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Report on the implementation of the Water Framework Directive River Basin Management Plans

Member State: BELGIUM

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

The Water Framework Directive and the Floods Directive: Actions towards the 'good status' of EU water and to reduce flood risks

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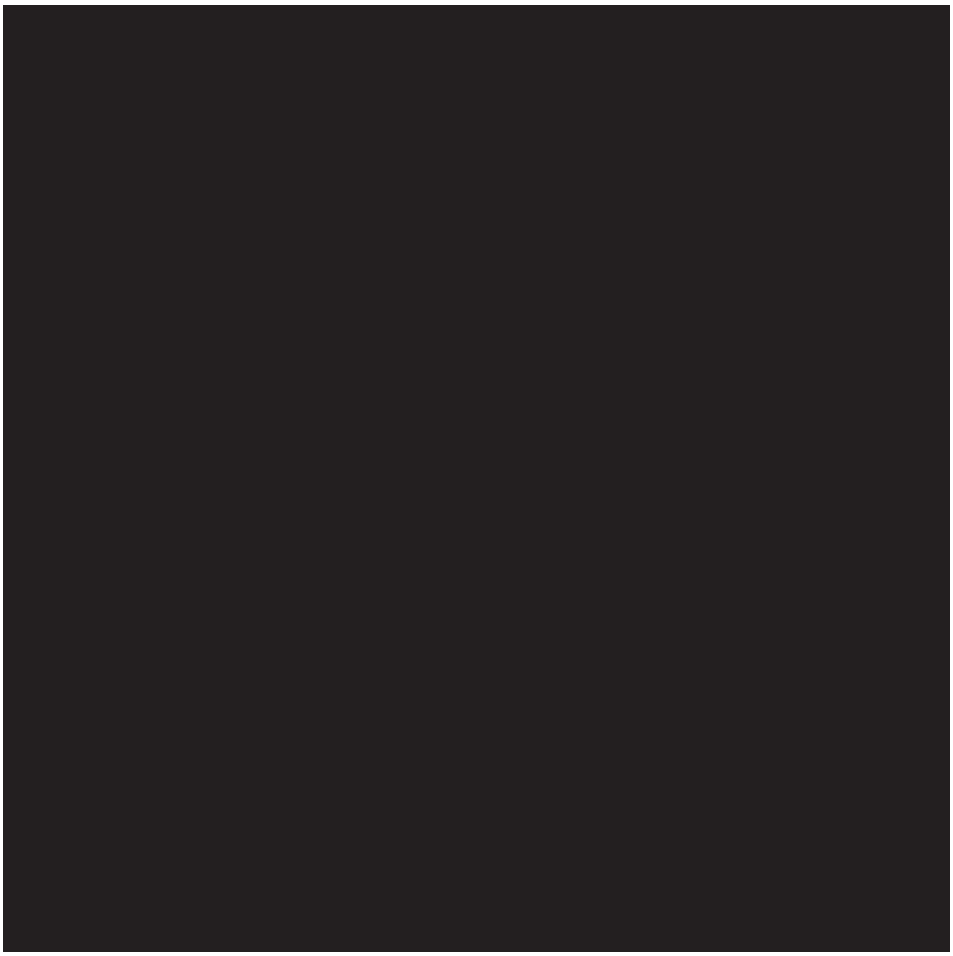

Figure 1.1: *Map of River Basin Districts*

International River Basin Districts (within EU)
International River Basin Districts (outside EU)
National River Basin Districts (within EU) Countries (outside EU)
Coastal Waters

Source*: WISE*

Belgium has a population of about 11 million[2] and has a total area of 30528 km^2. The country consists of three regions: the Brussels-Capital Region, the Flemish Region and the Walloon Region.

Belgium has four river basin districts, of which the Meuse and Scheldt cover most of the Belgian territory. The Rhine and Seine river basins cover a much smaller part of Belgium, located in the Walloon Region. Because of the division of responsibilities among the different regions of the federal state of Belgium there are several plans for the same River Basin District (RBD) within Belgium. A coordinated plan is developed at international level

[1] This report is based on the assessment of all river basin management plans reported by Belgium and replaces the one published in November 2012 (Commission Staff Working Document SWD(2012)379 final volume 4/30) which covered only the plans available at the time (produced by the Flemish Region and the Federal Government). The report takes into account the information exchange that took place at the bilateral meeting held on 26 February 2014 between Commission Services and Belgian authorities.

[2] Statistics Belgium, Key figures 2011. http://statbel.fgov.be/en/binaries/Key%20figures2011_en_tcm327-148284.pdf

with other riparian countries. All the Belgian river basins are shared with other MS and/or third countries:

- Scheldt: FR, NL
- Meuse: FR, NL, LU, DE
- Rhine: DE, AT, FR, NL, LI (third country), CH (Third country)
- Seine: FR

International RBDs	RBDs*	Size (km^2)	Countries sharing borders
Scheldt/Schelde/ L'Escaut	BESchelde_VL	12026	FR, NL
	BEEscaut_Schelde_BR	162	FR, NL
	BEEscaut_RW	3745	FR, NL
	BENoordzee_FED	1428	FR, NL
Meuse/Maas	BEMaas_VL	1601	DE, FR, LU, NL
	BEMeuse_RW	12255	DE, FR, LU, NL
Rhine (Rhin)	BERhin_RW	767	AT, CH, DE, FR, LI, NL
Seine	BESeine_RW	80	FR

Table 1.1: *Overview of Belgium's River Basin Districts (*as reported by Belgium, see section 3). VL: Flemish Region, BR: Brussels Region, RW: Walloon Region, FED: Federal Government.*
Source*: River Basin Management Plans reported to WISE*[3]*:* http://cdr.eionet.europa.eu/be/eu/wfdart13

The three larger international river basins on the Belgian territory (the Scheldt/Schelde/L'Escaut, the (la) Meuse / de Maas and the Rhine) are all in co-operation category 1, which means that international RBMPs have been developed, and international agreements and an international co-operation body have been put in place.

Name international river basin	National RBD	Countries sharing borders	Co-ordination category	
			1	
			km²	%
Scheldt	BESchelde_VL	FR, NL	11,991	32.9
	BEEscaut_Schelde_ BR	FR, NL	162	0.4
	BEEscaut_RW	FR, NL	3,770	10.4
	BENoordzee_FED	FR, NL	No information	No information
Meuse	BEMaas_VL	DE, FR, LU, NL	1,596	4.6
	BEMeuse_RW	DE, FR, LU, NL	12,300	35.8
Rhine	BERhin_RW	AT, CH, DE, FR, LI, NL	750	0.4
Seine	BESeine_RW	FR	No information	No information

Table 1.2: *Transboundary river basins by category (see CSWD section 8.1) and % share in Belgium*[4]*.*

[3] This MS Annex reflects the information reported by the MS to WISE which may have been updated since the adoption of the RBMPs. For this reason there may be some discrepancies between the information reported in the RBMPs and WISE.
[4] Categorisation determined under the EC Comparative study of pressures and measures in the major river basin

Category 1: Co-operation agreement, co-operation body, RBMP in place.
Category 2: Co-operation agreement, co-operation body in place.
Category 3: Co-operation agreement in place.
Category 4: No co-operation formalised.
***Source**: EC Comparative study of pressures and measures in the major river basin management plans in the EU.*

2. STATUS OF RIVER BASIN MANAGEMENT PLAN REPORTING AND COMPLIANCE

The two RBMPs of the Flemish Region and the Federal plan on the coastal waters have been adopted and reported in 2010. Consultation took place in the Brussels Capital Region between the 28 February 2011 and 28 August 2011[5], and the Brussels authorities notified the Commission of the adoption of the RBMP in July 2012. Reporting was done on 31 July 2013. For the Walloon Region, the draft RBMPs were under consultation between 11 June 2012 and 18 January 2013. The RBMPs of the Walloon Region were adopted on the 27 June 2013 and were reported to the EC on 13 September 2013.

RBD	RBMP Date of Adoption	RBMP Date of Reporting
BEEscaut_RW	27 June 2013	13 September 2013
BEEscaut_Schelde_BR	12 July 2012 (5 September 2012 published in Belgian Official Journal)	31 July 2013
BEMaas_VL	8 October 2010 (11 January 2011 published in Belgian Official Journal)	8 October 2010
BEMeuse_RW	27 June 2013	13 September 2013
BENoordzee_FED	7 December 2009 (12 February 2010 published in Belgian Official Journal)	29 January 2010
BERhin_RW	27 June 2013	13 September 2013
BESchelde_VL	8 October 2010 (11 January 2011 published in Belgian Official Journal)	8 October 2010
BESeine_RW	27 June 2013	13 September 2013

***Table 2.1:** Adoption and reporting to the Commission of Belgium's RBMPs*
***Source**: RBMPs*

In April 2011, the Commission decided to take Belgium to the European Court of Justice (Case C-366/11) for failing to adopt and report its RBMPs to the European Commission in time. The ruling of the Court of Justice was published on 24 May 2012, whereby it was established that Belgium has failed to comply with its obligations as required by the WFD Articles 13(2),(3) and (6), Article 14(1c) and Article 15(1). The case was subsequently closed after Belgium adopted and reported the remaining RBMPs.

2.1 Key strengths and weaknesses

➢ Main strengths

Flemish and Coastal Waters:

- The public consultation has been carried out in transparent way. Information on how the given comments have been used to change the plan is provided in the plans.

management plans in the EU (Task 1b: International co-ordination mechanisms).
[5] http://ec.europa.eu/environment/water/participation/map_mc/countries/belgium_en.htm

- In the Flemish RBMPs, information sheets include information on the different measures, and cost-effectiveness has been used to prioritise the measures. In the Coastal Waters plan, there is a complete list of basic and supplementary measures that will contribute to the achievement of the environmental objectives.
- The ecological and chemical status assessment methods have been developed for all water categories.
- In Flanders, there is work foreseen with test areas to assess the effectiveness of supplementary measures in order to have a better knowledge basis for the selection of supplementary measures for the next RBMPs.

Brussels Waters:

- The Programme of Measures (PoM) is well structured, with 8 pillars clearly identified.
- A non-technical summary is available for the public where every pillar of the PoM has a short and clear explanation.
- An elaborated economic analysis of the water use in the Brussels Region (2008) is provided.

Walloon Waters:

- A clear overview of the Programme of Measures is given on the website (http://spw.wallonie.be/dce/spip.php?article88) subdivided per themes.
- The reference situation is well investigated/described in the supporting document 'Etat des lieux' (background document No.1).
- The economic analysis is well defined.

➢ **Main Weaknesses**

Belgium

- Lack of coordination between the regions. An interregional coordination body has been set up, but it is unclear how this operates in a practical way given e.g. the large differences in preparatory and public consultation timetables. The scope of the coordination appears to be rather limited.
- As a result of the way the RBMPs are prepared, it is not possible to have an overview of key information at RBD level, only for regional parts of the RBD, during the preparatory phases of the RBMPs and the public consultation. The international plans, developed together with other riparian countries, do not have complete overviews of key information either (e.g. on pressures, status of water bodies, environmental objectives, exemptions, measures, etc.). This questions the way the river basin approach in the WFD is being implemented in Belgium.

Flemish and Coastal Waters:

- In both Flanders and Coastal Waters RBMPs most measures are defined very generally without a timeline of implementation or committed financial resources, and there is generally no clear link with the status assessment.

- Considering the important number of heavily modified water bodies (HMWBs) in the Flemish region, the designation of HMWBs should more clearly follow the provisions of the Article 4(3) of the WFD.
- The Flemish assessment methods for defining good ecological potential are quite complex and should be described in the RBMP in a clearer way.
- It should be made clearer that the designated coastal water body in the Flemish RBMP was not further considered in the RBMP due to a change of the category of the water body.

Brussels Waters:

- The Programme of Measures is limited to actions and instruments; no further information is given on timing, coordination, costs, etc. They are described at a very general level.
- There is no indication of the importance of measures and no link between pressures, status and measures.
- There is no information given on the "significance" of pressures and impacts. In general, there is very little information on pressures and impacts or tools / criteria to indicate these.
- The methodology for the monitoring is well developed, but is not easy to understand.
- The link between mitigation measures (e.g. bank restoration along the Canal) and its effects on GEP and reaching a good ecological status are not clear.

Walloon Waters:

- There is no indication which measures are 'basic measures' and which are 'supplementary measures' in the RBMP (the reporting in WISE does make this distinction). The measures are also very general. This makes it difficult to interpret the importance of the measures.
- There is no clear link between the status assessment and measures.
- There is information on the significance of pressures or impacts per sub-basin in a semi-quantitative way and an estimation of the contribution of different sectors to the N and P load specifically (following a water quality model). However, a more elaborate and wider discussion may have been useful to discuss the significance of pressures and impacts on Walloon watercourses.
- The Programme of Measures does not include information on timing.

3. GOVERNANCE

3.1 RBMP timelines

RBD	Timetable	Work programme	Statement on consultation	Significant water management issues	Draft RBMP	Final RBMP
Due dates	**22/06/2006**	**22/06/2006**	**22/06/2006**	**22/12/2007**	**22/12/2008**	**22/12/2009**
BESchelde_VL	22/11/2006	22/11/2006	22/11/2006	22/11/2006	16/12/2008	08/10/2010
BEEscaut_Schelde_BR	17/02/2009	17/02/2009	28/02/2011	17/02/2009	28/02/2011	15/09/2011
BEEscaut_RW	01/01/2006	01/01/2006	29/12/2005	01/01/2006	11/06/2012	27/06/2013
BENoordzee_FED	22/12/2008	22/12/2008	22/12/2008		22/12/2008	12/02/2010
BEMaas_VL	22/11/2006	22/11/2006	22/11/2006	22/11/2006	16/12/2008	08/10/2010
BEMeuse_RW	01/01/2006	01/01/2006	29/12/2005	01/01/2006	11/06/2012	27/06/2013
BERhin_RW	01/01/2006	01/01/2006	29/12/2005	01/01/2006	11/06/2012	27/06/2013
BESeine_RW	01/01/2006	01/01/2006	29/12/2005	01/01/2006	11/06/2012	27/06/2013

Table 3.1: *Timeline of the different steps of the implementation process*
Source*: WISE and information subsequently provided by the Belgian authorities*

3.2 Administrative arrangements - river basin districts and competent authorities

Belgium is a federal state with responsibilities for water management at the regional level and at the federal level. The federal and regional responsibilities are exclusive and equivalent with no hierarchy between the standards issued by each authority. The regions are responsible in their territory for environment and water policy (including technical regulations regarding drinking water quality), land development, nature conservation and public works and transport. The Federal Government has responsibility for, amongst other things, the economic aspects of drinking water provision (i.e. the establishment of maximum prices and the approval of price increases[6]) across the entire Belgian territory and has environmental responsibilities for coastal and territorial waters (from the lowest low-waterline). Because of these different responsibilities, several river basin management plans are developed for each main river basin district. Co-ordination is carried out at national and international level, while the plans are developed at the regional level (except for the Federal plan on coastal waters) and therefore a mainly regional approach to river basin planning is used.

International co-ordination with neighbouring countries and the relevant Belgian stakeholders (federal state and regions) is carried out in the International Scheldt Commission (Treaties of Ghent, 3 December 2002) and the International Meuse Commission (Treaties of Ghent, 3 December 2002). The three regions and the Federal authority are parties of the international commissions. For the Scheldt river basin district and for the Meuse river basin district, an international roof RBMP-report has been established. The Walloon Region is not party to the International Commission for the Protection of the Rhine (ICPR) – but co-operates with it (observer status), as well as with the International Commission for the protection of Moselle and Saar Rivers (CIPMs – tributaries of the Rhine river). No specific

[6] Further to sixth State Reform, these economic aspects regarding drinking water provision are not a Federal competence anymore. Since 1st July 2014, this competence is officially transferred to the three Regions of Belgium.

international coordination commission is established for the Seine, but the Seine RBMP has been submitted to the French regional authorities competent for the Seine RBD.

Regular and systematic internal Belgian co-ordination takes place in the Co-ordination Committee for International Environmental Policy (CCIEP) (*Co-operation agreement of 5 April 1995 between the Federal State, the Flemish Region, the Walloon Region and the Brussels Capital Region*). The CCIEP is, according to the agreement, inter alia competent for "*consultations in order to arrive at co-ordinated implementation of the recommendations and decisions of international organisations*". The Water Steering Group of this Committee (SG Water of CCIEP) is the consultative body responsible for the necessary co-ordination of the WFD implementation between the different competent authorities in Belgium. The regions must consult each other regarding water bodies that extend over more than one region and within the SG Water the formal and official steps are determined for establishing the river basin management plans in order to arrive at a co-ordinated position. There can however not be an exchange of competences through the co-operation agreement which means that the co-ordination and co-operation carried out does not guarantee the timely reporting by other competent authorities within the MS.

For the Flemish Region the competent authority is the Co-ordination Committee on Integrated Water Policy (CIW). This committee has, according to the Flemish Decree on Integrated Water Policy, the following task:

The CIW is responsible for the preparation, control and the follow up of the integrated water policy at the level of the Flemish Region. It watches over the uniform approach to the management of the basin and has the task to carry out the decisions of the Flemish government in the field of integrated water policy.

The CIW has an important role in the planning and execution of water policy at the river basin level. The CIW is designated as the competent authority for the implementation of the WFD and the FD. Among its responsibilities are the preparation of the RBMPs for the Flemish Region, reporting to the European Commission on WFD implementation, organising the public consultation of the RBMPs, preparing the methodology and guidance for the development of the RBMPs and aligning the RBMPs with the Flemish Water Policy Note.

The CIW consists of the executive management of the administrations and entities with an important role in water policy. In the RBMP, the members of the CIW are considered as "water managers".

For the organisation and planning of integrated water management**,** the decree on Integrated Water Policy distinguishes 4 levels:

- The River Basin District (Scheldt and Meuse) with the river basin management plans;
- The Flemish region (river basins Scheldt, Meuse, IJzer, Polders of Bruges) with the Water Policy Note;
- The sub-basin (11) with the river catchment management plans;
- Sub-sub-basin (103) with the sub-river catchment management plans.

The preparation, planning, control and follow-up are carried out at each of these levels. Within the CIW, specific structures have been put in place in order to carry out these tasks. The CIW oversees the functioning of the sub-basin structures, supports it and reviews possible contradictions between binding provisions of the management plans at the different levels.

Figure 3.1: *Organogram of the Competent Authority for the Flemish Region: CIW and its member administrations and entities.*
Source*: BE-Flanders authorities*

For the Brussels Capital Region, the main competent authority is the Government of Brussels - Capital region. The Government is the authority that ensures the monitoring programmes and the establishment of the programme of measures for the Brussels Region. It also collaborates on the establishment of the international Scheldt basin management plan and involves the public participation in the implementation of the Directive. To achieve these tasks, the Government may involve public administrations or other companies that are dealing with water management and that are known under “water operators”. This is referred to in the regional legislation: "Ordonnantie van 20 oktober 2006 tot opstelling van een kader voor het waterbeleid" (Belgisch Staatsblad). The most important operators that have specific tasks in relation to water management are the following:

- Leefmilieu Brussel (BIM – Regional Administration): General water management and management of subsidies in relation to water (swimming pools and civil organisations); inspection of the abstractions and aquifers, management of category 1 and 2 watercourses and most ponds; implementation of the “blue-network programme”, coordination of environmental licenses in the international hydrographic Scheldt river basin district.
- Vivaqua (Intercommunale): storage, treatment, production and transport of the drinking water in Brussels; operational management of the infrastructure of water distribution and collection at the communal level of wastewater (for Hydrobru), exploitation of the water treatment station South (for BMWB)

- Hydrobru (Brusselse Intercommunal for water distribution and sanitation): distribution of drinking water; design, development and management of infrastructure for communal collection of sewage including the sewerage system, stormwater drainage and collectors.
- Brusselse Maatschappij voor Waterbeheer (BMWB): Manager of the public sanitation of sewage water; coordination and intervention for sewerage; collection and purification of sewage water; manager of monitoring networks (flow watercourses and collectors, pluviometric measurements).
- Port of Brussels (Publiekrechtelijke naaml.oze vennootschap): manager of the Canal and the Port.

Regarding implementation of the Water Framework Directive in the Walloon Region, the Water Code designates the Walloon Government as the competent authority for the WFD (Article D.11 of the Water Code: "The Government shall assume, for each Walloon river basin district, the missions of the basin district authority.") The Government is represented by the Administration authority, in this case, the Public Service of Wallonia (*"Service public de Wallonie*", SPW) and its following two directorates-general: Directorate General for Agriculture, Natural Resources and Environment (DGARNE or DGO3) and Directorate General of Mobility and Waterways (DGMVH or DGO2).

3.3 RBMPs - Structure, completeness, legal status

For the **Flemish region**, the RBMPs are planning documents approved by Governmental Decision. In the hierarchy of legal acts, on the one hand, it falls under laws and regulations (decrees) so these cannot contradict other laws and regulations. On the other hand, it stands above water-related administrative decisions. In addition it applies only at the river basin scale and to specific regional entities and authorities.

As regards the legal effect, legislation provides that authorities must take into account the established RBMPs in their decision-making. Authorities' decisions must be motivated in this respect and must take into consideration relevant set objectives. This has been confirmed by a decision of the Belgian Constitutional Court which stated that authorities must take the relevant water management plans into consideration in evaluating a programme, measure or permit[7]. There is according to the legislation a relationship between the RBMPs and the individual permits, with a possibility to incorporate additional conditions in the permits if the environmental objectives are unlikely to be achieved. The Decree stipulates that where it appears from monitoring data or other information that the environmental objectives for water bodies will not be met, the Flemish Government ensures that the relevant permits and authorisations are examined and subject to revision if necessary. The permitting authorities are bound by this.

Concerning international co-operation, the RBMP makes reference to the "management plan roof report" which includes the multi-lateral (between MS and regions) co-operation activities. In Annex 1.1 a short description of this plan is given together with a link to the website of the international commissions where the plan can be retrieved.

For the **Brussels Capital Region**, the RBMPs are based on 8 significant water management issues published on 17 February 2009 in the Belgian Official Gazette after approval of the

[7] Constitutional Court decision 32/2005 of 9 February 2005.

Government of the Brussels Capital Region. The RBMP was adopted by a Decision of the Government of the Brussels Capital Region.

For the **Walloon Region**, pursuant to the Walloon Water Code, the Walloon Government is the competent authority for the WFD ("autorité de bassin" – Art. D.11 http://environnement.wallonie.be/legis/Codeenvironnement/codeeaucoordonneD.htm). The RBMPs are adopted by the Walloon Government. RBMPs are therefore to be considered an act of delegated legislation taken by the Walloon Government in which planned measures are set out. The RBMPs are also subject to an assessment of their effects on the environment (Strategic Environmental Assessment - Directive 2001/42).

3.4 Consultation of the public, engagement of interested parties

In **Flanders**, a campaign called "*Vol van water*" was used for the involvement of the public. Information on the draft RBMP was made available on the website of the campaign. Information on the public involvement was sent out through announcements in written press, radio and television. There was also a folder and a brochure available. The draft plans were available in town halls where it was possible to submit written remarks. The plan was accompanied by a manual that explained the consultation process, gave a summary of the different chapters and gave some illustrative questions for participation. It was even possible to submit remarks online through the campaign's website. The CIW then submitted these remarks to a municipality and through this process validated the remarks. For every sub-basin an information meeting was organised where questions on the plans could be formulated and formal remarks could be made. A workshop was organised with the three advisory bodies where they were given information and they could give their responses to the plans.

In addition, the international parts of the RBMPs have been under consultation and all the relevant competent authorities of other Member States have been contacted to participate. Information on the consultation processes in different Member States has been exchanged between the partners of the international river basins.

The impact of the public consultation on the plans is described in a consideration document[8]. There it is acknowledged that the received remarks have led to a substantial change of the draft plans within the legal provisions, both editorial and content-wise. The impact is described in that document. An annex to the document shows for each remark how it has been taken into account and if it has led to a change of the plan. Some of the adjustments are clarifications and refinements to the text or the information sheets of the measures; refinement and complementing of certain data; clarifications on the co-operation at the bi- and multilateral level and an optimisation of the scenarios. Some of the recommendations that have been included in the CIW working plan of 2010 are greater involvement of the civil society; better co-ordination between the different planning cycles; clearer linkage of measures to specific actions and the consideration of smaller water bodies to be included in the second RBMP.

The RBMP for the **Coastal Waters** also include a transparent explanation of the feedback received during the public consultation and whether and how this feedback was integrated in the final draft of the RBMP.

[8] Overwegingsdocument http://www.integraalwaterbeleid.be/nl/stroomgebiedbeheerplannen/wat-vooraf-ging/Overwegingsdocument.pdf/view

In the **Brussels Capital Region** the public consultation was published in the 'Belgisch Staatsblad – Moniteur Belge' (Belgian official gazette). Posters were sent to the 19 communities. Posters were also sent to different contacts such as libraries, organisations, etc. Information sessions were organised. Communications were also performed through press inserts, radio and TV spots. Contributions were delivered to events related to the public consultation. Several tools were available to the public for participation in the survey: the full text of the draft Programme of Measures (PoM); the full-text of the Environmental Impact Assessment relating to the proposed PoM; and a brochure of the PoM with a questionnaire. These documents have been published and distributed on paper and as electronic versions. It was possible to: directly download the project PoM, the impact report, the explanatory brochure and questionnaire on the website of Brussels Environment; order, by phone or mail the brochure and questionnaire from Brussels Environment; consult the draft plan and report incidents to Brussels Environment and the 19 Communities. The documents have been published and distributed both on paper and by electronic means. It was possible to download the documents.

In the **Walloon Region** production of posters, mail distribution and publishing in local papers has been undertaken. Further on, information on the RBMPs including all documents has been made available to all municipalities on paper and as electronic versions. The website eau.wallonie.be has been used, as well as paper documents, media, posters and information sessions for the public. It was possible to submit written remarks on the website, by e-mail or by post. The draft RBMPs (in French) were completely translated to Dutch and German to promote coordination with neighbouring Regions and countries.

3.5 International cooperation and coordination

3.5.1 Intra-Belgian coordination

The regions have the exclusive competence with regard to water policy, and most other environmental policy domains. At the first level of intra-Belgian coordination, the implementation of European and international water policy, although exclusive competences, is supported for the sake of the necessary coordination with legally binding cooperation agreements. One of these cooperation agreements (05/04/1995) established the Coordination Committee for International Environmental Policy (CCIEP) which deals mainly with the coordination of Belgian comments, positions or delegations on policy matters and with reporting to international organisations. Its mandate includes:

- The organisation of the consultation with a view to the coordinated implementation at the national level of the recommendations and decisions taken at the international level; and
- The supervision of gathering data to answer these requests or reports for international organisations and evaluation of the need to draw up a single 'common' report.

The CCIEP has established several expert groups that are responsible for the coordination of specific environmental issues. Within this framework, the CCIEP Steering Group Water (presided over by the Flemish Region, i.e. the Flemish Environment Agency) is the consultative body that is in charge of the necessary coordination of the implementation of the EU Water Framework Directive (and the other water Directives) between the different competent authorities in Belgium.

3.5.2 International coordination

In accordance with Article 3 of the EU Water Framework Directive the transnational coordination, the information exchange for the international river basin districts of the Scheldt and the Meuse takes place in the International Scheldt Commission[9] and the International Meuse Commission[10].

The Treaty on the Scheldt and the Treaty on the Meuse (Ghent, 2002) were concluded by the Federal State and the three Regions, together with the neighbouring countries with which these respective river basins are shared. Agreements on the international co-ordination of the implementation of the WFD and the approach to other issues such as the protection against floods in the international river basins were made in the treaties of Ghent in 2002.

For these two international river basins there are international plans that reflect the international co-ordination activities. These plans can be downloaded from the websites of the international commissions ("management plan roof reports of the international Scheldt RBD and international Meuse RBD"). The Flemish, Walloon and Brussels Capital Region RBMPs do not address international co-ordination specifically.

In the Scheldt RBMP it is mentioned that the standards and classes for physico- chemical parameters have been partly aligned with standard proposals in the Netherlands, France and the Walloon Region. Bilateral consultation and co-ordination is also taking place for issues such as environmental objectives, programme of measures, monitoring, chemical and ecological status and impacts. This is carried out between Member States or regions that share certain water bodies. This work is carried out both within and outside of the international Scheldt and Meuse commissions.

Information on measures was exchanged and the International Meuse Commission published a short interim report describing progress in the implementation of the first programmes of measures by the Parties to the Commission (see «Vers une gestion durable de l'eau dans le district hydrographique international de la Meuse - Document de synthèse sur la mise en œuvre, à mi-parcours, des programmes de mesures par les Parties à la CIM dans le DHI Meuse» - http://www.cipm-icbm.be/open.asp?t=pubs&id=1483).

Another pillar of work within both river commissions is related to accidental pollution. The WASS/WASM: Warning and Alarm System of the Scheldt/Meuse includes the procedures to be followed in case of possible cross-border pollution. Each time a sudden deterioration of the Scheldt or Meuse water quality endangers its use and/or threatens man, flora, fauna and the environment, the "Warning and Alarm System" (WAS) is activated.

3.6 Integration with other sectors

In Annex 1.2 of the Flemish RBMP, other plans and programmes relevant to water management and water policy are mentioned together with a summary. Although several of these plans and programmes are mainly addressing water management issues, some have a much broader scope such as the spatial master plan for Flanders[11].

For the Brussels Capital Region, the region plan for flood management is mentioned as part of the Programme of Measures.

For the Walloon region, reference is given to a multitude of plans elaborated by the Walloon Region. It is unclear if these need to be considered all as sub-plans in the RBMP although some of them have a clear link with water: floods (Plan PLUIES), Nitrates action programme,

[9] http://www.isc-cie.org
[10] http://www.cipm-icbm.be
[11] Ruimtelijk Structuurplan Vlaanderen

sanitation plans, agro-environmental measures programme (in RDPs – EAFRD). The plans are all plans of the Walloon government in relation to environment and sustainability and regional development.

4. CHARACTERISATION OF RIVER BASIN DISTRICTS

4.1 Water categories in the RBD

In the Flemish Region there are water bodies of all four water body categories (rivers, lakes, transitional and coastal waters). The transitional water bodies have been delineated mainly on the basis of salinity. In the Brussels Capital Region, there are only three water bodies present and these are rivers (two heavily modified, and one artificial). In the Walloon region, all water bodies are part of the rivers category (reservoirs are categorised as HMWB rivers).

4.2 Typology of surface waters

RBD	Rivers	Lakes	Transitional	Coastal
BEMaas_VL	7	8	0	0
BESchelde_VL	9	12	3	1
BENoordzee_FED	10	13	4	1
BEEscaut_Schelde_BR	3	0	0	0
BEEscaut_RW	6	0	0	0
BEMeuse_RW	30	0	0	0
BERhin_RW	3	0	0	0
BESeine_RW	1	0	0	0

Table 4.1: *Surface water body types at RBD level*
Source*: WISE*

In **Flanders**, a surface water typology has been developed for all water categories, based on system B of the WFD. The RBMPs do not refer to validation of the typology using biological data or to the establishment of reference conditions.

According to recent information provided by Flanders, reference conditions are developed by experts for each BQE and water category. Since there are no reference conditions in Flanders, expert judgement, modelling and data from other member states have been used. These studies have been published in research papers and in some cases peer-reviewed journals. The results have been checked against those of the intercalibration exercise.[12]

In Flanders a total of 26 water body types are defined, of which there are 10 river water body types, 12 lake water body types, three transitional water body types and one coastal water body type[13]. These types include, however, smaller water bodies that are not addressed in the RBMPs. Information on the water body types that are addressed in the RBMPs is given in Table 4.2.1. It is mentioned in a separate document referred to in the RBMP, that the coastal water body in Flanders will change water body category to a

[12] More information can be found in the publication "Biological assessment of the natural, heavily modified and artificial surface water bodies in Flanders according to the European Water Framework Directive", available at www.vmm.be (information provided by Flanders)
[13] RBMP 2.2.1.2

transitional water body. It seems that this has been the reason to not address the coastal water body for monitoring, status assessment and measures. Information on this should have been mentioned more clearly in the RBMP. In the rest of this report, this coastal water body in Flanders will not be mentioned explicitly since no further information on this has been found.

In the **Coastal Waters** the typology of the Belgian coastal waters has been done with system B. The definition of the water type was done with an assessment of latitude, longitude salinity and tidal range. Furthermore, other factors such as substratum and current velocity have been taken into consideration for the differentiation of the different coastal water types in the Scheldt RBD.

For the **Brussels Region** the typology has been defined by following system A of Annex II, 1.2.1 of the WFD. No biological study has been done prior to the typology definition. Taking into account the number and the specific situation of the water bodies in the Brussels Capital Region, testing was neither possible nor relevant. The three water bodies within the Brussels Capital Region are "rivers" but two of them are heavily modified and one is artificial. In the Brussels Capital Region, the biological quality reference conditions have been established[14] based on historical data, on expert judgement, and in comparison with the Flemish and Walloon Regions. Physico-chemical quality reference conditions have been established on the basis of a lot of available data (measurements have been done since 2001). For the moment, the hydro-morphological reference conditions haven't been established yet due to the difficulties mentioned above.

In **Wallonia** the adopted typology for rivers (following WFD Annex II 'system B') is based on three abiotic parameters (natural region, catchment size and mean river slope). This typology was developed for the first Article 5 analysis and is now formally established in the Executive Order of 13 September 2012 on the characterisation of surface water bodies[15]. The Walloon typology has been tested for all the BQEs in rivers. There are no lakes in Wallonia, only "reservoirs" which are classified as "HMWB rivers". Reference conditions were established for all the BQEs in natural WBs in rivers: see European Decision 2013/480/EU and Intercalibration reports (JRC) or specific studies[16].

[14] "Uitwerking van een ecologische-analyse methodologie voor sterk veranderde en kunstmatige waterlichamen in het Brussels Hoofdstedelijk Gewest in toepassing van de Kaderrichtlijn Water 2000/60/EG", 190 pp + annex. VAN TENDELOO A., GOSSET G., BREINE J., BELPAIRE C., JOSENS G. & TRIEST L. 2004.

[15] « Arrêté du Gouvernement wallon du 13 septembre 2012 relatif à l'identification, à la caractérisation et à la fixation des seuils d'état écologique applicables aux masses d'eau de surface et modifiant le Livre II du Code de l'Environnement, contenant le Code de l'Eau » (published in the Moniteur belge on 12 October 2012) http://environnement.wallonie.be/legis/Codeenvironnement/codeR040.html

[16] • for benthic invertebrate fauna: VANDEN BOSSCHE, J.-P. and USSEGLIO-POLATERA, P. 2005. Characterisation, ecological status and type-specific reference conditions of surface water bodies in Wallonia (Belgium) using biocenotic metrics based on benthic invertebrate communities. Hydrobiologia 551 : 253-271.
• for diatoms: GOSSELAIN V., COSTE M., CAMPEAU S., ECTOR L., FAUVILLE C., DELMAS F., KNOFLACHER, M., LICURSI M., RIMET F., TISON J., TUDESQUE L., AND DESCY J-P., 2005 – A large scale stream benthic diatoms data base. Hydrobiologia 542 : 151-163.
• for fishes : KESTEMONT, P., DIDIER, J. DEPIEREUX E. AND MICHA, J. C. 2000. Selecting ichthyological metrics to assess river basin ecological quality. Archiv für Hydrobiologie Supplementband Monographic Studies 121: 321–348.
• for macrophytes: SEBASTIAN BIRK AND NIGEL WILLBY , 2011: WFD Intercalibration Phase 2: Milestone 5 report for JRC and DANIEL GALOUX, FRÉDÉRIC CHÉROT, FRANCIS ROSILLON AND KHADIJA SOSSEY ALAOUI (2014)- Contribution to the macrophytic typology of the Belgian reference watercourses. International Journal of Water Sciences (in press)
• for phytoplankton (reservoirs): Descy, J.P. et Viroux L., 2011 - Etat écologique des retenues de Wallonie en 2010 dans la perspective du respect des exigences de la Directive-cadre 2000/60/CE – Rapport final SPW - 47 pp.

4.3 Delineation of surface water and groundwater bodies

RBD	Surface Water								Groundwater	
	Rivers		Lakes		Transitional		Coastal			
	Number	*Average Length (km)*	*Number*	*Average Area (sq km)*	*Number*	*Average Area (sq km)*	*Number*	*Average Area (sq km)*	*Number*	*Average Area (sq km)*
BEEscaut_RW	79	19	0	0	0	0	0	0	10	-
BEEscaut_Schelde_BR	3	13	0	0	0	0	0	0	5	-
BESchelde_VL	160	14	15	2	6	7	1	1	32	1360
BENoordzee_FED	0	0	0	0	0	0	1	1428	0	0
BEMeuse_RW	257	20	0	0	0	0	0	0	21	-
BEMaas_VL	17	16	3	2	0	0	0	0	10	351
BERhin_RW	16	18	0	0	0	0	0	0	2	-
BESeine_RW	2	20	0	0	0	0	0	0	0	0
Total	*534*	*10*	*18*	*2*	*6*	*7*	*2*	*714.5*	*80*	*1120*

Table 4.2: *Surface water bodies, groundwater bodies and their dimensions*
Source*: WISE*

A distinction is made between larger **Flemish** water bodies and smaller local water bodies. Although there are also environmental objectives for the latter, the plan states that these are not addressed in the plan. The limit for classification as a Flemish water body is 50 ha for lakes and a catchment area of 50 km^2 for rivers. According to recent information provided by Flanders, small water bodies (catchment area smaller or between 10 km^2 and 50 km^2) will be discussed in the sub-basin specific documents which will be available as background documents to the forthcoming RBMPs.

For the **Brussels** water bodies, the very small water bodies whose catchment area is less than 10 km² were attached to the Zenne or Woluwe (water bodies).

For the **Walloon** water bodies, rivers whose watersheds are less than 10 km² are not considered water bodies (except in certain cases). These small water bodies are not included on the cartographic material but the limits of their basin are integrated in the basin of the nearest water body.

4.4 Identification of significant pressures and impacts

Pressures are considered as significant if there is a risk of not achieving WFD objectives. The **Flemish** RBMPs state that these pressures are related to the intensive use of land, demographic pressures, economic activities and pollution coming from other countries, regions and river basins. The most significant pressures on surface water are pollution from point and diffuse sources and hydro-morphological alterations. For groundwater the most significant pressures are pollution from point and diffuse sources and groundwater abstractions.

Several methodologies are used for defining significant pressures. For surface water pollution with nutrients and oxygen-binding substances an emission inventory, models and estimations are used for urban waste water treatment (UWWT) plants, industry and agriculture. For the significance of groundwater abstractions, permits are used.

For groundwater and sediment pollution, monitoring data are used. For some pressures thresholds are used in determining their significance. For point sources to surface water, the size of the UWWT plant, the type of industry (IPPC or not) and the pollution loads coming from the industrial non-IPPC plants are used. For surface water abstraction there is a threshold of 500,000 m^3 per year per water body. For groundwater point source pollution, the volume of groundwater that is polluted and exceeds the Flemish soil remediation standards without remedial action being taken is used as a threshold. No thresholds are given for diffuse pollution to either surface or groundwater or for groundwater abstraction. The pollution thresholds are also mainly related to nutrients and oxygen-binding substances. The significance of hydro-morphological pressures is determined by the designation as an artificial or heavily modified water body. Water bodies with heavily polluted sediments are also undergoing significant pressures. Monitoring data from stations at the border of the Flemish region have been used for determining water bodies that undergo pressures from incoming pollution loads[17].

Most information on thresholds is given in WISE. The RBMP gives information on several significant pressures and gives data on pollution loads and abstractions.

For the **Brussels Region**, no specific methodology for describing "significant" pressures has been defined. The methodology for determining point sources is based on the search of the origin of substances whose levels exceed standards. These substances are analysed in the framework of the monitoring of surface water (general network surveillance, monitoring of hazardous substances and monitoring of fishing waters). The estimation of diffuse sources of pollution is made by experts based on the importance of each pressure identified by the technical study on the estimation of water polluting substances in the territory of the Brussels Region from 2002. The industrial abstractions are obtained from the database of companies subject to taxation. Given the limited length (kilometres) of linear water mass and hydro-morphological changes in the Brussels Region, the method of work in determining hydro-morphological pressures is essentially descriptive and does not involve complicated procedures. For all pressures no information is given on thresholds/criteria.

For the **Walloon Region** the impact of different pressures on surface water bodies was assessed on the basis of the analysis of data from the monitoring networks (biological, physico chemical and chemical data), the Article 5 analyses ("Etat des lieux") for all known impacting pressures (industry, agriculture, tourism, sanitation ...) and by expert judgments. Hydro-morphological data were also used in this assessment.

For point source pollution, in terms of defining the "significant pressures": it appears from both WISE and from the RBMP that the tools used to define significant point source pressures is mainly based on expert judgment with the use of numerical values from IPPC and UWWT plants (e.g. number and location of collective wastewater treatment stations, average load rate, estimated charge transfers, performance of the collective wastewater treatment plants, loads discharged by treatment plants, sector, individual or autonomous sanitation, estimation of population equivalent (PE) treated, treatment performance of individual treatment plants, pollutant loads discharged by the "population in an autonomous sanitation area (individual wastewater treatment)", total pollution load generated, charge transfer). In relation to these point sources UWWTPs, IPPC industries and non-IPPC industries and tourist facilities (such as campings) not connected to UWWTPs that were present in the water bodies at risk were all considered as significant pressures as long as the monitoring network, the Article 5 analyses ("Etat des lieux") and expert judgments highlighted the corresponding sectors as responsible for the non-achievement of good status /good potential of the water body.

[17] More information in the background document "Overzicht van de inkomende grensoverschrijdende vuilvrachten in Vlaanderen"

On diffuse sources, data on used agricultural surface (SAU), livestock, organic fertilisers, other materials (such as sewage sludge), total N and total P , soluble N, and plant protection products (PPPs) have been used. As significant pressures, mainly agricultural inputs and abandoned industrial sites (brown fields) were considered in the case of water bodies at risk, as long as the monitoring network, the Article 5 analyses ("Etat des lieux") and expert judgments highlighted the corresponding sectors as responsible for the non-achievement of good status /good potential of the water body.

On water abstraction, the data used relates to water consumption (m^3), nutrient fluxes, sediment run-off from agricultural fields to surface waters and agro-environmental measures. On flow regulation, the data used relates to locations of the hydroelectric dams and the power of these dams (and the permits needed), the share of the water bodies in urban zones, the number of insurmountable obstacles for fish migration, percentage of the artificialised banks, the number of fish permits in a year and fish stocks. For all pressures, no information is given on thresholds/criteria. These data and information on pressures have been summarised in a table indicating the level of significance of each pressure in a semi-quantitative way. Further on, the contribution of each sector to the N and P load has been obtained by the water quality modelling tool PEGASE.

On coastal waters a series of significant pressures have been identified in the River Basin Management Plan. However, it is considered that the most significant pressures arise from riverine inputs and diffuse sources coming from outside the water body. Other pressures described include dumping of dredging sludge, sand suppletion for coastal –beach- protection against erosion, shipping (including pleasure sea craft), fisheries, non-invasive species, military activities and use, the influence from offshore and climate change.

RBD	No pressures		Point source		Diffuse source		Water abstraction		Water flow regulations and morphological alterations		River management		Transitional and coastal water management		Other morphological alterations		Other pressures	
	Nb	**%**	**Nb**	**%**	**Nb**	**%**	**Nb**	**%**	**No**	**%**	**Nb**	**%**	**Nb**	**%**	**Nb**	**%**	**Nb**	**%**
BEEscaut_RW	1	1	54	68	74	94	1	1	40	51	39	49	0	0	4	5	14	18
BEEscaut_Schelde_BR	0	0	3	100	3	100	1	33	3	100	0	0	0	0	0	0	0	0
BESchelde_VL	0	0	83	45.6	182	100	13	7.1	151	83.0	0	0	0	0	0	0	50	27.5
BENoordzee_FED	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BEMeuse_RW	113	44	98	38	110	43	3	1	57	22	42	16	0	0	48	19	21	8
BEMaas_VL	0	0	4	20	20	100	1	5	12	60	0	0	0	0	0	0	3	15
BERhin_RW	5	31	4	25	10	63	0	0	1	6	0	0	0	0	9	56	1	6
BESeine_RW	0	0	2	100	2	100	0	0	0	0	0	0	0	0	0	0	0	0
Total	*120*	*21*	*248*	*44*	*401*	*72*	*19*	*3*	*264*	*47*	*81*	*14*	*0*	*0*	*61*	*11*	*89*	*16*

Table 4.3: *Number and percentage of surface water bodies affected by significant pressures*
Source*: WISE*

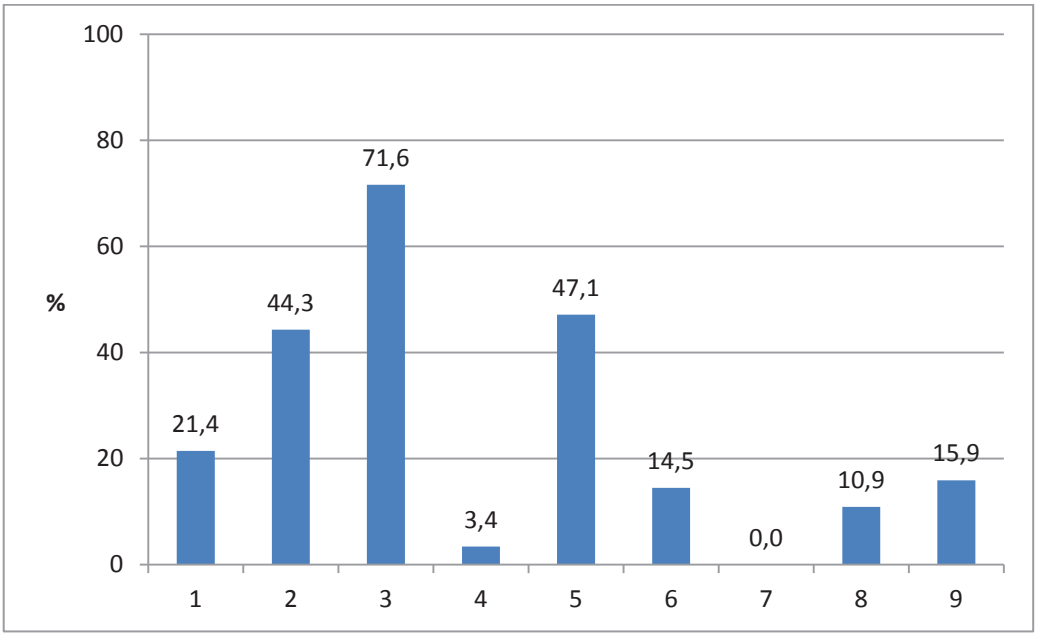

Figure 4.1: *Graph of percentage of surface water bodies affected by significant pressures*
1 = No pressures
2 = Point source
3 = Diffuse source
4 = Water abstraction
5 = Water flow regulations and morphological alterations
6 = River management
7 = Transitional and coastal water management
8 = Other morphological alterations
9 = Other pressures
***Source**: WISE*

In terms of **Flanders**' surface water pollution with nutrients and oxygen-binding substances (BOD, COD), households and agriculture are the most important contributors in the Scheldt river basin. Households are the main polluter with regards to COD, BOD and total phosphorous and agriculture is the main polluter with regards to total nitrogen. Agriculture is the main polluter in the Meuse basin. Industry comes in third place, but has a significantly lower contribution. For heavy metals the main sources of pollution are diffuse, leaching from soils and building materials, atmospheric deposition, transport, leaching from copper-containing paints on ships and the use of wood preservation products. The importance of the different sources depends on the heavy metal. Households and enterprises are also significant contributors although their share has declined. Plant protection products and industrial pollutants also contribute to chemical pollution and are specifically related to the agricultural and industrial sectors. For diffuse pollution of groundwater, agriculture is contributing to both pollution with nutrients and pesticides, while the latter also comes from public services and households. The significant point source pollution is mainly caused by the non-ferrous metals industry.

For the **Brussels Capital Region**, all water bodies (three) are subject to point source and diffuse source pollution, while one water body suffers from water abstraction as a significant pressure. Domestic pressure is present through the discharge waste water; the main pollutants are generally heavy metals; further on, deposition related to infrastructure, transportation, home heating and certain industrial emissions are also recognised as important.

For the **Walloon Region**, in the Scheldt river basin, the main pressure is diffuse source pollution, followed by point source and water flow and morphological alterations. In the Meuse river basin, the main pressure is diffuse and point source pollution, however, an important percentage of the water bodies have been identified as being under no pressure. In the Rhine river basin, the main pressure is diffuse source pollution, and one third of the water bodies have been identified as being under no pressure. In the Seine river basin, two water bodies are both under diffuse and point source pollution pressures.

In the **Federal Coastal Waters** RBMP it is mentioned that data from the OSPAR Convention[18] have been used in the identification of relevant pressures and terrestrial sources of pollution.

The main point source pollution to the coastal waters used to be the discharge of wastewater and, to a lesser extent from industrial discharges. From the late nineties, the wastewater and the industrial discharges were all closed. However, there is still pollution that comes from other parts of Belgium.

The impacts of diffuse source pollution mainly relate to the pollutants present in the rivers and canals, and through horizontal transportation from neighbouring countries (France and the Netherlands). In particular, the diffuse pollution is due to specific pollutants (Cu, Zn), pesticides (Lindane) and nutrients. Hydromorphological pressures are also identified, in particular the impact of the disposal of dredge material and coastal protection activities. The navigation activities in the North Sea are also identified as an important pressure in the Belgian coastal waters, as well as the fisheries, the introduction of alien species, and the military uses of the coast.

[18] http://www.ospar.org/

4.5 Protected areas

RBD	Number of PAs										
	Abstraction for drinking	Bathing	Birds	European Other	Fish	Habitats	Local	National	Nitrates	Shellfish	UWWT
BEEscaut_RW	45	4	22		2	30			3		1
BEEscaut_Schelde_BR	1					3			1		1
BESchelde_VL	139	1	12			16			1	1	1
BENoordzee_FED			3			1		1			
BEMeuse_RW	155	31	164		32	185			5		1
BEMaas_VL	29	1	2			10			1		1
BERhin_RW	10	1	13		1	15					1
BESeine_RW			2		2	3					1
Total	*379*	*38*	*218*		*37*	*263*		*1*	*11*	*1*	*7*

Table 4.4: *Number of protected areas of all types in each RBD and for the whole country, for surface and groundwater*[19]
Source*: WISE*

[19] This information corresponds to the reporting of protected areas under the WFD. More/other information may have been reported under the obligations of other Directives.

5. MONITORING

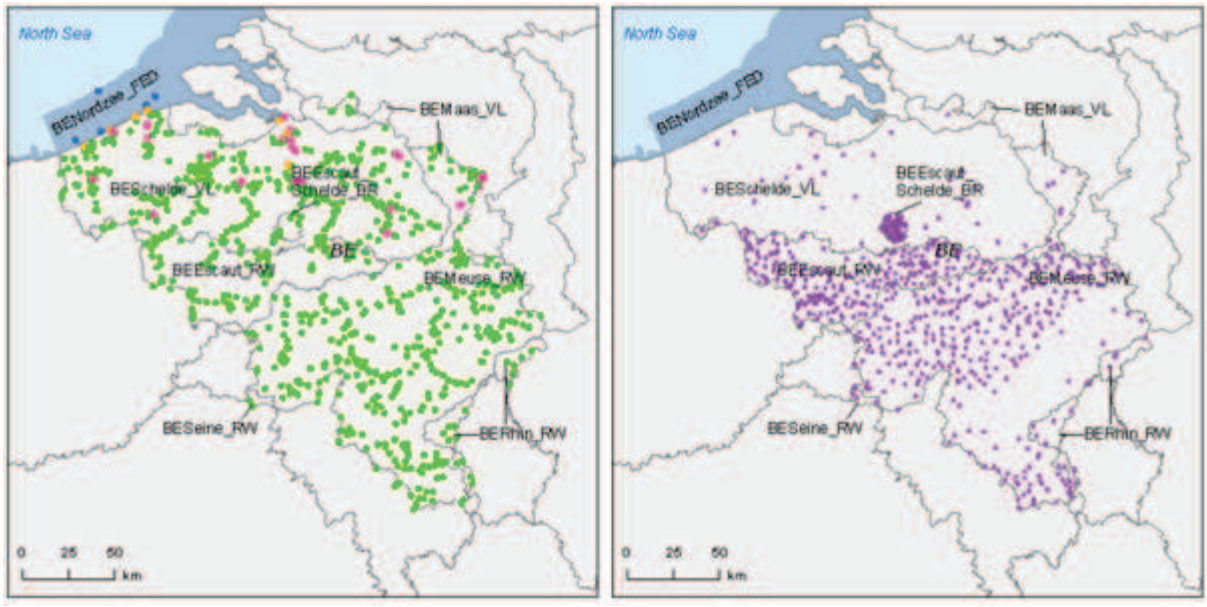

Figure 5.1: *Maps of surface water (left) and groundwater (right) monitoring stations*

- River monitoring stations
- Lake monitoring stations
- Transitional water monitoring stations
- Coastal water monitoring stations
- Unclassified surface water monitoring stations
- Groundwater monitoring stations
- River Basin Districts
- Countries outside EU

Source*: WISE, Eurostat (country borders)*

The following table indicates the quality elements monitored, as reported to WISE.

RBD	Rivers											Lakes									
	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.3 Macrophytes	QE1.2.4 Phytobenthos	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.3 Macrophytes	QE1.2.4 Phytobenthos	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants
BEMaas_VL																					
BENoordzee_FED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BESchelde_VL																					
BEEscaut_Schelde_BR												-	-	-	-	-	-	-	-	-	-
BEEscaut_RW												-	-	-	-	-	-	-	-	-	-
BEMeuse_RW												-	-	-	-	-	-	-	-	-	-
BERhin_RW												-	-	-	-	-	-	-	-	-	-
BESeine_RW												-	-	-	-	-	-	-	-	-	-

RBD	Transitional											Coastal									
	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.1 Microalgae	QE1.2.2 Angiosperms	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.1 Microalgae	QE1.2.2 Angiosperms	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants
BEMaas_VL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BENoordzee_FED	-	-	-	-	-	-	-	-	-	-	-										
BESchelde_VL																					
BEEscaut_Schelde_BR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

RBD	Transitional											Coastal										
	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.1 Microalgae	QE1.2.2 Angiosperms	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.1 Microalgae	QE1.2.2 Angiosperms	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants
BEEscaut_RW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BEMeuse_RW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERhin_RW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BESeine_RW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5.1: *Quality elements monitored*

QE Monitored

QE Not monitored

\- Not Relevant

Source*: WISE and information provided by the Belgian authorities after the assessment had taken place.*

RBD	Rivers		Lakes		Transitional		Coastal		Groundwater		
	Surv	Op	Surv	Op	Surv	Op	Surv	Op	Surv	Op	Quant
BEEscaut_RW	14	74	0	0	0	0	0	0	148	72	82
BEEscaut_Schelde_BR	9	5	0	0	0	0	0	0	14	10	47
BESchelde_VL	65	385	8	41	6	13	0	0	32	32	32
BENoordzee_FED	0	0	0	0	0	0	4	5	0	0	0
BEMeuse_RW	36	143	0	0	0	0	0	0	239	129	101
BEMaas_VL	6	38	3	10	0	0	0	0	10	10	10
BERhin_RW	3	7	0	0	0	0	0	0	13	11	3
BESeine_RW	1	1	0	0	0	0	0	0	0	0	0
Total by type of site	*134*	*653*	*11*	*51*	*6*	*13*	*4*	*5*	*456*	*264*	*275*
Total number of monitoring sites[20]	*870*		*51*		*13*		*5*		*675*		

Table 5.2: *Number of monitoring sites by water category.*
Surv = Surveillance, Op = Operational, Quant = Quantitative
Source*: WISE*

5.1 Monitoring of surface waters

In **Flanders**, an overview of the parameters monitored and the monitoring frequency is given in the RBMPs and WISE. All relevant quality elements are monitored for rivers and lakes. For transitional water bodies one biological quality element (BQE) (macroalgae) is not considered relevant and thus not monitored. All the relevant priority substances and other specific pollutants except for pentabromodiphenylether, C10-13- chloralkanes and DEHP (di(2-ethylhexyl)phthalate) were monitored in 2007. This is explained by Flanders by the lack of suitable analysis methods. According to recent information from Flanders, polybromodiphenylethers are monitored in sediment and DEHP is monitored in surface water at the moment. There is also a sediment monitoring programme in place that monitors physico-chemistry, eco-toxicology and biology[21].

In the RBMP there is no information on how BQEs have been selected for operational monitoring. According to recent information received from Flanders no selection has been made since there are often several pressures at the same time and the knowledge of the ecological status was incomplete. For the current monitoring cycle, a selection procedure was developed, choosing the most relevant BQE for each operational monitoring body.

All the quality elements for the evaluation of the good status were monitored for all water bodies and no grouping of water bodies has been applied. For the second RBMPs a limited number of water bodies are clustered for monitoring purposes.

Regarding international co-operation, no information is found in the RBMPs. Some information on co-ordination of monitoring is given in the management roof reports that are made by the International Scheldt and Meuse Commissions.

[20] The total number of monitoring sites may differ from the sum of monitoring sites by type because some sites are used for more than one purpose.
[21] Triade method.

Within the International Commission for the Meuse, common monitoring efforts concentrate on the homogeneous monitoring network (HMS), which monitors the Meuse and some major tributaries. The data set is collected from the monitoring programmes of the parties. For the physico-chemical quality elements, the network consists of 38 sites: 16 in the main river and 22 on the tributaries. For the biological quality elements, the network consists of 40 sites: 19 in the main river and 21 in the tributaries. The physico-chemical monitoring considers parameters that assess not only the classical pollution, but also pollution by heavy metals, organic micro- pollutants and priority substances. The 4 BQEs are now monitored (diatoms, macro-invertebrates, macrophytes and fish).

Within the International Commission for the Scheldt, the homogeneous monitoring network was improved in 2011, in order to achieve a better alignment of the WFD monitoring programmes. This HMS2 comprises 35 monitoring points. The original monitoring network was expanded with new parameters: hardness and dissolved organic carbon and 2 BQEs (diatoms and macro-invertebrates).

Bilateral consultations between the regions have produced transboundary fact sheets for each adjacent water body. The fact sheets contain information about every WFD parameter and assessment for both parties and make a clear comparison between them. These facts sheets lay the foundation for common monitoring and status assessment.

In the Scheldt river basin there is a homogenous monitoring network where, at 14 monitoring points along the river Scheldt, 36 chemical and physico-chemical parameters are monitored every four weeks. Once a year a report is made that assesses the evolution of the chemical quality of the water. According to recent information from Flanders, this monitoring programme has been extended. In the context of the Scaldwin project there will be transboundary monitoring of sediment loads.

The monitoring network in the (Federal) **Coastal Waters** is based on the existing monitoring of the OSPAR Convention, and has been adapted to the requirements of the WFD. There are a total of six monitoring sites. The BQEs that are being monitored are chlorophyll a and *Phaeocystis* for phytoplankton and macrobenthos. The relevant physico-chemical parameters are also claimed to be monitored.

In the **Brussels Capital Region**, all parameters are monitored for rivers (no other categories are present). The sites for operational monitoring are the same sites as for surveillance monitoring (five in total). All required biological and general physico-chemical elements are monitored for each station in the surveillance monitoring programme. The hydromorphological quality is monitored in two of the three water bodies (the other water body being a canal). Priority substances and other pollutants have been monitored since 2007 with a frequency of five times a year at the surveillance monitoring sites, 12 times a year at the operational monitoring sites. No information was found on the monitoring of sediments and biota. There are three water bodies (rivers) in the monitoring programme: the river Zenne, the Canal and the river Woluwe. There is no grouping of water bodies.

For operational monitoring, the Brussels-Capital Region, Flanders and the Federal government have made no selection and all relevant BQEs were monitored during the first monitoring cycle.

In the **Walloon Region** each surface water body is individually monitored for all the quality elements (surveillance, operational and additional monitoring), except for two water bodies from the Scheldt RBD and one from the Meuse RBD out of a total of 53 water bodies for surveillance monitoring in the Walloon Region. In the Scheldt RBD, there are 14 water bodies included in surveillance monitoring and 12 of these water bodies monitor all BQEs; In the Meuse RBD 35 water bodies are included in surveillance monitoring of which 34 are

monitored for all BQEs; for surveillance monitoring in the Rhine RBD, there are three out of three water bodies; for the Seine RBD one out of one). In the entire Walloon region, there are 54 surveillance sites, 225 operational sites and 158 additional monitoring sites. Operational monitoring sites are determined based on risk and only relevant elements are measured depending on the risk. The surveillance monitoring network includes locations on the transboundary river Scheldt that were defined by the International Scheldt Commission for the Scheldt river basin. The surveillance monitoring network includes locations on the transboundary river Meuse that were defined by the International Meuse Commission (CIM). There is no information in WISE relating to international coordination of monitoring in the Rhine RBD and the Seine RBD, but there are three monitoring sites that are part of the monitoring network from the International Commissions for the protection of Moselle and Saar Rivers (CIPMS). Wallonia is not a Party but an Observer in CIPMS and communicates the monitoring data for these three sites to CIPMS.

5.2 Monitoring of groundwater

In **Flanders**, both surveillance and operational monitoring programmes have been established for groundwater covering both quantitative and chemical status. For the operational monitoring programme, the RBMP mentions that risk parameters and risk zones are monitored through a water body specific selection of wells, with measurements every six months with the possibility for higher frequency measurements in problem areas. In the RBMP an overview of the monitoring frequencies is given.

No assessment of significant and sustained upward trends in pollutant concentrations for groundwater has been carried out. Recent information from Flanders explains that the setup of the monitoring networks allows for this analysis but that the groundwater monitoring networks for the WFD have only been fully operational since 2004, the short time series of the monitoring data is insufficient for such an analysis.

The RBMPs do not address the international co-ordination of groundwater monitoring. More information on this is found in the management plan roof reports. For the Scheldt river basin, an example is given of a co-ordinated quantitative monitoring campaign for the groundwater body in the cross-boundary Carboniferous Limestone Aquifer shared by the Flemish Region (BEVL063), France (FRA015) and the Walloon Region (BE_Escaut_RWE060).

In the **Brussels Capital Region**, results of the surveillance monitoring programme since 2004 showed elevated levels of nitrates and pesticides in a number of monitoring sites (10). There was a high spatial variability between points. The operational monitoring programme is aimed to reinforce the surveillance monitoring programme (a higher density of sampling points in problematic zones). The methodology takes into consideration the requirements of the WFD and advice from experts to assess trans-regional aspects of the transport of pollutants across the border of the district. Although the monitoring sites are said to be sampled bi-annually, it is not clear how the long-term monitoring to detect trends in pollutants is being incorporated in the design of the monitoring programme. However, the MS has informed the Commission that the calculation of trends will be made annually from 2013 on the basis of results of monitoring programmes. The monitoring programme of the quantitative status of groundwater in the Brussels region includes 47 piezometric monitoring sites and the qualitative monitoring network includes 24 stations of which 10 belong to operational monitoring. The discussions within the International Scheldt Commission have focused on global surveillance strategies of each partner (density of networks, endpoints, frequency, etc.). This coordination has led to a follow up of the monitoring programmes and the adaptation of existing monitoring networks

of each of the partners in three pilot aquifers of the Scheldt (carboniferous limestone aquifers, Oligocene sands aquifers and aquifer sands of Brussels).The surveillance monitoring of chemical status of groundwater bodies includes five water bodies that are transboundary with other regions. General parameters are measured and other parameters are selected in water bodies for which there is a risk of not reaching good status; further on, for transboundary water bodies, also parameters that are relevant for the protection of the use of the groundwater. In total, 226 parameters are monitored. For operational monitoring of chemical status of groundwater bodies, there are 10 monitoring stations (including two specific sites for Natura 2000 zones). Parameters measured are based on risk parameters such as nitrates, pesticides as well as parameters that are included in Directive 2006/118/EC Annex 2 part B; in total it includes the monitoring of 144 parameters.

In the **Walloon Region**, the monitoring network includes chemical monitoring on existing locations where long time series are available. Two groundwater bodies out of ten in the RBD Scheldt, five groundwater bodies out of 21 in the RBD Meuse and one out of two in the Rhine RBD in Wallonia show increasing trends of nitrate. Since 1994 nitrate concentrations in the groundwater are surveyed as part of the implementation of Nitrates Directive 91/676/EEC ("Survey Nitrate"). This nitrate monitoring network specifically includes 950 sites over the Walloon area and includes sites where water is abstracted for human consumption. There is exchange of information in the International Scheldt Commission and in the International Meuse Commission. There is also a monitoring programme with at least one monitoring point per transboundary groundwater body. In Wallonia, the quantitative status of groundwater bodies is measured at 186 locations.

5.3 Monitoring of protected areas

For protected areas in **Flanders** designated under the Habitats Directive the surface water monitoring network is linked to the surface water monitoring network for the WFD. All the biological quality elements are monitored in the surface waters of the Habitats Directive monitoring network. For protected nature reserves (not always located in designated Natura 2000 areas), monitoring for groundwater is included in the general groundwater monitoring programme.

Surface water monitoring in protected areas is carried out as requested by the respective Directive. The protected areas in Flanders are:

- For the protection of economically significant aquatic species (Directive 2006/113/EC);
- Recreational waters, including areas designated as bathing waters under Directive 76/160/EEC;
- Vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC.

Monitoring of surface waters used for human consumption is not done according to the provisions of Annex V 1.3.5, since there are no discharges of priority substances or other substances in significant quantities. Rivers feeding into reservoirs are monitored according to Flemish legislation. The same applies to groundwater used for human consumption.

For the **Brussels Capital** region, drinking water production depends on groundwater in the two sites of "Bois de la Cambre" and "Forêt de Soignes". The WFD states that no additional surveillance monitoring is required for this type of drinking water production. Only the groundwater body of the Bruxelliaan is being exploited as a source for drinking water in the

Brussels region. Two chemical monitoring sites in this zone were included in the general surveillance monitoring programme for groundwater and five sites were included in the quantitative monitoring. These sampling locations are also subject to an operational monitoring programme, in addition to this surveillance monitoring.

For the **Walloon** region, in relation to surface water monitoring programme for drinking water protected areas, the drinking water intakes that provide on average more than 100 m³ per day are designated as checkpoints and are subject to the additional controls required. Checks on these cover all priority substances discharged and all other substances discharged in significant quantities which could affect the status of the water body. Checks are carried out according to the following frequencies: Total number of persons served: <10,000: four times per year; from 10,000 to 30,000: eight times per year; > 30,000: 13 times per year. Moreover, in the safeguard zones of these intakes, some additional or more severe parameters (nitrate, boron, bromides and fluorides) are applied. These parameters are monitored at the same frequency as for the specific pollutants monitoring stations located in safeguard zones.

The monitoring programmes for drinking water protected areas are identical to those of the groundwater bodies, except that the surveillance monitoring programmes are undertaken every six years for the intakes providing between 100 and 275 m³ a day as an average. Beyond 275 m³ a day, the surveillance monitoring programmes for protected areas are carried out every three years as for the monitoring of groundwater bodies.

***Figure 5.2**: Map of monitoring stations for protected areas*
Source: WISE and additional information provided by the Belgian authorities (Flanders).

RBD	Surface waters									Ground-water drinking water
	Surface drinking water abstraction	Quality of drinking water	Bathing water	Birds sites	Fish	Habitats sites	Nitrates	Shell-fish	UWWT	
BEMaas_VL	0	0	0	0	0	0	0	0	0	0
BENoordzee_FED	0	0	0	3	0	2	0	0	0	0
BESchelde_VL	0	0	0	0	0	0	0	0	0	0
BEEscaut_Schelde_BR	0	0	0	0	1	1	0	0	2	7
BEEscaut_RW	0	0	0	17	2	15	14	0	92	83
BEMeuse_RW	10	0	0	158	113	156	50	0	315	129
BERhin_RW	0	0	0	10	2	11	3	0	18	9
BESeine_RW	0	0	0	2	2	2	0	0	2	0
Total	*10*	*0*	*0*	*190*	*120*	*187*	*67*	*3*	*429*	*228*

Table 5.3: *Number of monitoring stations in protected areas*[22].
Source*: WISE and additional information provided by the Belgian authorities (Flanders).*

[22] Number of sites calculated from data reported at site level. If no data reported at site level, then table supplemented with data reported at programme level.

6. OVERVIEW OF STATUS (ECOLOGICAL, CHEMICAL, GROUNDWATER)

RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
BEEscaut_RW	39	0	0	1	2.6	8	20.5	16	41	13	33.3	1	2.6
BEEscaut_Schelde_BR	0	-		-		-		-		-		-	
BESchelde_VL	41	0	0	0	0	4	9.8	17	41.5	19	46.3	1	2.4
BENoordzee_FED	1	0	0	0	0	1	100	0	0	0	0	0	0
BEMeuse_RW	215	5	2.3	109	50.7	57	26.5	23	10.7	9	4.2	12	5.6
BEMaas_VVL	8	0	0	0	0	4	50	3	37.5	1	12.5	0	0
BERhin_RW	16	2	12.5	6	37.5	5	31.2	0	0	1	6.2	2	12.5
BESeine_RW	2	0	0	0	0	2	100	0	0	0	0	0	0
Total	*322*	*7*	*2*	*116*	*36*	*81*	*25*	*59*	*18*	*43*	*13*	*16*	*5*

***Table 6.1**: Ecological status of natural surface water bodies.*
***Source**: WISE*

RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
BEEscaut_RW	40	0	0	0	0	9	23	9	23	19	48	3	8
BEEscaut_Schelde_BR	3	0	0	0	0	1	33.3	1	33.3	1	33.3	0	0
BESchelde_VL	141	0	0	0	0	25	17.7	37	26.2	77	54.6	2	1.4
BENoordzee_FED	0	0	0	0	0	0	0	0	0	0	0	0	0
BEMeuse_RW	42	0	0	0	0	10	24	9	21	7	17	16	38
BEMaas_VVL	12	0	0	0	0	6	50	4	33.3	2	16.7	0	0
BERhin_RW	0	-		-		-		-		-		-	
BESeine_RW	0	-		-		-		-		-		-	
Total	*238*	*0*	*0*	*0*	*0*	*51*	*21*	*60*	*25*	*106*	*45*	*21*	*9*

***Table 6.2:** Ecological potential of artificial and heavily modified water bodies.*
***Source**: WISE*

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
BEEscaut_RW	39	4	10.3	27	69.2	8	20.5
BEEscaut_Schelde_BR	0	-		-		-	
BESchelde_VL	41	18	43.9	6	14.6	17	41.5
BENoordzee_FED	1	0	0	1	100	0	0
BEMeuse_RW	215	124	57.7	31	14.4	60	27.9
BEMaas_VL	8	2	25.0	1	12.5	5	62.5
BERhin_RW	16	10	62.5	4	25	2	12.5
BESeine_RW	2	2	100	0	0	0	0
Total	*322*	*160*	*50*	*70*	*22*	*92*	*29*

***Table 6.3:** Chemical status of natural surface water bodies.*
***Source**: WISE*

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
BEEscaut_RW	40	1	3	27	68	12	30
BEEscaut_Schelde_BR	3	0	0	3	100	0	0
BESchelde_VL	141	27	19.1	46	32.6	68	48.2
BENoordzee_FED	0	0	0	0	0	0	0
BEMeuse_RW	42	4	10	19	45	19	45
BEMaas_VL	12	2	16.7	3	25.0	7	58.3
BERhin_RW	0	-		-		-	
BESeine_RW	0	-		-		-	
Total	*238*	*34*	*14*	*98*	*41*	*106*	*45*

Table 6.4: *Chemical status of artificial and heavily modified surface water bodies.*
Source*: WISE*

RBD	Good		Poor		Unknown	
	No.	%	No.	%	No.	%
BEEscaut_RW	4	40	6	60	0	0
BEEscaut_Schelde_BR	4	80	1	20	0	0
BESchelde_VL	7	21.9	25	78.1	0	0
BENoordzee_FED	0	0	0	0	0	0
BEMeuse_RW	15	71.4	6	28.6	0	0
BEMaas_VL	4	40	6	60	0	0
BERhin_RW	2	100	0	0	0	0
BESeine_RW	-		-		-	
Total	*36*	*45*	*44*	*55*	*0*	*0*

Table 6.5: *Chemical status of groundwater bodies.*
Source*: WISE*

RBD	Good		Poor		Unknown	
	No.	%	No.	%	No.	%
BEEscaut_RW	9	90	1	10	0	0
BEEscaut_Schelde_BR	5	100	0	0	0	0
BESchelde_VL	19	59.4	13	40.6	0	0
BENoordzee_FED	0	0	0	0	0	0
BEMeuse_RW	21	100	0	0	0	0
BEMaas_VL	9	90	1	10	0	0
BERhin_RW	2	100	0	0	0	0
BESeine_RW	-		-		-	
Total	*65*	*81.2*	*15*	*18.8*	*0*	*0*

Table 6.6: *Quantitative status of groundwater bodies.*
Source*: WISE*

RBD	Total	Global status (ecological and chemical)					Good ecological status 2021		Good chemical status 2021		Good ecological status 2027		Good chemical status 2027		Global exemptions 2009 (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015									Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	79	1	1.3	12	15.2	13.9									65	0	0	0
BEEscaut_Schelde_BR	3	0	0	0	0	0									100	0	0	0
BESchelde_VL	182	0	0	5	2.7	2.7									97	0	0	0
BENoordzee_FED	1	0	0	1	100	100									0	0	0	0
BEMeuse_RW	257	79	30.7	143	55.6	24.9									14	0	0	0
BEMaas_VL	20	0	0	2	10	10									90	0	0	0
BERhin_RW	16	5	31.2	14	87.5	56.2									0	0	0	0
BESeine_RW	2	0	0	2	100	100									0	0	0	0
Total	560	85	15.2	*179*	*32*	*17*									50	0	0	0

Table 6.7: *Surface water bodies: overview of status in 2009 and expected status in 2015, 2021 and 2027*

Water bodies with good status in 2009 fall into the following category:

1. Ecological status is high or good and the chemical status is good, exemptions are not considered

Water bodies expected to achieve good status in 2015 fall into the following categories:

1. Ecological status is high or good and the chemical status is good, exemptions are not considered

2. Chemical status is good, and the ecological status is moderate or below but no ecological exemptions

3. Ecological status is high or good, and the chemical status is failing to achieve good but there are no chemical exemptions

4. Ecological status is moderate or below, and chemical status is failing to achieve good but there are no ecological nor chemical exemptions

Note*: Water bodies with unknown / unclassified / Not applicable in either ecological or chemical status are not considered*

Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027). Additional information provided by the Belgian authorities.*

RBD	Total	Ecological status					Good ecological status 2021		Good ecological status 2027		Ecological exemptions (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	39	1	2.6	5	13	10					87	0	0	0
BEEscaut_Schelde_BR	0	-		-		-					0	0	0	0
BESchelde_VL	41	0	0	2	4.9	4.9					95	0	0	0
BENoordzee_FED	1	0	0	1	100	100					0	0	0	0
BEMeuse_RW	215	114	53	143	67	13					33	0	0	0
BEMaas_VL	8	0	0	2	25.0	25.0					75	0	0	0
BERhin_RW	16	8	50	16	100	50					0	0	0	0
BESeine_RW	2	0	0	2	100	100					0	0	0	0
Total	*322*	*123*	*38.2*	*171*	*53*	*15*					66	0	0	0

Table 6.8: *Natural surface water bodies: ecological status in 2009 and expected status in 2015, 2021 and 2027*
Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027). Additional information provided by the Belgian authorities.*

RBD	Total	Chemical status					Good chemical status 2021		Good chemical status 2027		Chemical exemptions (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	39	4	10.3	13	33.3	23					67	0	0	0
BEEscaut_Schelde_BR	0	-		-							0	0	0	0
BESchelde_VL	41	18	43.9	-	-	-					14.6	0	0	0
BENoordzee_FED	1	0	0.0	1	100	100					0	0	0	0
BEMeuse_RW	215	124	57.7	195	90.7	33					9	0	0	0
BEMaas_VL	8	2	25.0	-	-	-					12.5	0	0	0
BERhin_RW	16	10	62.5	16	100	38					0	0	0	0
BESeine_RW	2	2	100	2	100	0					0	0	0	0
Total	*322*	*160*	*49.7*	*227*	*70*	*21*					16	0	0	0

Table 6.9: *Natural surface water bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027*
Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027). Additional information provided by the Belgian authorities.*

Note: In Flanders, the evaluation of the chemical status is only based on the results of monitoring of a limited number of substances. When there was an exceedance of a substance it was classified as 'bad' and an Article 4.4 exemption was applied for that substance. When there was no exceedance of a monitored substance, the chemical status was classified as 'good' (+ no exemption). Drawing conclusions for the 2015 status based on these figures is therefore not recommended. 2015 status in Flanders (VL) is marked as unknown: "-".

RBD	Total	GW chemical status					Good chemical status 2021		Good chemical status 2027		GW chemical exemptions (% of all GWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	10	4	40	5	50	10					50	0	0	0
BEEscaut_Schelde_BR	5	4	80	4	80	0					20	0	0	0
BESchelde_VL	32	7	21.9	7	21.9	0					78	0	0	0
BENoordzee_FED	0	0	0	0	0	0					0	0	0	0
BEMeuse_RW	21	15	71	16	76	5					24	0	0	0
BEMaas_VL	10	4	40	4	40	0					60	0	0	0
BERhin_RW	2	2	100	2	100	0					0	0	0	0
BESeine_RW	0	-		-		-					-	-	-	-
Total	*80*	*36*	*45*	*38*	*48*	*3*					53	0	0	0

Table 6.10: *Groundwater bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027*
Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

RBD	Total	Groundwater quantitative status					Good quantitative status 2021		Good quantitative status 2027		GW quantitative exemptions (% of all GWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	10	9	90	10	100	10					0	0	0	0
BEEscaut_Schelde_BR	5	5	100	5	100	0					0	0	0	0
BESchelde_VL	32	19	59.4	19	59.4	0					40.6	0	0	0
BENoordzee_FED	0	0	0	0	0	0					0	0	0	0
BEMeuse_RW	21	21	100	21	100	0					0	0	0	0
BEMaas_VL	10	9	90.0	9	90.0	0					10	0	0	0
BERhin_RW	2	2	100	2	100	0					0	0	0	0
BESeine_RW	0	-		-		-					-	-	-	-
Total	*80*	*65*	*81.3*	*66*	*82.5*	*1.3*					17.5	0	0	0

Table 6.11: *Groundwater bodies: quantitative status in 2009 and expected status in 2015, 2021 and 2027*
Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

RBD	Total HMWB and AWB	Ecological potential					Good ecological potential 2021		Good ecological potential 2027		Ecological exemptions (% of all HMWB/AWB)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	40	0	0	3	8	8					0	0	0	0
BEEscaut_Schelde_BR	3	0	0	1	33	33					66	0	0	0
BESchelde_VL	141	0	0	3	2	2					98	0	0	0
BENoordzee_FED	0	0	0	0	0	0					0	0	0	0
BEMeuse_RW	42	0	0	13	31	31					0	0	0	0
BEMaas_VL	12	0	0	0	0	0					100	0	0	0
BERhin_RW	0	-		-		-					-	-	-	-
BESeine_RW	0	-		-		-					-	-	-	-
Total	*238*	*0*	*0*	*20*	*8*	*8*					64	0	0	0

Table 6.12: *Heavily modified and artificial water bodies: ecological potential in 2009 and expected ecological potential in 2015, 2021 and 2027*
Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027). Additional information provided by the Belgian authorities.*

RBD	Total HMWB and AWB	Chemical status					Good chemical status 2021		Good chemical status 2027		Chemical exemptions (% of all HMWB/AWB)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
BEEscaut_RW	40	1	2.5	15	37.5	35					63	0	0	0
BEEscaut_Schelde_BR	3	0	0	0	0	0	1	33	3	100	100	0	0	0
BESchelde_VL	141	27	19.1	-	-	-					32.6	0	0	0
BENoordzee_FED	0	0	0	0	0	0					0	0	0	0
BEMeuse_RW	42	4	9.5	27	64.3	54.8					36	0	0	0
BEMaas_VL	12	2	16.7	-	-	-					25.0	0	0	0
BERhin_RW	0	-		-							-	-	-	-
BESeine_RW	0	-		-							-	-	-	-
Total	*238*	*34*	*14.3*	*42*	*18*	*3*					37	0	0	0

Table 6.13: *Heavily modified and artificial water bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027*
Source*: WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027). Additional information provided by the Belgian authorities.*

Note: In Flanders, The evaluation of the chemical status is only based on the results of monitoring of a limited number of substances. When there was an exceedance of a substance it was classified 'bad' and an Article 4.4 exemption was applied for that substance. When there was no exceedance of a monitored substance, the chemical status was classified 'good' (+ no exemption). Drawing conclusions for the 2015 status based on these figures is therefore not recommended. 2015 status in Flanders (VL) is marked as unknown: "-".

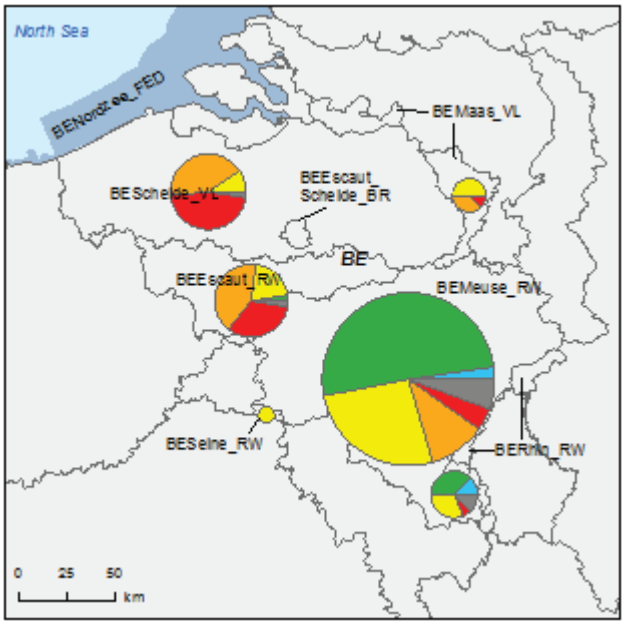

Figure 6.1: *Map of ecological status of natural surface water bodies 2009*

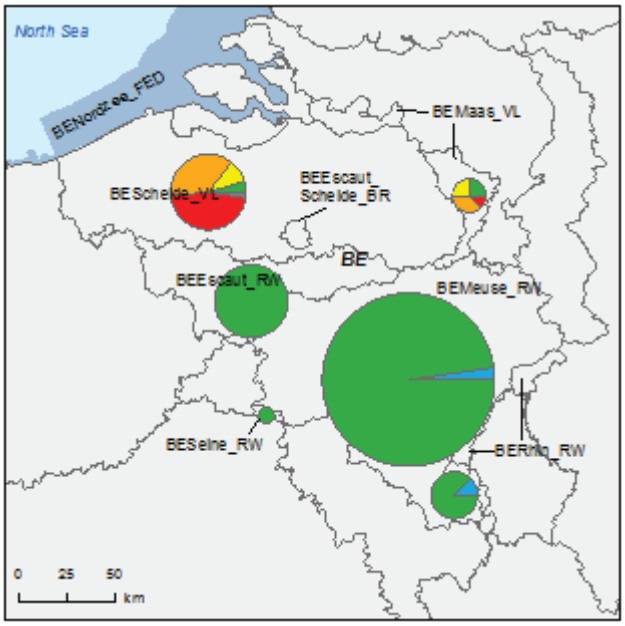

Figure 6.2: *Map of ecological status of natural surface water bodies 2015*

High
Good
Moderate
Poor
Bad
Unknown
River Basin Districts
Countries outside EU

Note: Standard colours based on WFD Annex V, Article 1.4.2(i).
Source*: WISE, Eurostat (country borders) (NB: it has not been possible to update Figure 6.2 based on the additional information provided by the Belgian authorities for Table 6.8 above. There may, therefore, be discrepancies between the Table and the Figure).*

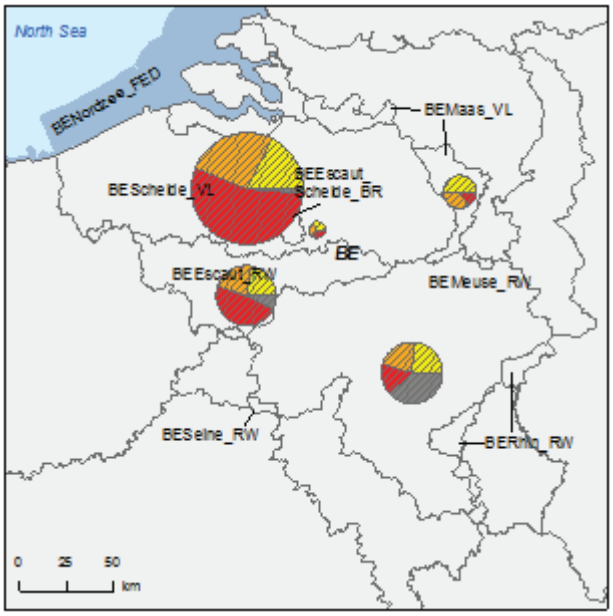

***Figure 6.3**: Map of ecological potential of artificial and heavily modified water bodies 2009*

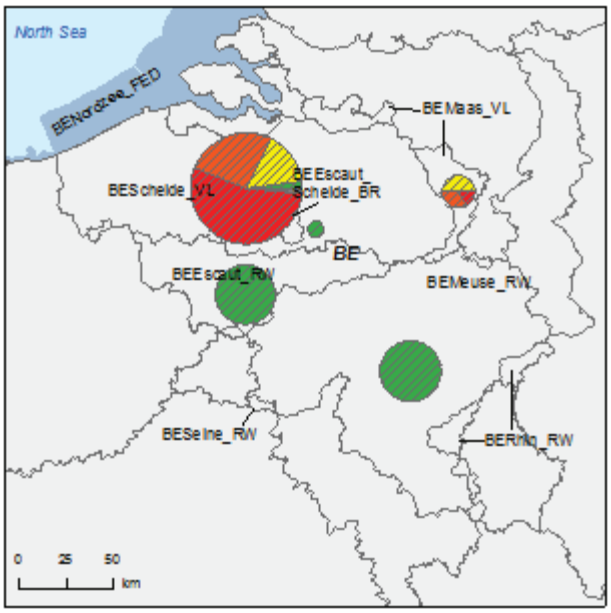

***Figure 6.4:** Map of ecological potential of artificial and heavily modified water bodies 2015*

Good or better
Moderate
Poor
Bad
Unknown
River Basin Districts
Countries outside EU

Note: Standard colours based on WFD Annex V, Article 1.4.2(ii).
***Source**: WISE, Eurostat (country borders) (NB: it has not been possible to update Figure 6.4 based on the additional information provided by the Belgian authorities for Table 6.12 above. There may, therefore, be discrepancies between the Table and the Figure).*

Figure 6.5: *Map of chemical status of natural surface water bodies 2009*

Figure 6.6: *Map of chemical status of natural surface water bodies 2015*

Good
Failing to achieve good
Unknown
River Basin Districts
Countries outside EU

Note: Standard colours based on WFD Annex V, Article 1.4.3.
Source*: WISE, Eurostat (country borders) (NB: it has not been possible to update Figure 6.6 based on the additional information provided by the Belgian authorities for Table 6.9 above. There may, therefore, be discrepancies between the Table and the Figure).*

Figure 6.7: *Map of chemical status of artificial and heavily modified water bodies 2009*

Figure 6.8: *Map of chemical status of artificial and heavily modified water bodies 2015*

Good
Failing to achieve good
Unknown
River Basin Districts
Countries outside EU

Note: Standard colours based on WFD Annex V, Article 1.4.3.
Source*: WISE, Eurostat (country borders) (NB: it has not been possible to update Figure 6.8 based on the additional information provided by the Belgian authorities for Table 6.13 above. There may, therefore, be discrepancies between the Table and the Figure).*

Figure 6.9: *Map of chemical status of groundwater bodies 2009*

Figure 6.10: *Map of chemical status of groundwater bodies 2015*

Good
Poor
Unknown
River Basin Districts
Countries outside EU

Note: Standard colours based on WFD Annex V, Article 2.4.5.
Source: WISE, Eurostat (country borders)

Figure 6.11: *Map of quantitative status of groundwater bodies 2009*

Figure 6.12: *Map of quantitative status of groundwater bodies 2015*

Good
Poor
Unknown
River Basin Districts
Countries outside EU

Note: Standard colours based on WFD Annex V, Article 2.2.4.
Source: WISE, Eurostat (country borders)

7. ASSESSMENT OF ECOLOGICAL STATUS OF SURFACE WATERS

A regional approach to ecological status assessment has been used.

7.1 Ecological status assessment methods

In **Flanders** assessment methods are used for all biological quality elements for rivers and lakes although not all biological quality elements (BQEs) are assessed for all types of rivers and lakes. In the RBMPs, no assessment methods are mentioned for transitional water bodies. More information on assessment methods is however found in a separate document[23] that is referred to in the RBMPs. There it is explained that because all transitional water bodies are either artificial or heavily modified, only methods to assess the ecological potential are used since a method for assessing ecological status would not be applicable. There are ecological assessment methods, but these already take into account the hydro-morphological alterations since there are no natural transitional water bodies in Flanders. These methods are used for assessing status classes. These methods have not been developed for macroalgae because these do not or hardly thrive in the Flemish transitional waters and there is no evidence that the situation was much different in the past[24]. Angiosperms are evaluated by means of a salt marsh assessment method. The assessment methods for transitional water bodies have been reported in the 2009 implementation report for phytoplankton, benthic invertebrates and fish. This can explain the misunderstanding on the definition of status assessment.

It is not clear from the RBMP if the biological assessment methods are able to detect major pressures. In WISE it is however explained that the no deterioration principle for the quality classes should be accompanied with a stand still principle for the human pressures.

Regarding the supporting elements for the biological assessment, class boundaries have been set for physico-chemical quality elements although it is not clear from the RBMP how these are related to the BQE classes. Recent information from Flanders states that the sensitivity of the BQEs to physico-chemical parameters has been taken into account and that these relations have been tested during the intercalibration exercise. For transitional water bodies salinity has not been considered as a supporting quality element since salinity has been a part of the typology of transitional water bodies[25]. For hydro-morphological quality elements monitoring is carried out, but it is unclear how this is related in support of the biological assessment. Recent information from Flanders explains that these elements are not relevant since no surface water body has a high status and hydro-morphological quality elements would be the only contribution to high status. It is however mentioned that results of hydro-morphological monitoring will be included in the next RBMP. EQS have been set for more than 100 specific pollutants including both priority and non-priority substances.

For the status assessment the **one-out-all-out** principle has been used and the results from the intercalibration exercise have been taken into account. No information has been given on confidence and precision for the biological assessment and also no grouping of water bodies has been done.

[23] "Biological assessment of the natural, heavily modified and artificial surface water bodies in Flanders according to the European Water Framework Directive", available at www.vmm.be (information provided by Flanders)
[24] ibid
[25] Recent information provided by Flanders

BQE	Rivers	Lakes	Transitional
Phytoplankton	Yes	Yes	Not reported in RBMP[26]
Macrophytes and Phytobenthos	Yes	Yes	Not relevant
Macroalgae and Angiosperms	Not relevant	Not relevant	No (Considered not relevant)
Benthic invertebrates	Yes	Yes	Not reported in RBMP
Fish	Yes	Yes	Not reported in RBMP

Table 7.1: *Availability of data on BQEs in Flanders*
Source*: RBMPs*

In the **Coastal Waters** assessment methods are used for Phytoplankton and Macroinvertebrates. The supporting physico-chemical QEs are nutrients (DIN and DIP) and oxygen. Salinity and pH, as well as hydromorphological parameters are also described, although not clear if included in assessment. Recent information concludes that no assessment methods have been established for hydromorphological quality elements in coastal waters.

In the **Brussels Capital Region** there are only three water bodies in this RBD. None of them are natural, two are heavily modified water bodies (HMWBs) and one is an artificial water body (AWB). It was therefore not possible to participate in the intercalibration exercise. The biological assessment methods are not fully developed due to the lack of reference conditions for the Brussels water bodies. The assessment methods[27] have been developed based on expert judgement (universities or public institutes specialised in this field) for all biological elements (including class boundaries) for the three water bodies. There is no clear relationship between the class boundaries of good and moderate of the main physico-chemical pressures and the BQEs. Although they report to monitor all QEs, it is still unclear if all QEs are used for the assessment of ecological status.

In the **Walloon Region**, for more information on the BQEs, reference is made to the European Decision 2013/480/EU and the Intercalibration reports or specific studies. Based on the Intercalibration information, a report has been published. It summarises all the methods used by BE-Wallonia for BQEs[28]. However, from the WISE assessment it can be seen that there are no class boundaries given for phytoplankton and macrophytes, not even for the natural river types. There are no reference values given for most of the BQEs in WISE. There are class boundaries for some of the physico-chemical QEs, but it is unclear whether these are WFD compliant (due to the lack of reference values and no information on how the class boundaries were set). In addition, information given on hydro-morphological assessments in the RBMP is insufficient.

[26] Assessment methods are available and used and have been reported in the 2009 implementation report, but these are not included in the RBMP

[27] • «Uitwerking van een ecologische-analyse methodologie voor sterk veranderde en kunstmatige waterlichamen in het Brussels Hoofdstedelijk Gewest in toepassing van de Kaderrichtlijn Water 2000/60/EG", 190 pp + annex. VAN TENDELOO A, GOSSET G., BREINE J., BELPAIRE C., JOSENS G & TRIEST L. 2004.
• «Evaluatie van de ecologische staat van sterk veranderde en artificiële waterlichamen in het Brussels Hoofdstedelijk Gewest zoals bepaald in de Kaderrichtlijn Water 2000/60/EG", 226 pp + annex. TRIEST L., BREINE J., CROHAIN N. & JOSENS G. 2008.
• "Beoordeling van de ecologische kwaliteit van waterlichamen in het Brussels Hoofdstedelijk Gewest in uitvoering van de Europese Kaderrichtlijn Water". 131 pp + annex. TRIEST L., VAN ONSEM S., CROHAIN N. & JOSENS G. 2012
The assessment method is still in progress for the physic-chemical elements.

[28] see Birk, S., Willby, N.J., Kelly, M., Borja, A., van de Bund, W., Poikane, S., Bonne, W. & Zampoukas, N. (2012): WISER Deliverable 2.2-4: Report for ECOSTAT: Intercalibration - review of methods and recommendations for current and planned intercalibration work. University of Duisburg-Essen, Essen: 21 pp.

According to the latest information provided by the Belgian authorities, for all BQEs except the BQE Phytoplankton, there are biological quality standards based on reference values and class boundaries for good and very good ecological status that are set by Intercalibration Decision 2013/480/EU.

Regarding the BQE Macrophytes, reference values were delivered to the Commission for the types RC3, RC4 and RC5 but only RC3 values were mentioned in the Intercalibration Decision. Regarding the BQE Phytoplankton, Wallonia has no natural water bodies from the type "very large rivers" (Meuse RBD) and there are no lakes (Walloon reservoirs are "HMWBs Rivers") where this BQE would apply. Wallonia claims that for these reservoirs there is no need to provide a reference value for the BQE Phytoplankton. However this BQE would be needed in order to establish a reference value for the river transformed into a "lake". The present situation on reference values (not included in the RBMPs), can be consulted at the Walloon Executive Order of 13 September 2012 on the characterisation of surface water bodies (« Arrêté du Gouvernement wallon du 13 septembre 2012 relatif à l'identification, à la caractérisation et à la fixation des seuils d'état écologique applicables aux masses d'eau de surface et modifiant le Livre II du Code de l'Environnement, contenant le Code de l'Eau » (published in the Moniteur belge on 12/10/2012).

In general the one-out-all-out principle is used for all regional approaches at least at the level of biological quality elements (see next section).

7.2 Application of methods and ecological status results

In **Flanders**, not all relevant BQEs and supporting quality elements have been monitored yet for all water bodies. According to recent information from Flanders, an inventory phase has been carried out in the first monitoring cycle (2009-2012) in order to get a full picture of the ecological status of all biological quality elements, but because of this timing no information has been included in the RBMP. Hydro-morphological quality elements have been monitored but not used for ecological status assessment.

As confirmed by the Flemish authorities, Maps 5.3 and 5.4 of the RBMP[29] show that the BQE were decisive for the ecological status and not the supporting physico-chemical parameters. Information sheets for each of the surface water bodies are also available. The sheets on 'monitoring' contain monitoring results per water body.

In the **Brussels Capital Region** although it is reported that all QEs are monitored, it is unclear if all QEs are used for the assessment of ecological status, and from the Table below it is indicated that biological assessment methods are not fully developed for the Brussels Scheldt RBD. For the operational monitoring programme, it is reported that chemical and physico-chemical parameters are monitored, but biological quality elements are not.

In the **Walloon Region** from WISE (Table 5.1.2.b for the Meuse RBD), it seems that more river water bodies are monitored for phytobenthos, macrophytes and fish than are subsequently classified. It seems that classification is mostly based on benthic invertebrates. This may imply that some of the biological assessment methods are not fully developed for all types, although from the Table below, only for the Scheldt river basin it is indicated that biological assessment methods are not fully developed.

[29] http://geoloket.vmm.be/krw_mkn/map.phtml (map), http://geoloket.vmm.be/krw_mkn/tabel_OWL.php (table)

RBD	Rivers							Lakes							Transitional							Coastal					
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macroalgae	Angiosperms	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macroalgae	Angiosperms	Benthic invertebrates	Physico-Chemical	Hydromorphological
BEMaas_VL															-	-	-	-	-	-	-	-	-	-	-	-	-
BESchelde_VL																											
BE_Nordzee_FED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BEEscaut_Schelde_BR								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BEEscaut_RW								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BEMeuse_RW								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERhin_RW								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BESeine_RW								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 7.2: *Availability of biological assessment methods*

Assessment methods fully developed for all BQEs

Assessment methods partially developed or under development for all or some BQEs

Assessment methods not developed for BQEs, no information provided on the assessment methods, unclear information provided

Water category not relevant

Source*: RBMPs*

7.3 River basin specific pollutants

In the **Flemish RBMPs** BQEs were decisive for the ecological status and not the supporting physical-chemical parameters. Information sheets for each of the surface water bodies are available including the monitoring results of the parameters for water bodies. Information on uncertainty for the ecological status results is lacking. All the BQEs of the surveillance monitoring are also used for the operational monitoring. This has recently been explained by Flanders by the limited knowledge and experience in Flanders on the results of biological quality elements.

In the **Coastal Waters**, the assessment of ecological status has been based on the BQEs Phytoplankton and Macroinvertebrates, Nutrients and oxygen. River basin specific substances (Cu, Zn and PCBs) have been used for assessing ecological status.

RBD	CAS Number	Substance	Percentage Water Bodies Failing Status (%)
BEMaas_VL			
BE_Nordzee_FED	7440-66-6	Zinc and its compounds	100
BE_Nordzee_FED	7440-50-8	Copper and its compounds	100
BE_Nordzee_FED	1336-36-3	PCB	100
BESchelde_VL			
BEEscaut_Schelde_BR			
BEEscaut_RW			
BEMeuse_RW			
BERhin_RW			
BESeine_RW			

Table 7.3: *River basin specific pollutants*
Source*: RBMPs*

In the **Brussels Capital Region**, EQS values are only set for two substances and there is no information on the methods used to set these EQS values (the field method is given as "inapplicable" for these two substances).

In the **Walloon Region**, no information is given on specific pollutants in the RBMP. According to information provided by the Belgian authorities, by a Walloon executive Order of 13 September 2012 on the characterisation of surface water bodies, a list of 52 specific pollutants of the ecological status was established, with their corresponding EQSs (« Arrêté du Gouvernement wallon du 13 septembre 2012 relatif à l'identification, à la caractérisation et à la fixation des seuils d'état écologique applicables aux masses d'eau de surface et modifiant le Livre II du Code de l'Environnement, contenant le Code de l'Eau » published in the Moniteur belge on 12 October 2012).

8. DESIGNATION OF HEAVILY MODIFIED WATER BODIES (HMWB) AND ASSESSMENT OF GOOD ECOLOGICAL POTENTIAL

Figure 8.1: *Map of percentage Heavily Modified and Artificial water bodies by River Basin District*

0 – 5 %
5 – 20 %
20 – 40 %
40 – 60%
60 – 100 %
No data reported
River Basin Districts
Countries outside EU

Source*: WISE, Eurostat (country borders)*

8.1 Designation of HMWBs

HMWB or AWB	RBD	Water category									
		Rivers		Lakes		Transitional water		Coastal water		All water bodies	
		Number	% of category	Number	% of category	Number	% of category	Number	% of category	Number	%
HMWB	BEEscaut_RW	28	35%	0	-	0	-	0	-	28	35%
	BEEscaut_Schelde_BR	2	67%	0	-	0	-	0	-	2	67%
	BESchelde_VL	87	54%	1	7%	3	50%	0	-	91	50%
	BE_Nordzee_FED	0	-	0	-	0	-	0	-	0	0%
	BEMeuse_RW	37	14%	0	-	0	-	0	-	37	14%
	BEMaas_VL	8	47%	0	-	0	-	0	-	8	47%
	BERhin_RW	0	-	0	-	0	-	0	-	0	0%
	BESeine_RW	0	-	0	-	0	-	0	-	0	0%
	Total	*162*	*30%*	*1*	*6%*	*3*	*50%*	*0*	*0%*	*166*	*31%*
AWB	BEEscaut_RW	12	15%	0	-	0	-	0	-	12	15%
	BEEscaut_Schelde_BR	1	33%	0	-	0	-	0	-	1	33%
	BEMaas_VL	1	6%	3	100%	0	-	0	-	4	20%
	BE_Nordzee_FED	0	-	0	-	0	-	0	-	0	0%
	BEMeuse_RW	5	2%	0	-	0	-	0	-	5	2%
	BESchelde_VL	33	21%	14	93%	3	50%	0	-	50	27%
	BERhin_RW	0	-	0	-	0	-	0	-	0	0%
	BESeine_RW	0	-	0	-	0	-	0	-	0	0%
	Total	*52*	*19%*	*17*	*94%*	*3*	*50%*	*0*	*0%*	*72*	*14%*

Table 8.1: *Number and percentage of HMWBs and AWBs.*
Source*: WISE*

In the **Flemish RBMPs** a methodology is described to objectivise the detection of 'irreversible hydro-morphological alterations'. For the different uses, different criteria are used for the designation of a HMWB. Expert judgement is used and for some uses also thresholds are being applied. For navigation, all water bodies in certain navigation water body classes are designated as HMWBs. A table in the RBMP shows for each water body the uses that are responsible for the designation as a HMWB.

There is no extensive description of the physical modifications that have led to the designation of HMWBs and the focus is more on the use that is causing the water body to be heavily modified. The RBMP mentions that the interpretation of the definition of HMWBs according to Flemish legislation is slightly different from the WFD. According to the Flemish legislation water bodies can be designated as HMWBs if taking away or mitigating the hydro-morphological alterations would have negative effects on the environment and activities of high societal importance. Specific criteria are included for port facilities, navigation, water infrastructure for human consumption, renewable energy production and protection against floods. From this definition it can be derived that some aspects of the HMWB designation process[30] have not clearly been addressed, such as the link between the modifications and the failure to achieve good ecological status, the identification of restoration measures to achieve good ecological status and the assessment of other means to achieve the beneficial objectives of the use. Although the initial situation in Flanders already has a significant number of water bodies with hydro-morphological modifications, the several steps of the assessment process should still be carried out and reflected in the RBMP.

The only non-artificial lake has been designated as a HMWB because of its artificial water level management[31]. This information is however not included in the RBMP but in a separate study[32] that is not mentioned in the plan.

No HMWBs or AWBs have been designated in the RBMP for the Belgian **Coastal Waters**.

The **Brussels Capital Region** has three surface water bodies: two are designated as heavily modified (Zenne and Woluwe), one is an artificial water body (the Canal). The following steps have been taken for the designation of heavily modified water bodies, as is described in WISE: inventory of actual uses; description of significant hydro-morphological changes and evaluation of effects on biological and physico-chemical QEs; estimation of the ecological status based upon biological data; and evaluation of the probability that the water bodies will not reach good status for reasons of hydro-morphological changes. The "RIE du projet de programme de mesures PGE" contains a detailed description of the water body networks and their characteristics. All water bodies are heavily influenced and have undergone major hydro-morphological changes. The importance of hydro-morphological changes of the water bodies in Brussels has been evaluated within the International Scheldt Commission. The urbanisation and the vaulting of the river Zenne limit the possibilities to return to good condition.

In the **Walloon Region** the Scheldt RBD has 28 HMWB (Rivers) out of a total of 79 surface water bodies (all rivers); the Meuse RBD in Wallonia has 37 HMWB (14%, out of a total of 257 surface water bodies); there are no HMWB in the Rhine and Seine RBD. To define heavily modified water bodies, a practical instrument is developed to assess the hydro-

[30] Water Framework Directive Article4.3 and CIS Guidance document N°4

[31] Recent information from Flanders

[32] Louette, G., Van Wichelen, J., Packet, J., Warmoes, T. & Denys, L. (2008). Bepalen van het maximaal en het goed ecologisch potentieel, alsook de huidige toestand voor de zeventien Vlaamse (gewestelijke) waterlichamen die vergelijkbaar zijn met de categorie meren – tweede deel, partim Vinne. D/2008/3241/379. INBO.R.2008.50. Instituut voor Natuur- en Bosonderzoek, Brussel.

morphological quality of all water bodies (Guyon *et al*., 2006)[33]. The results of this instrument were analysed further, after which heavily modified water bodies in each Walloon river basin district were determined in a definite way (SPGE & SPW-DGARNE, 2009). It is reported in WISE that HMWB are those water bodies that have undergone physical alterations by humans, and are completely modified in their character. According to recent Information from Wallonia, as regards the designation method for HMWB status, the Walloon Region used a hydromorphological assessment method compliant with the CEN standard EN 14614:2004 - "Water Quality - Guidance standard for assessing the hydro-morphological features of rivers" In a first step a GIS-based regional method was used (comparable to the "SYRAH-approach" in France) was used (see: GUYON F., COGELS, X, VANDER BORGHT P. (2006): Développement et application d'une méthodologie d'évaluation globale de la qualité hydromorphologique des masses d'eau de surface définies en Région wallonne. ULg - Rapport final convention SPW). In a second phase, they used the CIS Guidance Document No. 4 to identify water bodies which could be designated as natural by using restoration measures: 18 water bodies were concerned. However it remains unclear if Wallonia has followed the step wise approach and in particular on defining if the restoration measures would have a significant effect on the "specified uses" and if there are other means of providing the beneficial objectives served by the physical alteration.

8.2 Methodology for setting good ecological potential (GEP)

In the **Flemish RBMPs**, GEP has been defined for all heavily modified and artificial water bodies. A different approach is used depending on the water body category. For transitional water bodies the heavily modified character has already been taken into account in the status assessment since all transitional water bodies are HMWBs or artificial water bodies. For lakes, lake-specific studies have been carried out for determining MEP and GEP. For rivers a generic approach has been carried out consisting of four steps. Pressures are identified and a possible change of water body type is evaluated. Depending on the hydro-morphological alterations the objectives for macrophytes can be changed. For fish and macro-invertebrates the share of the river that undergoes a certain hydro-morphological pressure and the share that shows no alterations are taken into account together with the current status of the river and the GES of the corresponding natural river type to calculate a GEP. This GEP, by definition, lies between the current status and the GES and thereby is an objective that leads to ecological improvement. Also for a selection of physico-chemical quality elements, class boundaries can be adapted. Annex 3 of the RBMP contains tables with GEP-values for dissolved oxygen, sulphates, conductivity and chlorides and the biological quality elements.

Neither the reference-based approach nor the mitigation measures approach has been followed. From the RBMP it is not clear how mitigation measures have been handled. It is only mentioned that for some hydro-morphological alterations some mitigation measures are already assumed. More information on the methodologies is given in a background document[34]. This document also refers to the specific studies that have been carried out

[33] GUYON, F., COGELS X., VANDERBORGHT P. 2006. Développement et aplication d'une méthodologie d'évaluation globale de la qualité hydromorphologique des masses d'eau de surface définies en Région wallonne. Rapport final convention DGRNE – Aquapôle – Mars 2006 –74 pp.

[34] "Biological assessment of the natural, heavily modified and artificial surface water bodies in Flanders according to the European Water Framework Directive", available at www.vmm.be (information provided by Flanders)

for determining the MEP/GEP for lakes and to a background document[35] with more information on the general approach to MEP/GEP definition.

In the **Brussels Capital Region,** the methodology for GEP was developed in Van Tendeloo et al. (2004)[36] and Triest et al. (2008)[37]. It makes use of the reference situation and takes into consideration potential mitigation measures for hydro-morphological changes (e.g. for macrophytes). However, it is reported that no reference situations (i.e. HMWB and AWB of the same type) in an excellent ecological condition exist in the Brussels region and the Scheldt RBD. The methodology described in Van Tendeloo et al (2004) came to the definition of a 'high' and 'low' MEP. The high MEP is defined as the MEP taking into consideration hydro-morphological changes. The low MEP is defined as the MEP without considering the hydro-morphological changes. The methodology used in 2012 only makes use of the 'low' MEP. It is reported in Triest et al. 2008 that it is difficult to develop a methodology for HMWB and AWB in Brussels, considering the absence of reference conditions and specific aspects of the water bodies.

There are only three water bodies being part of the monitoring programme: the methodology for setting the GEP is specific for each of them (Van Tendeloo (2004), Triest et al. 2008).

Mitigation measures without significant adverse effects on the use or the wider environment have been identified: reference is made to potential habitat restoration along the HMWB and AWBs. In terms of techniques for the estimation of the MEP of the biological values, the methodology for macrophytes makes use of MMRB (Metric for Macrophytes in Heavily Modified Rivers of Brussels 2006 - Van Tendeloo et al., 2006). This includes several metrics and makes use of some reference materials and a combination of existing index systems with expert judgment.

For the **Walloon Region** no information was found in WISE or the background documents on the methodology to define GEP for HMWBs. It is indicated that current objectives and thresholds need to be reviewed. Recent information received from Wallonia informs that they have recently developed a methodology, but it is not clear if this method captures hydro-morphological modifications as it seems to be based on natural typology. It is also unclear how the mitigation measures have been established for the definition of GEP in specific water bodies. .

[35] Van Looy, K., Denys, L. & Schneiders, A. (2008). Methodiek vaststelling Maximaal en Goed Ecologisch Potentieel (MEP-GEP) voor sterk veranderde waterlopen. Rapporten van het Instituut voor Natuur- en Bosonderzoek 2008 (INBO.R.2008.06). Instituut voor Natuur- en Bosonderzoek, Brussel

[36] Van Tendeloo, A., Gosset, G., Breine, J., Belpaire, C., Josens, G. & Triest, L., 2004. Uitwerking van een ecologische-analyse methodologie voor sterk veranderde en kunstmatige waterlichamen in het Brussels Hoofdstedelijk Gewest in toepassing van de Kaderrichtlijn Water 2000/60/EG, 190 pp + annex 75 pp

[37] http://www.inbo.be/files/bibliotheek/20/178820.pdf

9. ASSESSMENT OF CHEMICAL STATUS OF SURFACE WATERS

9.1 Methodological approach to the assessment

The substances and standards listed in Annex I of the Environmental Quality Standards Directive (EQSD) are set out in the **Flemish** decree on Environmental Quality Standards[38] of 21st May 2010.

All EQSD substances have been considered for the assessment of chemical status. However, three of them were not monitored (C10-13 Chloroalkanes, pentabromodiphenylether and Di(2-ethylhexyl)-phthalate (DEHP)). From the RBMP it was not clear that the EQS for transitional water bodies had been applied, but recent information from Flanders has pointed out that these standards are included in the Flemish decree on EQS and that these have been used for the assessment of the chemical status of transitional water bodies. Although it is not clear from the RBMP, recent information from Flanders has shown that EQS for biota are developed for mercury, hexachlorobenzene and hexachlorobutadiene[39], although they have not been applied in the RBMP because the monitoring network had not been adjusted to this. EQS for sediment have been developed but they serve as target values and are not used for the assessment of chemical status.

[38] Besluit van de Vlaamse Regering tot wijziging van het besluit van de Vlaamse Regering van 6 februari 1991 houdende vaststelling van het Vlaams reglement betreffende de milieuvergunning en van het besluit van de Vlaamse Regering van 1 juni 1995 houdende algemene en sectorale bepalingen inzake milieuhygiëne, voor wat betreft de milieukwaliteitsnormen voor oppervlaktewateren, waterbodems en grondwater, 21/05/2010, B.S. 09/07/2010

[39] Annex II Article 4 of Flemish decree on EQS

Substance causing exceedance	Exceedances per RBD						
	BEScheld e_VL	BEMaas_ VL	BEEscaut _Schelde_ BR	BEEscaut _RW	BEMeuse _RW	BERhin_ RW	BESeine_ RW
Cadmium	1 (0.5%)	1 (5%)			9 (3%)		
Lead				3 (3%)	2 (1%)		
Mercury	9 (4.9%)			1 (1%)			
Alachlor	3 (1.6%)						
Atrazine				14 (16%)	2 (1%)	2 (11%)	
Chlorpyriphos	3 (1.6%)	1 (5%)		1 (1%)			
Chlorvenfinphos	4 (2.2%)						
Diuron	18 (9.9%)			51 (57%)	35 (13%)		
Endosulfan	3 (1.6%)			2 (2%)			
Isoproturon	4 (2.2%)			37 (42%)	13 (5%)	2 (11%)	
Hexachlorocyclohexane	4 (2.2%)				1 (0.4%)		
Anthracene	1 (0.5%)						
Brominated diphenylether				5 (6%)			
Dichloromethane				1 (1%)			
Di(2-ethylhexyl)phthalate (DEHP)				5 (6%)			
Nonylphenol	17 (9.3%)			6 (7%)	2 (1%)		
Octylphenol	1 (0.5%)			1 (1%)			
Flouranthene	9 (4.9%)						
Pentachlorophenol	4 (2.2%)						
Trichloromethane				1 (1%)			
Benzo(a)pyrene	4 (2.2%)		1 (33%)	2 (2%)	5 (2%)		
Benzo(b)fluoranthene	16 (8.8%)		3 (100%)	5 (6%)	5 (2%)		
Benzo(k)fluoranthene	16 (8.8%)		3(100%)	5 (6%)	5 (2%)		
Benzo(g,h,i)perylene	35 (19.2%)	3 (15%)	3 (100%)	14 (16%)	12 (4%)		
Indeno(1,2,3-cd)pyrene	35 (19.2%)	3 (15%)	3 (100%)	14 (16%)	12 (4%)		
Tributyltin compounds	14 (7.7%)						

Table 9.1: *Substances responsible for exceedances*
Source*: WISE*

The main problems regarding chemical pollution in the Belgian **Coastal Waters** are the polycyclic aromatic hydrocarbons and the TBT compounds. In the Coastal Waters, the exceedances of the EQS for Tributyltin compounds, Pentabromodiphenyl ether and Benzo(b)fluoranthene have led to bad chemical status of the coastal waters.

The chemical status assessment in the coastal waters includes all 41 priority substances according to the EU Directive 2008/105/EC, which entered into force on 13 January 2009. The chemical assessment is done as much as possible in water, although for three substances the assessment is done in biota.

For the **Brussels Capital Region** and the **Walloon Region** all of the parameters listed in Annex I (Part A) of EQS Directive have been taken into consideration when chemical status has been assessed. The main problems regarding chemical pollution in the Brussels Capital Region are exceedances of the EQS for benzo(g,h,i)perylene, indeno(1,2,3-cd)perylene and benzo(k)fluoranthene. For the Walloon Region, major exceedances are on diruon and isoproturon, specifically for the Scheldt river basin. Other Walloon river basins only have minor exceedances of some priority substances, such as benzo(g,h,i)perylene and indeno(1,2,3-cd)perylene.

10. ASSESSMENT OF GROUNDWATER STATUS

Out of the 42 groundwater bodies in **Flanders**, 31 are in poor chemical status and 14 are in poor quantitative status. Because of the one-out-all-out principle, only seven groundwater bodies achieve good status. There seems to be only information on the status and not on the risks.

For the **Brussels Capital Region**, four out of five groundwater bodies are in good chemical status: the GW-QS have not been exceeded there. Pollutants responsible for defining the groundwater body at risk are pesticides (atrazine) and nitrates as these are above the threshold value in one groundwater body. No GWBs fail good GW quantitative status.

For the **Walloon Region,** 21 out of 33 groundwater bodies have good chemical status. 20 out of 33 groundwater bodies have overall good status. No information could be found on groundwater bodies at risk. One GWB is failing good GW quantitative status.

10.1 Groundwater quantitative status

A methodology for the water balance test for the assessment of groundwater quantitative status is given in the **Flemish** RBMP which includes the influence of climate change. The RBMP mentions the effects on associated surface waters and groundwater dependent terrestrial ecosystems as two of the seven assessment criteria. There is however no further information on the methodology used.

The only reason for groundwater bodies not achieving good quantitative status is 'exceedance of available groundwater resource by long-term annual average rate of abstraction that may result in a decrease of groundwater levels'.

For the **Brussels Capital Region**, the RBMP provides information that the following conditions/impacts of groundwater abstractions have been considered when assessing groundwater quantitative status:

- The available groundwater resource is not exceeded by the long term annual average rate of abstraction.
- Failure to achieve the environmental objectives specified under Article 4 for associated surface water bodies resulting from anthropogenic water level alteration or change in flow conditions.
- Significant diminution in the status of surface waters resulting from anthropogenic water level alteration or change in flow conditions.
- Significant damage to groundwater dependent terrestrial ecosystems resulting from an anthropogenic water level alteration.
- Saline or other intrusions resulting from anthropogenically induced sustained changes in flow direction.

The needs of the terrestrial ecosystems associated to groundwater bodies and the balance between recharge and abstraction of groundwater have been reported to be assessed.

There is a paragraph on the relationship between groundwater levels and precipitation (long-term trends) but nothing is mentioned on abstraction[40].

[40] Evolution des niveaux piézométriques des masses d'eau souterraines in http://documentation.bruxellesenvironnement.be/documents/RIE_Plan_Eau_PrM2011_rapport_et_annexes1et2.PDF?langtype=2060

For the **Walloon Region**, it was reported that the new surveillance network did not yet allow a quantitative status assessment in 2009. It was also reported that no negative influence of local water abstraction on the GWB has been found, taking into consideration the limited volumes abstracted.

10.2 Groundwater chemical status

Only 'exceedances of one or more quality standards or threshold values' has been given as a reason for failure to achieve good chemical status. There has not been an assessment of significant damage to groundwater dependent terrestrial ecosystems. This is explained in recent information from **Flanders** by insufficient data and knowledge on these interactions and the degree of negative effects on these ecosystems.

The substances for which threshold values (TVs) are established are based on the list included in Annex II Part B of the Groundwater Directive and then adapted to the risks for groundwater bodies (threshold values were not established for three listed substances while they were added for six others). It is unclear how exceedances of threshold values have been dealt with. International co-ordination of TVs was done in terms of information and experience exchange on methodologies.

No trend assessment or trend reversals have been carried out because groundwater monitoring networks in accordance to the WFD have only been fully operational since 2004[41].

For the **Brussels Capital Region** within a groundwater body, the average value is calculated for each monitoring site. When 20% of the monitoring sites have average values for a parameter exceeding the threshold value, the groundwater body fails to reach good status. The methodology for identification of trends has been established. The yearly averages of 2006-2008 have been used as a starting point to assess the trends. A first trend assessment has been done in 2009. The values for 2015 are based on extrapolations. The starting point for trend reversal is 75% of the threshold values for groundwater quality. A first exercise on trend reversal has been done in 2009 on data from 2004-2009 from the Bruxellien (Nitrates, Pesticides, parameters from the GWD minimum list and Nickel). Background levels have been reported to be considered in the status assessment but not in the TVs establishment.

For the **Walloon Region** if less than 20% of the sites show values exceeding the threshold, the GWB is evaluated as in good condition. It is stated that the threshold values have been established and more stringent values have been defined, taking into consideration ecosystems, associated surface waters and pristine groundwater bodies for copper, zinc, 2,6-dichlorobenzamide and phosphorus, cadmium, chrome, mercury and nitrates. The background levels of the different parameters were investigated for all GWBs in Wallonia. It was found that they were far below the TVs, so they were not considered or taken into account in the monitoring programme. It is stated that very locally there might be a higher natural values for nickel, arsenic and sulphates.

10.3 Protected areas

Information is given in WISE on the number of groundwater drinking protected areas and their status.

[41] Recent information by Flanders

RBD	Good	Failing to achieve good	Unknown
BEEscaut_RW	31	14	0
BEEscaut_Schelde_BR	0	0	1
BESchelde_VL	112	0	0
BENoordzee_FED	-	-	-
BEMeuse_RW	140	14	1
BEMaas_VL	22	0	0
BERhin_RW	10	0	0
BESeine_RW	-	-	-
Total	*315*	*28*	*2*

Table 10.1: *Status of groundwater drinking water protected areas*
Source*: WISE and additional information provided by the Belgian authorities.*

11. ENVIRONMENTAL OBJECTIVES AND EXEMPTIONS

11.1 Exemptions according to Article 4(4) and 4(5)

In **Flanders** a very significant number of water bodies (96% of the total) have been exempted from achieving good status by 2015. In the Flemish RBMPs, there have only been exemptions under Article 4(4): extension of the deadline. It is indicated that almost none of the surface water bodies will reach good ecological status by 2015, and for those water bodies, exemptions under Article 4.4 have been applied. A phased programme of measures has been requested indicating disproportionate costs with objectives to be met in 2027. It is mentioned that there is a lack of information in order to make use of Article 4(5), but that in the next RBMP this could be a possible option. To determine for which surface water bodies this exemption applies, models and expert judgement have been used. A Maximum Scenario is used which comprises all the basic and supplementary measures for achieving good status in 2015, in contrast to a phased scenario. If modelling / expert judgement shows that it is not possible to meet good status by 2015 with this scenario then the exemption applies. For 177 out of 182 water bodies from the Scheldt RBD, an exemption according to Article 4.4 has been applied, based on modelling results and mainly due to nutrient concentrations as the limiting factor. For the Meuse RBD, none of the 20 water bodies are in good status and exemptions have been applied for 18 water bodies. For groundwater, 35 out of 42 water bodies have been exempted based on expert judgement and because of natural conditions (slow groundwater flows and geochemical processes). In WISE it is stated that a number of water bodies are exempted because of disproportionate costs. This explanation is however not used in the RBMP and according to recent information from Flanders, this reason has not been used on the water body level since this was not possible methodologically. The argument of 'disproportionality' is however used in the choice of a scenario for the programme of measures. Tables in the annexes of the RBMPs state for every water body the reason for exemption and what this is based on (e.g. expert judgement, modelling).

In the RBMP for the **Belgian Coastal Waters**, exemptions under Article 4(5) are also not used in this first planning cycle. The plan proposes the delay on the timeline for achieving the objectives under the provisions of Article 4(4). Furthermore, the methods for the assessment of chemical status will be reviewed in 2015 on the basis of additional monitoring data, which will allow for a more complete assessment.

In the **Brussels Capital Region**, four exemptions have been included for Article 4(4), of which three are for "technical feasibility" and three are for "natural conditions". The required information on impacts is listed. On technical feasibility, it is indicated that the projects to restore ecological quality of the Canal take longer than the time available. There are numerous diffuse sources that contribute to the bad quality, and this is a technical challenge. On natural conditions it is indicated that ecological recovery time for surface waters is too long. For groundwater specifically, an exemption (Article 4.4) has only been applied for one ground water body (Bruxellien) as the reaction time of groundwater is very slow. It is stated that it will take a long time for concentrations of nitrates and pesticides from diffuse sources to diminish.

In the **Walloon Region**, out of the 172 surface water bodies for which Article 4(4) exemptions have been included, all are based on "technical feasibility", 113 are on "disproportionate costs" and 49 are on "natural conditions" (they exceed 172 because more than one exemption may be applied to a single water body). There are 10 groundwater bodies out of 33 for which Article 4(4) exemptions have been applied. For these groundwater bodies, one exemption is on technical feasibility, 8 exemptions are on disproportionate costs and 10 exemptions (7 GWBs) are on natural conditions (they exceed 10 because more than one exemption may be applied to a single water body).

The methodology for disproportionate costs contains the following steps: a) definition of the scenarios; b) evaluation of the cost of the different scenarios; c) evaluation of financial contributions from each economic sector; d) analysis of disproportionate costs, taking into consideration the impact on the sectors. No information could be found on how technical feasibility is defined in the Meuse RBMP.

No information has been provided in the Walloon RBMPs, only a general statement that natural conditions are used as a reason for exemptions without any further specification. Recent information sent by Wallonia stated that regarding disproportionate cost and technical unfeasibility arguments, a common methodology has been developed for all Walloon RBDs. The Walloon methodology to motivate exemptions (due to disproportionate costs) has been elaborated following the methodologies applied by the Flemish and Brussels Regions, the methodology applied by French water agencies, the WATECO guidance document, the CIS Guidance documents and the scientific literature.

RBD	Article 4(4)					Article 4(5)				
	R	L	T	C	GW	R	L	T	C	GW
BEEscaut_RW	71	-	-	-	5	0	-	-	-	0
BEEscaut_Schelde_BR	3	-	-	-	1	0	-	-	-	0
BESchelde_VL	155	15	6	1	29	0	0	0	0	0
BE_Nordzee_FED	-	-	-	0	-	-	-	-	0	-
BEMeuse_RW	101	-	-	-	5	0	-	-	-	0
BEMaas_VL	15	3	-	-	6	0	0	-	-	0
BERhin_RW	0	-	-	-	0	0	-	-	-	0
BESeine_RW	0	-	-	-	-	0	-	-	-	0
Total	*256*	*18*	*6*	*1*	*46*	*0*	*0*	*0*	*0*	*0*

Table 11.1: *Exemptions for Article 4(4) and 4(5)*
Source*: WISE and additional information provided by the Belgian authorities. Figures for exemptions under article 4(4) for*

Rivers at BEEscaut_Schelde_BR, BEEscaut_RW and BEMeuse_RW differ between the ones reported in WISE and those provided by the Belgian authorities. In this case the information prvided by the Belgians authorities is the ones shown.

RBD	Global[42]					
	Technical feasibility		Disproportionate costs		Natural conditions	
	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)
BEEscaut_RW	71	0	54	0	15	0
BEEscaut_Schelde_BR	3	0	0	0	3	0
BESchelde_VL	177	0	177	0	29	0
BE_Nordzee_FED	0	0	0	0	0	0
BEMeuse_RW	101	0	59	0	34	0
BEMaas_VL	18	0	18	0	6	0
BERhin_RW	0	0	0	0	0	0
BESeine_RW	0	0	0	0	0	0
Total	*370*	*0*	*308*	*0*	*87*	*0*

Table 11.2: *Numbers of Article 4(4) and 4(5) exemptions*
Source*: WISE and additional information provided by the Belgian authorities. Figures for exemptions under article 4(4) for Rivers at BEEscaut_Schelde_BR, BEEscaut_RW and BEMeuse_RW differ between the ones reported in WISE and those provided by the Belgian authorities. In this case the information prvided by the Belgians authorities is the ones shown.*

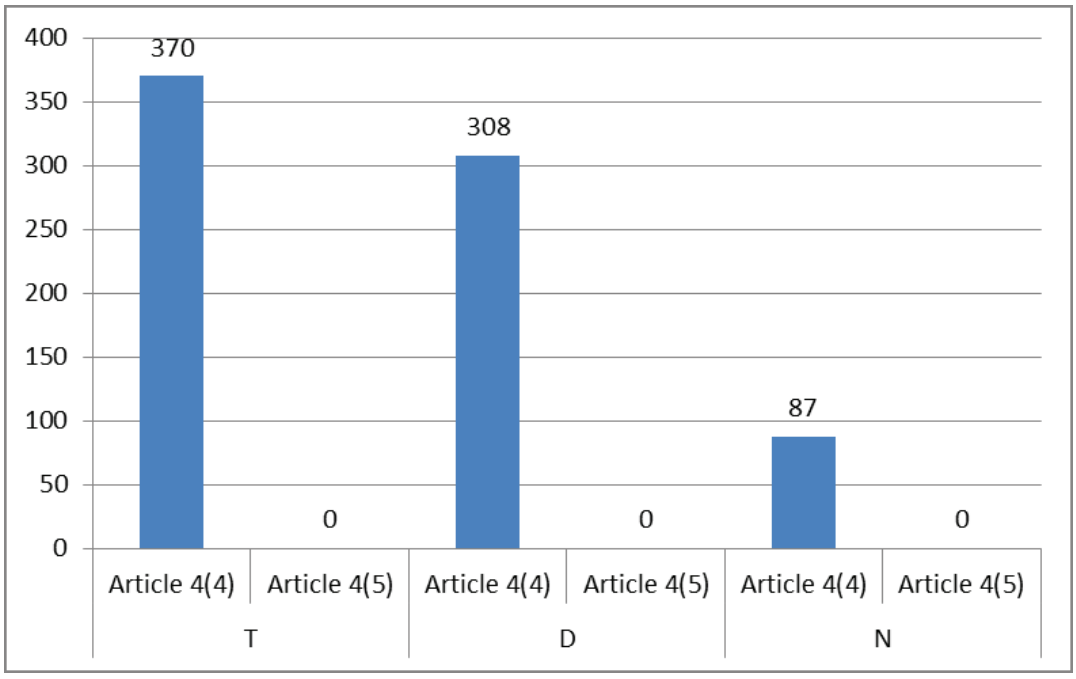

Figure 11.1: Numbers of Article 4(4) and 4(5) exemptions
T = Technical feasibility
D = Disproportionate costs
N = Natural conditions
Blue = Article 4(4) exemptions
Red = Article 4(5) exemptions
Source*: WISE and additional information provided by the Belgian authorities*

[42] Exemptions are combined for ecological and chemical status (for surface water bodies only)

11.2 Additional objectives in protected areas

The Flemish RBMPs mention additional objectives for two categories of protected areas: surface water protected areas for drinking water and protected areas under the Habitats and Birds Directives, and the Ramsar Convention.

In the Walloon RBMPs the objectives are set as high status for water bodies where pearl mussel is present. For the rest of water-dependent habitats and species the default objective of good status is considered sufficient, although it has not been assessed in detail.

In Brussels Region the criteria are being developed in the context of the preparation of the Natura 2000 conservation objectives.

12. PROGRAMMES OF MEASURES

According to Annex VII of the WFD, the RBMPs should contain a summary of the programmes of measures (PoM), including the ways in which Member States expect to achieve the objectives of WFD Article 4. The programmes should have been established by 2009, but are required to become operational by December 2012. The assessment in this section is based on the PoM as summarised by the MS in its RBMPs, and the compliance of this with the requirements of Article 11 and Annex VII of the WFD.

12.1 Programme of measures – general

The International Commissions for the Meuse and Scheldt mainly coordinate the drafting of the roof report of the RMBPs and the exchange of information on the PoMs. Bilateral contacts guarantee the coordination of measures planned in transboundary water bodies.

There is one Programme of Measures (PoM) for the entire **Flemish Region** (comprising the Scheldt and Meuse river basins). The sub-basin management plans have been an important basis for the PoM and the PoM builds on these to meet the environmental objectives as required by the WFD. There is no clear link between the PoM and the status assessment. The kind of measures that should be included in the PoM is determined in the Flemish act on Integrated Water Policy. The different categories of measures include categories that are not compulsory according to the WFD (e.g. measures related to floods). Measures are defined at the regional (Flemish Region), the river basin level, sub-basin level and water body level although most measures are defined in a very general way and at the regional level. For some spearhead areas[43] more concrete measures are defined at the water body level. In these areas different supplementary measures are also tested. Experience with these measures (e.g. effectiveness) can then be used in the next planning cycle to prioritise supplementary measures.

The PoM refers to measure information sheets[44] in which for every measure information is given on several aspects such as: implementation (e.g. state of implementation, experience, timing), target group (e.g. which sector bears the costs, who takes the initiative), information on costs, the expected environmental improvement, chance of success of the measure taking into account boundary conditions, an environmental assessment and a climate check. Although these sheets can include a lot of information often several fields are not completed or only completed in a superficial manner.

There are three scenarios with measures, a basic scenario (only basic measures), a maximum scenario (all basic measures and all supplementary measures) and a phased scenario (all basic measures and some supplementary measures). For these scenarios an assessment of disproportionate costs is carried out. This assessment consists of two parts. The first part considers reasonableness where the costs and benefits of three scenarios of measures are assessed. Information on costs is given in information sheets of the measures, and benefits are derived from a willingness-to-pay study and other studies. The second part considers feasibility, and the costs and burdens for the different sectors are assessed and

[43] Speerpuntgebieden
[44] Maatregelenformulieren. Available at http://www.integraalwaterbeleid.be/nl/stroomgebiedbeheerplannen/maatregelenprogramma/documenten - maatregelenprogramma

compared with sector specific parameters. Thresholds are based on available income for households and on the added value for industry and agriculture.

In order to select the supplementary measures in the phased scenario, the cost-effectiveness of the measures was assessed using an environmental cost model[45] or a grading scale. However, other aspects of the measures, as described in the information sheets, also played a role in the final selection.

Most measures are defined in very general terms and lack a clear financial commitment or a timeline of implementation. According to recent information from Flanders, a yearly evaluation will determine which additional financial resources can be used for the implementation of the supplementary measures. For the spearhead areas there are more clear commitments.

In the RBMPs and PoM, co-ordination of the PoM with other MS is not mentioned specifically. The RBMPs refer to the management plan roof report that addresses the impact of the international co-ordination activities. In that plan some more information is found on the co-ordination of measures.

For the Scheldt RBD, some measures have been co-ordinated, such as a common warning and alarm system for the river basin to prevent and manage accidental pollution. An example of bilateral co-ordination is the work of the Flemish Region and the Netherlands on hydro-morphological and ecological aspects. As a part of the *Scaldit* project, a catalogue of the main implemented and planned measures in the different RBMPs of the Scheldt river basin was developed with information on the cost-effectiveness of these measures.

The PoM of the **Coastal Waters RBMPs** is very much dependent on the measures taken by other regions and MS, and these are negotiated in the framework of the Scheldt Commission. No specific measures have been proposed in the RBMP of the coastal waters.

The legal basis for the actions to protect and restore the Belgian Marine Environment is set in the 1999 law[46].

The plan for the Coastal Waters lists and defines in general terms the basic and supplementary measures that are being and will be applied in order to improve the ecological and chemical status of the water in the Belgian coast. There are supplementary measures specifically mentioned to be applied in those water bodies that are likely to fail in the achievement of the environmental objectives by 2015.

For the **Brussels Capital Region**, the PoM consists of different pillars, determined by the identified already in the significant water management issues paper, and affecting the water environment in the Brussels Region:

- Pillar 1: intervene on those pollutants needed to reach the objectives for the surface and groundwaters and the protected areas,
- Pillar 2: restore the hydrographic network quantitatively
- Pillar 3: apply the principle of cost recovery for water services
- Pillar 4: promote a sustainable use of water
- Pillar 5: install an active prevention management of flooding by rainwater
- Pillar 6: include the water again in the living environment

[45] Milieukostenmodel

[46] Loi du 20 janvier 1999 sur la protection du milieu marin dans les espaces marins sous juridiction de la Belgique (MB du 12 mars 1999)

- Pillar 7: promote the production of renewable energy based on water and the underground and at the same time protect the natural resources
- Pillar 8: contribute to the development and implementation of an international water management policy

The eight pillars have been developed based on a Brussels water inventory. This inventory has been done in 2005 and 2008 and covered (1) the current qualitative and quantitative condition of the surface and groundwater (physical, chemical and biological aspects) and an inventory of protected areas; (2) the pressures on the aquatic ecosystem and the measures to relieve these pressures, mainly by public investments; (3) the economic analysis of water use.

For each of these eight pillars of the Programme of Measures, strategic objectives and operational objectives were suggested and identified, and priority actions and instruments are further developed in the Programme of Measures.

To assure coherence between the different PoMs, intensive coordination has taken place both bilaterally and at the level of the international Mass/ Scheldt Commissions. For the important water management issues, coordination has taken place as much as possible and relevant. Hydro-morphology is mentioned in those issues (inter alia fish passage, bank restoration) as well as soil and sediments; nutrient reduction is part of this. The Brussels Region has only one RBD, therefore the PoM applies for the whole RBD within the Region. Only one paragraph is specific for the Canal (resulting in specific measures) related to the harbour of Brussels (dredging).

For the **Walloon Region**, the PoM is elaborated on the scale of the RBDs. The measures are not targeted to a particular water body but in an overall scale (at regional level). The measures are divided into 11 themes and the costs have been appointed to these themes: cost recovery; collective waste water treatment and drainage ("*démergement*" in areas of land subsidence caused by coal mining, preventing flooding); individual waste water treatment; industry, agriculture (nutrients, erosion, pesticides, agro-environmental measures, sewage sludge, etc.); non-agricultural pesticides and toxic waste; protected areas; historic pollution and pollution caused by accidents, abstractions and high and low water level; hydromorphology; recreational activities. It is stated that some of the measures will be funded by the relevant sector itself and other measures are funded by the government directly or via subsidies. Information is given on the costs that will be funded by the industry, agriculture and households sectors and the costs that will be funded by the government. Within the government-funded costs, no information is given on the fund source or approved budget. The measures are described very generally and not at the water body level. Therefore it is not clear if the measures are defined based on status assessment of the water bodies. There is no information on cost-effectiveness and no information regarding when measures will become operational.

12.2 Measures related to agriculture

Agriculture is mentioned in the **Flemish RBMPs** as a **quantitative pressure** due to groundwater abstractions. It is also mentioned as a **qualitative pressure** on surface water (N, BOD, COD, P, pesticides and heavy metals) and on groundwater (diffuse pollution with pesticides and nutrients). According to recent information from Flanders point source pollution from agriculture figures in the calculation of the total pollution loads but this is not a significant pressure at the water body level. The RBMP mentions hydro-morphological pressures from agriculture although they are not quantified.

The **Strategic Advice Council Agriculture and Fisheries** (SALV[47]) has been consulted on the RBMP and the PoM and during the public consultation phase comments have been received mainly from farmer organisations. In the PoM it is stated that when measures are translated into more concrete actions and if these actions have a special impact on agricultural areas, an agricultural sensitivity analysis will be carried out. If there are significant impacts of certain actions / projects on agriculture then an agricultural impact report is made. Farmers will be involved in this process.

Measures related to agriculture include different **technical measures** (e.g. on the reduction of fertiliser application, measures against soil erosion etc.). Several measures are related to permitting and licensing (e.g. an adapted permitting system for groundwater abstraction based on demand and availability of water) and also raising awareness with farmers is addressed.

Most measures are defined in a general way and lack information on the timing of implementation.

Some general information on costs of measures is given in the measure information sheets. The government is bearing some of the costs of the agricultural sector for these measures. For each of the three scenarios the costs and burdens (taking into account government subsidies) for the agricultural sector are compared. Related to financing, according to recent information from Flanders some basic measures contain elements from EU rural development policy and are financed through pillar 2 of the CAP. However, basic measures are mandatory and cannot be supported with rural development funds.

For supplementary measures, co-financing by the EU is possible if they contain measures from the Flemish Rural Development Plan. Article 38 of the Rural Development Regulation is not included in the Flemish Rural Development programme and therefore has not been used in the RBMPs.

In the **Brussels Capital Region**, agricultural impacts are mentioned (especially related to nitrates) but the Brussels region is mostly urbanised and has little agricultural area. The following measures have been put forward: a) Study on the possibility of prohibiting the use of pesticides in protected areas of groundwater extraction for human consumption; b) in cooperation with related sectors promote good agricultural practices; c) set up of an action programme (and implement) to reduce pollution of the water from nitrates coming from agriculture; and d) further designation of Nitrate Vulnerable Zones if needed.

In the **Walloon Region** (Scheldt RBD), the pressures are quantified in the document "Etat des lieux" for nitrogen, phosphorus and phytopharmaceutical substances. In the Scheldt RBD 61% of the surface is used for agriculture. Almost 90% of the nitrogen and phosphorus comes from cattle. In Chapter 2 of the RBMPs, there is a qualitative synthesis on the pressures and impacts from the main driving forces on water bodies. The water quality modelling tool PEGASE was used to assess the pressures from each driving force by zeroing each pressure individually and calculating the water quality gain expressed as a SEQ-Eau index increase when this pressure is no more taken into account. The detailed results are given in Annex 9 of the plans (“Gain d’indice SEQ-Eau suite à la mise à zéro des pressions »/Gain in water quality index SEQ-Eau following a zeroing of the pressures). Quantitative data is also provided. . There is no information provided regarding whether the pressure is point source or diffuse source. In the Scheldt RBD, agriculture is identified as a very high pressure. For the Meuse RBD it can be concluded that the pressure is low to moderate, except in some groundwater bodies where pressure is high. It is also indicated in the RBMP that 41% of the land surface is used for

[47] Strategische Adviesraad voor Landbouw en Visserij

agriculture (of which nearly 50% are permanent meadows). For the Rhine RBD, it is indicated in the RBMP that 48% of the land surface is used for agriculture but there is no indication if the pressure is considered as significant. For the Seine RBD it is also indicated in the RBMP that 51% of the surface is used for agriculture but there is no indication if the pressure is considered as significant.

For all RBDs, there is no significant overexploitation of aquifers across groundwater bodies. Hydro-morphological pressures are not directly related to agriculture. It is mentioned that when pesticides, nitrates, phosphorus, exogenous organic matter, etc. enter the environment, eutrophication of surface water can occur.

Measures are made at a regional level and apply to all RBDs:

- Prohibition of using all mineral or organic fertilisers within 6m of the banks of water courses, or other water bodies.
- There are many measures related to pesticide application: measures related to the implementation of the Framework Directive on sustainable use of pesticides (2009/128/EC) by Walloon and federal authorities, voluntary agro-environmental measures (AEM, "MAE" in French) with EAFRD support, limit the use of spreading pesticides in the air, improve equipment, limit the use of certain phytosanitary products, etc.
- Voluntary agro-environmental measures (AEM) with EAFRD support, which improve the quality of the surface water and groundwater directly or indirectly: grass buffer strips on the field borders, extensive grassland strips, soil cover in winter (catch crops), extensive cereal farming, organic farming.
- Several measures are categorised in: 1. ecological sustainability of the water courses (longitudinal continuity, inventory of barriers to fish migration, etc.); and 2. management and maintenance of the water courses (prohibit cattle access to water courses, lateral continuity, management and recovery of native plants, etc.)
- There are several measures related to erosion: good agricultural and environmental practices (GAEC): mandatory buffer zone of 6m along water courses, thresholds setting for erosion risk, prohibit cattle access to the water courses (via fencing), mandatory soil cover in winter (catch crops – see Nitrates Action programme "PGDA") , voluntary agro-environmental measures (grass buffer strips on field borders, creation of flood areas, maintenance of hedges and orchards, etc.)
- There are many measures which are categorised in different themes (soil erosion, reduce diffuse pollution, hydromorphological measures, etc.)
- Review of tax system for agricultural holdings: diffuse water pollution due to crops and point source water pollution from cattle rearing.
- The RBMPs refer to background document n°4 ("Références réglementaires liées aux mesures proposées") giving an overview of European regulations related to agriculture. There are several control measures, inter alia control on maximum quantities of dispersible nitrogen (see Nitrates action programme PGDA). There are also several awareness-raising measures, inter alia rational fertilisation, good practices, monitor soil quality (analyses of nitrates residues "APL" in the soil in autumn - PGDA) and maintain a book on the application of fertilisers and organic substances such as sewage sludge (control), advice and training on water management (NitraWal farm advisory service), good practice.

Measures	BEMaas_VL	BESchelde_VL	BE_Nordzee_FED	BEEscaut_Schelde_BR	BEEscaut_RW	BEMeuse_RW	BERhin_RW	BESeine_RW
Technical measures								
Reduction/modification of fertiliser application	✓	✓			✓	✓	✓	✓
Reduction/modification of pesticide application	✓	✓		✓	✓	✓	✓	✓
Change to low-input farming	✓	✓			✓	✓	✓	✓
Hydro-morphological measures					✓	✓	✓	✓
Measures against soil erosion	✓	✓			✓	✓	✓	✓
Multi-objective measures	✓	✓		✓	✓	✓	✓	✓
Water saving measures	✓	✓						
Economic instruments								
Compensation for land cover	✓	✓						
Co-operative agreements								
Water pricing	✓	✓			✓	✓	✓	✓
Nutrient trading	✓	✓						
Fertiliser taxation								
Non-technical measures								
Implementation and enforcement of existing EU legislation	✓	✓		✓	✓	✓	✓	✓
Controls	✓	✓			✓	✓	✓	✓
Institutional changes								
Codes of agricultural practice	✓	✓						
Advice and training	✓	✓			✓	✓	✓	✓
Awareness raising	✓	✓			✓	✓	✓	✓
Measures to increase knowledge for improved decision-making			✓					
Certification schemes			✓					
Zoning								
Specific action plans/programmes	✓	✓						

Measures	BEMaas_VL	BESchelde_VL	BE_Nordzee_FED	BEEscaut_Schelde_BR	BEEscaut_RW	BEMeuse_RW	BERhin_RW	BESeine_RW
Land use planning	✓	✓						
Technical standards	✓	✓						
Specific projects related to agriculture								
Environmental permitting and licensing	✓	✓	✓		✓	✓	✓	✓

Table 12. 1: *Types of WFD measures addressing agricultural pressures, as described in the PoM*
Source*: RBMPs and additional information provided by the Belgian authorities*

12.3 Measures related to hydro-morphology

In the PoM of the **Flemish RBMPs**, there is a group of measures related to hydro-morphology. These measures also apply to HMWBs, which is important since in the Flemish Region a significant share of the water bodies is classified as HMWBs. There is no clear link between the uses, pressures and measures. In WISE it is mentioned that a measure is linked to a type of pressure but no details on the pressures are given. In the description of the measures the link with the pressure is included for some measures. For example there is a measure to eliminate fish migration barriers. It is however not clear to which uses these barriers serve. For other measures the link between uses and pressures is stated generally. For example the measure on structure restoration of river beds mentions in general that uses like agriculture, construction of households and industrial areas have resulted in pressures like straightening, bank reinforcement, etc. No specific hydro-morphological measure is ascribed to removing a pressure due to a use. In the information sheets of the measures, some information on expected effects is given. These are, however, general because of the general nature of the measures. For river continuity, priority maps (developed after the RBMPs) for fish migration are used to improve certain bottlenecks by a specified time, so with a certain expected effect (measure 8A_012).

No measures have been taken in order to achieve an ecologically based flow regime or a minimum flow (not necessarily ecologically based). According to recent information from Flanders, the Flemish Region does not yet have general water quantity objectives. For Special Protection Zones and water-rich areas there are water quantity objectives. Measures in groups 5B (quantity surface water) and group 4B (protected and water-rich areas) are contributing to achieve those objectives.

In the **Brussels Capital Region**, the hydro-morphological pressures are described in the EIA (2.1.1.3 chapter 2 of RBMP). There are no links described between measures, uses and pressures. In 1999 the Brussels Region set up the programme "blue network", which contains hydraulic maintenance and facilities and infrastructures based on scientific research. The goals are diverse; one goal is to recover continuity in the hydrographic network of the Zenne and Woluwe in the territory of the Brussels Region. To ensure ecological added value this recovery must include depth and width differences of the river beds, as diverse substrates need to be contained, which maintains river banks and areas of natural banks; soft inclined river banks must be implemented to protect the springs and infiltration areas. In terms of ecological flow regimes, a study of base flow values (in case of dry weather) will be done as these are deemed necessary to ensure ecological potential of the water courses, the ponds and the humid areas, as well as to be able to compare these to present base flow values. In general, no information is given on the possible effects of measures.

In the **Walloon Region**, hydro-morphological measures encompass a range of measures, as indicated in Table 12.3.1 below. Some measures are not specific, such as lateral continuity: in the description of the measure it is indicated that several methods can be used for achieving this continuity (the nature and intensity of the work depends on the degree of alteration of the system, the natural ability to regenerate the river and remediation costs). The aim is to create a situation as that of a reference state or which would be ecologically acceptable. There is a link between measures and pressures.

Measures	BEMaas_VL	BESchelde_VL	BE_Nordzee_FED	BEEscaut_Schelde_BR	BEEscaut_RW	BEMeuse_RW	BERhin_RW	BESeine_RW
Fish ladders	✓	✓			✓	✓	✓	✓
Bypass channels	✓	✓						
Habitat restoration, building spawning and breeding areas	✓	✓			✓	✓	✓	✓
Sediment/debris management	✓	✓	✓	✓				
Removal of structures: weirs, barriers, bank reinforcement	✓	✓			✓	✓	✓	✓
Reconnection of meander bends or side arms	✓	✓						
Lowering of river banks					✓	✓	✓	✓
Restoration of bank structure	✓	✓		✓	✓	✓	✓	✓
Setting minimum ecological flow requirements					✓	✓	✓	✓
Operational modifications for hydropeaking								
Inundation of flood plains	✓	✓		✓	✓	✓	✓	✓
Construction of retention basins	✓	✓		✓				
Reduction or modification of dredging								
Restoration of degraded bed structure	✓	✓		✓	✓	✓	✓	✓
Re-meandering of formerly straightened water courses	✓	✓			✓	✓	✓	✓

Table 12.2: *Types of WFD measures addressing hydro-morphological pressures, as described in the PoM*
Source*: RBMPs and additional information provided by the Belgian authorities.*

12.4 Measures related to groundwater

In the **Flemish RBMPs**, most measures are defined very generally and the links between risks, impacts, pressures and measures are not clear. On a website called '*Geoloket*'[48] groundwater information sheets are available. These list all the measures that are applicable to a specific groundwater body. Information is given on the location, aquifer properties, land use, quantitative pressure, chemical pressure, environmental objectives, monitoring, status assessment, exemptions, functions and measures relevant to that groundwater body.

Both basic and supplementary measures are established to tackle over-exploitation. These measures include an adapted permitting and levy system depending on the quantitative status of the groundwater body. In relation to the chemical status, basic and supplementary measures are defined to prevent and limit inputs of pollution. Most of them are related to agriculture. Other measures are informing different sectors and the public on pesticide use and developing actions to reduce the use of pesticides by industry and the public, carrying out an adapted permitting policy for groundwater bodies with poor status and developing sanitation and management plans to prevent the spreading of pollutants by leaching of point sources.

Several measures focus on groundwater bodies with either a (potential) poor quantitative or qualitative status. Regarding groundwater quality there is a measure to assess the origin and evolution of pollutants in groundwater bodies with poor chemical status. Also in groundwater bodies with poor quantitative status the effect of over-abstraction on the water quality will be further assessed. An assessment method and trend analysis will be developed for the saline intrusion problems in certain groundwater bodies.

The RBMP refers to the management plan roof report for the results of the multilateral co-ordination activities. This plan mentions that co-ordination has focused in particular on three cross-boundary aquifers. However, it is not so clear to what degree co-ordination of measures has been carried out. The pursuing of a treaty on transboundary quantitative groundwater problems with France and the Netherlands within the International Scheldt Commission is defined as a supplementary measure.

In the **Brussels Capital Region**, there are two basic measures: (1) Continue quantification of groundwater pollution sources and (2) revise certain exploitation conditions connected to extraction and/or artificial re-infiltration. This quantification relates to extension and preserving of the piezometric measurements network and to quantitative research/develop sustainable groundwater management tools. A supplementary measure is the disconnection of the drainage water from the sewer system. Technical and financial feasibility will be studied and a legislative framework will be set up in order to oblige producers of drainage water to adapt their installation when necessary. As part of supplementary measures it is indicated to study the base flow values. Environmental permits to prevent and reduce pollution were already in use. These permits also impose maintenance and control. Technical measures need to be updated for technical innovations and good practice.

In addition, other measures are considered because the environmental permits do not cover all activities which can lead to polluting the groundwater. There are three prior basic measures in the PoM with several instruments. These are:

- targeted approach per group of specific activities (with instruments such as: more control on drilling, pumping and re-infiltrating activities, reconsider permits for such activities, create an inventory, encourage better practices, increase awareness, revision of exploitation conditions)

[48] http://geoloket.vmm.be/krw_mkn/tabel_GWL.php

- targeted approach per contaminant (protection programmes for important contaminants, possibility of prohibiting certain pesticides in protected areas, investigate more on pollution of nitrates, renovate sewer systems)

- purifying non-collectable domestic waste water. A basic measure is also implemented specifically on preventing accidental contamination (by creating an overview of critical points, contribute to an intervention plan, make conditions and permits more strict).

In the **Walloon Region**, basic measures are: compliance areas of prevention; systematic delineation of a safeguard zone around intakes of drinking water which have high and / or increasing levels of nitrates or pesticides; control permits granted in areas of existing and future preventions; and delineation of zones to protect all drinking water catchments.

In terms of groundwater over-exploitation, there are several measures in the PoM. In the RBMPs it is stated that it will be ensured that the evolution of the groundwater level will not cause any damage to the terrestrial ecosystems which are directly dependent on the groundwater body, nor will there be any intrusion of salt water.

Measures to prevent input into the groundwater of any hazardous substances are the following: monitoring groundwater in areas with medium or high risk (this measure is considered to be preventive); environmentally friendly agricultural methods which improve the quality of the surface and groundwater directly or indirectly (inter alia, organic farming); strengthen the diagnosis and intervention of contaminants of catchments; review permits of industries which are a risk for the groundwater; several measures on limiting the use of pesticides (e.g. adjusted equipment, certifying users, bringing more environmentally friendly products to the market, declaring sales of pesticides); study the toxicity of half fabricates which are stored on industrial sites.

In terms of coordination, for the International Scheldt river basin management plan, one of the important issues is "prevention of pollution of groundwater in transboundary layers and protection of the water supplies" and ensuring coordination takes place. For groundwater quantity, the measures are mainly related to licensing and charging policies. For groundwater quality, the measures are mainly aimed at preventing diffuse pollution (nutrients and pesticides policies), protecting drinking water abstraction areas and rehabilitation of historically contaminated soils. Further, there is also a lot of attention going to research. For the Meuse river basin, bi- and tri-lateral coordination has taken place for transboundary groundwater layers. For the Rhine river basin, on the quantitative issues it is mentioned that water shortage is not a relevant issue for the Rhine basin district.

12.5 Measures related to chemical pollution

A description of the main sources of pollution is given for deoxygenating substances, nutrients, priority substances and non-priority specific pollutants. Both point and diffuse pollution are addressed and pollution trends are discussed in the **Flemish RBMPs**.

Basic and supplementary measures are defined to tackle chemical pollution. Some basic measures are related to awareness-raising, permits for emissions, measures related to emissions of wastewater treatment plants (WWTPs), technical measures, and financial support to farmers for investments that will lead to a reduction in the pollution of surface water. The supplementary measures address different sectors such as industry, agriculture and WWTPs. Most of the measures are general and are not substance specific. According to recent information from Flanders an inventory of emissions, discharges and losses of priority substances is currently being developed and will allow a clearer picture of the most important

sources for every substance. It is the intention that this inventory will serve as a basis for defining more substance specific measures in the next RBMP.

For the **Brussels Capital Region** it is indicated in the RBMP that households, industries and infrastructure contribute to point source and diffuse source discharges, leading to chemical pollution, but no definition is given on significance of contribution or pressure. There are no substances found that are causing failure of good ecological status/potential in the RBMP, WISE or other documents.

Measures to tackle chemical pollution are the following:

- Revision of conditions for permits for discharge of industrial waste water, encourage implementation of BATNEEC (Best Available Technique Not Entailing Excessive Cost), educate companies about substances and establishing products which should not be poured into the sewer system.
- Revision of exploitation conditions (permits) related to storage of specific products or dangerous substances and infrastructures which are a risk for groundwater.
- Educate the public about substances and products which should not be poured into the sewer system. Raise awareness of consequences of poisonous products on the quality of the groundwater and help people choose more environmentally friendly products and techniques.
- Improve a legal framework for protecting surface waters against pollution. Optimise treatment from treatment plants. Minimise or end discharges of pollutants in sewer systems in case of rain. Expand sewer systems and if not possible, provide individual treatment of waste water. Coordinate programmes and investment plans from water operators including terms.

There are no substance-specific measures.

For the **Walloon Region**, there is no clear definition on "significance" of pressure. Atmospheric deposition is only very briefly mentioned as a possible source and is therefore not considered significant in this assessment. There are no substances found that are causing failure of good ecological status/potential in the RBMP, WISE or other documents. On industrial emissions, several measures are mentioned such as: elaboration and follow-up of common purification installations for industrial waste water, review of environmental permits according to the aims of the WFD, reinforce conditions according to best available technologies, inventory of discharges of industrial waste water, raise awareness and research controls for groundwater.

Specifically relating to waste deposits on landfills, measures include the study of the toxicity of half fabricates which are stored in industrial terrains; the monitoring of deposit circumstances of agricultural substances. Specific for households, several measures are envisaged such as: actions to lower the toxic waste in urban environments, raising awareness on the use of pesticides, training and certification for pesticides and limitations for phytosanitary products. Other measures include water purification and adjusting sewers to standards.

12.6 Measures related to Article 9 (water pricing policies)

The broad definition of water services is defined in the **Flemish RBMPs**, but the identification of water services for the purpose of Article 9 is limited to four water services only (public

drinking water production and distribution; public collection and treatment of wastewater; self-service production and supply; self-service wastewater treatment).

Households, industry and agriculture have been defined as water uses in relation to cost recovery.

It is stated that different water uses (at least households, industry and agriculture) have to make an adequate contribution to cost recovery of water services. However cost recovery rates disaggregated into the three types of water uses are calculated only for one water service: public waste water treatment. It has not been done for other water services because of problems in getting adequate data. Improvements in the calculations are anticipated, for example, in respect to knowledge on environmental and resource costs and determination of a fair contribution of user sectors in order to eliminate cross-subsidies.

According to the RBMPs the different water users should pay a reasonable contribution to the recovery of the costs of the water services and this cost recovery has been based on the "polluter pays principle".

In practice environmental and resource costs are addressed to a very limited degree, mainly in respect to public waste water treatment (self-service production and supply and self-service wastewater treatment).

There are a lot of exemptions in the calculation of environmental and resource costs, and subsidies for different water services. Transparency is thus not ensured and doubts on the implementation of the "polluter pays principle" are raised.

There is limited information concerning the incentive function of pricing policy with the exception of reported volumetric metering, and aquifer- and region-dependent groundwater abstraction fee.

Despite the mentioned subsidies there is no information on the implementation of flexibility provisions of Article 9 and no justification of its application has been reported.

According to the information received from the Flemish authorities, all the above mentioned issues have led to the inclusion of supplementary measures in the PoM.

For the **Brussels Capital Region**, the water uses are described indicating use of households (67%), primary and secondary (3%) and tertiary sector (30%). The order of 20 October 2006 establishes a framework for water policy in the Brussels Capital Region (called "Water Framework Order"). It defines in Article 5.41 "services related to water use". These are all services provided for households, public institutions or any economic activity: a) the abstraction, production, containment, transportation, storage, processing and distribution of surface water or groundwater; and b) facilities for the collection and treatment of waste water which subsequently discharges into surface waters.

At present, only the services related to the use of water were considered in the economic analysis. The government has established a system of progressing pricing for domestic consumption, incentivising consumers to a more rational use of water, reducing the volumes discharged, to have a positive impact on the environment. In addition, such a system ensures that the polluter pays principle required by the WFD is implemented. For the industries, the regional public sanitation price depends on the pollution load generated and volumes discharged. Thus, the industry is encouraged to minimise water pollution and use less water. In the objectives of the PoM it is indicated that studies have been implemented and will continue to determine the real cost of water and the environmental costs. This will help in the implementation of cost recovery principle.

The studies result in a recovery rate of 88% for drinking water production and distribution services. For sewer services the cost recovery rate is 58%; for waste water collection and treatment it is 93%. Potential measures are proposed to accomplish the objectives of cost recovery: integrate environmental costs in real cost, improve knowledge, and improve cost recovery of water services.

For the **Walloon Region** the chapter on recovery of costs relates to: collective water treatment service, public service for production and distribution of drinking water and service for protecting the water abstractions. The economic sectors are defined as households, agriculture and industry.

The pricing policy of the service production / distribution of drinking water and waste water service is based on the principle of "true cost" and the user pays principle. The pricing policy of water provides the following financial instruments: 1) a tax on the discharge of domestic wastewater from non- public distribution: it is proportional to the volume spilled (polluter pays); 2) a tax on the discharge of industrial wastewater: it is proportional to the pollution load discharged (polluter pays); 3) a contribution levy on non-drinkable groundwater abstraction; 4) a tax on agricultural wastewater discharge and treated domestic wastewater: it is proportional to the volume spilled and the pollution load generated; and 5) a fee for catchment protection: it is proportional to the volume of drinkable water collected. These pricing policies are implemented but there is no information on how this provides adequate incentives for users to use water resources efficiently.

For the measures of cost recovery, general principles have been determined. Those principles are the basis for important axes to reform the present mechanisms for cost recovery to meet article 9 of the WFD. Service costs of collection and waste water treatment have been attributed to economic sectors according to the polluter–pays principle. For this service, the cost was split between economic sectors on the basis of the criteria "pollutant load produced and discharged by each economic sector in the public system for collecting waste water". The service costs of production and distribution of drinking water have been attributed to economic sectors according to the user pays principle, in applying the distributed volumes and meters installed by economic sector. The contribution of economic sectors to finance services consists of prices and rates charged to each sector.

WISE information provided by the MS indicates that the management plans set out measures for the implementation of Article 9 § 1 (principle of cost recovery and the polluter-pays principle) that contribute to the environmental objectives of the WFD. The proposed measures include: 1) introduction of a levy on regional environmental costs from non- drinkable water abstraction areas; 2) revision of the contribution levy on non-drinkable groundwater withdrawals; 3) evaluation and simplification of instruments for the recovery of costs from farms causing water pollution by nitrates; 4) reform the tax system application on industrial waste water discharges; 5) reform the planned tax enforcement on domestic waste water discharges from non-public distribution; 6) increased pricing of sanitation service group (true cost sanitation) of domestic waste water from the public distribution; and 7) establish and fund an independent sanitation public service in priority areas.

12.7 Additional measures in protected areas

The water bodies that lie in protected areas with stricter environmental objectives are identified in both the **Flemish** and the **Coastal Waters** RBMPs. For some protected areas it is mentioned that new objectives are being or will be developed. Measures related to these protected areas are defined under the measure category 1 that includes the current policy

related to the execution of the directives relevant for the protected areas and measure category 4B that includes supplementary measures related to the protected areas for surface waters.

In the **Brussels Region** PoM the specific management of the different types of protected areas is briefly described. It is stated to which guideline or in which programme the area is included. In terms of safeguard zones to protect drinking water abstraction areas, one of the measures includes the realisation and implementation of a programme for the protection of the specific protected areas of the drinking water extractions.

In the **Walloon Region** the protected areas for water abstractions, protected areas for bathing, swimming, vulnerable areas for nitrates, Natura 2000 areas, RAMSAR areas and protected fishing areas are listed and shown on a map. There are indications of which areas need additional measures. The measures for protected areas are not specific, there is no information on type and magnitude or on whether the measures are additional or not. In terms of drinking water protection, safeguard zones to protect drinking water abstraction areas have been established. It is mentioned in the RBMP that 29 out of 33 ground water bodies are considered a source of water for human consumption (Scheldt RBD: seven out of 10; Meuse RBD: 20 out of 21; Rhine RBD: two out of two). Among these large groundwater bodies, only a part of them is a drinking water protected area (210 safeguard zones / *"zones de prevention*"): there are 45 groundwater drinking protected areas in the Scheldt RBD, 155 in the Meuse RBD and 10 in the Rhine RBD.

In addition to safeguard zones other (basic or supplementary) measures specific to safeguarding drinking water quality were reported such as control on permits for water abstractions for existing and future protection areas.

13. CLIMATE CHANGE ADAPTATION, WATER SCARCITY AND DROUGHTS AND FLOOD RISK MANAGEMENT

13.1 Water Scarcity and Droughts

In the **Flemish RBMPs**, water scarcity and droughts have not been identified as significant pressures. It is mentioned that in times of exceptional droughts a shortage of water may arise. It is also mentioned that pressures on surface water quantity are caused by the effects of climate change on the one hand and by the abstraction of surface water on the other hand. Measures have been defined to deal with potential shortage of water (e.g. provisions in surface water abstraction permits that allow abstraction to be limited or suspended in periods of prolonged drought and low flows). It is also mentioned that due to climate change, drought may become more common in the future. All water-related measures have to take this into account.

There are no trend scenarios but data is given on water abstractions. No data is given on water availability. The effect of climate change on low flows is discussed in the RBMPs. Several measures in the PoM are related to the issue of datasets and trend scenarios of water availability and demand. These measures aim to increase the knowledge on water use and water needs. It is mentioned that knowledge of the whole water cycle, water use and social and ecological water needs is needed for supporting management. In order to realise this in the Flemish Region there is a need for gathering information and knowledge on several issues.

Measures related to water scarcity and drought are spread over several groups of measures such as measures on cost-recovery and the polluter pays principle, measures for sustainable water use and measures related to the quantity of surface water and groundwater.

The results of the international co-ordination activities are described in the management plan roof reports. For the Scheldt RBMP, there is a chapter "co-ordination of activities for the prevention of the consequences of floods and periods of drought".

Related to droughts there has been a discussion about challenges in order to come to a common vision. Work has been done to develop a common methodology for developing a balance between water supply and demand on the district scale. Information has been exchanged and a common analysis on surface water flows has been carried out and knowledge and experience has been exchanged. For groundwater, co-ordinated activities such as monitoring have been carried out for the cross-boundary Carboniferous Limestone Aquifer which has quantitative problems.

In the **Brussels Capital Region**, drought is only mentioned within the concept of climate change. It is briefly mentioned that periods of drought will occur and increase in intensity in the future, which will have an impact on the water resources. No further information is available. There are no measures specifically related to water scarcity or drought.

In the **Walloon region**, water scarcity and drought are not specified as pressures. Low water levels are indicated as an issue: it is indicated that low water levels will occur in periods of drought. These are the periods that the flow of a water course is only complemented by groundwater. Some measures are considered related to low water levels. Measures for low water levels are related to water abstraction, but water scarcity and droughts are not a significant issue in the Walloon RBDs.

13.2 Flood Risk Management

In the **Flemish RBMPs**, floods have not been addressed as a significant water management issue, since it was considered not to be decisive for reaching the objectives of the WFD. However, in the PoM there is a group of measures dedicated to floods and flood protection has been used as a reason for HMWB designation. It is mentioned that there will probably be more floods as a result of climate change. Climate change is identified as causing pressures on water quantity.

The group of measures related to floods (group 6) contains several measures to reduce flood risk. These measures are distributed over the three steps of water retention, water storage and water discharge (in order of priority). Measures related to water retention and storage include, for example, the safeguarding of potential water storage areas that are designated as residential or industrial from buildings and hard surfaces, creating new water retention capacity either by using natural floodplains or by artificial means such as dikes and water level management and the execution of measures from the *'Sigma-plan'* which includes several types of measures such as the creation of wetlands, depoldering certain areas, reinforcing quays etc. Local measures such as dikes and reinforcement of embankments should protect the public and industry. In order to improve water discharge, several measures are formulated such as dredging, weed removal, broadening of certain water bodies, pumping stations and other infrastructural works.

Integration of the flood risk management plans and the river basin management plans is foreseen for the next cycle.

In the **Brussels Capital Region**, flood risk due to rainwater flooding peaks is discussed and measures have been developed in the "plan pluie" and are integrated in the river basin management plan. The objective is to restore the hydrographical network as local drainage for rainwaters. The continuity of elements of the hydrographical network does need to be restored

and the elements themselves need to be replenished to ensure a sufficiently large volume as to capture the flow peaks that occur due to sudden rainwater floods. The prevention of floods by rainfall did get priority in the "Regional Plan for flood prevention" (2008). This plan did take a first step in the coordination of water management between the different Brussels authorities. It was integrated in its entire form in the River Basin Management Plan. In the first chapter, an inventory has been made of floods in the Brussels Region. In the second chapter, causes of floods are analysed and in the next chapter, proposals for regulations and concrete actions are explained. This is structured along several "causes" of flooding, and objectives to prevent flooding. An overall objective integrated is climate change adaptation. Further on, specific causes are e.g. sealed soils for which the objective is to combat the consequences of soil sealing; another cause is the non-adapted or aged sewage network for which the objective is to invest in a grey network; a last cause mentioned is the disappearance of natural flooding areas and construction in risk areas for which the objective is development of a blue network and dissuasion and adjustment of construction works.

For the **Walloon Region**, in the last ten years, the region was subject to flooding events that caused large damage, both to the public and to economic sectors. The type of flood events differs largely, both in terms of duration and scale. The Walloon Government approved an action plan on 9 January 2003 which was implemented by collaboration of all Walloon authorities, the plan P.LU.I.E.S. ("Prévention et LUtte contre les Inondations et leurs Effets sur les Sinistrés" - plan for the prevention and management of floods and their consequences for victims). This plan consists of 30 concrete measures to diminish the risk of damage. One of the first actions was the mapping of flooding areas. After that, the actions included planning regulations, improvement of environmentally friendly agricultural measures (hedges and grassland strips, etc.), good maintenance of rivers, preparation of works for local flooding protection and improved communication on high flood events. Measures were initially proposed and a selection was made based on those that scored positively for overall efficiency in terms of reaching the objectives of the WFD.

13.3 Adaptation to Climate Change

The effects of climate change are discussed in the **Flemish RBMPs** in the context of precipitation, water scarcity and droughts and floods. In the chapter on pressure and impact analysis for water quantity the effect of climate change on rainfall is discussed. Climate change together with water abstraction is causing pressures on water quantity.

In the PoM it is mentioned that in the information sheets of the measures a climate check of the PoM was done to see whether the measure contributes to climate adaptation and / or if the measure has a negative climate impact. This was carried out measure by measure and it had an influence on the selection of measures. The methodology and the nature of this influence, however, are not described.

General climate change measures are also included in the PoM. Some measures are defined concerning quantity changes in groundwater, taking climate change into account.

In the **Coastal Waters RBMP**, the issue of climate change is referred to, in particular the likely raise of the level of the sea, the increase in the tidal range and the subsequent increased erosion in the coastal environment, and other effects on fisheries and on the coastal dynamics of sand and fresh water.

In the **Brussels Capital Region** the impacts of climate change are described as 'presumably the most important environmental effects on the RBMP-PoM'. Climate change is mainly considered in relation to precipitation patterns, this can also be found in pillar 5 of the PoM (prevention policy

against floods by rainfall). Promotion of renewable energy is one of the pillars in the PoM. The EIA discusses the possible positive impacts of the RBMP and PoM on possible climate change and on adaptation to climate change. There is a regional plan for flood protection in the Brussels Region. Although the statistics do not show extreme changes, the precautionary principle is implemented. There has been no real "climate check of the PoM". For the Brussels Region a new 'climate plan' is being set up. In this plan connections will be made between this future plan and the 'rainwater plan' (the rainwater plan is currently integrated in the PoM).

In the **Walloon Region**, climate change is only very briefly mentioned under chapter 8.1 in the RBMPs "register of plans" which lists several other plans and programs in the Walloon region. Global warming is mentioned as motivation for hydropower, without further information. In this chapter, the "programme Air Climate" is mentioned in the Walloon Region. It is indicated that this programme is focused on air pollution and global warming. This programme contains 104 measures of which some can have an influence (directly or indirectly) on the quality of water and marshes and on the availability of water as a natural resource. This programme stands by itself and there is no further explanation on how it is linked to the RBMP; chapter 8 only briefly mentions plans and programmes which can be related to water management.

14. RECOMMENDATIONS

Belgium should:

- Ensure good coordination between the different regions. In the past, plans were developed separately by each of the Regions and by the Federal government for coastal waters. Although the Regions and the Federal government participate in the International River Commissions of the Scheldt and the Meuse, this is not sufficient to enable effectively coordinated implementation of the WFD. In particular, the PoMs need to be clearly linked where they concern pressures and measures that affect several Regions (e.g. pollution from the Regions that affects coastal waters).
- Ensure that consultation processes at various levels (regional, national, international) are coordinated and that key information (pressures, monitoring, status, environmental objectives and exemptions, measures) is made available in a consolidated way for the whole of the RBDs (at least for the Belgian part), avoiding separate products available in different timelines which made impossible having a completed picture of the RBD.
- Establish a quantitative source apportionment and a link between pressures / impacts and their sources. Belgium should use these as a basis for determining the PoMs.
- Improve the methods for the status assessment of water bodies to reduce the degree of uncertainty in status classification and thus support the gap analysis required to identify measures.
- Ensure that the RBMPs clearly identify the gap to good status for individual pressures and water bodies, and that PoMs are designed and implemented to close that gap since none of the three Regions carried out an assessment / analysis of how far pressures (and their corresponding sources) have to be reduced to achieve the WFD objectives. Exemptions should be adequately justified at water body level.
- Ensure that cost-effectiveness analyses are conducted in the Brussels and Walloon Regions to inform their next RBMPs (only Flanders has carried it out).
- Increase significantly the level of ambition in the second RBMPs and justify better the exemptions applied based on the assessment of the measures needed to reach good

status, a proper assessment of alternative solutions and all necessary mitigation measures for exemptions for new infrastructure.

- Review the degree to which the existing measures to implement the Nitrates Directive (ND) are sufficient to address agricultural pressures to allow the more stringent nutrient conditions for the WFD and MSFD to be met. Additionally, Belgium should ensure basic measures as per Article 11.3.h are put in place to control other diffuse pollutants – e.g. phosphate, pesticides, particulate matter. These measures should be specific, have a clear legal basis, and include appropriate advice, monitoring and inspection regimes to ensure their effective implementation. In addition to the basic measures, it should be set out clearly what supplementary measures will be needed to bridge the gap to good status and which of these measures will be included in the second PoMs and what funding sources will be used to deliver these. Clear references to expectations for the Rural Development Programs in this regard (and to other funding sources) are expected.
- Include in the second RBMPs the necessary hydro-morphological measures to achieve good status, including those targeting the good ecological potential for heavily modified water bodies (to broaden the scope, make the designation process clearer and ensure the necessary budget).
- Include in the second RBMPs additional objectives for protected areas and measures to achieve these objectives.
- Integrate environmental and resource costs into cost recovery calculations for the second RBMPs.