improved significantly compared to the previous exercise, regardless of the user. However, it is important to note that the recovery rate formula has been slightly modified in order to harmonise the calculation of rates in all French basins. As the method effect is difficult to quantify, the evolution of the results between the analysis of the characteristics should be interpreted with caution.

A deterioration in recovery rates can be observed when integrating environmental costs, regardless of the geographical level or the economic actor studied. It is for the farmers' category that the rate deteriorates the most (-26 points).

The details of the methodology and calculations are described in full in the document « Etat des lieux Districts Rhin et Meuse, partie française – Eléments de diagnostic[14] », adopted and approved in December 2019.

Luxembourg

The price of water and the recovery of the costs of water services are covered by articles 12 to 17 of the Luxembourg water law of 19 December 2008.

In order to ensure the recovery of the costs, the taxes levied by the municipalities on the users of water services each consist of a partial charge for drinking water and for wastewater. In accordance with the requirements of Article 12 of the Water Act, the water pricing systems distinguish between four sectors. These are industry, households, agriculture and the hotel and catering industry (Horeca), each of which must contribute appropriately to the recovery of the costs.

Since 1 January 2010, the total costs of planning, building, operating, maintaining and servicing water and wastewater infrastructure, including depreciation, can be recovered from the water supply and sewerage charges. The price of water is based, among other things, on these two charges, which municipalities and local authorities are responsible for levying. This enables the municipalities to maintain the drinking water and wastewater infrastructure at a high level of quality in the long term. As the price of water and the regulation of charges are determined by each municipality, the price of water can vary from one municipality to another.

In order to take account of environmental and resource costs, two additional state taxes were introduced, the water abstraction tax and the wastewater discharge tax. The revenues from

[14] https://www.eau-rhin-meuse.fr/les-domaines-dintervention-eau-et-gouvernance/letat-des-lieux-2019

these taxes are paid in full to the Water Management Fund, which provides state financial support for projects in the water management sector.

Belgium – Wallonia

Wallonia has set up a system of environmental taxes/charges for the implementation of the recovery of the costs and polluter-pays principles, in accordance with the provisions of Article 9 of the WFD.

As regards water services, Wallonia has set up two financial instruments to ensure the implementation of the recovery of the costs principle (article D.228 of the Water Code): the Fair Distribution Cost (CVD) and the Fair Sanitation Cost (CVA). The CVD and CVA are invoiced to the economic sectors using the drinking water resource and guarantee the full recovery of the costs of the public drinking water production/distribution service and the costs of the collective sanitation service.

With regard to environmental costs, other financial instruments have been put in place to ensure the implementation of the recovery of the costs principle by the economic sectors. These include the tax on the discharge of industrial wastewater, the tax on the discharge of domestic wastewater, the levy on non-drinkable groundwater intakes, the levy on drinkable water intakes, etc.

The 1st water management plans per river basin district (period 2010/2015), which were approved by the Walloon Government on 27/6/2013, provided for measures to reform the financial flows of the water policy in order to improve the implementation of the recovery of the costs principle and to fully comply with the provisions of Article 9 of the Directive. These measures were implemented by the Walloon Parliament decree of 14 December 2014: they include the reform of the tax regime on industrial wastewater, the reform of the tax regime on diffuse pollution from agricultural sources (with the introduction of the tax on environmental charges generated by farms), the introduction of a levy contribution on non-drinkable surface water intakes, etc.

Belgium – Flanders

In Flanders, 4 water services are distinguished:

- Public (drinking) water production and distribution
- Public collection and treatment of wastewater
- Self-sufficiency in water production
- Self-sufficiency in wastewater treatment

Recovery of the costs for public (drinking) water production and distribution

All costs for public water supply, both for investment and operation, are fully passed on to the subscribers through the integral water bill. It can therefore be concluded that, overall, there is a full recovery of the costs (100 %) for public drinking water production and distribution.

Recovery of the costs of public wastewater collection and treatment

For the public collection and treatment of wastewater, the recovery of the costs is currently 78% at supra-municipal level. The recovery of the costs on the municipal level is currently 75%.

Recovery of the costs for the self-sufficiency in water production

Since the company's own water suppliers do not receive any subsidies for the infrastructure they use to pump up groundwater or to abstract surface water, there is

100 % recovery of the costs as far as the private costs are concerned. As far as the recovery of environmental and resource costs is concerned, it can be said that these costs are recovered via the groundwater levy and the surface water capping fee, as these levies do not have a financing character but rather a regulatory function.

Recovery of the costs of in-house wastewater treatment facilities

Industrial companies do not usually receive subsidies for the infrastructure they use to treat their wastewater. For them, it is therefore a matter of 100% cost recovery. In some cases, however, agricultural holdings and households receive subsidies for installing treatment systems. As far as the recovery of environmental and resource costs is concerned, it can be said that these costs are recovered via the water pollution levy for surface water dischargers, since these levies are not financial in nature but rather regulatory.

Germany

For Germany, the recovery of the costs is considered for the areas of wastewater disposal and drinking water supply. Cost-recovery water prices have been prescribed by legislation for decades. Previous studies show that the recovery of the costs in practice is around 100 % for both wastewater disposal and drinking water supply. The required consideration of environmental and resource costs in the recovery of the costs is implemented in Germany in

particular through the two instruments of water abstraction levies (Wasserentnahmeentgelte) of the federal states and the wastewater levy (Abwasserabgabe), which applies nationwide.

Netherlands

The total costs of protecting the Netherlands against flooding and ensuring sufficient clean (drinking) water amount to 7.3 billion euros (2018). This is borne by Water boards 42%, municipalities 20%, water companies 21%, the Ministry of Infrastructure and Water Management 15% and provinces 2%. In addition, more than €1 billion is spent on waterway management. Together this amounts to over 1 % of the Gross Domestic Product. Almost all water quality management costs are financed by levies on water boards and municipalities and by the cost price of drinking water.

The Netherlands distinguishes five water services for which the recovery of the costs is around 100%:

- Production and supply of water;
- Collection and discharge of rainwater and waste water;
- Treatment of waste water;
- Groundwater management;
- Regional water system management.

The water boards and central government are expected to invest 280 million euros in the period 2022-2027 in the Meuse basin. The Water Boards are investing to prevent further deterioration and to improve the condition of ground and surface water in the Meuse. In addition, central government is investing in the main water system.

9. Programme of measures of the states and regions of the Meuse IRBD, taking into account important water management issues

In order to achieve the objectives set out in Article 4 of the WFD, Article 11 of the WFD requires Member States to establish programmes of measures.

Based on the results of the monitoring programmes and the available expertise, the IMC Contracting Parties have identified the water bodies that are at risk of not achieving the environmental objectives of the WFD in 2027.

The IMC Contracting Parties have developed programmes of measures accordingly.

The programmes of measures include "basic measures" (i.e. implementation of the EU directives in force) and, if necessary, " additional measures" when the implementation of the basic measures does not achieve the WFD objectives.

In drawing up the management plans, the contracting parties have coordinated the national and regional programmes of measures as far as possible in order to address the important water management issues in the Meuse IRBD.

A summary of the national/regional measures relevant to the Meuse IRBD is presented in Annex 18.

9.1. Hydromorphological changes

9.1.1. Improving ecological continuity and other measures for migratory fish

The ecological continuity of a watercourse is defined as the free movement of living organisms and their access to the areas essential for their reproduction, growth, feeding or shelter, the proper functioning of the natural transport of sediments as well as the proper functioning of biological reservoirs (connections, especially lateral ones, and favourable hydrological conditions).

This common objective has led the Parties to the IMC to increase their efforts and to multiply their actions in favour of the restoration of the ecological continuity of watercourses.

In the Meuse IRBD, the States and Regions are actively working (see Annex 19):

- on hydromorphological improvements (dam removal, construction of fish passes at existing dams, construction of fish protection and fish guidance systems at engineering structures such as hydroelectric power plants and cooling water intakes to protect fish going downstream);
- on the restoration and protection of wetlands;
- on restoring the links with the old meanders.

The Master Plan for migratory fish in the Meuse adopted by the IMC in 2011 forms the basis for the realisation and implementation of particularly important and far-reaching measures.

The plan also includes an inventory of 'highly migratory' fish such as eel, salmon and lamprey, their potential habitats and obstacles to their mobility along the rivers. The restoration of migration opportunities for highly migratory fish both downstream and upstream, the increase in the number of spawning grounds and the restoration of naturally viable populations of diadromous migratory fish are the main common objectives of the plan.

Each year, the IMC monitors the implementation of the Master Plan for migratory fish in the Meuse and coordinates the measures internationally. A first assessment of this Master Plan was made ten years after it was drawn up[15].

An overview of the main actions arising from the different measures of the Master Plan for migratory fish is given below.

Restoration of ecological continuity for upstream migration

Work is being carried out to restore ecological continuity for upstream migration. Based on the initial situation observed when this plan was drafted in 2010, 15 obstacles to fish passage have been removed on the main course of the Meuse. There are plans to remove more in the future.

An overview of the current situation (2020) on the main course of the Meuse is presented in Annex 21.

In addition, through a major research programme, the Netherlands will monitor the "De kier" project (see chapter 7.3.3.) and fish experts will analyse data on upstream migratory fish, including data from upstream riparian states. However, the first preliminary results of the monitoring studies already show that the partial opening of the Haringvliet has a positive impact on the free movement of fish to and from the North Sea.

Development of spawning and juvenile habitats

In many places in the Meuse basin, measures to improve the ecological continuity of the river are accompanied by measures to promote the ecological development of aquatic ecosystems

[15] *Progress report on the implementation of the "Master plan for migratory fish in the Meuse River basin" (2011-2020).* *http://www.meuse-maas.be/getattachment/81496053-ec3b-4979-8037-182c63e8868f/Rapport-grand-public_Mecol_21_12def_en.aspx*

(natural restoration measures). These measures often serve to create suitable spawning grounds and habitats for juveniles. Many measures also aim to improve the aquatic environment for a wide range of plants and animals, not only for migratory fish (see also 9.1.2).

Annex 20 shows potential habitats for eel, one of the target species in the Meuse basin.

Stocking of migratory fish

A migratory fish stocking programme has been underway for a long time in the various States and Regions for the stocking of migratory fish (salmon, sea trout and eel) and will be continued in the years to come.

Indeed, since the 2000s, several thousand young salmon have been introduced at various locations in the Meuse IRBD (Figure 17).

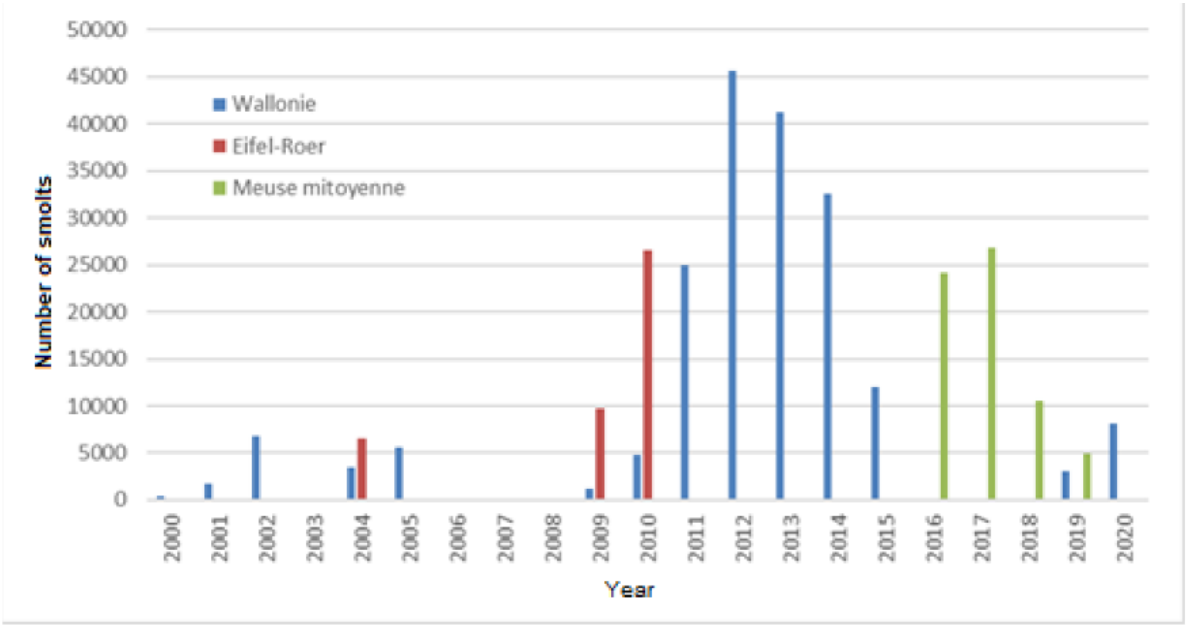

Figure 17: Number of smolts reintroduced in the Meuse River basin since 2000

The number of parr reintroduced in the Meuse catchment area has increased since 2012 to 600,000 (Figure 18).

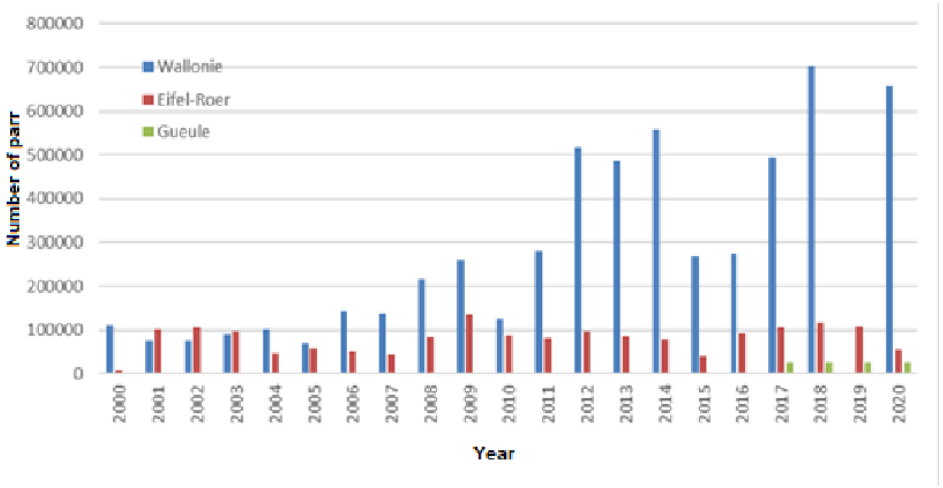

Figure 18: Number of parr reintroduced in the Meuse River basin since 2000

Elver stocking has also been carried out for many years in the Meuse IRBD (Figure 19).

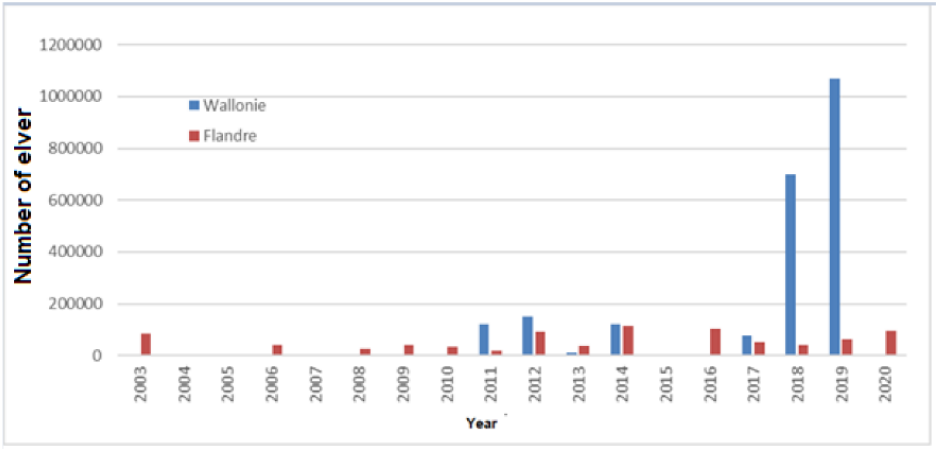

Figure 19: Number of elver reintroduced in the Meuse River basin since 2000

Improving continuity and efficiency of downstream migration

Studies indicate serious disturbances to the downstream migration of silver eel and salmon and sea trout smolts.

For some years now, the Netherlands has imposed a maximum standard of 10% for fish damage on all hydroelectric power plants on the Dutch section of the Meuse. A new national policy standard has been adopted that requires new hydroelectric power plants to limit such damage to a maximum of 0.1 %.

In the Netherlands, new fish-friendly turbine systems have been developed, but have not yet been put into operation. In addition, the Netherlands has imposed on the Linne and Lith hydroelectric power stations a 50-50 flow split between the dam and the turbines during the smolt migration period (April, May) to reduce smolt mortality.

For the public service concessions of new hydroelectric power plants built in navigable waterways or when renewing the permits of older plants, Wallonia applies threshold values for fish damage, which are included in the operating permits. New operating permits also regularly require environmental compensation for residual mortality (fish mortality below the tolerated limit).

Under pressure from the Walloon authorities regarding the free movement of fish, EDF/Luminus and a few other Walloon partners committed themselves in 2017 to actions aimed at studying and reducing the damage caused to fish at the level of Walloon hydroelectric power plants installed on the Meuse between Namur and the Dutch border. Within the framework of the "Life4Fish" project, two experimental installations will be built to guide fish downstream of hydroelectric power stations and their operation will be evaluated.

For hydroelectric exploitation on non-navigable rivers, the manager favours the use of the best available technologies (turbines or water intakes) during the procedures for obtaining state authorisations.

In Flanders, a multi-year study was carried out on the impact of the backflow of migratory fish into the Albert Canal and the fish-friendly qualities of a new hydroelectric power station equipped with Archimedean screws in the canal lock complexes.

In France, it has been decided to equip 3 new hydroelectric power plants to be built in the Meuse with VLH turbines that cause little or no direct damage to fish.

Fishing measures

All states and regions in the Maas basin have sufficiently strict legislation to limit or prevent the catching of various species of migratory fish. In addition, at the level of the dam in the Haringvliet, an area of 1500 m will be closed to fishing in order not to disturb the migration of fish.

9.1.2. Other measures to restore and re-naturalise waters

In addition to improving the living conditions of fish (including migratory fish) and the rest of the aquatic biocenosis, states and regions implement other measures to optimise hydromorphology, which improve or expand aquatic habitats:

Reconnecting small streams or old meanders, creating lateral water stretches, developing banks in a natural way, lowering or connecting riverbanks, promoting the natural dynamics of the watercourse, etc.

9.2. Surface water: Reduction of inputs of substances and pollution from point and diffuse sources

Emissions of substances to surface waters originate either from point sources or diffuse sources.

Relevant point sources in the Meuse basin include, among others, wastewater treatment plants, some industrial installations (process water inputs, cooling water, contaminated rainwater), mining and landfills.

The sources of diffuse pollution vary widely: various substances of industrial or commercial origin, historical pollution, heavy metals in the soil (of anthropogenic or natural origin), atmospheric deposition from combustion processes, inputs from the use of pesticides and plant protection products by agriculture, private individuals, etc.

The measures described below are differentiated according to the source to which they apply.

9.2.1. Reduction of nutrient inputs to surface waters

The input of nutrients nitrogen, phosphorus and organic matter can lead to eutrophication (over-fertilisation) of watercourses and increased oxygen consumption.

All IMC Contracting Parties are therefore striving to reduce such pollution.

Measures are aimed at both point sources (mainly domestic and industrial wastewater) and diffuse sources.

Annex 18 shows that many of the measures are of a regulatory and supervisory nature for the agricultural world and therefore concern diffuse sources. They concern information for the agricultural sector, research and implementation of alternative methods using sustainable spreading practices that respect watercourses, (prescriptions for the storage and treatment of farm effluents, designation of vulnerable zones, restrictions on the use of fertilisers both in terms of space and quantity, buffer strips along watercourses, winter cover of crop soils, measurement of nitrogen surpluses in autumn, fencing along watercourses to limit livestock access, etc.).

In the Netherlands the Delta Agrarisch Waterbeheer (DAW) plan for agricultural water management has started and farmers and water managers will jointly implement measures to reduce emissions to surface water.

9.2.2. Optimisation of wastewater treatment and other measures to reduce the discharge of pollutants into surface waters

As Annex 18 shows, many of the measures taken by states and regions to reduce discharges and pollution focus on improving the collection and treatment of domestic and industrial wastewater and rainwater.

Considerable progress has been made in recent years in the construction and upgrading of off-site wastewater treatment plants. In most municipalities or agglomerations, wastewater treatment plants are now operational. The construction and upgrading of the remaining facilities in smaller municipalities will continue.

In addition to the completion of these rehabilitation programmes, IMC Contracting Parties are focusing on optimising wastewater disposal and upgrading obsolete systems. Some IMC Contracting Parties also provide for the separation and treatment of wastewater and rainwater.

In addition, IMC Contracting Parties are working to address point pressures from conventional industrial pollution (e.g. PAHs or metals), which, although mainly having local effects, can be a significant source of pollution in some water stretches. For example, point sources in mines and landfills are deliberately reduced and contaminated sludge from different sites is disposed of.

9.2.3. Reduction of emissions of substances relevant for the Meuse and other pollutants into surface waters

Priority substances and substances relevant to the Meuse

The reduction of pollution of surface waters by priority substances and certain other pollutants is closely linked to measures for the general reduction of emissions from diffuse and point sources. The measures already implemented have significantly reduced the pollution of waters in the Meuse catchment area by priority substances and certain other pollutants. Bans and restrictions on use in other areas of law have contributed significantly to this situation.

The ubiquitous PBT priority substances, such as mercury or PBDEs, remain problematic, for which water pollution levels are mainly due to diffuse air pollution, including long-range atmospheric transport and sediment deposition from past releases. Therefore, it takes years or decades to achieve pollution elimination.

In order to bring wastewater discharges into line with the requirements of the WFD and in particular its daughter directive "Environmental Quality Standards in the Field of Water Policy" (Directive 2013/39/EU), the IMC Contracting Parties have revised and updated the specific approval procedures governing the discharge of industrial wastewater. To this end, the emission sources of certain substances have been analysed, relevant economic sectors have been selected and, where appropriate, the conditions for authorising discharges have been reviewed.

Micropollutants (trace compounds)

Micropollutants that are not retained in conventional wastewater treatment plants are a new challenge. Human and veterinary drugs and their metabolites, radiological contrast media, oestrogens, perfumes and cosmetics, biocides, anticorrosion agents and complexing agents are currently present in all watercourses and some require special attention. In these cases, the conclusions of studies carried out on the effects of these substances on the aquatic environment, as well as on the various uses of water, should be taken into account. In cases where there is a proven risk, as far as technically and economically possible and realistic, an attempt should be made to control these substances at source or to retain them before they are discharged into the natural environment. However, in many cases, no European or national/regional standards have yet been established for these substances.

Pesticides

The measures are aimed at the implementation of legislation and regulations by each State/Region based on the implementation of the Directive establishing a framework for Community action to achieve a sustainable use of pesticides (2009/128/EC). These include measures aimed at researching and implementing sustainable agricultural methods, informing the agricultural sector, designating specific areas subject to restrictions on the use of pesticides and plant protection products, creating non-cultivated buffer strips along watercourses, encouraging the non-use of herbicides, for example in public parks and gardens, and training people authorised to handle these products.

A chain approach (registration, evaluation, authorisation and restriction of chemicals) is followed for many substances. Preventing chemicals from entering the environment starts with authorisation, which is often regulated at European level.

Substances of importance for drinking water

The IMC will serve as an exchange and monitoring platform for all the substances already monitored by the Contracting Parties, as well as to present new knowledge on emerging substances and their impact on the ecosystem and on certain water uses such as drinking water use.

The Contracting Parties of the IMC, with the expertise of the drinking water producers, have updated the list of substances that are important in relation to the production of drinking water. Of the 14 substances originally included in this list, one, TCPP, is no longer considered important for drinking water production. On the other hand, 16 new substances were added to the list. Basic information on the presence of these substances in the water of the Meuse has been and will be collected on a voluntary basis. This information will be reviewed in 2024-2025, i.e. at the halfway point of the 3rd cycle of the WFD implementation, and every three years thereafter, in order to provide an overview of the available results and to analyse these in the light of new knowledge and/or regulatory developments.

The current list of 29 substances important for the production of drinking water from the Meuse is given in Annex 22.

9.2.4. Prevention and reduction of the consequences of accidental pollution with a transboundary risk

The coordination of measures to prevent and combat accidental water pollution and the transmission of the necessary information is one of the main objectives of the International Agreement on the Meuse.

Accidental pollution is any event that may cause a sudden deterioration (visible or measured) in the quality of water in a watercourse that may endanger its use and/or pose a threat to humans, flora, fauna and the environment. The occurrence of accidental pollution can be highlighted by the direct observation of an incident, the sudden exceeding of a standard and/or visible pollution.

A warning and alert system for the Meuse (WASM) is managed by the IMC to prevent or limit the consequences of these accidental pollutions and allows more effective monitoring of these by the competent authorities. The interest of this type of system for the residents of the Meuse also lies in the presence, downstream of the catchment area, of several surface water catchment points used for drinking water production.

The Main Alert Centres (MACs) are the focal points for the operation of the WASM. They are the only body that can trigger the WASM. Each Contracting Party has a single MAC and there are therefore 7 of them (Annex 23). Through an internet application developed by the IMC, the MACs transmit information on pollution of watercourses presenting transboundary risks likely to alter the quality of the water and endanger its use. MACs are available 24 hours a day, 7 days a week. This allows the competent authorities to be quickly informed and contacted in the event of cross-border incidents.

Originally, the warning and alert system was only designed for alert notifications in case of serious pollution that could also have consequences for downstream parties.

In 2012, the system was expanded to include actions of a purely informative nature, which also allow the parties to inform and question each other about less serious changes in water quality.

The computerised communication system supporting the WASM, which is managed jointly with the International Scheldt Commission, is being upgraded to ensure that it can function in the future.

In order to verify the proper functioning of the WASM and the correct transmission of information, monthly communication tests are organised. The purpose of these monthly tests is to test the communication channels. To do this, each month, in turn, a MAC sends a fictitious alert and checks the correct transmission of the information to the other MACs; it then sends a report to the IMC.

In addition, an alert exercise is organised once a year in order to test the functionality of the WASM more widely and the communication between national and regional services.

Annually, during a workshop with experts, representatives of the MWCs and competent authorities, the results of the tests and the notifications of the past year are presented and discussed.

9.3. Groundwater: Improving chemical status by reducing diffuse inputs of nitrogen and pesticides

Groundwater measures do not require multilateral coordination within the IMC. Groundwater bodies belonging to transboundary aquifers are subject to (bi- or trilateral) consultation between the States and/or Regions concerned.

Groundwater pollution by nitrates and plant protection products is mainly due to diffuse sources related to agriculture (see 9.2).

Measures based partly on appropriate legislation aim to protect groundwater bodies by providing catchment protection zones, reducing nutrient pollution through agricultural nitrogen management programmes and reducing the use of plant protection products.

The IMC states/regions are also carrying out extensive consultations in the agricultural sector in order to reduce the discharge of nitrogen and plant protection products.

Many of the measures referred to in chapter 9.2 to protect surface waters against increased nutrient inputs and plant protection products also lead to an improvement in the chemical status of groundwater bodies.

9.4. Water quantity

9.4.1. Increased frequency and severity of low flow periods

Important water quantity requirements in the Meuse IRBD arise in the areas of power plant cooling, drinking water supply in Belgium and the Netherlands and navigation on the Meuse.

The measures planned as part of the sustainable management of water resources and the fight against the effects of droughts aim to coordinate water management in the Meuse IRBD during periods of exceptional low water levels, to reduce water abstraction from surface waters in the event of a water shortage and to reduce and optimise the use of water by means of information campaigns.

The INTERREG IV B AMICE project (2009 – 2013)[16] highlighted the importance and possible consequences of the high occurrence of extreme low water in the future for the Meuse IRBD. Since 2017, during the summer period, the IMC has drawn up an updated weekly overview of the low water levels at selected measuring points in the Meuse and some tributaries. In

[16] *http://www.amice-project.eu/fr/context.php?page=interreg_program*

2019/2020, the IMC has also developed a plan of approach for exceptional low water in the Meuse basin. This plan of approach is available on the IMC website[17].

9.4.2. Increased flood risk

The parties have committed to coordinate within the Meuse IRBD in order to implement the European directive (2007/60/EC) on the assessment and management of flood risks (FRD) and to coordinate its requirements with the obligations of the WFD.

The States/Regions of the Meuse IRBD exploit the potential for synergies in the implementation of the WFD and the FRD (see chapter 1.2.3).

9.4.3. Consequences of climate change

The main impacts of climate change for the Meuse IRBD are the acceleration of the frequency of extreme climatic events (floods, low water, etc.).

The consequences of climate change are taken into account in the management plans and programmes of measures of IMC member states and regions.

Generally speaking, measures aimed at reducing a pressure that is a source of deterioration in the status of water bodies, improving knowledge of the environment and promoting the preservation of aquatic environments are considered, by their very nature, to take into account the impacts of climate change and to contribute to limiting the harmful consequences during periods of low water and flooding.

The IMC serves as a platform to exchange and benefit from existing and planned national/regional approaches to climate change adaptation.

A multi-year monitoring of the water temperature in the main course of the Meuse will be integrated into the homogeneous measurement network of the IMC. A first report on this subject is expected around 2022.

10. Information, public consultation by States/Regions (and results)

10.1. Information exchange in the IMC

Within the Meuse IRBD, public participation (in accordance with Article 14, paragraph 1 WFD) is the responsibility of the States and Regions. However, a public consultation on this roof part of the management plan was carried out by the IMC.

[17] *Plan of approach for the management of exceptional low water events in the Meuse basin (IMC 2020)* http://www.meuse-maas.be/getattachment/25abc7a4-c407-4278-ac7d-f2f17e0fdc83/Plan_approche_19_21def_en.aspx

Within the IMC, the Contracting Parties have also established mutual consultations on their basin management plans, which has allowed for the coordination of national/regional programmes of measures.

10.2. Information and public consultation by the IMC

As part of the development of this roof part of the 3rd cycle (2022-2027), an international public consultation was carried out. The draft report was made available to the public on the IMC website during the period from 1st June to 31 December 2021. During this consultation, two responses were received. Many of the issues raised in these have been taken into account in the final version of the roof plan. Others will be addressed in the future work of the IMC. The IMC secretariat also drafted responses to the comments in the two comments and sent them to the organisations that had made the remarks.

10.3. Information and public consultation by States/Regions

France

As part of the preparation of the documents relating to the updating of the 2021-2027 management plans for the Rhine and Meuse districts, a first consultation of the public and the assemblies was carried out from November 2018 to May 2019. This consultation focused on the work schedule, the work programme and important water management issues.

The draft management plans were adopted in December 2020 and were then subject to legal analysis by the environmental authority. Following this, a second consultation on these documents was launched on 1st March 2021, for a period of 6 months. At the end of this consultation, nearly 200 comments were collected, which were taken into account for the final version that will be adopted and approved in March 2022 by the Rhine-Meuse Basin Committee and the Basin Coordinator Prefect.

Luxembourg

As part of the preparation of the third management plan, two public consultations were organised in Luxembourg.

A first public consultation started at the end of December 2018 and focused on the schedule, work programme and consultation measures for the elaboration of the third management plan, as well as on important issues related to water management.

The consultation took place until the end of June (for the general public) and until the end of July 2019 (for the municipalities). During this period, all interested citizens, administrations, associations, municipalities, etc. were able to submit written comments on the document

presented. These were evaluated for their relevance and taken into account - if relevant - in the revision of the document[18].

The second public consultation, which officially started on 17 April 2021, was on the draft third management plan. This was also the subject of a six to seven months public consultation during which written comments on the documents presented could be submitted.

In addition, the draft third management plan was presented to the public at a plenary meeting on 4 May 2021. A workshop for key stakeholders was organised on 9 June 2021. The objective of this workshop was to discuss the experience gained in the concrete implementation of the second management plan and the possibilities for improvement in the third management cycle. Three round tables were also organised on "Living with water" (24 June 2021), "Living in water" (30 June 2021) and " Life in water" (7 July 2021). The invited stakeholders presented their positions on the proposed programme of measures according to the priorities addressed.

Belgium – Wallonia

The consultation on the schedule and work programme for the 3rd cycle of management plans was grouped with the consultation on the summary of important issues. It ran from 19 December 2018 to 18 June 2019. The consultation on the draft management plans will take place in 2022.

Belgium – Flanders

The draft basin management plans could be consulted between 15 September 2020 and 14 March 2021 inclusive on the website www.volvanwater.be

[18] *https://eau.gouvernement.lu/fr/administration/directives/Directive-cadre-sur-leau/3e-cycle-(2021-2027)/Calendrier-programme-de-travail.html*

Germany

The public consultation on the draft of the 3rd management plan took place in North Rhine-Westphalia (NRW) from 22 December 2020 to 22 June 2021. Information on this was made available at www.flussgebiete.nrw.de.

A total of 616 comments were received, with feedback from most relevant stakeholders represented. The total number of objections was higher than for the second management plan. This could be due, among other things, to the fact that due to the ongoing pandemic situation, the usual participation formats, such as the round tables, could not be carried out in advance for the first time.

The majority of the comments deal with questions of concrete measure planning measures for specific water bodies.

The thematic focal points of the comments were: Fundamental aspects of public participation and also of general communication on the implementation of the WFD, the complexity of the measures, the reduction of substance inputs, wastewater, micropollutants, and continuity. In this context, fish fauna with the target species salmon and eel as well as hydropower were also frequently addressed.

There were few comments on hydromorphological measures, despite the large number of corresponding measures in the programme.

Netherlands

Water boards, municipalities, provinces and the state cooperated intensively in drawing up the draft Meuse basin management plan. Through active involvement, information provision and public consultation, civil society organisations and citizens were involved in the process, at regional, national and international level. Particularly the district processes organised by the water managers have been important in involving all stakeholders in the formulation of objectives and measures. A detailed description of the activities that took place can be found in the draft Meuse River Basin Management Plan. The public consultation procedure for the national part of the draft Meuse River Basin Management Plan took place on 21 March 2021. The documents were made available for consultation for six months via the website www.helpdeskwater.nl[19] and were also available on paper in the provincial offices ("provinciehuizen"). Thanks to public participation, a number of issues in the RBMP have been worded more clearly.

[19] *https://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/kaderrichtlijn-water/ontwerp-stroomgebiedbeheerplannen-2022-2027/*

11. List of competent authorities

France

Sambre

Monsieur le préfet coordonnateur de bassin Artois Picardie
2, rue Jacquemars Giélée
59039 Lille
France
secretariat@nord-pas-de-calais.pref.gouv.fr

Meuse

Monsieur le préfet coordonnateur du bassin Rhin Meuse, Préfet du Bas-Rhin, Préfet de la région Grand-Est
5, Place de la République
67000 Strasbourg
France

Luxembourg

Ministère de l'Environnement, du Climat et du Développement durable
4, place de l'Europe
L-1499 Luxembourg
Luxembourg
info@environnement.public.lu
http://www.emwelt.lu
https://mecdd.gouvernement.lu/fr.html

Administration de la gestion de l'eau
1, avenue du Rock'n'Roll
L-4361 Esch/Alzette
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Belgium

Gouvernement fédéral belge
Place Victor Horta, 40 bte 10
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Fax + 32 2 524 96 43

Walloon Region

Gouvernement Wallon
Cabinet du Ministre Président
Rue Mazy, 25-27
5100 Jambes (Namur)
Belgique

Flemish Region

Coördinatiecommissie Integraal Waterbeleid
Dokter De Moorstraat 24-26
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tél: +32 53 726 507

Germany

Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen
Emilie-Preyer-Platz 1
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http://www.mulnv.nrw.de
http://www.umwelt.nrw.de

Netherlands

Ministerie van Infrastructuur en Waterstaat
Postbus 20901
2500 EX Den Haag
Pays-Bas
http://www.rijksoverheid.nl/ministeries/ministerie-van-infrastructuur-en-waterstaat

For other competent authorities in the Netherlands, the report refers to the national part of the river basin management plan.

12. Contact points for reference documents

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Tél. 03 87 34 47 00 – Fax : 03 87 60 49 85
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www.eau-rhin-meuse.fr

Direction régionale de l'environnement,
de l'aménagement et du logement Grand Est
GreenPark – 2 rue Augustin Fresnel
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57071 Metz cedex 03
Tél. 03 87 62 81 00 – Fax : 03 87 62 81 99
www.grand-est.developpement-durable.gouv.fr

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Walloon Region

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Agriculture Ressources naturelles Environnement
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http://eau.wallonie.be

Flemish Region

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tél: +32 53 726 507

Germany

Ministerium für Klimaschutz, Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen
Emilie-Preyer-Platz 1
40479 Düsseldorf
Allemagne
http://www.flussgebiete.nrw.de

Netherlands

Ministerie van Infrastructuur en Waterstaat
Postbus 20901
2500 EX Den Haag
Pays-Bas
http://www.kaderrichtlijnwater.nl
http://www.waterkwaliteitsportaal.nl

13. List of annexes

Annex 1: Meuse IRBD - Competent Authorities

Annex 2: Meuse IRBD - General Hydrography

Annex 3: Meuse IRBD - Groundwater bodies - Geology

Annex 4: Meuse IRBD - Groundwater bodies - Transboundary aquifers

Annex 5: Meuse IRBD - Surface water bodies with a catchment area > 10 km²: Ecological status/potential (most recent)

Annex 6: Meuse IRBD - Surface water bodies with a catchment area > 10 km²: Chemical status (most recent)

Annex 7: Meuse IRBD - Surface water bodies with a catchment area > 10 km²: Chemical status (most recent), ubiquitous PBT substances excluded

Annex 8: Meuse IRBD - Boundary surface water bodies: Ecological status/potential (most recent)

Annex 9: Meuse IRBD - Boundary surface water bodies: Chemical status (most recent)

Annex 10: Meuse IRBD - Boundary surface water bodies: Chemical status (most recent) excluding ubiquitous PBT substances

Annex 11: Meuse IRBD - Groundwater bodies: Chemical status (most recent)

Annex 12: Meuse IRBD - Groundwater bodies: Quantitative status (most recent)

Annex 13: Meuse IRBD - Groundwater bodies belonging to transboundary aquifers: current status (most recent)

Annex 14: Meuse IRBD - The homogeneous measurement network (HMR)

Annex 15: Meuse IRBD - Surface water bodies: Current status and 2027 objectives

Annex 16: IRBD Meuse - Groundwater bodies: Status 2007, status 2015, current status and objectives 2027

Annex 17: Meuse IRBD - Reasons for derogations from environmental objectives: summary

Annex 18: Meuse IRBD - Summary of the programmes of measures, 3rd cycle of the WFD

Annex 19: Meuse IRBD - Objectives and measures to improve the free movement of fish

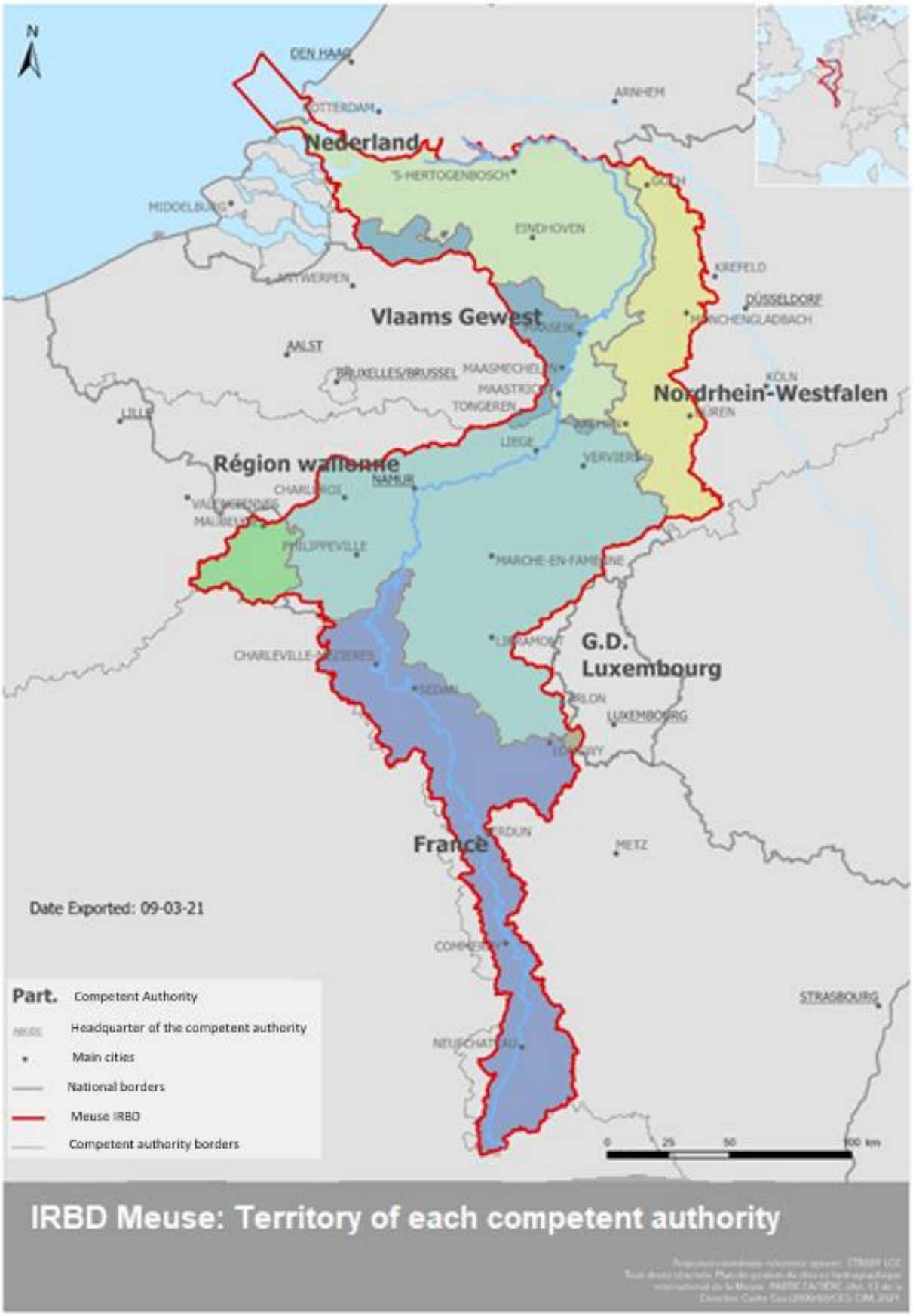
Annex 20: Meuse IRBD - Potential eel biotopes

Annex 21: Meuse IRBD - Pathways for salmon

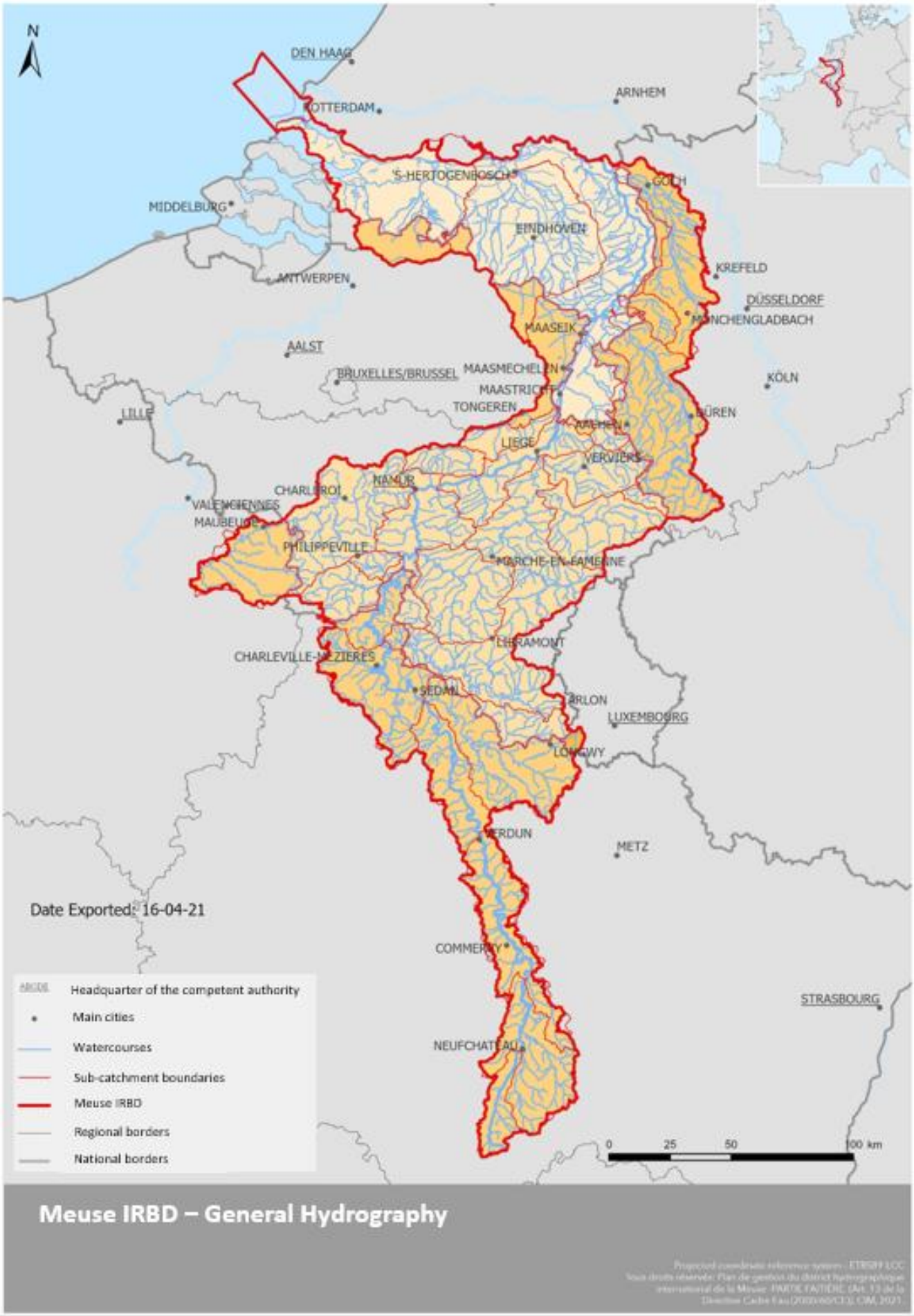
Annex 22: Meuse IRBD - Important substances in relation to drinking water production

Annex 23: Meuse IRBD - Meuse Warning and Alert System - Main Alert Centres

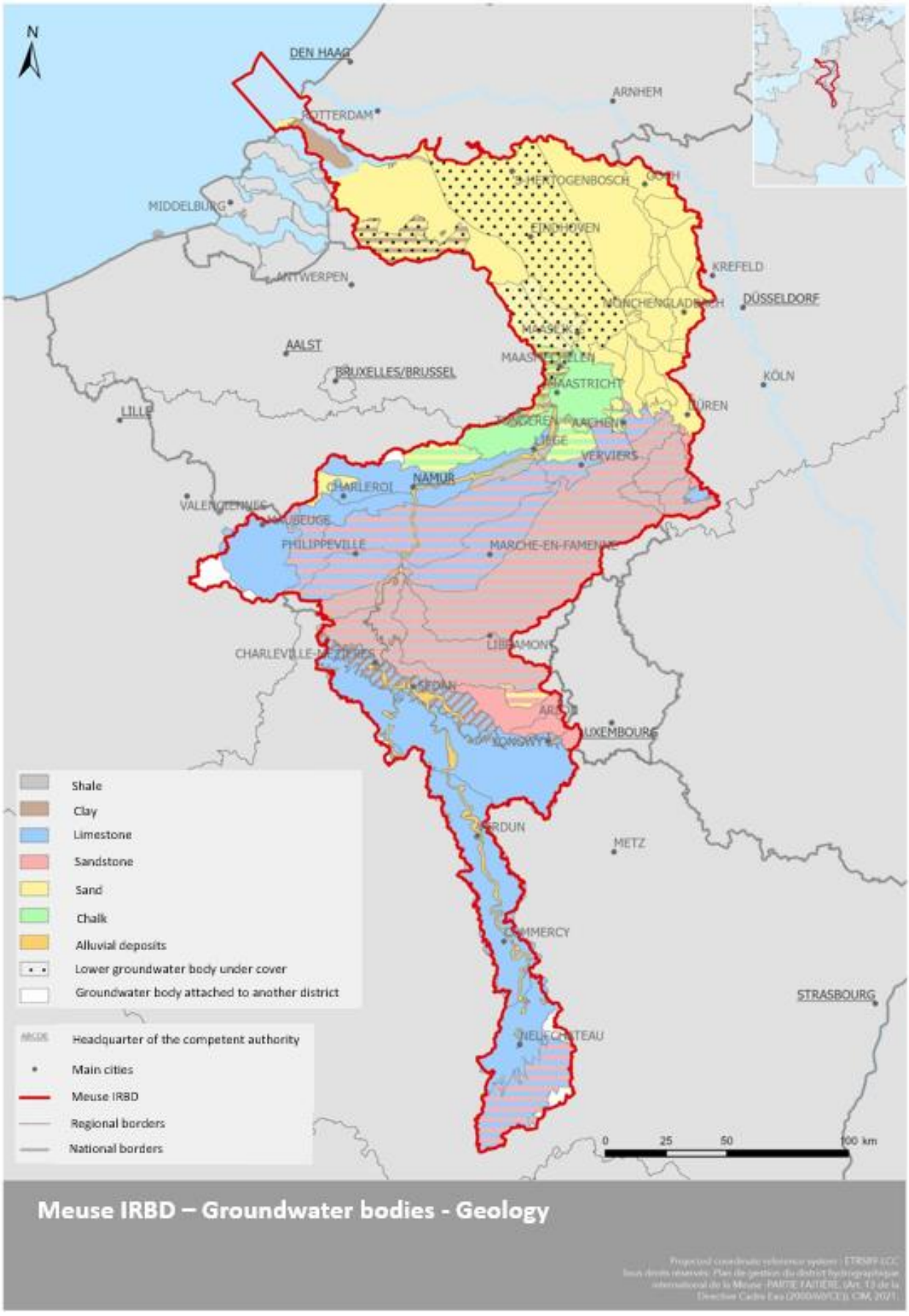
Annex 1: Meuse IRBD - Competent Authorities



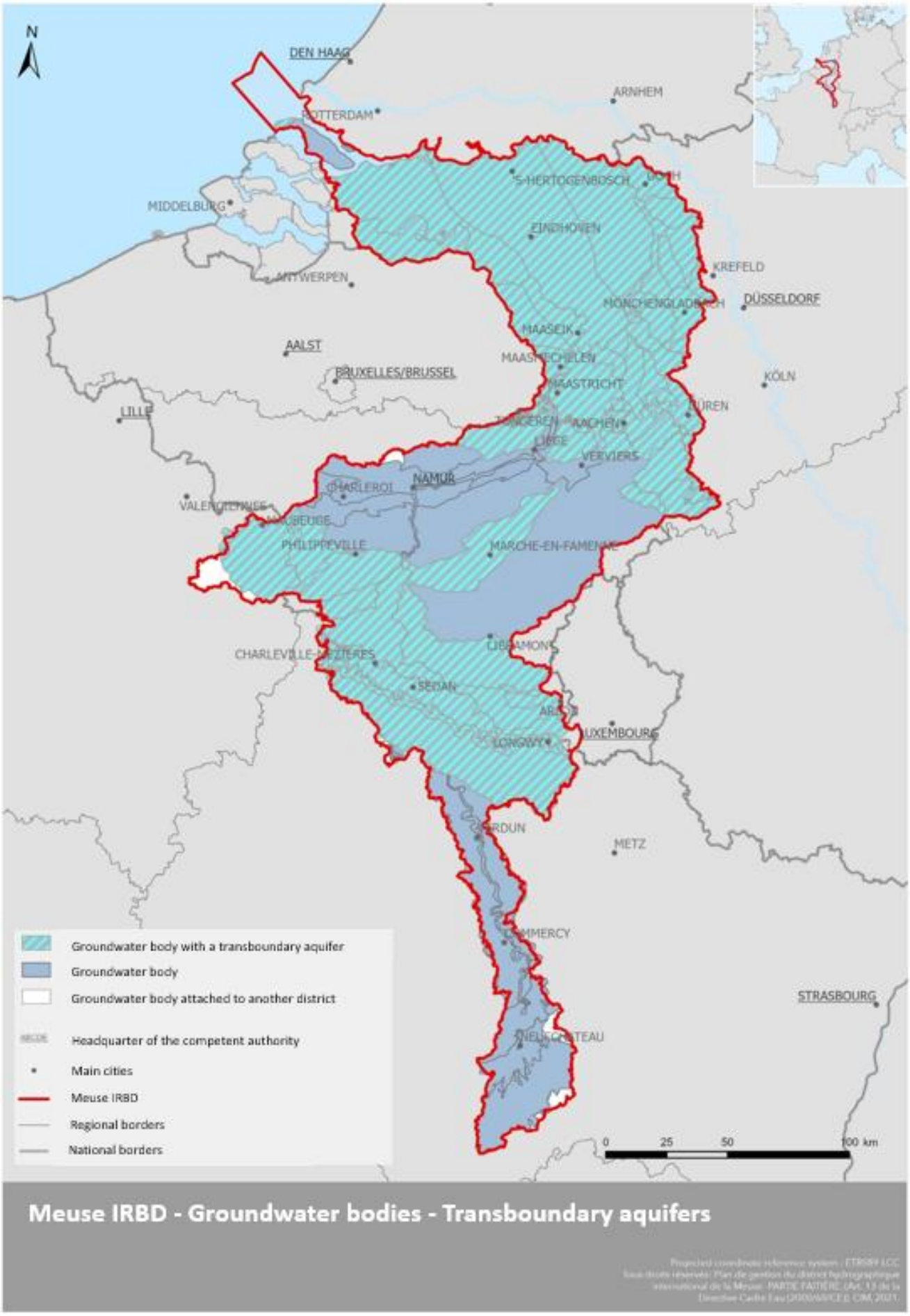
Annex 2: Meuse IRBD - General Hydrography



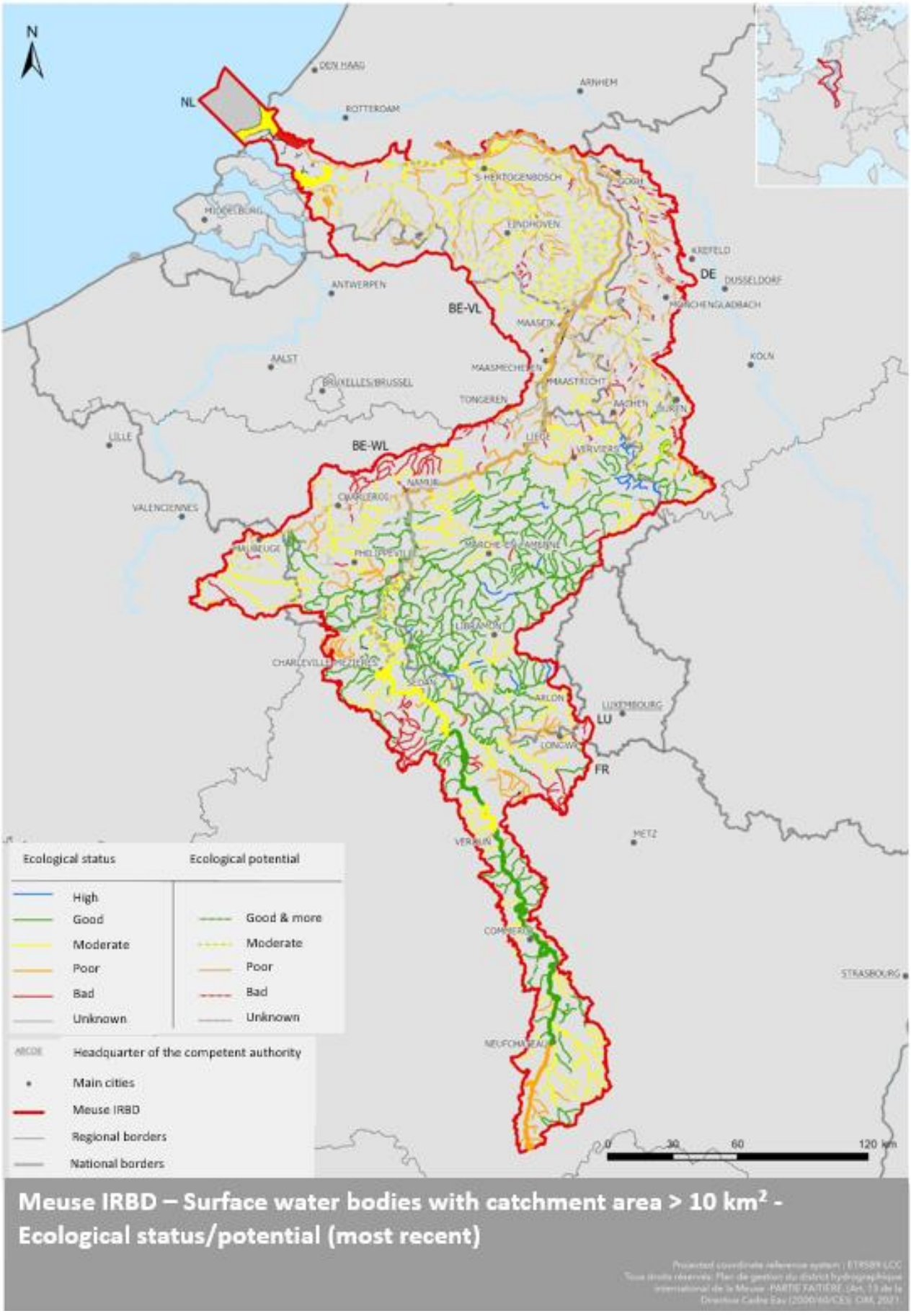
Annex 3: Meuse IRBD - Groundwater bodies - Geology



Annex 4: Meuse IRBD - Groundwater bodies - Transboundary aquifers

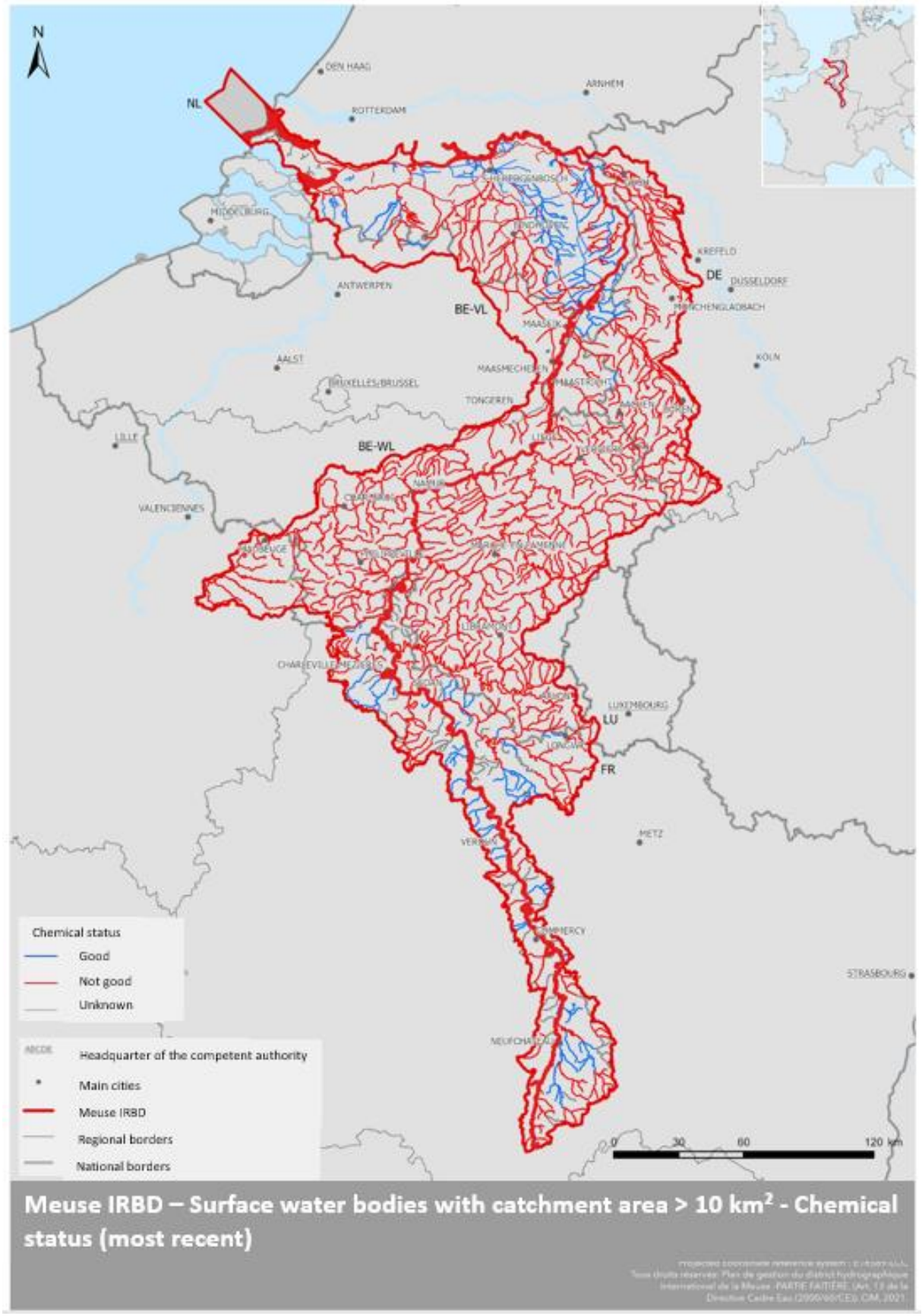


Annex 5: Meuse IRBD - Surface water bodies with a catchment area > 10 km²: Ecological status/potential (most recent)

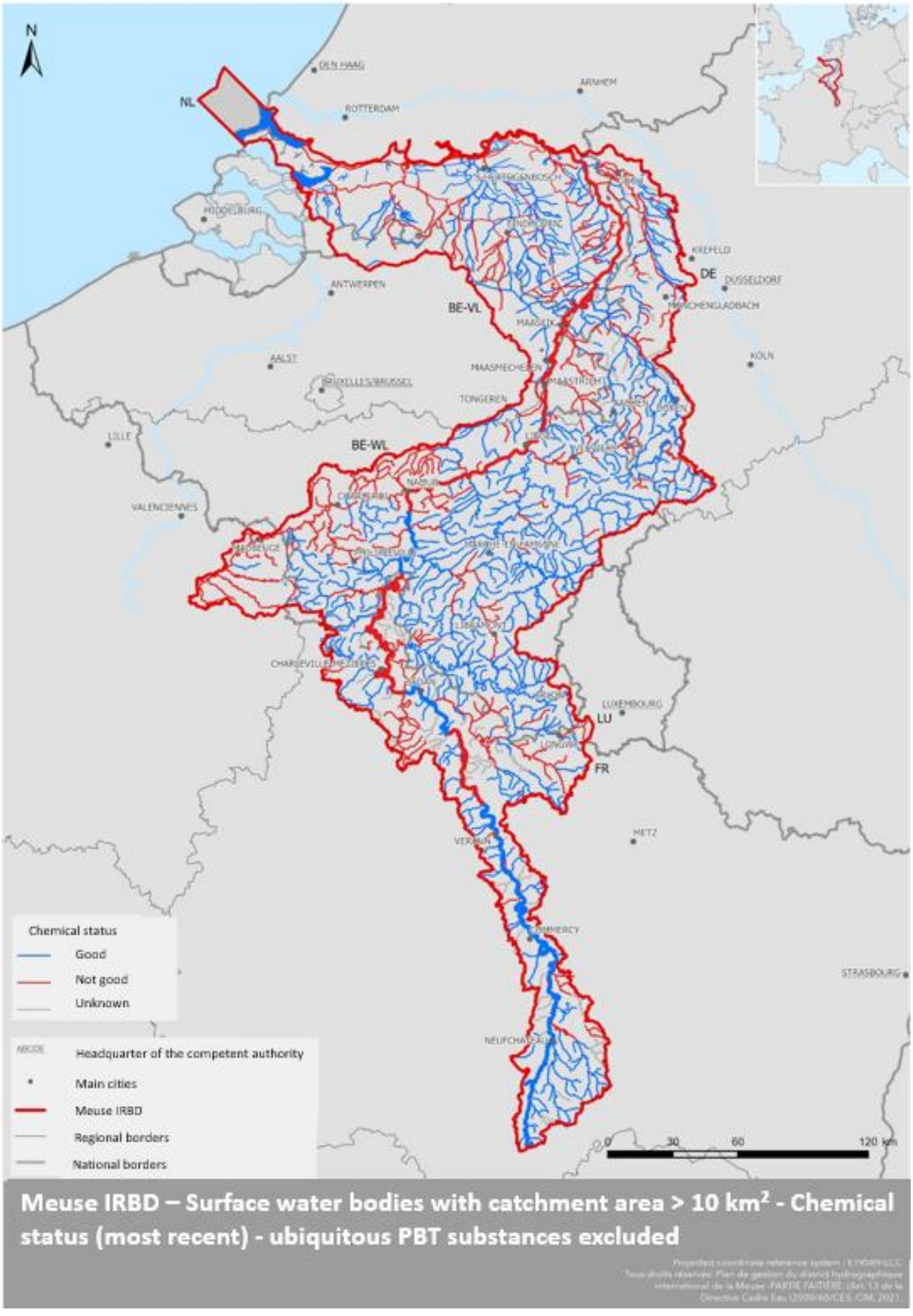


Meuse IRBD – Surface water bodies with catchment area > 10 km² - Ecological status/potential (most recent)

Annex 6: Meuse IRBD - Surface water bodies with a catchment area > 10 km²: Chemical status (most recent)



Annex 7: Meuse IRBD - Surface water bodies with a catchment area > 10 km²: Chemical status (most recent), ubiquitous PBT substances excluded



Meuse IRBD – Surface water bodies with catchment area > 10 km² - Chemical status (most recent) - ubiquitous PBT substances excluded

Annex 8: Meuse IRBD - Boundary surface water bodies: Ecological status/potential (most recent)

LU		FR
Chiers (XX_VII-1.1)		Chiers (B1R541)
Réierbaach (XX_VII-1.3)		**
LU		**WL**
Chiers (XX_VII-1.1)		Chiers (SC38R)
FR		**WL**
Viroin 1 (B1R599)		Eau Noire (MM03R)
Viroin 2 (B1R600)		Viroin (MM09R)
Alyse (B1R595)		Ruisseau d'Alisse (MM11R)
Deluve (B1R601)		Ruisseau de Luve (MM12R)
Hulle (B1R605)		Houille I (MM13R)
Goutelle (B1R584)		Ruisseau de la Goutelle (MM14R)
Ruisseau de Scheloupe (B1R606)		Ruisseau de Scheloupe (MM15R)
Houille (B1R604)		Houille II (MM16R)
Ruisseau de Prailes (B1R603)		Ruisseau de la Jonquière (MM17R)
Ruisseau de Massembre (B1R607)		Ruisseau de Massembre (MM37R)
Meuse 8 (B1R477)		Meuse I (MM38R)
Helpe Majeure (B2R24)		Eau d'Eppe (SA01R)
Thure (B2R39)		Thure (SA02R)
Hante (B2R60)		Hantes (SA03R)
Sambre (B2R46)		Sambre I (SA25R)
Basse Vire (B1R549)		Vire (SC05R)
Chiers 2 (B1R722)		Ton II (SC06R)
Marche (B1R562)		Marche (SC07R)
Ruisseau de l'Aulnoy (B1R564)		Ruisseau du Tremble (SC30R)
Semoy (B1R585)		Semois IV (SC37R)
Chiers 1 (B1R541)		Chiers (SC38R)
Thonne 1 (B1R554)		Thonne (SC39R)
Ruisseau de Saint Jean (B1R587)		Ruisseau de Saint Jean (SC40R)
WL		**VL**
Canal Albert (MV01C)		Albertkanaal (VL17_151)
Berwinne II (MV17R)		Berwijn (VL05_134)
Geer I (MV18R)		Jeker I (VL05_139)
Rigole d'Awans (MV19R)		**
Exhaure d'Ans (MV20R)		**
Ruisseau de Warsage (MV34R)		**
Geer II (MV22R)		Jeker II (VL05_140)
Gulp (MV24R) **		**
WL		**NL**
Meuse II (MV35R)		Bovenmaas (NL91BOM)
Gueule II (MV26R)		Geul (NL60_GEUL)
WL		**DE**
Iterbach (MV27R)		Iterbach (DE_NRW_28242_0)
Roer (MV28R)		Rur (DE_NRW_282_146820)
		Schwarzbach (DE_NRW_282142_0)
Schwalmbach (MV29R)		Perlenbach (DE_NRW_28214_3900)
Olefbach (MV30R)		Olefbach (DE_NRW_28228_18800)
Inde (MV32R)		Inde (DE_NRW_2824_4550)
Vesdre I (VE01R)		Weserbach (DE_NRW_282816_2470)
		Weserbach / Weserbachstollen

VL			NL
Dommel (VL05_136)			Boven Dommel (NL27_BO_1_2)
Itterbeek I (VL05_137)			Itterbeek en Thornerbeek (NL60_ITTETHOR)
Itterbeek II (VL05_138)			Itterbeek en Thornerbeek (NL60_ITTETHOR)
Jeker II (VL05_140)			Jeker (NL60_JEKER)
Lossing (VL05_141)			Haelense beek en Uffelsebeek (NL60-HAELUFFE)
Maas I+II+III (VL11_203)			Grensmaas (NL91GM)
Mark (VL11_145)			Boven Mark (NL25_13)
Merkske (VL05_146)			Merkske (NL25_62)
Warmbeek (VL17_147)			Tongelreep (NL27_T_1_2)
Weerijsebeek (VL05_148)			Aa of Weerijs (NL25_34)
Zuid-Willemsvaart + Kanaal Bocholt-Herentals(deels) + Kanaal Briegden-Neerharen (VL17_183)			Midden Limburgse en Noord Brabantse kanalen (NL90_1)
DE			**NL**
Nierskanal (DE_NRW_2854_3470)			Geldernsch Nierskanaal (NL57_GELD)
Niers (DE_NRW_286_7972)			Niers (NL57_NIER)
Rodebach (DE_NRW_281822_3995)			Rode Beek (NL60_RODEBRUN)
Amstelbach (DE_NRW_28286_5744)			Anselderbeek (NL60_ANSELDBK)
Schwalm (DE_NRW_284_11934)			Swalm (NL60_SWALM)
Rur (DE_NRW_282_21841)			Roer (NL60_ROER4)
Rothenbach (DE_NRW_28298_428)			Rode beek Vlodrop (NL60_RODEVLOD)
Senserbach (DE_NRW_28142_6254)			Selzerbeek (NL60_SELZERBK)
Buschbach (NRW_282992_4170)			Bosbeek (NL60_BOSBEEK)

Legend :

Natural water bodies: ecological status	High	Good	Moderate	Poor	Bad
Heavily modified or artificial water bodies: ecological potential		Good	Moderate	Poor	Bad
Unknown ecological status	O				
No water body identified					

Annex 9: Meuse IRBD – Boundary surface water bodies: Chemical status (most recent)

LU			FR
Chiers (XX_VII-1.1)			Chiers (B1R541)
Réierbaach (XX_VII-1.3)			**
LU			**WL**
Chiers (XX_VII-1.1)			Chiers (SC38R)
FR			**WL**
Viroin 1 (B1R599)			Eau Noire (MM03R)
Viroin 2 (B1R600)			Viroin (MM09R)
Alyse (B1R595)			Ruisseau d'Alisse (MM11R)
Deluve (B1R601)			Ruisseau de Luve (MM12R)
Hulle (B1R605)	O		Houille I (MM13R)
Goutelle (B1R584)			Ruisseau de la Goutelle (MM14R)
Ruisseau de Scheloupe (B1R606)			Ruisseau de Scheloupe (MM15R)
Houille (B1R604)			Houille II (MM16R)
Ruisseau de Prailes (B1R603)			Ruisseau de la Jonquière (MM17R)
Ruisseau de Massembre (B1R607)			Ruisseau de Massembre (MM37R)
Meuse 8 (B1R477)			Meuse I (MM38R)
Helpe Majeure (B2R24)			Eau d'Eppe (SA01R)
Thure (B2R39)			Thure (SA02R)
Hante (B2R60)			Hantes (SA03R)
Sambre (B2R46)			Sambre I (SA25R)
Basse Vire (B1R549)			Vire (SC05R)
Chiers 2 (B1R722)			Ton II (SC06R)
Marche (B1R562)			Marche (SC07R)
Ruisseau de l'Aulnoy (B1R564)			Ruisseau du Tremble (SC30R)
Semoy (B1R585)			Semois IV (SC37R)
Chiers 1 (B1R541)			Chiers (SC38R)
Thonne 1 (B1R554)			Thonne (SC39R)
Ruisseau de Saint Jean (B1R587)	O		Ruisseau de Saint Jean (SC40R)
WL			**VL**
Canal Albert (MV01C)			Albertkanaal (VL17_151)
Berwinne II (MV17R)			Berwijn (VL05_134)
Geer I (MV18R)			Jeker I (VL05_139)
Rigole d'Awans (MV19R)			**
Exhaure d'Ans (MV20R)			**
Ruisseau de Warsage (MV34R)			**
Geer II (MV22R)			Jeker II (VL05_140)
Gulp (MV24R) **			**
WL			**NL**
Meuse II (MV35R)			Bovenmaas (NL91BOM)
Gueule II (MV26R)			Geul (NL60_GEUL)
WL			**DE**
Iterbach (MV27R)			Iterbach (DE_NRW_28242_0)
Roer (MV28R)			Rur (DE_NRW_282_146820)
			Schwarzbach (DE_NRW_282142_0)
Schwalmbach (MV29R)			Perlenbach (DE_NRW_28214_3900)
Olefbach (MV30R)			Olefbach (DE_NRW_28228_18800)
Inde (MV32R)			Inde (DE_NRW_2824_4550)
Vesdre I (VE01R)			Weserbach (DE_NRW_282816_2470)
			Weserbach / Weserbachstollen (DE_NRW_2824412_1103)

VL			NL
Dommel (VL05_136)			Boven Dommel (NL27_BO_1_2)
Itterbeek I (VL05_137)			Itterbeek en Thornerbeek (NL60_ITTETHOR)
Itterbeek II (VL05_138)			Itterbeek en Thornerbeek (NL60_ITTETHOR)
Jeker II (VL05_140)			Jeker (NL60_JEKER)
Lossing (VL05_141)			Haelense beek en Uffelsebeek (NL60-HAELUFFE)
Maas I+II+III (VL11_203)			Grensmaas (NL91GM)
Mark (VL11_145)			Boven Mark (NL25_13)
Merkske (VL05_146)			Merkske (NL25_62)
Warmbeek (VL17_147)			Tongelreep (NL27_T_1_2)
Weerijsebeek (VL05_148)			Aa of Weerijs (NL25_34)
Zuid-Willemsvaart + Kanaal Bocholt-Herentals(deels) + Kanaal Briegden-Neerharen (VL17_183)			Midden Limburgse en Noord Brabantse kanalen (NL90_1)
DE			**NL**
Nierskanal (DE_NRW_2854_3470)			Geldernsch Nierskanaal (NL57_GELD)
Niers (DE_NRW_286_7972)			Niers (NL57_NIER)
Rodebach (DE_NRW_281822_3995)			Rode Beek (NL60_RODEBRUN)
Amstelbach (DE_NRW_28286_5744)			Anselderbeek (NL60_ANSELDBK)
Schwalm (DE_NRW_284_11934)			Swalm (NL60_SWALM)
Rur (DE_NRW_282_21841)			Roer (NL60_ROER4)
Rothenbach (DE_NRW_28298_428)			Rode beek Vlodrop (NL60_RODEVLOD)
Senserbach (DE_NRW_28142_6254)			Selzerbeek (NL60_SELZERBK)
Buschbach (NRW_282992_4170)			Bosbeek (NL60_BOSBEEK)

Legend :

Boundary surface water bodies: chemical status	**Good**	**Not good**
No water body identified		
Unknown chemical status		o

Annex 10: Meuse IRBD – Boundary surface water bodies: Chemical status (most recent) ubiquitous PBT substances excluded

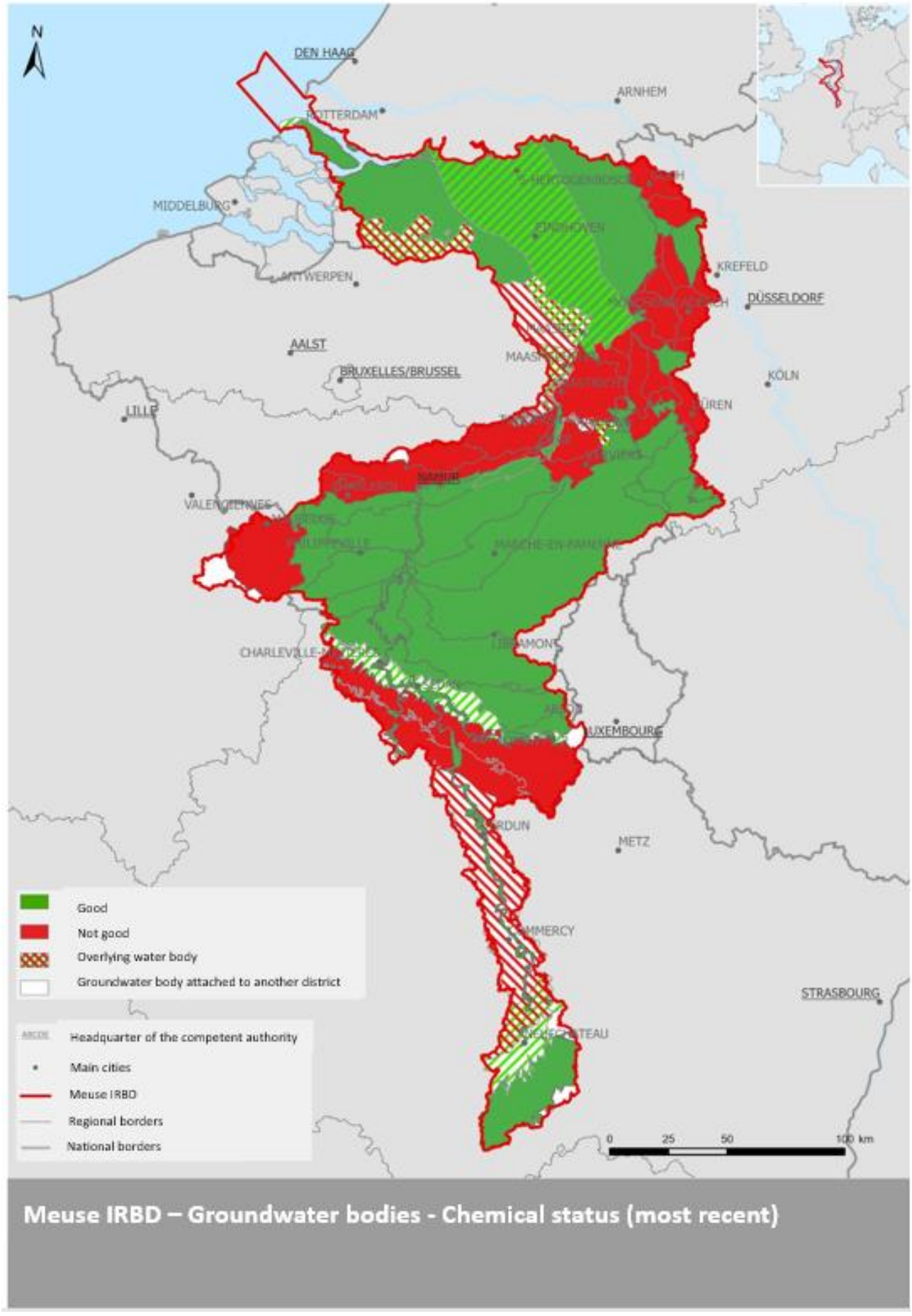
LU			FR
Chiers (XX_VII-1.1)			Chiers (B1R541)
Réierbaach (XX_VII-1.3)			**
LU			**WL**
Chiers (XX_VII-1.1)			Chiers (SC38R)
FR			**WL**
Viroin 1 (B1R599)			Eau Noire (MM03R)
Viroin 2 (B1R600)			Viroin (MM09R)
Alyse (B1R595)			Ruisseau d'Alisse (MM11R)
Deluve (B1R601)			Ruisseau de Luve (MM12R)
Hulle (B1R605)	O		Houille I (MM13R)
Goutelle (B1R584)			Ruisseau de la Goutelle (MM14R)
Ruisseau de Scheloupe (B1R606)			Ruisseau de Scheloupe (MM15R)
Houille (B1R604)			Houille II (MM16R)
Ruisseau de Prailes (B1R603)			Ruisseau de la Jonquière (MM17R)
Ruisseau de Massembre (B1R607)			Ruisseau de Massembre (MM37R)
Meuse 8 (B1R477)			Meuse I (MM38R)
Helpe Majeure (B2R24)			Eau d'Eppe (SA01R)
Thure (B2R39)			Thure (SA02R)
Hante (B2R60)			Hantes (SA03R)
Sambre (B2R46)			Sambre I (SA25R)
Basse Vire (B1R549)			Vire (SC05R)
Chiers 2 (B1R722)			Ton II (SC06R)
Marche (B1R562)			Marche (SC07R)
Ruisseau de l'Aulnoy (B1R564)			Ruisseau du Tremble (SC30R)
Semoy (B1R585)			Semois IV (SC37R)
Chiers 1 (B1R541)			Chiers (SC38R)
Thonne 1 (B1R554)			Thonne (SC39R)
Ruisseau de Saint Jean (B1R587)	O		Ruisseau de Saint Jean (SC40R)
WL			**VL**
Canal Albert (MV01C)			Albertkanaal (VL17_151)
Berwinne II (MV17R)			Berwijn (VL05_134)
Geer I (MV18R)			Jeker I (VL05_139)
Rigole d'Awans (MV19R)			**
Exhaure d'Ans (MV20R)			**
Ruisseau de Warsage (MV34R)			**
Geer II (MV22R)			Jeker II (VL05_140)
Gulp (MV24R) **			**
WL			**NL**
Meuse II (MV35R)			Bovenmaas (NL91BOM)
Gueule II (MV26R)			Geul (NL60_GEUL)
WL			**DE**
Iterbach (MV27R)			Iterbach (DE_NRW_28242_0)
Roer (MV28R)			Rur (DE_NRW_282_146820)
			Schwarzbach (DE_NRW_282142_0)
Schwalmbach (MV29R)			Perlenbach (DE_NRW_28214_3900)
Olefbach (MV30R)			Olefbach (DE_NRW_28228_18800)
Inde (MV32R)			Inde (DE_NRW_2824_4550)
Vesdre I (VE01R)			Weserbach (DE_NRW_282816_2470)
			Weserbach / Weserbachstollen (DE_NRW_2824412_1103)

VL			NL
Dommel (VL05_136)			Boven Dommel (NL27_BO_1_2)
Itterbeek I (VL05_137)			Itterbeek en Thornerbeek (NL60_ITTETHOR)
Itterbeek II (VL05_138)			Itterbeek en Thornerbeek (NL60_ITTETHOR)
Jeker II (VL05_140)			Jeker (NL60_JEKER)
Lossing (VL05_141)			Haelense beek en Uffelsebeek (NL60-HAELUFFE)
Maas I+II+III (VL11_203)			Grensmaas (NL91GM)
Mark (VL11_145)			Boven Mark (NL25_13)
Merkske (VL05_146)			Merkske (NL25_62)
Warmbeek (VL17_147)			Tongelreep (NL27_T_1_2)
Weerijsebeek (VL05_148)			Aa of Weerijs (NL25_34)
Zuid-Willemsvaart + Kanaal Bocholt-Herentals(deels) + Kanaal Briegden-Neerharen (VL17_183)			Midden Limburgse en Noord Brabantse kanalen (NL90_1)
DE			**NL**
Nierskanal (DE_NRW_2854_3470)			Geldernsch Nierskanaal (NL57_GELD)
Niers (DE_NRW_286_7972)			Niers (NL57_NIER)
Rodebach (DE_NRW_281822_3995)			Rode Beek (NL60_RODEBRUN)
Amstelbach (DE_NRW_28286_5744)			Anselderbeek (NL60_ANSELDBK)
Schwalm (DE_NRW_284_11934)			Swalm (NL60_SWALM)
Rur (DE_NRW_282_21841)			Roer (NL60_ROER4)
Rothenbach (DE_NRW_28298_428)			Rode beek Vlodrop (NL60_RODEVLOD)
Senserbach (DE_NRW_28142_6254)			Selzerbeek (NL60_SELZERBK)
Buschbach (NRW_282992_4170)			Bosbeek (NL60_BOSBEEK)

Legend :

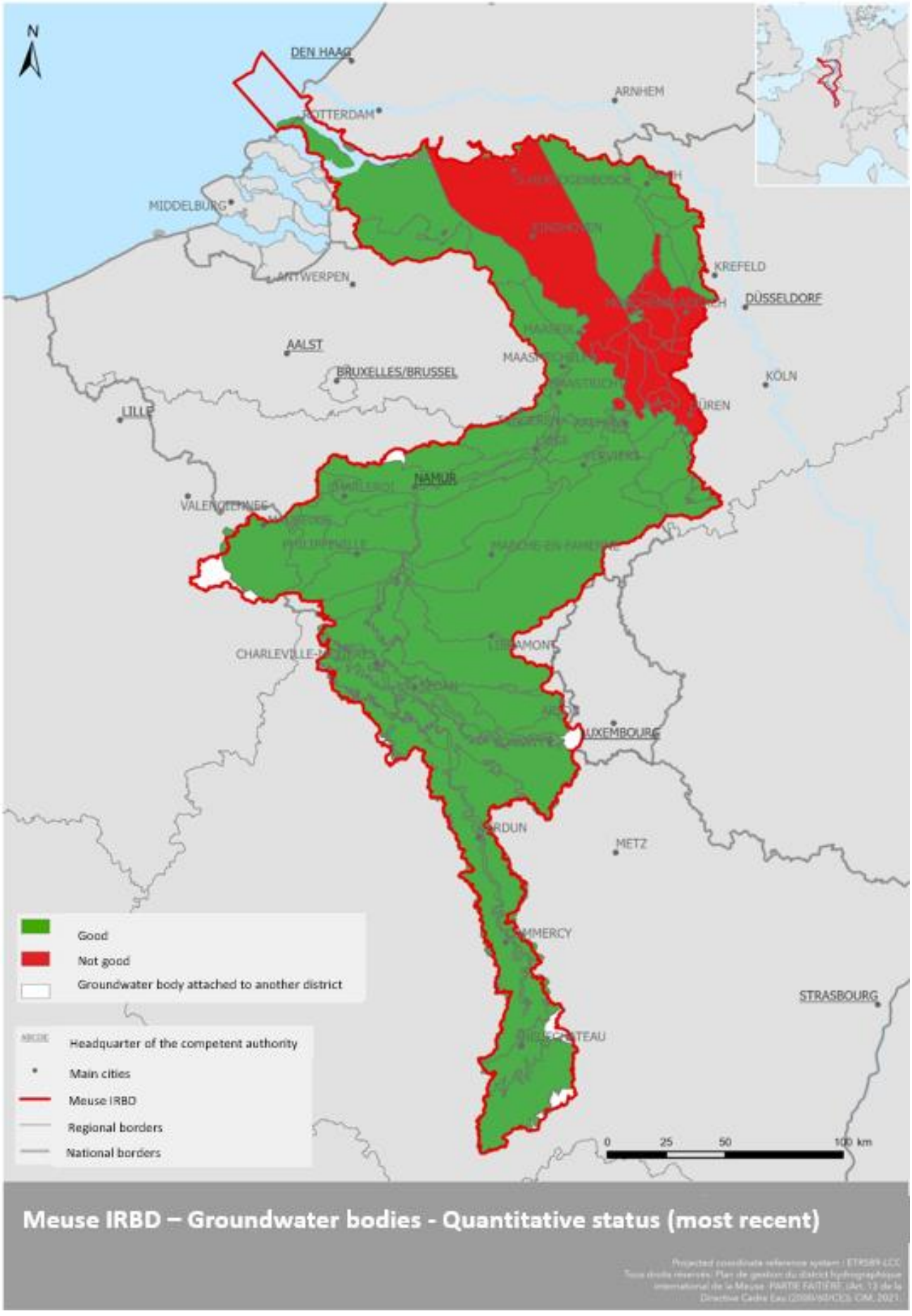
Boundary surface water bodies: chemical status ubiquitous PBT substances excluded	**Good**	**Not good**
No water body identified		
Unknown chemical status		o

Annex 11: Meuse IRBD – Groundwater bodies: chemical status (most recent)



Meuse IRBD – Groundwater bodies - Chemical status (most recent)

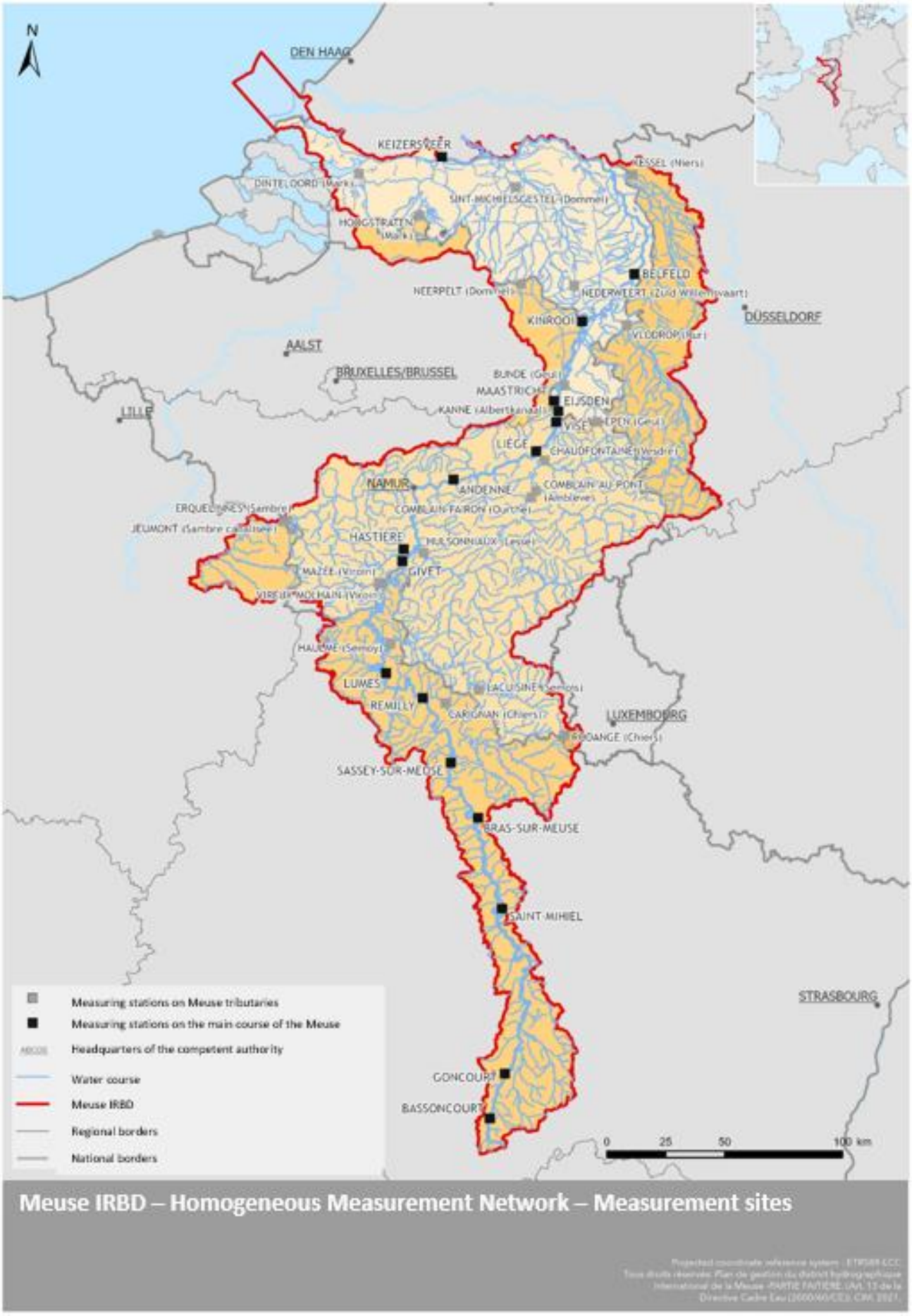
Annex 12: Meuse IRBD – Groundwater bodies: Quantitative status (most recent)



Annex 13: Meuse IRBD – Groundwater bodies belonging to transboundary aquifers: Current status (most recent)

DE				NL				VL				WL				FR			
Waterbody code	Chemical status	Quantitative status	Concerned Parties	Waterbody code	Chemical status	Quantitative status	Concerned Parties	Waterbody code	Chemical status	Quantitative status	Concerned Parties	Waterbody code	Chemical status	Quantitative status	Concerned Parties	Waterbody code	Chemical status	Quantitative status	Concerned Parties
282_13			DE,WL									RWM 102			DE,WL				
282_16			DE,WL																
282_11			DE,WL									RWM 141			DE,WL				
28_6			DE,WL																
28_02			DE, NL	NLGW 0006			DE, NL												
28_03			DE, NL																
282_01			DE, NL																
282_02			DE, NL																
282_04			DE, NL																
282_05			DE, NL																
282_06			DE, NL																
282_07			DE, NL																
282_08			DE, NL																
284_01			DE, NL																
286_01			DE, NL																
286_02			DE, NL																
286_03			DE, NL																
286_04			DE, NL																
286_05			DE, NL																
286_06			DE, NL																
286_07			DE, NL																
286_08			DE, NL																
							NL, VL	CKS_0220_GWL_1			NL, VL								
								CKS_0200_GWL_2			NL, VL								
								MS_0100_GWL_1 MS_0200_GWL_1			NL, VL								
							NL,VL	MS_0200_GWL_2											
								BLKS_0400_GWL_1m			NL, VL								
								BLKS_0400_GWL_2m			NL, VL								
								BLKS_1100_GWL_2m			NL, VL								
282_03			DE, NL				DE, NL												
28_04			DE, NL																
282_09			DE, NL, WL	NLGW 0019			DE, NL, WL					RWM 151			DE, NL, WL				
282_10			?																
28_05			DE, NL, WL																
							NL,VL, WL	BLKS_1100_GWL_1m			NL, VL, WL				NL, VL, WL				
												RWM 040			NL, VL, WL				
								BLKS_0160_GWL_1m			NL, VL, WL	RWM 072			NL, VL, WL				
				NLGW 0018			NL, VL	MS_0200_GWL_2			NL, VL								
												RWM 023			WL, FR	FRB1G119			WL, FR
												RWM 103			WL, FR				
												RWM 092			WL, FR	FRB1G112			WL, FR
												RWM 093			WL, FR				WL, FR
												RWM 094			WL, FR	FRB1G109			WL, FR
												RWM 071			WL, FR	FRB1G115			WL, FR
												RWM 022			WL, FR	FRB2G316			WL, FR

Annex 14: Meuse IRBD – Homogeneous measurement network (HMN)



Annex 15: Meuse IRBD – Surface water bodies: Current status and objectives for 2027

Number of water bodies currently respecting the good status criteria and projection for 2027.

				FR	WL	LU	VL	NL	DE	Meuse IRBD
				Water bodies	Water bodies	Water bodies	Water bodies	Water bodies	Water bodies	Water bodies
Number of water bodies			Number	153	257	3	18	153	229	813
Number of water bodies in good status: Current situation			Number							
	Chemical status	Priority substances **including** ubiquitous Persistent, Bioaccumulative and Toxic substances	Number	40	0	0	0	81	0	121 (14,9 %)
		Priority substances **excluding** les ubiquitous Persistent, Bioaccumulative and Toxic substances	Number	67	196	1	14	106	138	522 (64,2 %)
	Ecological status / potential		Number	76	137	0	1	0	30	244 (30,0 %)
		Biological parameters	Number	87	152	0	1	9	40	289 (35,5 %)
		Chemical and physico-chemical parameters supporting biological parameters – general parameters	Number	109	170	1	3	53	51	387 (47,6 %)
		Chemical and physico-chemical parameters supporting biological components – Specific pollutants	Number	81	245	1	4	3	93	427 (52,5 %)
Number of water bodies in good status: Projection 2027			Number							
	Chemical status	Priority substances **including** ubiquitous Persistent, Bioaccumulative and Toxic substances	Number	67	/[20]	0	0	49	0	(%)
		Priority substances **excluding** les ubiquitous Persistent, Bioaccumulative and Toxic substances	Number	124	/[20]	1	15	114	139	(%)
	Ecological status / potential		Number	83	/[20]	0	3	3	77	(%)

[20] *Data for the Walloon part of the Meuse IRBD are not available at the time of editing this document.*

Annex 16: Meuse IRBD – Groundwater bodies: Status 2007, status 2015, current status and objectives 2027

					Status 2007		Status 2015		Current status		Objectives 2027	
Nr.	Country or Region	Code of the groundwater body	Name	Boundary aquifer (Y/N)	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative
1	VL	BLKS_0160_GWL_1m	Quartaire Maas- en Rijnafzettingen	*O*								
2	VL	BLKS_0400_GWL_1m	Oligoceen aquifersysteem (freatisch)	*O*							Good in 2027 or later depending on natural recovery	
3	VL	BLKS_0400_GWL_2m	Oligoceen aquifersysteem (gespannen)	*O*								
4	VL	BLKS_1100_GWL_1m	Krijt aquifsysteem (freatisch)	*O*							Good in 2027 or later depending on natural recovery	
5	VL	BLKS_1100_GWL_2m	Krijt aquifsysteem (gespannen)	*O*								
6	VL	CKS_0200_GWL_2	Noordelijk zanden van de Kempen	*O*								
7	VL	CKS_0220_GWL_1	Complex van de Kempen	*O*							Good in 2027 or later depending on natural recovery	
8	VL	MS_0100_GWL_1	Quartaire Aquifersystemen	*O*							Good in 2027 or later depending on natural recovery	
9	VL	MS_0200_GWL_1	Kempens Aquifersysteem	*O*							Good in 2027 or later depending on natural recovery	
10	VL	MS_0200_GWL_2	Kempens Aquifersysteem in de centrale slenk	*O*								
11	FR	FRB1G107	Domaine du Lias et du Keuper du plateau lorrain versant Meuse	*N*								
12	FR	FRB1G109	Calcaires du Dogger versant Meuse nord	*O*								
13	FR	FRB1G111	Calcaires du Dogger versant Meuse sud	*N*								

					Status 2007		Status 2015		Current status		Objectives 2027	
Nr.	Country or Region	Code of the groundwater body	Name	Boundary aquifer (Y/N)	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative
14	FR	FRB1G112	Grès d'Hettange et formations gréseuses et argileuses du Lias et du Keuper	*O*								
15	FR	FRB1G113	Calcaires des côtes de Meuse de l'Oxfordien et du Kimméridgien et argiles du Callovo-Oxfordien	*N*								
16	FR	FRB1G115	Alluvions de la Meuse et de ses affluents	*O*								
17	FR	FRB1G119	Socle du massif ardennais	*O*								
18	FR	FRB2G316	Artois Picardie, calcaires de l'Avesnois	*O*								
19	DE	28_02	Terrassenebene der Maas	*O*								
20	DE	28_03	Terrassenebene der Maas	*O*								
21	DE	28_04	Hauptterrassen des Rheinlandes	*O*								
22	DE	28_05	Südlimburgische Kreidetafel	*O*								
23	DE	28_06	Aachen-Stolberger Kohlenkalkzüge	*O*								
24	DE	28_07	Linksrheinisches Schiefergebirge	*O*								
25	DE	282_01	Hauptterrassen des Rheinlandes	*O*								
26	DE	282_02	Hauptterrassen des Rheinlandes	*O*								
27	DE	282_03	Hauptterrassen des Rheinlandes	*O*								
28	DE	282_04	Hauptterrassen des Rheinlandes	*O*								
29	DE	282_05	Hauptterrassen des Rheinlandes	*O*								
30	DE	282_06	Tagebau Inden	*O*								
31	DE	282_07	Hauptterrassen des Rheinlandes	*O*								
32	DE	282_08	Hauptterrassen des Rheinlandes	*O*								
33	DE	282_09	Südlimburgische Kreidetafel	*O*								
34	DE	282_10	Linksrheinisches Schiefergebirge	*O*								
35	DE	282_11	Aachen-Stolberger Kalkzüge	*O*								
36	DE	282_12	Linksrheinisches Schiefergebirge	*O*								
37	DE	282_13	Linksrheinisches Schiefergebirge	*O*								
38	DE	282_14	Mechernicher Trias-Senke	*N*								
39	DE	282_15	Sötenicher Mulde	*N*								
40	DE	282_16	Linksrheinisches Schiefergebirge	*O*								
41	DE	282_17	Blankenheimer Kalkmulde	*N*								

					Status 2007		Status 2015		Current status		Objectives 2027	
Nr.	Country or Region	Code of the groundwater body	Name	Boundary aquifer (Y/N)	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative
42	DE	284_01	Hauptterrassen des Rheinlandes	O								
43	DE	286_01	Terrassenebene des Rheins	O								
44	DE	286_02	Terrassenebene des Rheins	O								
45	DE	286_03	Terrassenebene des Rheins	O								
46	DE	286_04	Terrassenebene des Rheins	O								
47	DE	286_05	Terrassenebene des Rheins	O								
48	DE	286_06	Hauptterrassen des Rheinlandes	O								
49	DE	286_07	Hauptterrassen des Rheinlandes	O								
50	DE	286_08	Tagebau Garzweiler	O								
51	NL	NLGW0006	Zand Maas	O								
52	NL	NLGW0013	Zout Maas	N								
53	NL	NLGW0017	Duin Maas	N								
54	NL	NLGW0018	Maas Slenk diep	O								
55	NL	NLGW0019	Krijt Maas	O								
56	WL	RWM011	Calcaires du Bassin de la Meuse bord Nord	N								
57	WL	RWM012	Calcaires du Bassin de la Meuse bord Sud	N								
58	WL	RWM021	Calcaires et grès du Condroz	N								
59	WL	RWM022	Calcaires et grès dévoniens du bassin de la Sambre	O								
60	WL	RWM023	Calcaires et grès de la Calestienne et de la Famenne	O								
61	WL	RWM040	Crétacé du Bassin du Geer	O								
62	WL	RWM041	Sables et craies du bassin de la Méhaigne	N								
63	WL	RWM052	Sables Bruxelliens des bassins Haine et Sambre	N								
64	WL	RWM071	Alluvions et graviers de Meuse (Givet - Namur)	O								
65	WL	RWM072	Alluvions et graviers de Meuse (Namur - Lanaye)	O								
66	WL	RWM073	Alluvions et graviers de Meuse (Engis - Herstal)	N								
67	WL	RWM091	Trias supérieur (Conglomérats du Rhétien)	N								
68	WL	RWM092	Lias inférieur (Sinémurien) - district de la Meuse	O								
69	WL	RWM093	Lias supérieur (Domérien)	O								
70	WL	RWM094	Calcaires du Bajocien-Bathonien (Dogger)	O								

					Status 2007		Status 2015		Current status		Objectives 2027	
Nr.	Country or Region	Code of the groundwater body	Name	Boundary aquifer (Y/N)	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative	Chemical	Quantitative
71	WL	RWM100	Grès et schistes du massif ardennais : Lesse,Outhe,Amblève et Vesdre	*N*								
72	WL	RWM102	Grès et schistes du massif ardennais : bassin de la Roer	*O*								
73	WL	RWM103	Grès et schistes du massif ardennais : Semois, Chiers, Houille et Viroin	*O*								
74	WL	RWM141	Calcaires et grès du bassin de la Gueule	*O*								
75	WL	RWM142	Calcaires et grès du bassin de la Vesdre	*N*								
76	WL	RWM151	Crétacé du Pays de Herve	*O*								

Annex 17: Meuse IRBD – Reasons for derogations from environmental objectives: summary

Derogations can be applied either by extending the deadline for achieving good status beyond 2015 or by setting a less stringent target. The total number of water bodies concerned in rows a, b, c may be greater than the total number of water bodies subject to a deadline extension. This means that the extension of the deadline for the same water body has been invoked on several grounds.

Surface water: ecological status / ecological potential in 2027								
		FR	**WL[21]**	**DE**	**LU**	**VL**	**NL**	**Meuse IRBD total**
Number of water bodies in good ecological status / good ecological potential in 2027		**83**	**-**	**77**	**0**	**3**	**3**	
Total number of water bodies for which the deadline has been extended[22]		**70**	**-**	**149**	**3[23]**	**17[24]**	**158**	
a	for reasons of technical feasibility	47	-	77	3	9	152	
b	due to natural conditions	4	-	62	3	17	155	
c	due to disproportionate costs	23	-	141	3	15	134	
Number of water bodies subject to a less stringent objective		**/**	**-**	**3**	**0**	**0**	**0**	

Groundwaters: status in 2027								
		FR	**WL**	**DE**	**LU**	**VL**	**NL**	**Meuse IRBD total**
Number of waterbodies in good status in 2027[25]		**5**	**15**	**16**	**/**	**5 (+5[26])**	**3 (+2[26])**	**44 (+7[26])**
Total number of waterbodies with a deadline extension		**3**	**6**	**2**	**/**	**5[27]**	**0**	**16**
a	for reasons of technical feasibility[28]	3	**1**	2	/	0	0	6
b	due to natural conditions[29]	3	**6**	2	/	5	0	13
c	due to disproportionate costs[30]	0	**6**	2	/	5	0	13
Number of water bodies with a less stringent objective[31]		**/**	**0**	**14**	**/**	**0**	**0**	**14**

[21] Data for the Walloon part of the Meuse IRBD are not available at the time of editing this document.

[22] An extension of the deadline for the same water body can be justified by several reasons.

[23] Good ecological status/good ecological potential is only likely to be achieved by 2045.

[24] Postponement of the deadline from 2021 ("State of play" approach)

[25] Number of groundwater bodies with good chemical and quantitative status by 2027.

[26] Depending on the natural recovery rate.

[27] Postponement of the deadline from 2021 ("State of play" approach)

[28] Number of groundwater bodies for which the deadline has been extended due to technical infeasibility for either quantitative or chemical status

[29] Idem [4], but because of "natural conditions" and not "because of technical infeasibility"

[30] Idem [4], but "because of disproportionate costs" and not "because of technical infeasibility"

[31] Number of groundwater bodies subject to less stringent objectives in 2027 for either quantitative or chemical status.

Annex 18: Meuse IRBD – Summary of the programmes of measures, 3rd cycle of the WFD

National / regional measures of the programmes of measures in relation to issues of importance for water management at the IRBD level			
Important issues for water management	**Common measures**	**State / Region**	**National / regional measures in addition to common key actions[32]**
1 - Hydromorphological alterations **1.1 - Impact of hydromorphological modifications on the free movement of fish**	Improvement of the ecological continuity and fish passage of structures.	FR	*River restoration* *Renaturation of watercourses* *Improvement of the ecological continuity of watercourses* *Wetland land control* *Restoration of wetlands* *Ecological maintenance*
		WL	
		LU	*Restoration of ecological continuity* *Improvement of river structure (e.g. incorporation of structural elements in the riverbed),* *Removal/correction of riverbed obstructions, installation of flow natural dynamics)*
		DE	*Reduction of hydromorphological pressures,* *Ecological watercourse development measures (e.g. removal of bank constructions, reconnection of old branches and side waters (cross-linking), introduction of deadwood, etc.), where possible initiation of self-dynamic watercourse development* *Ecological watercourse maintenance* *Improvement of river continuity at transverse and crossing structures, barrages, falls, culverts, etc…* *Fish protection measures at hydraulic engineering structures* *Improvement of bedload / sediment management*
		VL	*Nature-friendly design and management of riverbanks, e.g. by stimulating the creation of river bank zones and by realising concrete ecological river bank development projects.* *Elimination of priority fish migration bottlenecks* *Plan of approach for the renovation of priority pumping stations* *Developing a vision for the reintroduction of macrophytes* *Restructuring, re-profiling, re-alignment and ecological development projects* *Hydrological restoration measures* *Combating invasive alien species, with an emphasis on knowledge exchange between water managers and joint combating strategies.*
		NL	*Widen the water system and lower the floodplains, creating more wetlands.* *Creating nature-friendly banks, re-profiling streams, constructing side channels, etc.* *Construct or restore ecological connections* *Making structures passable for fish.*

[32] *Data for the Walloon part of the Meuse IRBD are not available at the time of editing this document.*

2 - Surface water **2.1 - Nutrient discharges from point and non-point sources**	Improving the collection and treatment of domestic and industrial wastewater. Control of point and diffuse inputs linked to agriculture (integrated agriculture).	FR	*Overall studies and master plan for sanitation* *Improvement of stormwater management and treatment* *Stormwater infiltration* *Rainwater collection* *Creation / improvement of wastewater treatment plants* *Creation / rehabilitation of collection or transfer network* *Creation/rehabilitation of non-collective sanitation* *Reduction of pollution from industries and crafts* *Adapting the collection and treatment of industrial waste* *Clean technologies* *Revision of emission limit values* *Action to reduce or eliminate classic pollution* *Limit input transfers and erosion beyond the requirements of the Nitrates Directive* *Establish a plant cover of intermediate crops* *Establish grassed strips* *Grassing of areas under perennial crops*
		WL	
		LU	*Measures in the area of municipal wastewater treatment plants (e.g. construction and operation of wastewater treatment plants according to the state of the art, extension/adaptation of wastewater treatment plants to the state of the art)* *Measures in the field of stormwater management (e.g. construction or extension and commissioning of stormwater overflow basins, stormwater retention basins and stormwater overflows)* *Measures in the field of agriculture (e.g. general fertiliser restrictions, soil protection measures, riparian strips)*
		DE	*Improvement of rainwater disposal* *Optimisation of wastewater treatment plants, collection of wastewater tax* *Reduction of diffuse source pollution, establishment of riparian strips, reduction of erosion and runoff, advisory programme for farmers.*
		VL	*Reducing pollution with nutrients and pesticides from agricultural activities: 1) adaptation of new agricultural policy to water policy objectives by means of agricultural policy instruments (compulsory and voluntary measures, compensation, investment support); 2) continuation of area-based approach in fertiliser policy: new objectives for fertiliser policy to be aligned with water body-specific objectives of WFD (reduction objectives); 3) thematic actions on nutrients: inheritance juices, direct losses, source-based measures to reduce fertiliser production, soil quality; 4) thematic actions pesticides: point source discharges, area-specific use bans in protected zones* *Further development and optimisation of the sanitation infrastructure: 1) phased implementation of the water treatment plans geared to WFD objectives specific to the water body (reduction objectives), taking into account area-specific prioritisation; 2) actions on asset management, code of good practice and development of a toolbox for investments in sanitation infrastructure* *Continue the fight against erosion through an awareness-raising action plan, increase the application rate of the instruments and measures of the erosion decree, use of instruments of the Land Use Decree, eco-regulations and agro-environmental measures, productive and non-productive investments*
		NL	*Through improvements in the wastewater treatment plants, disconnection of paved surfaces and tackling sewage overflows, emissions of nutrients from the wastewater chain are reduced.* *In the Delta approach to agricultural water management (DAW), various measures are being implemented by participating farmers that reduce the emission of nutrients to surface and groundwater. Examples are fertiliser-free zones and closed-circuit farming.*
2 - Surface water **2.2 - Pollutant releases from point and diffuse sources**	Optimisation of the collection and treatment of household wastewater. Control of pollution from industrial and artisanal sources.	FR	*Control of pollution from industry and crafts by micropollutants* *Reduction of pollution from industries and crafts* *Adapting the collection and treatment of industrial waste* *Clean technologies* *Revision of emission limit values* *Action to reduce or eliminate conventional pollution* *Limiting the use of agricultural pesticides and / or using alternative practices* *Organic farming plot*

			Increase or maintain grassland *Limit diffuse or specific inputs of non-agricultural pesticides and / or use alternative practices*
		WL	
		LU	*Construction and operation of a fourth treatment stage at wastewater treatment plants* *Hygienisation of combined wastewater discharge systems* *Remediation of landfills and treatment of leachate* *Measures in the field of agriculture (e.g. pesticide restrictions, organic farming)*
		DE	*Improvement of rainwater disposal, optimisation of wastewater treatment plants (if necessary: addition of a 4th purification stage to eliminate micro-pollutants (pharmaceuticals, etc.)* *Collection of wastewater tax* *Reduction of pollution from industry* *Reduction of point sources from mining, contaminated sites and old sites*
		VL	*Reducing pollution from industrial wastewater via 1) granting permits: revision of sectoral conditions; targeted evaluations; impact assessment via Weser roadmap; 2) other instruments e.g. green deals* *Reducing pollution from disasters: impose preventive measures via licensing or other instruments; further roll out of coordinated approach for oil pollution + see measures under 2.14.* *Further mapping of priority waterbeds to be cleaned up and implementation of priority waterbeds clean-ups*
		NL	*Improvements to the wastewater treatment plants, disconnection of hard surfaces and tackling sewer overflows will reduce emissions of pollutants from the wastewater chain.*
2 - Surface waters **2.3 - Impact of priority substances and other pollutants on the aquatic environment**		FR	*See measures to reduce pollution from diffuse and point sources (see 2.1 and 2.2)*
		WL	
		LU	*Measures to reduce pollution from diffuse and point sources (c.f. 2.2.).* *Prohibitions and restrictions of use from other legal areas.*
		DE	*Measures to reduce pollution from diffuse sources and point sources (cf. 2.2.).* *Prohibitions and restrictions of use from other legal areas.*
		VL	*See measures for reduction of diffuse and point sources of pollution (see 2.1 and 2.2)*
		NL	*In line with the Directive on Priority Substances, emissions are limited as much as possible by tackling the source of wastewater discharges (e.g. permits and enforcement). Furthermore, contaminated dredging material is being removed at various locations.*

3 - Groundwater **3.1 - Diffuse discharge of nitrogen and pesticides mainly from agriculture**	Reduction of diffuse pollution (nitrates, pesticides).	FR	*Limit input transfers and erosion beyond the requirements of the Nitrates Directive* *Establish a plant cover of intermediate crops* *Establish grass strips* *Grassing of areas under perennial crops* *Limiting the use of agricultural pesticides and/or using alternative practices* *Organic farming plot* *Increase or maintain grassed areas* *Limiting diffuse or punctual inputs of non-agricultural pesticides and / or using alternative practices*
		WL	
		LU	-
		DE	*Reduction of pollution from diffuse sources* *Introduction of additional lime into the spoil tips of lignite mining to counteract acidification of the groundwater Increased agricultural advisory services* *Promotion of intercropping* *Reducing the use of nutrients, especially mineral fertilisers, as well as plant treatment products and pesticides* *Improving nitrogen efficiency in the application of organic fertilisers*
		VL	*Groundwater quality:* *See measures on surface water quality in relation to nutrients and pesticides* *Remediation and control of groundwater pollution from point sources*
		NL	*For nutrients and pollutants see measures for surface water. Large discharges of domestic wastewater are regulated by means of a treatment system and infiltration facility in accordance with the Soil Protection Discharge Decree.* *Discharges from the agricultural sector: exemptions are only granted for list I substances if their toxicity, persistence and (bio)accumulation is so low that there is no risk of soil pollution in the short or long term.*
4 - Water quantity **4.1 - Increased frequency and severity of low flow periods**	-	FR	*Implement water saving measures for individuals and municipalities*
		WL	
		LU	*Restoration of a semi-natural hydrological regime, adaptation of the hydrological regime to climate change*
		DE	*Local protection, replacement and compensation measures* *Charging a fee for water withdrawals* *Ordering water users to use water sparingly* *Ensuring minimum flow*
		VL	*Groundwater quantity:* *Groundwater resource management* *Optimisation/upgrading of advisory competences on groundwater extraction* *Follow-up of recognised drilling companies and detection of illegal drilling activities* *Continuation and adjustment of groundwater permit policy* *Review and optimisation of groundwater extraction charging policy* *Water scarcity and droughts 1) knowledge development and dissemination; 2) sustainable water use (optimize regulations, application framework for circular use, reporting obligation for captures, enforcement, reorient and reinforce funding streams and instruments, support innovation); 3) increase supply through investments (rewetting, infiltration, buffering), financial levers (steering instrument to reduce paving, support measures for level-controlled drainage) and regulations; 4) ensure drinking water supply (protect raw water sources, limit leakage losses, supply security indicators); 5) Blue Deal*
		NL	*An inventory is being made of the scope of extractions, including those not regulated by permits. In addition, it is being investigated how supervision and enforcement of groundwater extraction take place in practice and where this could be further optimised. In addition to the Natura 2000 management plans, the Nature programme will seek measures to improve the hydrological situation of nature areas.*
	Management measures aimed at economical use of water resources.	FR	*Recycling of the rainwater*
		WL	
		LU	*Studies on water saving potential in the domestic and industrial sectors* *Levy of a tax on water abstraction*
		DE	*Increase in natural retention capacities*

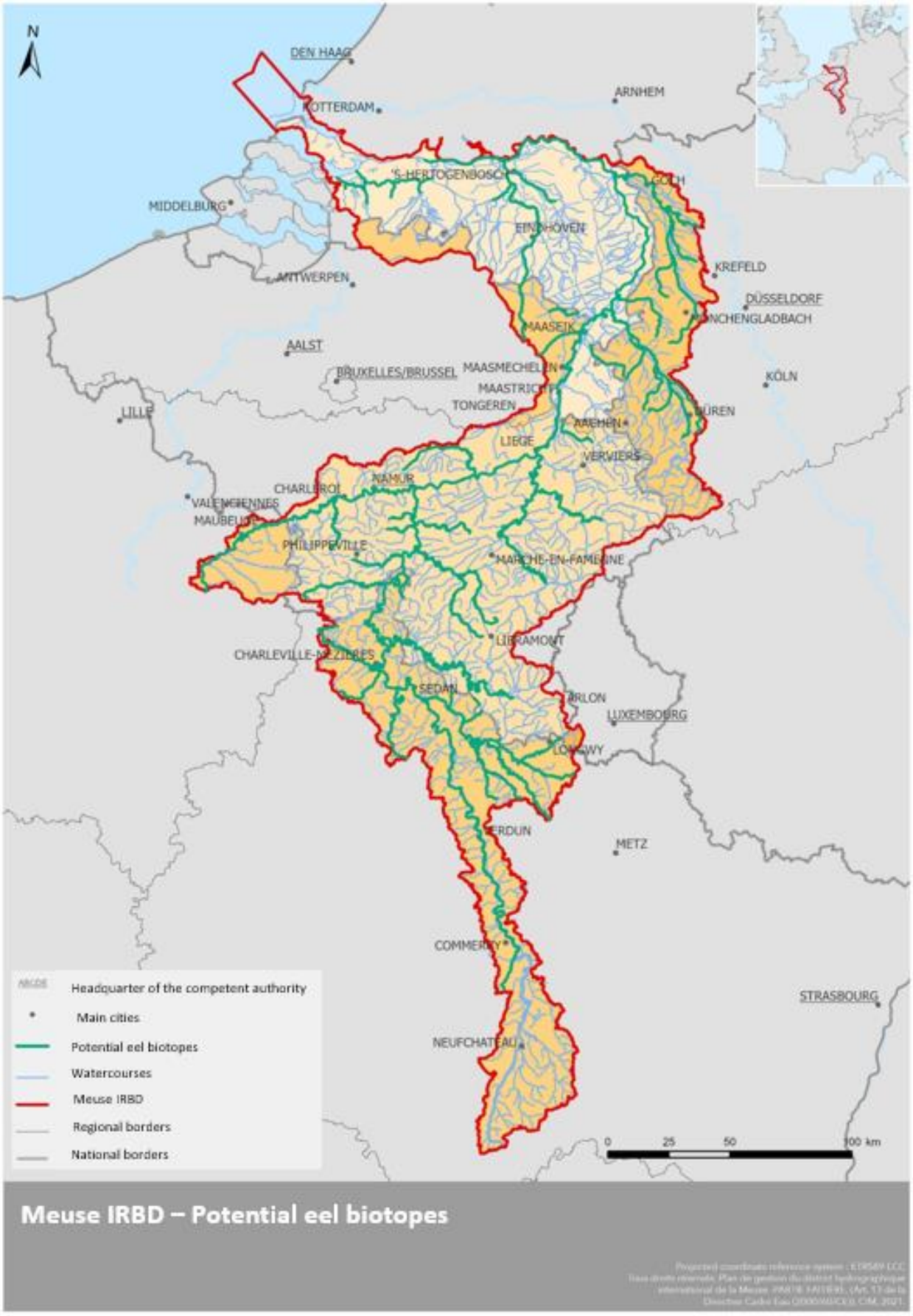
			Imposing a water abstraction tax.
		VL	*Optimising sustainable use of all water resources across all sectors* *Optimising use of alternative water sources* *Optimising the water distribution network*
		NL	*With the anchoring of the priority 'retain - store - drain' in the national water policy, water managers are explicitly focusing on retention and utilisation of the area's own water as much as possible in their planning and management. This slows down peak discharges and limits or prevents flooding in downstream areas.* *Cooperation in the drinking water, sewerage and waste water treatment chain will be strengthened to further increase cost-effectiveness (Administrative Agreement on Water). Innovations in water treatment, such as the energy, raw materials and water factory, are part of this.* *Municipalities are installing separate sewer systems and encouraging residents to disconnect rainwater from the sewer system in order to make the treatment of waste water more efficient.* *Water-saving facilities are applied in new construction and renovation projects.* *The Delta Programme Freshwater sets out an implementation programme up to 2028 for studies and measures in water systems and for some utilization functions. This is aimed at securing freshwater reservoirs, combating salinization and retaining and conserving water where there is insufficient supply..*

4 - Water quantity **4.2 - Increased flood risk**	Exploiting the potential synergies and mutual benefits of the WFD and FRD	FR	*Acquisition of wetlands.* *Development of flood control structures.* *Regulation of urbanisation*
		WL	
		LU	*Communal concepts of integral prevention of heavy rainfall* *Implementation of the measures of the flood risk management plan*
		DE	*Improvement of water retention in the area* *Reduction of runoff peaks* *Implementation of the objectives of the flood risk management plan.*
		VL	*Flooding:* *1) prevention (making water more climate-proof, rezoning, individual protection, role of the insurance sector, buffering, water storage, infiltration facilities)* *2) protection (stimulate softening, smart management of rainwater infrastructure, construction of controlled flooding areas, water management works, pumping stations, coastal protection);* *3) preparedness (development of forecasting and warning systems, crisis exercises, optimisation of information obligations);* *4) research and enforcement* *Construction of sediment ponds*
		NL	*This issue is dealt with in the FRMP*

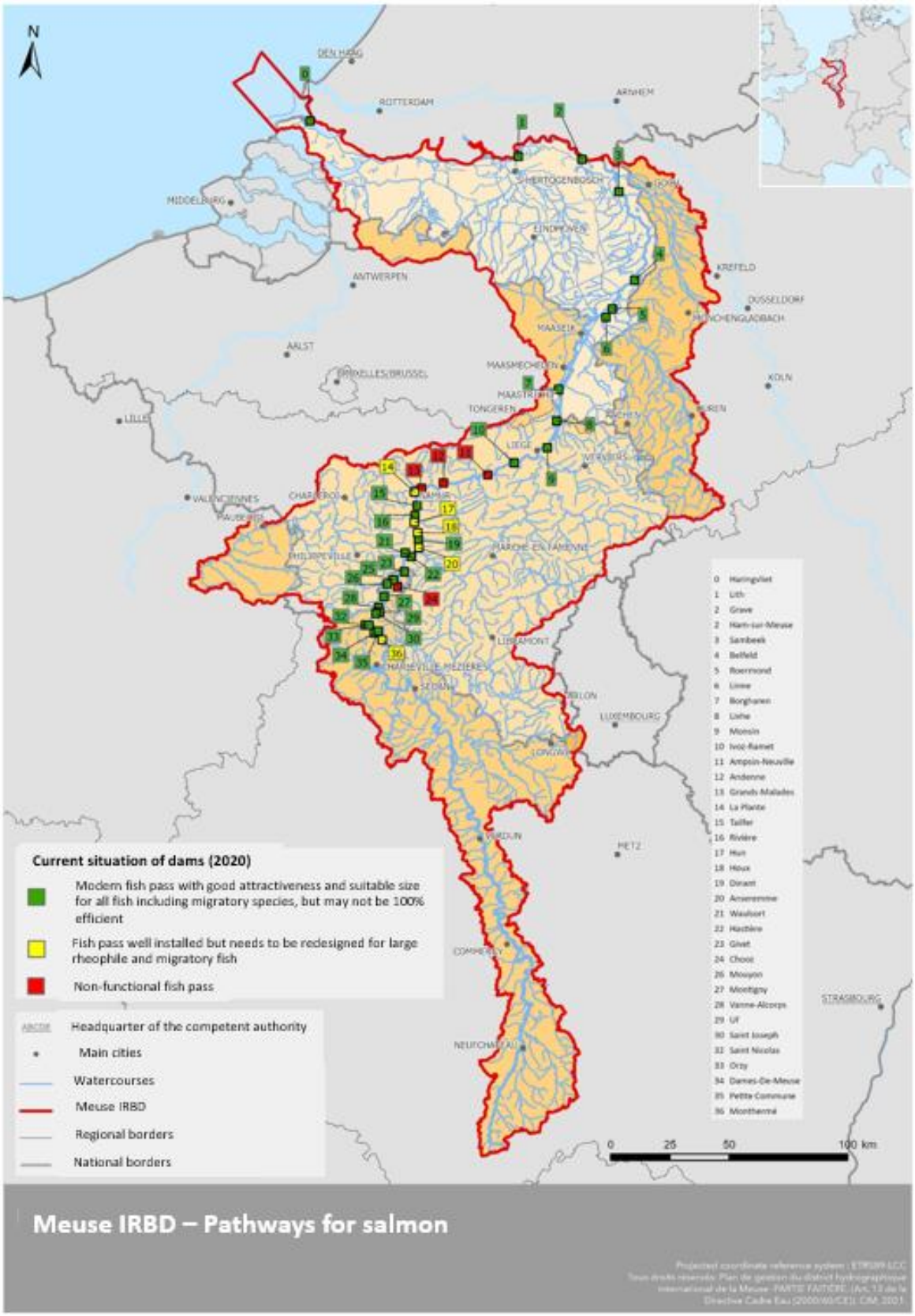
Annex 19: Meuse IRBD - Objectives and measures to improve the free movement of fish

Living area	Objectives	Problems	Measures
Migration routes	Sufficient population	Sea and lower river fishing	Fishing restrictions
	Free access river-sea	Access to/from the sea	Project 'de Kier'
	Free migration to the Rur, Ourthe-Amblève, Lesse, Semois	Obstacles upstream	Fish ladders
	Free downstream migration	Hydroelectric power stations, water abstraction	Fish guidance
	Hydrological continuity	Reservoir	Optimise reservoir management
	Improve water quality	General parameters O2 and T must comply	Especially optimise low water management (reservoir management)
Spawning and early life areas (nursing)	Sufficient population	Sufficient extent for the spawning ground	Ecological development of watercourses + River restoration
	Improve water quality (incl. sediment)	Both general physico-chemical parameters and specific pollutants	Priority water treatment/ riverbed remediation for migratory fish habitat. Restoration of habitats for migratory fish
	Good quality of spawning and nursery areas	Natural substrate absent or polluted	Sediment management (control of unnatural sediment/sludge)
	Good morphological habitat quality	Absence of natural habitat morphology	Meandering, restoring erosion-sedimentation Restoration of habitats for migratory fish

Annex 20: Meuse IRBD - Potential eel biotopes



Annex 21: Meuse IRBD - Pathways for salmon



Annex 22: Meuse IRBD - Important substances in relation to drinking water production

1. Metformin (CAS: 657-24-9)
2. (Aminomethyl)phosphonic Acid (AMPA) (CAS: 1066-51-9)
3. Edetic Acid (EDTA) (CAS: 60-00-4)
4. Iomeprol (CAS: 78649-41-9)
5. Methenamine (CAS: 100-97-0)
6. 3,5-diacetamido-2,4,6-triiodobenzoic acid (CAS: 117-96-4)
7. Glyphosate (CAS: 1071-83-6)
8. Metoprolol (CAS: 37350-58-6)
9. Iopamidol (CAS: 60166-93-0)
10. Diisopropyl ether (DIPE) (CAS: 108-20-3)
11. Sotalol (CAS: 3930-20-9)
12. (Dimethylsulfamoyl)amine (DMS) (CAS: 3984-14-3)
13. Fluoride (CAS: 16984-48-8)
14. Melamine (CAS: 108-78-1)
15. 1,4-dioxane (CAS: 123-91-1)
16. Benzo(a)pyrene (CAS: 50-32-8)
17. Bisphenol A (CAS: 80-05-7)
18. Di-(2-ethylhexyl) phthalate (DEHP) (CAS: 117-81-7)
19. Terbuthylazine (CAS: 5915-41-3)
20. Diethylenetriamine pentaacetic acid (DTPA) (CAS: 67-43-6)
21. Diethyltoluamide (DEET) (CAS: 134-62-3)
22. Gabapentin (CAS: 60142-96-3)
23. Amidinourea (CAS: 141-83-3)
24. Hydrochlorothiazide (CAS: 58-93-5)
25. Iohexol (CAS: 66108-95-0)
26. Iopromide (CAS: 73334-07-3)
27. Ioxitalamic acid (CAS: 28179-44-4)
28. Tramadol (CAS: 27203-92-5)
29. Valsartan (CAS: 137862-53-4)

Annex 23: Meuse IRBD - Meuse Warning and Alert System - Main Alert Centres