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Second River Basin Management Plans – Member State: Romania

Accompanying the document

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC)
Second River Basin Management Plans
First Flood Risk Management Plans

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Acronyms and definitions

EQS Directive	Environmental Quality Standards Directive
FD	Floods Directive
Km	Kilometre
km2	Kilometre squared
KTM	Key Type of Measure
PoM	Programme of Measures
QA/QC Directive	Quality Assurance / Quality Control Directive
RBD	River Basin District
RBMP	River Basin Management Plan
WEI+	Water Extraction Index+
WFD	Water Framework Directive
WISE	Water Information System for Europe
Annex 0	Member States reported the structured information on the second RBMPs to WISE (Water Information System for Europe). Due to the late availability of the reporting guidance, Member States could include in the reporting an Annex 0, consisting of a short explanatory note identifying what information they were unable to report and the reasons why. This Annex was produced using a template included in the reporting guidance. If Member States reported all the required information, this explanatory note was not necessary.

Foreword

The Water Framework Directive (WFD) (2000/60/EC) requires in its Article 18 that each Member State reports its River Basin Management Plan(s) (RBMPs) to the European Commission. The second RBMPs were due to be adopted by the Member States in December 2015 and reported to the European Commission by March 2016.

This Member State Assessment report was drafted on the basis of information that was reported by Member States through the Water Information System for Europe (WISE) electronic reporting.

The Member State Reports reflect the situation as reported by each Member State to the European Commission in 2016 or 2017 and with reference to RBMPs prepared earlier. The situation in the Member States may have changed since then.

General Information

Romania (Map A) has a total population of 22.3 m (the total resident population is 19.9 m) and a total surface area of 238 391 km^2. Romania is located in southeast Europe. Romania's territory is mountainous in the north while the main feature in the south is the vast Danube valley. The Danube River forms a delta as it approaches the Black Sea.

Map A ***Map of River Basin Districts***

Source: WISE, Eurostat (country borders)

International River Basin Districts (within European Union)
International River Basin Districts (outside European Union)
National River Basin Districts (within European Union)
Countries (outside European Union)
Coastal and transitional Waters

100% of Romania's surface is part of the international Danube River Basin District, representing approximately 29% of the international Danube River Basin surface. The Romanian part of the Danube RBD encompasses 11 sub-units / river sub-basins.

Information on areas of the national river basin districts including sharing countries borders is provided in Table A and the respective share within Romania is given in Table B.

Table A Overview of Romania's River Basin Districts and sub-units

RBD / Sub-basin	Name	Size (km²)	% of RO territory	Countries sharing borders
RO1000	Danube	238 962*		BG, HU, MD, RS, UA
Sub-basin				
RO9SO	Someş - Tisa	22 452	9.4	HU, UA
RO8CR	Crişuri	14 939	6.3	HU
RO7MU	Mureş	28 540	11.9	HU
RO1BA	Banat	18 312	7.7	RS
RO2JI	Jiu	16 759	7	-
RO3OT	Olt	25 388	10.7	-
RO4AG	Argeş - Vedea	21 543	9	-
RO5IL	Buzău - Ialomiţa	26 471	1011.1	-
RO10SI	Siret	27 949	11.98	UA
RO11PR	Prut - Bârlad	20 569	8.7	MD, UA
RO6DL	Dobrogea Litoral	16 041*	6.4*	BG, MD, RS, UA

**including transitional and coastal waters*

Source: River Basin Management Plans reported to WISE

Table B Transboundary river basins by category and % share in Romania

Name international river basin	National RBD	Countries sharing borders	Co-ordination category	
			1	
			km²	%
Danube	RO1000	BG, HU, MD, RS, UA	238 962*	29.6*

** including transitional and coastal waters*

Source: WISE electronic reporting

Category 1: International agreement, permanent co-operation body and international RBMP in place.
Category 2: International agreement and permanent co-operation body in place.
Category 3: International agreement in place.
Category 4: No co-operation formalised.

Status of second river basin management plan reporting

A single/national RBMP for Romania (Danube) and 11 sub-units RBMPs were published on 22 December 2015, the whole territory of Romania being assigned to a single River Basin District (Danube). Documents are available from the European Environment Agency (EEA) EIONET Central Data Repository https://cdr.eionet.europa.eu/.

Key strengths, improvements and weaknesses of the second River Basin Management Plan(s)

The main strengths and shortcomings of the second RBMP of Romania are as follows:

- **Governance and public consultation**

  - Concerning public participation and active involvement of stakeholders, the public and stakeholders were informed by a range of methods, including media as well as celebrations of World Water Day and Danube Day.

  - The Basin Committees, in place for each sub-basin, helped to inform the public and also supported the active involvement of stakeholders.

- **Characterisation of the RBD**

  - There was a significant (11%) decrease in the numbers of river water bodies between the two cycles, due to an updated methodology applied based on research studies.

  - The RBMP reported that the typology was revised and that a number of types were harmonised.

  - There are gaps in the biological quality element type-specific reference conditions for some types in all water categories. According to the information subsequently provided by Romania the reference conditions were reported in WISE only for existing situations, but in the RBMP, type-specific reference values for almost all biological quality elements have been included. In addition, coastal and transitional water types had no reference conditions established for any of the hydromorphological or physicochemical quality elements. According to the information subsequently provided by Romania, there are hydromorphological type-specific reference conditions for transitional and coastal water bodies.

  - There are no equivalent intercalibration types for both transitional water bodies due to the lack of common types. According to the information subsequently provided by Romania, it has not been technically feasible to complete the comparability assessment within the intercalibration process. 59% of lake and 47% of river water bodies do not have an equivalent intercalibration type although the class boundaries used for all national types were those of the intercalibrated types: the translation/ use of the results

of intercalibration to non-intercalibrated types is key to the basis of the status classification.

- Further characterisation has been undertaken with the geological formation of the aquifers associated with the groundwater bodies and reported as to whether the groundwater bodies were layered or not. Groundwater bodies were linked to surface water bodies and terrestrial ecosystems.

- The significance of the pressures was defined in terms of thresholds and was linked to failure of objectives for both groundwater and surface water. However, for transitional water bodies unknown anthropogenic pressures was the only reported pressure, indicating that there are shortcomings in the current pressures and impact assessment for this water category. According to the information subsequently provided by Romania the unknown pressures on transitional water bodies were indirect pressures from the catchment and the measures taken upstream would lead to the achievement of the environmental objectives for the transitional water bodies.

- Romania reported gaps indicators for significant pressures to be filled to achieve the environmental objectives for most significant pressures.The impact of significant pressures (point and diffuse pollution) has been quantitatively assessed by applying modelling tools and the results of the monitoring of pollutant emissions have been used.

- Romania reported inventories of Priority Substances for each of its 11 sub-units. 37 Priority Substances were included in inventories in at least one of these inventories. The two step approach from Common Implementation Strategy Guidance document No. 28 was used to compile the inventories for nine of the 37 Priority Substances in inventories. For these substances, Tier 2 (riverine load) or Tier 1 (point source information) + Tier 2 were implemented, in line with the Guidance Document. The same methodology was implemented for other substances. The data quality was assessed as uncertain or medium.

- **Monitoring, assessment and classification of ecological status**

- The monitoring network has been expanded since the first RBMP, the number of monitored parameters has increased and the level of confidence of the status assessment has also improved.

- Most biological quality elements were monitored at least at the minimum recommended frequency. There are some gaps in the monitoring of required quality elements, as morphological conditions were not monitored in coastal and transitional waters.

- A large proportion of water bodies have been classified for more biological quality elements and supporting quality elements than in the first RBMP. Macrophytes were not classified in rivers and lakes, and fish were not classified in lakes[1], due to missing methods.

- More assessment methods for biological quality elements have been developed since the first RBMP. However, methods for macrophytes in rivers and lakes[2] and fish in lakes were still missing.

- Assessment methods for biological quality elements in rivers are sensitive to several significant impacts. However, there are no biological quality element assessment methods that are sensitive to chemical pollution, hydrological changes, acidification and saline intrusion in rivers, even though these impacts were reported to be significant.

- A large proportion of national river and lake types are not linked to any intercalibration type. For all national types, the class boundaries used were those of the intercalibrated types.

- Morphological conditions were assessed in terms of ecological status/potential and the classification boundaries are related to the class boundaries for the sensitive biological quality elements. Hydrological or tidal regime in all categories, as well as river continuity, were reported to be assessed but the classification boundaries are not related to the class boundaries for the sensitive biological quality elements.

- Assessment methods for most of the physicochemical quality elements have been developed since the first RBMP. For rivers and lakes, all general physico-chemical elements/parameters are assessed in terms of ecological status/potential, except transparency and salinity conditions in lakes. Thermal conditions were not considered relevant for lakes, transitional and coastal water bodies since there are no discharges in those water categories.

[1] It should be noted that fish are not relevant for 26% of the natural lake water bodies.
[2] The methods for macrophytes have now been intercalibrated and have been included in the latest Intercalibration Decision.

- The number of monitoring sites for River Basin Specific Pollutants decreased in lakes but increased in rivers since the first RBMP. There was little change in transitional and coastal waters.

- Monitoring was reported for 11 different River Basin Specific Pollutants, at least at the minimum recommended frequency. The analytical methods are in line with Articles 4(1) or 4(2) of the QA/QC Directive (2009/90/EC) for all substances.

- The number of water bodies in good or better ecological status increased since the first RBMP.

- **Monitoring, assessment and classification of chemical status in surface water bodies**

- All water bodies and all territorial waters were classified. Between the two RBMPs, there was a small increase in the proportion of water bodies in good chemical status (from 93 to 98%), together with a corresponding small decrease in water bodies failing to achieve good status (from 7 to 2%).

- All transitional and coastal water bodies and all territorial waters are monitored for chemical status. Only about a quarter of river and lake waterbodies are monitored. This means than approximately a quarter of lake and river water bodies were classified by expert judgment, and approximately 50% by grouping.

- The number of priority substances monitored and the number of water bodies monitored increased between the two RBMPs, which led to an increased confidence in the assessment of status. However, 56% of surface water bodies in Romania were still classified for chemical status with low confidence (and only 1 % with high confidence).

- 37 of the 41 Priority Substances were monitored in water and used for status assessment. This included all priority substances identified as discharged. The four substances which were not monitored were also not considered in the inventories (so it is unclear whether they are discharged). In over 80% of the cases, the monitoring frequency applied was at least the recommended minimum frequency. The reduced frequencies resulted from the inability to sample during the dry period for temporary water bodies, from the inability to sample under certain winter weather conditions or from data incorrectly reporting in WISE.

- Mercury, hexachlorobenzene and hexachlorobutadiene have been monitored in biota for status assessment, at the recommended minimum frequency. Monitoring is performed in what seems to be a very limited number of sites.

- 9 of the required 14 Priority Substances are monitored in sediment in rivers and lakes for trend assessment. Three of these nine substances were also monitored in other surface water categories. Some of these substances are monitored in what seems to be a very limited number of sites. The sampling frequency is the recommended minimum frequency.

- **Monitoring, assessment and classification of quantitative status of groundwater bodies**

- 30 of 143 groundwater bodies are not monitored. However, having in view the pressure and impact analysis and status assessment results, all groundwater bodies have been classified in good quantitative status and are not failing to meet the environmental objectives.

- **Monitoring, assessment and classification of chemical status of groundwater bodies**

- The coverage of surveillance monitoring improved in the second cycle but it is still not complete. All WFD core parameters were monitored.

- Not all substances causing risk are subject to monitoring. Yet, Romania subsequently clarified that all groundwater bodies at risk of failing good groundwater chemical status and all substances causing the risk are subject to operational monitoring.

- The groundwater body area failing good status decreased from the first to the second RBMP. About 10% of the groundwater bodies are failing the good chemical status objective.

- **Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential**

- An updated analysis of anthropogenic pressures, in particular of hydromorphological alterations, has been carried to support the designation of heavily modified water bodies as well as a more detailed analysis of other alternative means to achieve the benefits of the modifications. Furthermore, the failure to achieve good status has been verified with improved assessment methodologies.

- The biological quality elements used for defining good ecological potential/maximum ecological potential seem to have increased since the first cycle. The assessment methods for various biological quality elements have been reviewed and improved. Therefore, the number of biological quality elements, which are possible to assess in different water categories to classify status and potential, has increased. The confidence of the assessment of ecological potential has also improved since the first cycle. However, for coastal waters, no biological quality element assessment methods sensitive to hydrological or morphological changes were reported.

- Mitigation measures for defining good ecological potential have been reported. According to information subsequently provided by Romania, descriptions of the effects expected on the biological quality elements are provided as a general approach in a catalogue of mitigation and restoration measures

- **Environmental objectives and exemptions**

- Environmental objectives for ecological and chemical status in surface water bodies and chemical and quantitative status in groundwater have been reported in all RBDs.

- Drivers, pressures and pollutants leading to exemptions were reported.

- Article 4(5) was applied in surface waters in the first cycle and is applied more widely in the second RBMP. The application of Article 4(4) exemptions has been reduced in rivers and lakes between the first and second RBMP and remained stable for coastal and transitional water bodies.

- Article 4(7) has been applied because of new modifications in four river water bodies. Further information is needed to assess whether all the requirements of Article 4(7) are fulfilled and whether the effects of all newly planned modifications on water body status/potential are assessed at quality element level

- **Programme of Measures**

- Nearly 75% of the planned measures (established in the first cycle) have been implemented. There have been some delays in the implementation for the first Programme of Measures (PoM) due to a lack of finance, a lack of mechanism and delays in the tendering of contracts.

- Romania has reported that financing has been secured for all the relevant sectors for the second PoM. A large amount of investment is required to implement the measures in Romania.

- New Legislation or regulations to implement the PoM in the first cycle have already been adopted in Romania.

- Most significant pressures have operational Key Types of Measure in place to address them. No significant pressures have been identified as causing groundwater bodies to fail to be of good quantitative status. Some significant pressures on surface water bodies do not have Key Types of Measure in place to address them.

- Romania has mapped national basic and supplementary measures against pre-defined and nationally derived Key Types of Measure. A high proportion (63%) of the national supplementary measures have been mapped against KTM 14 - Research, improvement of knowledge base reducing uncertainty.

- No information was reported for River Basin Specific Pollutants in surface water, but they are being addressed in general terms (e.g. KTM21 – waste water treatment).

- Key Types of Measure have been reported for some Priority Substances causing surface water bodies to fail to be of good status. Key Types of Measure have not been reported for three Priority Substances that were reported as causing surface water bodies to fail to be of good status; but these are covered by other measures such as KTM1 – Construction or upgrade of waste water treatment plants (pressure type 1.1), KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure.

- Indicators of the gaps to be filled by key types of measure and indicators for the scale and progress with implementation of measures until 2027 have been reported. This is a real strength of Romania's implementation in relation to the PoM. Meaningful indicators have been defined for both the gap to good status and the level of implementation required from the measures, for all forthcoming planning cycles.

- According to the Water Law, the RBMP and Flood Risk Management Plans have not been integrated into a single plan. It has been reported that co-ordination has been achieved in all aspects.

- **Measures related to abstractions and water scarcity**
  - Water abstraction pressures were not reported as relevant for Romania and no surface or groundwater water body faces water quantity-related problems. However, local variation between sub-units in Romania in terms of water demand and availability have been recorded.
  - The main uses for water consumption are not reported. The European Union-funded planned expansion of irrigation from 0.8 to 1.8 m hectares could lead to future significant abstraction pressures, which is a concern.
  - The RBMP does not include a water resource allocation and management plan. There is a concession, authorisation and/or permitting regime to control water impoundment and abstractions and a register of impoundments and abstractions.
  - Measures promoting efficient and sustainable water use (Basic Measure Article 11(3)(c)) were implemented in the previous cycle, and new measures and/or significant changes are planned for the 2016-2021 period.
- **Measures related to pollution from agriculture**
  - There is a clear link between agricultural pressures and agricultural measures.
  - A gap assessment for nutrients and pesticides have been undertaken and management objectives for nutrient pollution have been set.
  - The implementation of basic measures for the control of diffuse pollution from agriculture at source is ensured in all RBDs where the same rules apply across the whole RBD.
  - Supplementary measures for reducing pollution from agriculture were reported.
  - Financing of measures is secured and the costs of the measures were reported.
- **Measures related to pollution from sectors other than agriculture**
  - Basic measures to reduce the effects of pressures caused by effluents from human agglomerations have been established with a view to reducing the pollution from point sources and diffuse sources of pollution.
  - KTMs have been reported for several but not all individual Priority Substances causing failure. General measures are in place for others and for River Basin Specific Pollutants. KTM 15 - "Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances" is among the KTMs mapped and tackling significant pressures.

- **Measures related to hydromorphology**

  - Significant hydromorphological pressures were identified only for rivers and several operational Key Types of Measure were reported to address such pressures. However, for water bodies affected by hydromorphological alterations (physical loss of whole or part of the water body), which represent the highest share of water bodies with significant hydromorphological pressures, only research measures are proposed, as the first step of setting the appropriate measures for the next cycle.

  - The level of ambition in terms of closing the gap for significant hydromorphological pressure varies between closing none of the gap to fully closing the gap between 2015 and 2021. For river stretches affected by significant hydromorphological pressures where no progress is expected by 2021, the reported information indicates that the gap will be fully closed by 2027, with the exception of certain river stretches affected by flood protection and hydropower whose pressure levels remain unchanged until 2027.

  - Ecological flows have been derived and implemented partly, i.e. for some relevant water bodies, but the work is still on-going. For the first RBMP, there were no guidelines for defining the ecological flow, but there were obligations to ensure minimum flow for protection of the aquatic ecosystems, according to the Water Law. In the second RBMP, a methodology for ecological flow determination has been elaborated, which in 2015 was still in the process of validation. According to information subsequently provided by Romania, the methodology is now finalised.

    Natural Water Retention Measures have been made operational to tackle physical alterations due to flood protection. In addition, some measures related to natural water retention are also included in the Flood Risk Management Plan Measures establishing a link between the WFD and the Floods Directive. It is also noted that there has been a proposal to set up an inter-ministerial working group for the reconstruction of wetlands along the Danube and the main tributaries as a measure to reduce the risk of floods and to implement green infrastructure and water retention.

- **Economic analysis and water pricing policies**

  - Cost recovery calculations remain limited – environmental and resource costs have partially been included.

  - With regard to the explanation of how water-pricing policies provide adequate incentives for users to use water resources efficiently, several national legislative

requirements are mentioned, but it is not explained specifically how pricing policies provide 'adequate incentives'.

- References to legislative acts, which includes details about polluter pays principle, has been provided.
- A broad definition of water services has been used. The cost recovery rates are exactly 100% for all water services, hinting at methodological issues.

- **Considerations specific to Protected Areas (identification, monitoring, objectives and measures)**
  - All relevant types of Protected Areas have been identified, and the status of all associated surface and groundwater bodies has been assessed with high or medium confidence.
  - Specific objectives have been set for Drinking Water Protected Areas and for shellfish production areas. These have been largely met in Drinking Water Protected Areas and fully met in shellfish production areas.
  - However, no specific objectives have been set for Habitats and Birds related Protected Areas; WFD environmental objectives are considered sufficient to ensure favourable conservation status at all Natura 2000 sites. There is no evidence of an assessment of the needs of interest features in individual Protected Areas.
  - Specific monitoring of surface water Protected Areas has been reported for the monitoring sites in water bodies associated with Habitat areas and Drinking Water areas, as well as for the shellfish production areas.
- **Adaptation to drought and climate change**
  - Climate change was considered in various ways in the preparation of the RBMP in Romania and it is stated that the Common Implementation Strategy Guidance Document No. 24 on how to adapt to climate change was used.
  - Climate proofing of measures has been carried out in the second RBMP.

Recommendations

- Romania should continue to improve international cooperation, including coordinated assessments of the technical aspects of the WFD such as ensuring a harmonized approach for status assessment and a coordinated PoM in order to ensure the timely achievement of the WFD objectives.

- Romania has made significant progress on characterisation of water bodies but further work is needed on setting reference conditions.

- Romania should further work on the apportionment of pressures among sectors, which is necessary in order to be able to identify adequate measures.

- Romania should further strengthen monitoring of surface water by covering all relevant quality elements in all water categories, including hydromorphological quality elements.

- Romania should complete the development of assessment methods for all relevant quality elements and ensure that they are according to the WFD requirements. Assessment methods for biological quality elements should be sensitive to all relevant impacts, in particular chemical pollution, hydrological changes, acidification and saline intrusion in rivers. The classification boundaries of hydrological and tidal regime should be related to the class boundaries for the sensitive biological quality elements.

- Romania should progress in the transfer of the results of intercalibration into all national types.

- The confidence in the assessment of chemical status should continue to be improved. In particular, monitoring should be performed in a way that provides sufficient spatial coverage, in particular in biota, and all priority substances should be considered in the assessment of status. If a different matrix is used, the corresponding explanations should be provided, as required by the Water Framework Directive.

- Romania should further improve trend monitoring in sediment and/or biota, to ensure that all the relevant substances specified in Directive 2008/105/EC are monitored in a way that provides sufficient temporal resolution and spatial coverage.

- Romania should continue improving quantitative and chemical groundwater monitoring.

- Romania should continue the efforts to further improve the methodology for defining ecological potential for all water categories at water body level, including coastal waters. This will improve the confidence level of the assessment.

- Article 4(5) is applied more widely in the second RBMPs. Efforts should continue to further improve the methodology and justifications for the assessment and application of exemptions. Criteria for the application of Article 4(4) need to be clearly distinguishable from the criteria applied for Article 4(5) in relation to technical feasibility and disproportionate costs.

- Romania needs to ensure a thorough assessment of planned new modifications in line with the requirements of the WFD and as further specified by the Judgment of the Court in case C-461/13. The use of exemptions under Article 4(7) needs to be based on a thorough assessment of all the steps as requested by the WFD, in particular an assessment of whether the project is of overriding public interest and whether the benefits to society outweigh the environmental degradation, and the absence of alternatives that would be a better environmental option. Furthermore, these projects may only be carried out when all practicable steps are taken to mitigate the adverse impact on the status/potential of the water bodies. Respective information on the application of Article 4(7) needs to be reported in the RBMP.

- All KTMs should be operational and all significant pressures be addressed.

- Romania should ensure that the measures are based on the updated pressures and impacts analysis and status assessment of water bodies.

- Romania should ensure that KTMs are associated with all individual Priority Substances, River Basin Specific Pollutants and Groundwater Pollutants causing failure.

- Romania should assess the effectiveness of measures to tackle chemical pollutants so that it can identify appropriate supplementary measures.

- Romania needs to improve the implementation of the requirements under the Urban Waste Water Treatment Directive in relation to the requirement of more stringent treatment of wastewaters for discharge into sensitive areas, and ensure investments to allow for appropriate treatment of waste water from big cities.

- Romania should ensure the identification of all relevant hydromorphological pressures and implement appropriate measures to address those pressures. The RBMP are not ambitious enough in the design and application of these measures.

- Romania needs to ensure that ecological flows are derived and implemented during this second cycle

- Romania should continue to monitor the efficacy of measures in the second RBMP and, if in some water bodies water quality remains at risk from diffuse agricultural sources of pollution, should consider the implementation of alternative or additional measures, to mitigate this risk.

- Romania should continue to apply cost recovery for water use activities having a significant impact on water bodies or justify any exemptions using Article 9(4). Romania should also continue to transparently present how financial, environmental and resource costs have been calculated and how the adequate contribution of the different users is ensured. Romania should continue to transparently present the water-pricing policy and provide a transparent overview of estimated investments and investment needs.

- Romania still needs to implement specific measures in its safeguard zones associated to Drinking Water Protected Areas. Moreover, Romania should set specific objectives for Protected Areas designed under the Habitats and Birds Directive as requested in previous recommendations.

Topic 1 Governance and public participation

1.1 Assessment of implementation and compliance with WFD requirements in the second cycle

1.1.1 Administrative arrangements – river basin districts

Romania has designated a single River Basin District (RBD), the Danube River RBD. This RBD is divided into 11 sub-basins/sub-units. Almost all of Romania's territory is part of the international Danube RBD[3]: 97.4%. The remainder is accounted for mainly by coastal waters and associated small tributaries, which were attached to the Danube RBD (100%).

1.1.2 Administrative arrangements – competent authorities

Romania reports two competent authorities.

The National Administration "Romanian Waters" is responsible for the monitoring and assessment of status of groundwater and surface water, economic analysis, pressure and impact analysis, preparation of the RBMP and PoM, public participation, implementation of measures and reporting to the European Commission.

The Ministry of the Environment, Waters and Forests is responsible for the coordination of implementation and the enforcement of regulations.

1.1.3 River Basin Management plans – structure and Strategic Environmental Assessment

Romania has 11 sub-plans to its RBMP, one for each sub-basin/sub-unit.

A Strategic Environmental Assessment was carried out for Romania's RBMP.

1.1.4 Public consultation

The public and interested parties in Romania were informed of the consultation by: direct mailing, Internet, invitations to stakeholders, local authorities, media (papers, television and radio), meetings and printed material. In addition, thematic articles were published in specialised magazines, brochures and leaflets and festivities were organised for World Water Day and Danube Day. The Basin Committees (in place for each sub-basin) were the main

[3] European Commission, Member State Report: Romania (accompanying the report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC): River Basin Management Plans), SWD(2012) 379 final, 14 November 2012.

bodies for informing and consulting the public at sub-basin and local levels. Consultation documents were available by direct mailing (both email and post), for download and in paper copies at municipalities. Documents were available on the websites of the National Administration "Romanian Waters" and Water Basin Administrations (i.e. the administrations for sub-basins) for the requisite six months.

The following stakeholder groups were actively involved: agriculture/farmers, consumer groups[4], energy/hydropower, fisheries/aquaculture, industry, local/regional authorities, navigation/ports, NGOs/nature protection, water supply and sanitation, and universities, research centres and professional associations. Active involvement took place via the establishment of advisory groups and also in the Basin Committees[5] and via information events during World Water Day and Danube Day.

The public consultation had the following impact: addition of new information, adjustment to specific measures, changes to the selection of measures and commitment to further research.

1.1.5 Integration with the Floods Directive and the Marine Strategy Framework Directive

Romania held joint consultations on its RBMP and the Flood Risk Management Plans prepared under the Floods Directive[6].

Joint consultation was not carried out with the Marine Strategy Framework Directive.[7] However, the preparation of the RBMP and PoM was coordinated with the implementation of the Marine Strategy Framework Directive (see Chapter 9).

1.1.6 International coordination and co-operation

Romania's RBD is part of the Danube international RBD. An international agreement, permanent co-operation body and international RBMP are in place (designated as category 1 cooperation). Explicit links have been made with national RBMP within the international RBMP. Public participation was coordinated within the Danube iRBD (further information is available in the reports on international coordination on the Water Framework Directive).

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4 Romania subsequently clarified that these were water users in particular.

5 Romania subsequently informed that in the Committees, meetings were dedicated to specific stakeholders.

6 Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060

7 Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056

1.2 Main changes in implementation and compliance since the first cycle

No changes in governance were noted.

1.3 Progress with Commission recommendations

There were no recommendations based on the first RBMP and PoM.

Topic 2 Characterisation of the River Basin District

2.1 Assessment of implementation and compliance with WFD requirements in the second cycle

2.1.1 Delineation of water bodies and designation of heavily modified and artificial water bodies

Overall, there were only small differences in the number of delineated lake water bodies (decrease of 1 to 130) between the two cycles[8]. The same numbers of coastal and transitional water bodies were delineated for both cycles. However, there was a significant (11%) decrease in the numbers of river water bodies between the two cycles, from 3 262 to 2 891 (Table 2.1).

Reductions were reported in the numbers of natural, heavily modified and artificial water bodies between the two cycles (Figure 2.1). Proportionally there were small decreases in the percentages (of total river water bodies) of natural and artificial rivers and a small increase in the percentage of heavily modified rivers. There was also a small decrease (two water bodies) in the number of natural lakes and a small increase (one water body) in the number of heavily modified lakes between the two cycles[9].

Between 2013 and 2015, the delineation of water bodies was revised and updated. Since the first RBMP, an in-depth analysis of the hydromorphological pressures lead to changing the classification of the water body category on a case by case basis. Delineation was also validated with the monitoring data. The re-delineation of water bodies has led to:

- Grouping / aggregation and splitting of water bodies according to the water body category, typology, water body size, water pressure on water bodies, etc.;
- Grouping of non-permanent watercourse water bodies typologies;
- Validation of identification and delineation of the water bodies according to the criteria established in research studies undertaken by the National Institute for Hydrology and Water Management, which led to reduction of temporary water bodies (i.e. “annual drying up” (Q95% = 0) - according to updated of the Drying River Atlas from Romania – 2014); Changing the name and / or water body code.

[8] Romania subsequently explained that the small decrease is generated by the fact that two water bodies have been aggregated into one water body and another water body has been deleted due to criterion size (being under 50 ha).

[9] Romania subsequently clarified that the small increase (1 water body) in the number of heavily modified lakes between the two cycles is generated by the fact that in the first RBMP that water body was identified as a reservoir belonging to the river water body category and in the second RBMP, that water body was identified as a heavily modified lake belonging to lake water body category.

For water bodies related to protected areas, the RBMP reported that in the process of subdividing water bodies into smaller units, a balance between the boundaries of the protected areas and the water bodies of different status was maintained, as well as the need to avoid the surface water fragmentation.

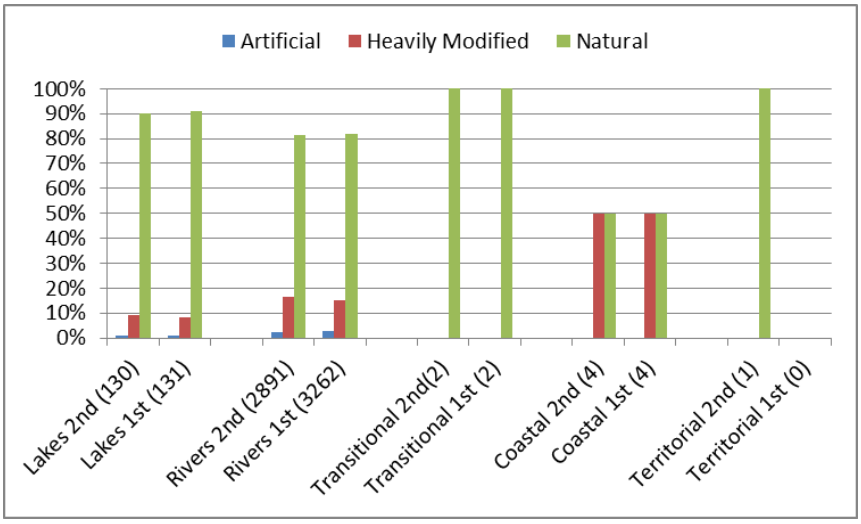
Table 2.2 shows the size distribution of surface water bodies in Romania in the second and first RBMPs. There were no significant changes but it can be seen that the maximum length of rivers has decreased which would relate to the splitting of water bodies described above.

The RBMP does not report directly on any consequences of the changes in delineation; however, it was stated that the changes in delineation have affected the comparability of the water body status between the 2 cycles.

Table 2.3 summarises the information provided by Romania on how water bodies have evolved between the two cycles. The water body categories with the most significant changes were river water bodies with deletion (390), creation (5), aggregation (55), splitting (53) and changes (2313).

For groundwater bodies, there was an increase of one groundwater body from 142 to 143 (Table 2.3). There were also some changes in the water body areas, including reduction and extension (Table 2.4). It was stated in the RBMP that changes to delineation were based on the new data and information (geological, hydrogeological, land use maps for each groundwater body, conceptual models developed for some groundwater bodies) obtained from studies during the period since the first RBMP.

Figure 2.1 ***Proportion of surface water bodies in Romania designated as artificial, heavily modified and natural for the second and first cycles. Note that the numbers in parenthesis are the numbers of water bodies in each water category***



Source: WISE electronic reporting

Table 2.1 Number and area/length of delineated surface water bodies in Romania for the second and first cycles

Year	RBD	Rivers		Lakes		Transitional		Coastal	
		Number of water bodies	Total length (km) of water bodies	Number of water bodies	Total area of water body (km^2)	Number of water bodies	Total area (km^2) of water bodies	Number of water bodies	Total area (km^2) of water bodies
2016	RO1000	2 891	73 798 (72 966)	130	1 009 (999.74)	2	383 (781)	4	252 (572)
2010	RO1000	3 262	74 473	131	993	2	781	4	572

Source: WISE electronic reporting. Values in brackets were subsequently provided by Romania and did not match the information reported to WISE.

Table 2.2 Size distribution of surface water bodies in Romania in the second and first cycles

Year	RBD	River length (km)			Lake area (km^2)			Transitional (km^2)			Coastal (km^2)		
		Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average
2016	RO1000	0.36	655.5 (487.5)	26.85 25.235	0. 02 (0.01)	391.53	7. 76 (7.69)	168.94 (162)	214.2 (619.37)	191.57 (390.5)	2. 27 (2.627)	107.45 (348.41)	63.01 (143)
2010	RO1000	0.36 (0.28)	499.31 (487.5)	22.87 (25.5)	0.01	392	7.58	162	619.37	390.69	2.67	348.41	142.95

Source: WISE electronic reporting

Note: Values in brackets were subsequently provided by Romania and did not match the information reported to WISE.

Table 2.3 Type of change in delineation of groundwater and surface water bodies in Romania between the second and first cycles

Type of water body change for second cycle	Rivers	Lakes	Transitional	Coastal	Groundwater
Change	2313	118	2	4	
Aggregation	55	1			
Splitting	53				
Aggregation and splitting	10				
Creation	5				1
Deletion	390	1			
Extended area	9				88
Reduced Area	45	1			28
Change in code	401	8			
No change		2			26
Total water bodies before deletion	3281	131	2	4	143
Delineated for second cycle (after deletion from first cycle)	2891	130	2	4	143

Source: WISE electronic reporting

Table 2.4 Number and area of delineated groundwater bodies in Romania for the second and first cycles

Year	RBD	Number	Area (km^2)		
			Minimum	Maximum	Average
2016	RO1000	143	21.76 (22)	44 093.83 (44095)	1872.76 (1873.73)
2010	RO1000	142	21.75	42 492.64	1 857.42

Source: WISE electronic reporting. Values in brackets were subsequently provided by Romania and did not match the information reported to WISE.

2.1.2 Identification of transboundary water bodies

One transboundary river water body was reported by Romania. No transboundary water bodies were reported between non-EU neighbouring countries, following advice from the reporting helpdesk. The RBMP did not report on the coordination of the delineation of transboundary surface water bodies with other countries. No transboundary groundwater bodies were reported to WISE but the RBMP stated that there are 17 transboundary groundwater bodies.

2.1.3 Typology of surface water bodies

Comparing the information reported for both cycles indicates that there was a decrease in main (i.e. not including sub-types) lake types (18 to 9 natural lake types) and river types (20 to 19 natural river types) between the first cycle and second cycle (Table 2.5). The RBMP reported that the typology was revised and that a number of types were harmonised. For example, the RO17 type (non-permanent water flow in the mountain area) was joined with the RO18 (non-permanent water flow in the pre-mountainous area or high plains), resulting in the new RO17 non-permanent water course located in the mountainous area of high plateaus. This was based on additional biotic data, as well as the similarities in the communities of benthic invertebrates.

Table 2.5 Number of surface water body types at RBD level in Romania for the first and second cycles

RBD	Rivers		Lakes		Transitional		Coastal	
	first	second	first	second	first	second	first	second
RO1000	80 (20)	56 (19)	23 (18)	14 (9)	2	2	4 (2)	4 (2)

Source: WISE electronic reporting. Values in brackets were subsequently provided by Romania and concern only natural water bodies not including sub-types.

Each coastal water body in Romania was reported to have a separate national type, one of which has an equivalent intercalibration type. The two transitional water bodies each had a different type, neither of which had an equivalent intercalibration type[10]. Fourteen (one being natural types) national lake types were reported by Romania four of which had the same equivalent intercalibration type. 59% of lake water bodies did not have an equivalent

[10] Romania subsequently clarified that it has not been technically feasible to complete the comparability assessment within the intercalibration process. Romania also mentioned that the national classification methods and their respective boundary values are included in the part 2 of the Annex of the Commission *Decision (EU) 2018/229 of 12 February 2018 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise and repealing Commission Decision 2013/480/EU* being consistent with the normative definitions set out in Section 1.2 of Annex V to Directive 2000/60/EC.

intercalibration type. 56 national river types were reported by Romania, 20 of which had an equivalent intercalibration type (corresponding to seven intercalibration types). 46.7% of river water bodies (excluding reservoirs) did not have an equivalent intercalibration type.

Danube river typology was developed in coordination with the entire Danube RBD based on a harmonized system within the framework of the GEF / UNDP Danube Regional Project[11] - 'Danube river basin type and conditions based on national contributions from the Danube river countries.' During the first planning cycle, thematic sessions / workshops were held in order to present or harmonize the methodological approaches with Bulgaria, Hungary, Moldova and Ukraine.

2.1.4 Establishment of reference conditions for surface water bodies

Table 2.6 shows the percentage of surface water body types in Romania which have reference conditions established[12,13]. All four coastal water types were reported to have reference conditions established for all relevant biological quality elements but type-specific conditions for none of the hydromorphological and physicochemical quality elements.

Table 2.6 Percentage of surface water body types in Romania with reference conditions established for all, some and none of the biological, hydromorphological and physicochemical quality elements

Water category	Water types	Biological quality elements	Hydromorphological quality elements	Physicochemical quality elements
Rivers	All	4%	82%	
	Some	96%	15%	
	None		5%	100%
Lakes	All			
	Some	100%	100%	8% (0%)

[11] The United Nations Development Programme / Global Environment Fund Danube Regional Project was launched to reinforce regional cooperation of the Danube countries, and has been working to address priority environmental problems in the Danube since 1992. More information can be found at: http://www.icpdr.org/main/activities-projects/undpgef-drp-danube-regional-project

[12] Romania subsequently explained that the biological type-specific reference conditions (for rivers and lakes) were interpreted to be represented only by the currently existing reference situations, while the type-specific reference values could also represent an ideal situation or a situation in the past (based on e.g. modelling, expert judgement).

[13] Romania subsequently clarified that in comparison with the first RBMP progress has been made concerning the BQEs for which the typology was not fully validated at the time of first RBMP reporting, respectively phytobenthos and macrophytes. Romania stated also that analysis performed for the development/finalisation of assessment system methods of biological quality elements within intercalibration process have fully validated the typological systems classification.

Water category	Water types	Biological quality elements	Hydromorphological quality elements	Physicochemical quality elements
	None			92% (100%)
Transitional	All			
	Some	100%)	0% (100%)	
	None		100% 90%)	100%
Coastal	All	100%		
	Some		0 % (100%)	
	None		100% (0%)	100%

Source: WISE electronic reporting. Values in brackets were subsequently provided by Romania. to correct some errors in the WISE reporting.

Reference conditions have only been established for some biological quality elements[14] and some hydromorphological quality elements for all lake types. For lakes, there are no type-specific reference conditions for any of the physicochemical quality elements.

Only three of the river types had established reference conditions for all relevant biological quality elements; for the remaining types they had been established for some of the biological quality elements. Most river types had type-specific reference conditions established for all relevant hydromorphological quality elements, eight for some and three for none. Type-specific reference conditions have not been established for any of the physicochemical quality elements for any of the river types.

Both transitional water types were reported to have reference conditions established for some of the relevant biological quality elements but for none of the hydromorphological and physicochemical quality elements[15].

In coastal water bodies, all types had established reference conditions for biological quality elements, but only some for hydromorphological quality elements and none for physicochemical quality elements.

The typology for surface waters was partially validated with biological data for the first cycle.

[14] Romania subsequently clarified that for biological quality elements type specific reference conditions were reported in WISE only for existing situations, but in Annex 6.1.1.A.- 6.1.1.I.; 6.1.4.A.-6.1.4.G. of RBMP reference values for almost all biological quality elements have been included. Romania also stated that after the second RBMP reporting, the reference values have been defined (within the intercalibration process) for all biological quality elements.

[15] Romania subsequently explained that there was an error in reporting and that, for transitional waters, reference conditions had also been defined for some hydromorphological and physicochemical quality elements.

The identification of type-specific reference conditions has been coordinated with neighbouring countries for transitional and coastal waters, i.e. with Bulgaria for the Danube river types. Reference conditions for river water bodies have been coordinated within the Danube Regional Project – 'Danube river basin type and conditions based on national contributions from the Danube river countries' during the first RBMP cycle.

2.1.5 Characteristics of groundwater bodies

Romania reported on the geological formation of the aquifers associated with groundwater bodies and identified whether the groundwater bodies were layered or not. It was reported to WISE that 55% of groundwater bodies were linked to surface water bodies and 55% [16] to terrestrial ecosystems.

2.1.6 Significant pressures on water bodies

30 different pressure types were reported to be affecting surface water bodies in Romania in the second RBMP. The three most significant pressures on surface waters were "diffuse pressures from discharges not connected to sewerage network" (25% of surface water bodies), "diffuse agricultural pressures" (12% of surface water bodies) and "point source pressures from urban waste water" (5% of surface water bodies) (Figure 2.2).

"Diffuse pressures from discharges not connected to sewerage network" were reported to be the most significant pressures on coastal waters (all four water bodies) and on river water bodies (25% of river water bodies) in the second RBMP: this pressure also affected 9% of lake water bodies (Figure 2). "Diffuse agricultural pressures" and "diffuse aquaculture" were the 2 most significant pressures on lakes, affecting 11% of water bodies. "Unknown anthropogenic pressures" were reported as a significant pressure for transitional water bodies[17].

Romania reported significant pressures at an aggregated level in first RBMP. "Diffuse source pressures" affected most surface water bodies (33%), followed by "water flow regulation and morphological alteration pressures" (13%) and "point source pressures" (8%) (Figure 2.3).

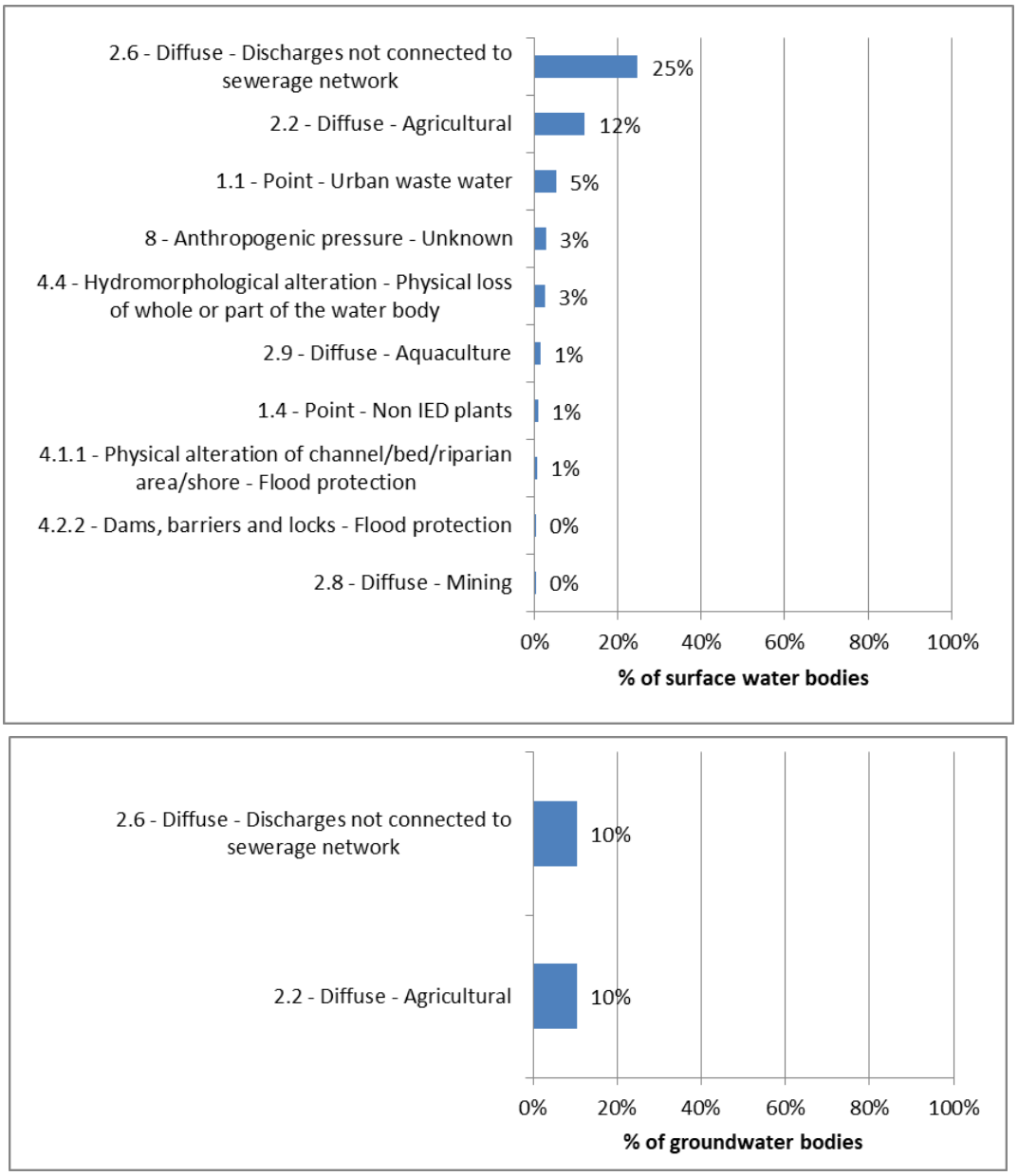
Only two pressure types were reported to be significant on groundwater in the second RBMP: "diffuse agricultural pressures" and "diffuse pressures from discharges not connected to sewerage networks", both affecting 10% of groundwater bodies (Figure 2.3). In the first

[16] Romania subsequently explained that there was a mistake in the WISE reporting and that 32% of groundwater bodies were linked to terrestrial ecosystems (according with the RBMP, chapter 4.1, page 86).

[17] Romania subsequently highlighted that the unknown pressures on transitional water bodies were indirect pressures from the catchment and the measures taken upstream on the Danube river will lead to the achievement of the environmental objectives for the transitional water bodies.

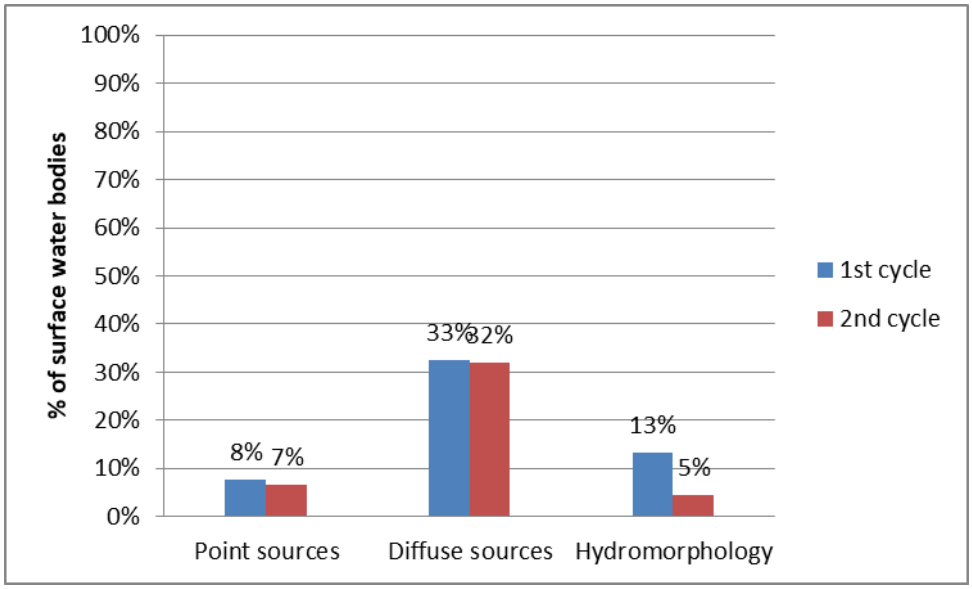
RBMP, the same two equivalent pressure types were the only pressures reported, each affecting 13% of groundwater bodies.

Figure 2.2 The most significant pressures on surface water bodies and groundwater bodies in Romania for the second RBMP



Source: WISE electronic reporting

Figure 2.3 Comparison of pressures on surface water bodies in Romania in the first and second cycles. Pressures presented at the aggregated level.



Source: WISE electronic reporting

2.1.7 Definition and assessment of significant pressures on surface and groundwater

Numerical tools were used to assess the significance of water abstraction and water flow pressures on surface water bodies, and a combination of numerical tools and expert judgment for point source and diffuse source pressures. The significance of the pressures was defined in terms of thresholds and was linked to failure of objectives.

The RBMP reported that the methodology for identifying significant pressures and assessing the impact on water bodies has been revised for the second RBMP for surface waters. The pressures were based on the pressure types as recommended by the Common Implementation Strategy Guidance documents. The criteria were set out in a document: "Methodological elements regarding the updating of significant pressure identification and assessment of their impact on surface water status - Identification of bodies of water at risk of not achieving the objectives of the WFD". In order to identify the potentially significant point source pressures a set of criteria was applied[18].

[18] Romania subsequently clarified that generally the criteria for identifying the potential point pollution sources was based on specific thresholds/criteria defined in the water related European Directives transposed into the national legislation (UWWTD, IED; Dangerous Substances Directive). Romania stated that this was done by crosschecking the point pollution sources with the water bodies failing reaching the environmental objectives were established the significant point and diffuse pressures, if the specific parameter causing failure of

It was reported to WISE that expert judgment was used to assess the significance of all assessed pressures on groundwater bodies[19]. The significance of the pressures was defined in terms of thresholds and was linked to failure of objectives.

In the RBMP quantitative pressures on groundwater bodies were defined as significant pressures, when the abstraction may exceed the natural rate of recharge of the aquifer. The impact of anthropogenic pressures on groundwater bodies has been assessed based on the results obtained from the quantitative and quality (chemical) monitoring of the groundwater body. Artificial recharge is not taken into account as a pressure on groundwater bodies.

2.1.8 Significant impacts on water bodies

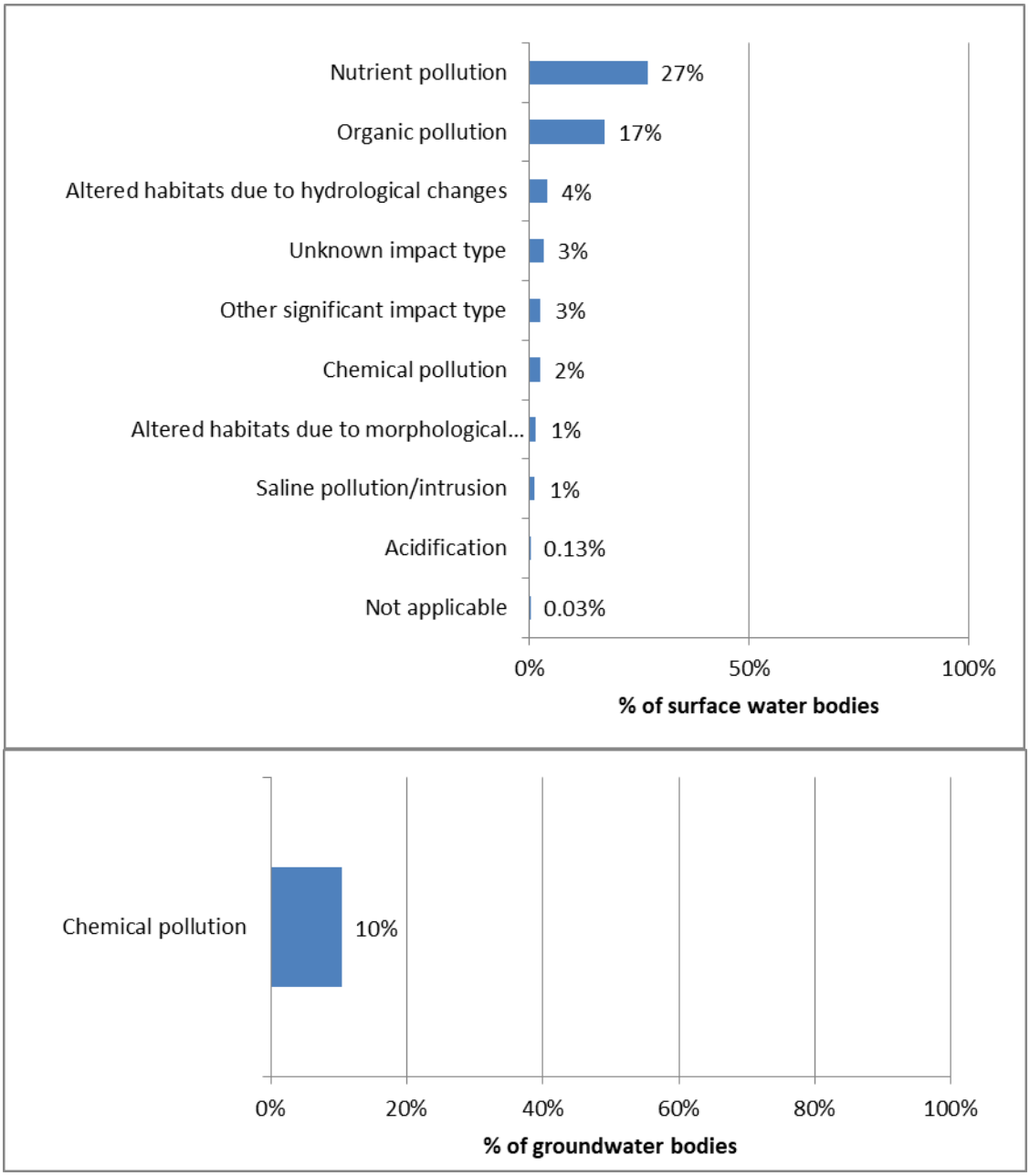
Nine impact types were reported for surface waters in the second RBMP; five were reported in the first RBMP. The most significant in both the first and second cycle was nutrient pollution/enrichment affecting 27% and 32% of surface water bodies, respectively (Figure 4). Nutrient pollution affected the most water bodies in rivers (27%), lakes (13%), coastal (100%) and transitional (50%) water bodies in the second RBMP. Organic pollution was impacting 17% of surface water bodies in the second RBMP and organic enrichment 13% in the first RBMP. An unknown impact type was affecting 3% of surface water bodies. Note that 3027 surface water bodies were delineated in the second RBMP compared to 3399 in the first cycle, which might make difficult the comparison between the 2 cycles.

Only one impact type was reported for groundwater in the second RBMP; chemical pollution, which impacted 10% of groundwater bodies (Figure 2.4). Similarly, there was only one reported impact in first RBMP: chemical damage impacting 13% of groundwater bodies.

environmental objectives exceed the boundaries between classes in the status system classification. Romania also explained that the tool used for defining the significant diffuse pressures it was mentioned MONERIS model and WaQ model (RBMP Update 2015 Chapter 3.4 – Significant pressures, page 52 and Chapter 9.9 – Supplementary measures, page 278).

[19] Romania subsequently clarified that for the non-polluted GWBs (especially located in the mountains area or very deep aquifers) without monitoring data, the chemical risk assessment has been done considering the chemical pressures analysis together with the evaluation of the global protection degree, through considering two essential parameters (lithology of the covering layers/strata and efficient infiltration/recharge) for which numerical criteria have been set.

Figure 2.4 Significant impacts on surface water and groundwater bodies in Romania for the second cycle. Percentages of numbers of water bodies



Source: WISE electronic reporting

2.1.9 Groundwater bodies at risk of not meeting good status

10.5% of groundwater bodies were reported in the second RBMP to be at risk of failing good chemical status. Two pollutants were causing the risk: nitrate in 8% of groundwater bodies and ammonium in 2%. No groundwater bodies were reported to be at risk of failing good quantitative status.

2.1.10 Quantification of the gap and apportionment of pressures

Gaps, which needed to be filled in order to achieve objectives, were reported for the two pressures which were significant at the groundwater body level. A gap indicator was also reported for diffuse urban run-off pressures even though this pressure was not reported at the groundwater body level.

Gaps were reported for most of the significant pressures on surface waters, thereby identifying the sources/activities causing the main pressure types such as point source; diffuse source; physical alteration of channel/bed/riparian area/shore; dams, barriers and locks; hydrological alteration pressures and other anthropogenic pressures. Gaps were not reported for four pressures, each of which was affecting one surface water body. These were: point - waste disposal sites; physical alteration of channel/bed/riparian area/shore - other; dams, barriers and locks - irrigation; and, hydrological alteration - aquaculture.

Romania reported gaps to be filled for four priority substances (lead, mercury, nickel and cadmium). The gap indicators were in terms of the loads to be reduced and the numbers of water bodies failing the environmental quality standard for each substance.

2.1.11 Inventories of emissions, discharges and losses of chemical substances

Article 5 of the Environmental Quality Standards Directive (EQS Directive[20]) requires Member States to establish an inventory of emissions, discharges and losses of all Priority Substances and the eight other pollutants listed in Part A of Annex I EQS Directive for each RBD, or part thereof, lying within their territory. This inventory should allow Member States to further target measures to tackle pollution from priority substances. It should also inform the review of the monitoring networks, and allow the assessment of progress made in reducing (respectively suppressing) emissions, discharges and losses for priority substances (respectively priority hazardous substances).

Romania reported inventories of priority substances for each of its 11 sub-units. 37 Priority Substances were included in at least one of the inventories in Romania. There were inventories in all sub-units for 20 substances including mercury, lead, cadmium and nickel. However, four priority substances and groups of priority substances were not included in an inventory in any

[20] Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02008L0105-20130913

of the sub-units: these were tributyltin, chloroalkanes C10-13, pentachlorophenol and brominated diphenylether.

The two-step approach from the Common Implementation Strategy Guidance Document n°28[21] was used to compile the inventories for nine Priority Substances only. For these substances Tier 2 (riverine load) or Tier 1 (point source information) + Tier 2 were implemented. It is unclear which methodology was implemented for other substances[22]. The data quality was assessed as uncertain or medium.

2.2 Main changes in implementation and compliance since the first cycle

There was a significant (11%) decrease in the numbers of river water bodies between the 2 cycles. Proportionally there were small decreases in the percentages (of total river water bodies) in natural and artificial rivers and a small increase in the percentage of heavily modified rivers. There was also a small decrease (2 water bodies) in the number of natural lakes and a small increase (1 water body) in the number of heavily modified lakes between the 2 cycles. The typologies of surface water bodies were also synthesised.

There were some changes in the methodologies used for defining significance of pressures are described in the RBMP[23].

2.3 Progress with Commission recommendations

The Commission recommendations based on the first cycle and first PoM requested action on the following:

- Recommendation: *Review the pressures and impacts analysis and status assessment in the second RBMP and ensure that the measures are based on the updated pressures and impacts analysis and status assessment of water bodies. Ensure that the RBMPs clearly identify the gap to good status, and that the Programmes of Measures are designed and implemented to close that gap. [Actions: The second RBMP should:*

- *Include a reviewed pressure and impact analysis based on more complete monitoring data, revision of water body status, more complete inventory of emissions and revision of risk assessment.*

[21] CIS Guidance N° 28 - Preparation of Priority Substances Emissions Inventory http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm

[22] Romania subsequently clarified that the same methodology was used also for the other substances.

[23] Romania subsequently explained that in fact the changes consist in re-assessment of the significant pressures types and defining, identifying and validating the pressures to focus more on significant pressures.

- *The RBMP should apportion impacts to pressures and sources/drivers, to increase the understanding of which activities and sectors are responsible and in which proportion - for achieving objectives.*

- *Include a gap analysis on the measures that need to be taken to achieve good status and put in a place and implement the Programme of Measures needed to close this gap.*

  Assessment: Inventories have been reported for all priority substances, except four Priority Substances for the second RBMP. The inventory was developed for the first time in the second RBMP and therefore, there has been some progress in developing more complete inventories.

  The risk assessment for groundwater was reported to WISE to be defined by expert judgement. The significance of the pressures was however defined in terms of thresholds and was linked to failure of objectives[24]. It seems that there has been some progress on this aspect.

  Romania also reported gaps to be filled to achieve objectives for most significant pressures: this indicates some progress.

  Overall progress has been made towards fulfilling this recommendation but it has not been completely fulfilled.

- Recommendation: *The characterization is not complete, harmonization between abiotic and biotic criteria is still under development for typology definition. The characterization and the harmonization of abiotic and biotic criteria should be completed. [Action: In the first RBMPs, the characterization was not complete, and harmonization between abiotic and biotic criteria was still under development for typology definition. The characterization and the harmonization of abiotic and biotic criteria for typology definition should be completed.]*

  Assessment: The RBMP reported that the typology was revised and that a number of types were synthesized. In the RBMP it was explained that the typology was defined in three stages: (1) the top-down approach - based on abiotic factors; (2) the bottom-up approach - based on biological elements; and (3) the analysis and combination of the two approaches for the final definition of the types. The recommendation has therefore been fulfilled.

[24] Romania subsequently highlighted that pressures and impacts analysis, status assessment were based on monitoring results which were compared with standards values and threshold values.

Topic 3 Monitoring, assessment and classification of ecological status in surface water bodies

3.1 Assessment of implementation and compliance with WFD requirements in the second RBMP

3.1.1 Monitoring of ecological status/potential

Monitoring programmes

Article 8(1) of the WFD requires Member States to establish monitoring programmes for the assessment of the status of surface water and of groundwater in order to provide a coherent and comprehensive overview of water status within each RBD. Territorial waters are not a water body category under the WFD. However, it should be noted that under Article 2(1) of the WFD, territorial waters are included for the assessment and reporting of chemical status.

Operational monitoring programmes were reported for rivers, lakes, transitional and coastal waters

Surveillance programmes were only reported for rivers and lakes. Romania subsequently clarified that as coastal and transitional water bodies have been assessed as being not in good status, only operational monitoring is now carried out. The operational monitoring programme is carried out each year during a management plan cycle and will be replaced by surveillance monitoring if the water bodies reach good status. Romania clarified that operational monitoring is undertaken at least as frequently and often more frequently than surveillance monitoring for the relevant quality elements and parameters.

Monitoring sites and monitored water bodies used for surveillance and operational monitoring

Table 3.1 compares the number of monitoring sites used for surveillance and operational purposes between the first and second RBMPs, and Table 3.2 gives the number of sites used for different purposes for the second RBMP. There were some significant differences in the numbers of monitoring sites from the first to the second RBMPs (Figure 3.1). The total number of monitored surface water bodies has increased from 28% to 39% of the total number of surface water bodies from the first to the second RBMP.

Table 3.1 ***Number of sites used for surveillance and operational monitoring in Romania for the second and first RBMPs. Note that for reasons of comparability with data reported in first RBMP, the data for the second RBMP does not take into account whether sites are used for ecological and/or chemical monitoring.***

	Rivers		Lakes		Transitional		Coastal		Territorial	
	Surv.	**Op.**	**Surv.**	**Op.**	**Surv.**	**Op.**	**Surv.**	**Op.**	**Surv.**	**Op.**
second RBMP										
Total by type of site	1 234	422	22	72	0	8	0	28	0 (3)	3 (0)
Total number of monitoring sites	*1 656*		*94*		*8*		*28*		*3*	
first RBMP										
Total by type of site	1 263	547	434	229	12	12	42	42		
Total number of monitoring sites	*1 263*		*434*		*12*		*42*			

Surv. = Surveillance, Op. = Operational

Sources: Member States electronic reports to WISE. Romania subsequently communicated that the monitoring sites in territorial waters, which were mistakenly reported for operational monitoring were instead used for surveillance monitoring.

Table 3.2 ***Number of monitoring sites in relevant water categories used for different purposes in Romania***

Monitoring Purpose	Rivers	Lakes	Transitional	Coastal	Territorial
CHE - Chemical status	1 004	61	8	28	3
DWD - Drinking water - WFD Annex IV.1.i	197				
ECO - Ecological status	1 940	96	8	28	3 (0)
HAB - Protection of habitats or species depending on water - WFD Annex IV.1.v	156	37			
INT - International network of other international convention	69		4	6	2
INV - Investigative monitoring	171	2			
MSF - Marine Strategy Framework Directive[25] monitoring network				13	1

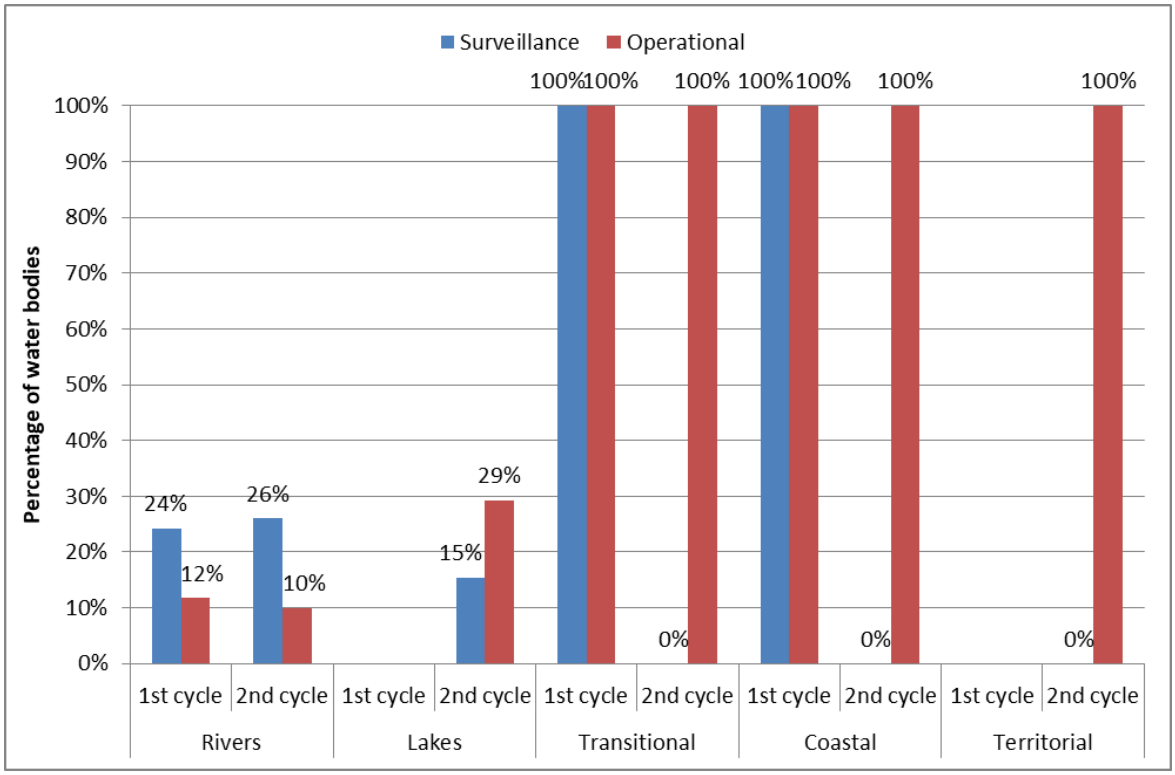
[25] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056

Monitoring Purpose	Rivers	Lakes	Transitional	Coastal	Territorial
NID - Nutrient sensitive area under the Nitrates Directive[26] - WFD Annex IV.1.iv	546	43	8	28	3
OPE - Operational monitoring	422	72	8	28	3 (0)
REF - Reference network monitoring site	127	6		3	1 (0)
RIV - International network of a river convention (including bilateral agreements)	12				
SOE - EIONET State of Environment monitoring	136	9	4		
SUR - Surveillance monitoring	1 234	22			0 (3)
TRE - Chemical trend assessment	147	18	3	15	2
Total sites irrespective of purpose	**1 982**	**96**	**8**	**28**	**3**

Source: WISE electronic reports Romania subsequently explained that there were errors in the reporting of monitoring sites in territorial waters and that all three sites were used for surveillance monitoring and for chemical status only.

[26] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:31991L0676

Figure 3.1 ***Percentage of water bodies included in surveillance and operational monitoring in Romania for the first and second RBMPs. Note no differentiation is made between water bodies included in ecological and/or chemical monitoring. Lakes data for first RBMP are not included; no data for coastal and transitional waters for the second RBMP***



Source: WISE electronic reports

Surveillance monitoring sites were reported in coastal and transitional waters for the first RBMP but not for the second RBMP. Surveillance sites in lakes decreased from 434 for the first RBMP to 22 for the second RBMP, and in rivers from 1 263 for the first RBMP to 1 234 for the second RBMP. Similarly, the number of operational monitoring sites was reduced in all surface water categories, with the largest proportional decrease in lakes (68%) followed by coastal and transitional waters (33%) and rivers (23%). It should be noted that there was an 11% reduction in the number of river water bodies from the first to the second RBMPs with smaller or no changes in the number of water bodies in the other categories. The re-delineation of river water bodies does not explain the decreases in river monitoring sites from the first to the second RBMPs.

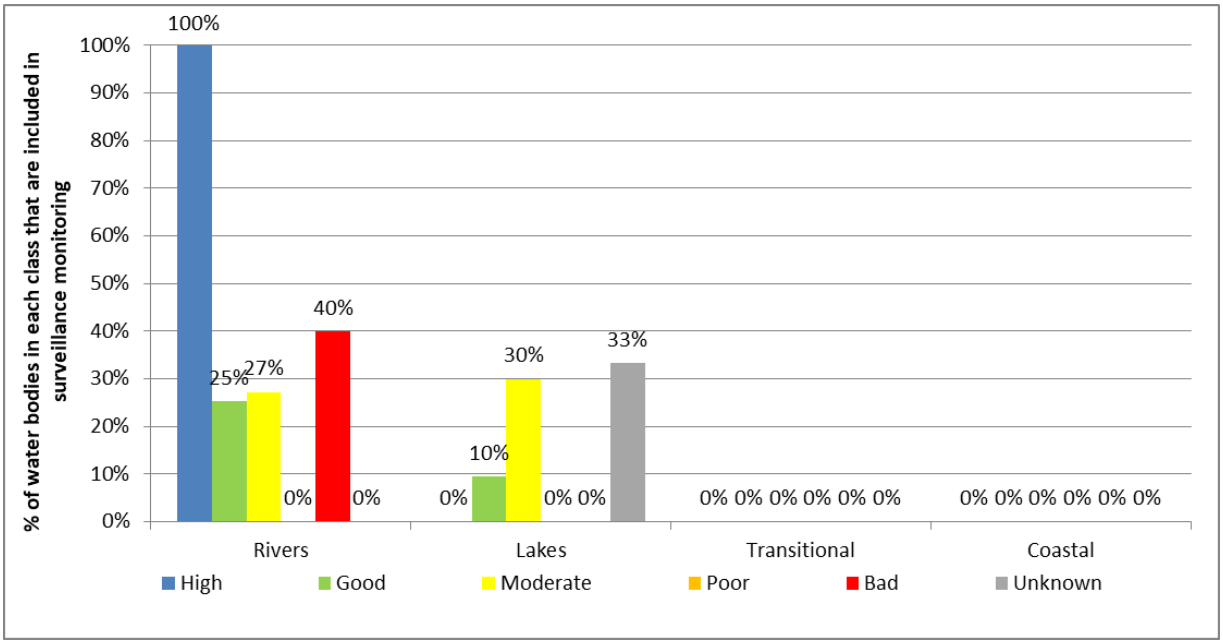
For river water bodies the monitoring network has been expanded.

For lakes, there were large decreases in the proportion of water bodies included in surveillance and operational monitoring from the first to the second RBMPs due to the factors explained above. However, the values for monitored lakes reported in the first RBMP are unreliable, as different samples taken from the same lake/reservoir water body were reported as separate monitoring sites, see further details above. For rivers, there was a 2% increase in the proportion of water bodies included in surveillance monitoring and a 2% decrease in those included in operational monitoring. Water bodies monitored in the surveillance programme were distributed among the status classes, including those in high status as expected (Figure 3.2).

Romania subsequently informed that in the first RBMP, the same monitoring sites were reported in the surveillance and operational programmes. Therefore, the total number of sites was double counted. The methodology for designing and reporting the monitoring programmes has been updated since the first RBMP, applying surveillance monitoring for the water bodies which achieved the environmental objectives and operational monitoring for surface water bodies which are at risk of failing the objectives.[27] Some monitoring sites and sub-sites for lakes and reservoirs were also merged. In this respect, no meaningful comparison can be done between the figures of both plans, but the number of monitored surface water bodies has increased in the second RBMP.

[27] In the first RBMP the monitoring of lakes and reservoirs used more sampling sites per lake, three sites at entrance, middle, end/dam respectively and for each of these sites the following sub-sections were sampled: surface, euphotic zones and end of the euphotic zones. Due to the changes of the sampling methods (now using integrated sample from the euphotic zone) and the analysis of the relevance of having several monitoring sites in the assessment process of the lake water bodies, the number of monitoring sites per lake were reduced to the following sampling sites: middle and end/dam and for each of them, taking just one integrated sample from the euphotic zone.

Figure 3.2 Proportion of water bodies in each ecological status/potential class that is included in surveillance monitoring in Romania



Source: WISE electronic reports

Information in the RBMP indicates that the monitoring system was assessed and improved (where applicable) compared to the first RBMP. The delineation of surface and groundwater bodies has been revised; therefore a re-evaluation of the monitoring network was necessary. The monitoring network has been expanded in order to monitor as many water bodies as possible in a planning cycle, the number of monitored parameters has increased as well as the level of confidence of the status assessment. To extend the monitoring network at national level, 194 new monitoring points were included in 184 surface water bodies. This information is not consistent with the information reported to the WISE for the first and second RBMPs.[28]

30% of lake and 32% of river water bodies were monitored for all required biological quality elements for surveillance monitoring. For the hydromorphological quality elements, 5% of lakes and 59% river water bodies were monitored for all required quality elements in surveillance monitoring, and for physicochemical quality elements, 50% of lake and 64% of river water bodies.

[28] Note: the number of surveillance and operational sites were transposed incorrectly in the 2012 Commission Staff Working Document for the first RBMP. The numbers in the surveillance column are operational sites and vice-versa.

The same biological quality elements included in surveillance monitoring were also used in operational monitoring. In operational monitoring the most extensively used quality element in rivers was benthic invertebrates – 261 or 9% of river water bodies. For lakes, the predominant biological quality elements used were phytoplankton and phytobenthos (30 lake water bodies, 23% of total lake water bodies); fish were only monitored in 3% of lakes. All coastal and transitional water bodies were included in operational monitoring. 60% of lake and 22% of river water bodies at less than good ecological status or potential are included in operational monitoring.

Transboundary surface water body monitoring

Romania reported one transboundary river water body. Twelve monitoring sites were reported to be part of an international network of a river convention. Monitoring sites were also reported for coastal and transitional waters that were part of an international network for other international conventions.

Quality elements monitored (excluding River Basin Specific Pollutants)

Table 3.3 illustrates the quality elements used for the monitoring of lakes and rivers for the second RBMP: no differentiation is made between purposes of monitoring.

All expected biological quality elements were reported to be monitored in coastal, lake and river water bodies. However, there is a gap in the monitoring of transitional waters where other aquatic flora was reported not to be monitored.

In terms of rivers, lakes and transitional water bodies all relevant hydromorphological quality elements were reported to be monitored, but morphological conditions were reported as not being monitored for coastal and transitional waters. Romania subsequently clarified that they are indeed monitored in one of the two transitional water bodies.

Table 3.3 *Quality elements monitored for the second RBMP in Romania (excluding River Basin Specific Pollutants). Note: quality element may be used for surveillance and/or operational monitoring*

Biological quality elements									
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Angiosperms	Macroalgae	Other aquatic flora	Other species
Rivers	Yes	Yes	Yes	Yes	Yes			-	
Lakes	Yes	Yes	Yes	Yes	Yes			-	
Transitional	Yes			Yes	Yes	No	No	No [29]	
Coastal	Yes			Yes		No	No	Yes	

Hydromorphological quality elements			
	Hydrological or tidal regime	Continuity conditions	Morphological conditions
Rivers	Yes	Yes	Yes
Lakes	Yes		Yes
Transitional	Yes		No (Yes)
Coastal	Yes		No

General physicochemical quality elements									
	Transparency conditions	Thermal conditions	Oxygenation conditions	Salinity conditions	Acidification status	Nitrogen conditions	Phosphorus Conditions	Silicate	Other determinand for nutrient conditions
Rivers		Yes	Yes	Yes	Yes	Yes	Yes	No	No
Lakes	Yes (No)	Yes (No)	Yes	Yes (No)	Yes	Yes	Yes	No	No
Transitional	No (Yes)	No	Yes	Yes	Yes	Yes	Yes	No (Yes)	No
Coastal	No (Yes)	No	Yes	Yes	Yes	Yes	Yes	No(Yes)	No

Source: WISE electronic reports. Values in brackets were subsequently provided by Romania..

[29] Romania explained that aquatic flora is not relevant for transitional waters due to the absence of adequate conditions for the development of aquatic flora.

For the first RBMP all expected quality elements were reported to be monitored in all surface water categories for both surveillance and operational monitoring, though within different numbers of water bodies. For the first RBMP, fish was the most frequently used biological quality element (in terms of number of water bodies) for the operational monitoring of lakes, and benthic invertebrates for the operational monitoring of rivers.

All the biological quality elements monitored for surveillance and operational purposes were sampled at, or more than, the WFD minimum recommended frequency: transitional and coastal waters were not included in surveillance monitoring, for reasons outlined above.

The pollution of surface water resources is monitored according to the quantities of organic substances (expressed as dissolved oxygen, CCO - Cr and CBO5), nutrients (total nitrogen and total phosphorus) and specific pollutants by category of pollution sources.

River Basin Specific Pollutants and matrices monitored

Monitoring for River Basin Specific Pollutants has been reduced in terms of the number of monitoring sites in lakes (but comparability is difficult due to the change of the monitoring methodology for lakes, as described above), but has increased in rivers; there was little change in transitional and coastal waters (Table 3.4). 11 different River Basin Specific Pollutants were monitored in water in Romania. Seven substances were monitored in coastal, six in transitional, 11 in lake and 11 in river water bodies.

Table 3.4 Number of sites used to monitor River Basin Specific Pollutants reported in the second RBMP and non-priority specific pollutants and/or other national pollutants reported in the first RBMP in Romania. Note the data from both cycles may not be fully comparable as different definitions were used and also not all Member State reported information at the site level meaning that there were no equivalent data for the first RBMP

RBMP		Rivers	Lakes	Transitional	Coastal
second	Sites used to monitor River Basin Specific Pollutants[30]	1 137	77	8	28
First	Sites used to monitor non-priority specific pollutants and/or other national pollutants	812	271	7	27

Sources: WISE electronic reports

The WFD gives a guideline monitoring frequency of once every three months for other pollutants. Overall 72% of sites in surface waters where River Basin Specific Pollutants were

[30] Romania clarified that there are 1102 monitoring sites in rivers and 81 sites in lakes.

monitored in accordance with the recommended WFD monitoring frequency of every three months, for the rest of the sites higher monitoring frequency is applied. The analytical methods are in line with Article 4.1 of QA/QC Directive (2009/90/EC) for all substances, except "EEA_33-09-0 Detergents", where the best available method as specified in the Article 4(2) has been used.

Use of monitoring results for classification

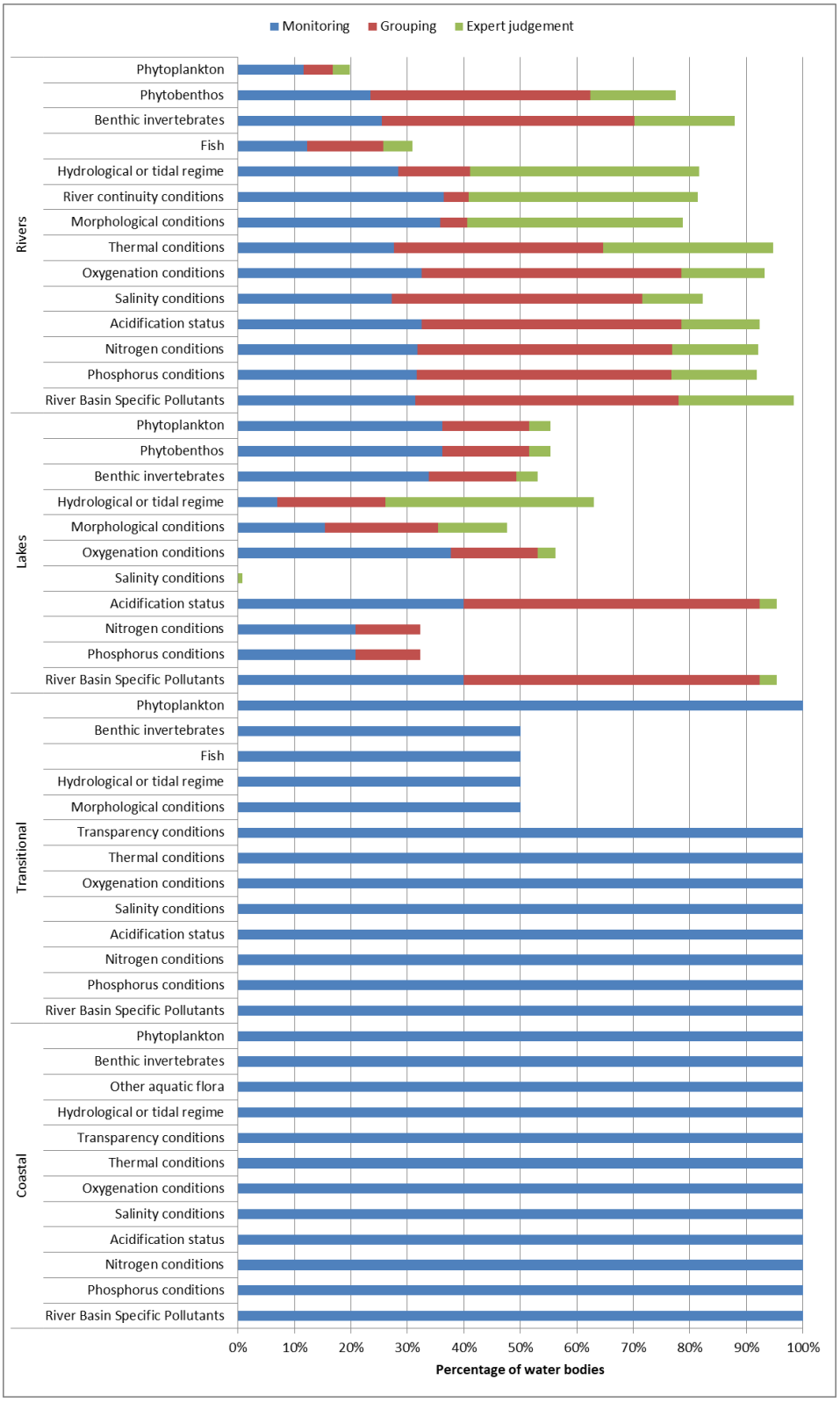
The classification of quality elements for coastal and transitional waters for all water bodies was based on monitoring results (Figure 3.3). For most of the river water bodies and quality elements and many of the lake water bodies and quality elements, the classification is based on grouping or expert judgement.

One transitional water body was classified according to morphological conditions even though this quality element was not reported to be directly monitored.

Monitoring results were mostly used in the classification of quality elements for lakes, though grouping and expert judgement have also been used. In particular, expert judgment was predominantly used to classify the hydrological regime. There were more lake water bodies directly monitored for the hydromorphological quality elements than water bodies for which monitoring results had been used in the classification. Macrophytes and fish were also monitored in some lake water bodies, but not all water bodies were yet classified by these 2 elements. This is because of the on-going development for fish method and on-going validation for macrophytes method.

In rivers, grouping was used mainly for the classification of the biological quality elements, with monitoring results and expert judgement also used, to a differing extent for the different elements. More water bodies were classified using monitoring results for phytobenthos and fish than had been directly monitored for these elements. This may be a reporting error. Fewer water bodies were classified using fish than the other required biological quality elements, and more water bodies had been directly monitored for fish than were subsequently classified using this element. As for lakes, the classification of hydromorphological quality elements in rivers was mainly based on expert judgment followed by monitoring results and grouping. Again there may be a reporting error as fewer river water bodies were reported to be directly monitored for hydromorphological quality elements than had been classified using monitoring results.

Figure 3.3 Basis of the classification of ecological status/potential in Romania. The percentages are in terms of all waterbodies in each category.



Source: WISE electronic reports. Note: 'not applicable' situations are not presented.

3.1.2 Ecological Status/potential of surface water

The ecological status/potential of surface water bodies in Romania for the second RBMP is illustrated in Map 3.1. This is based on the most recent assessment of status.

A detailed breakdown of ecological status/potential in each RBD and water category can be viewed in the WISE electronic reports.

Map 3.1 Ecological status or potential of surface water bodies in Romania based on the most recently assessed status/potential of the surface water bodies

Note: Standard colours based on WFD Annex V, Article 1(4)(2)(i)

Source: WISE, Eurostat (country borders)

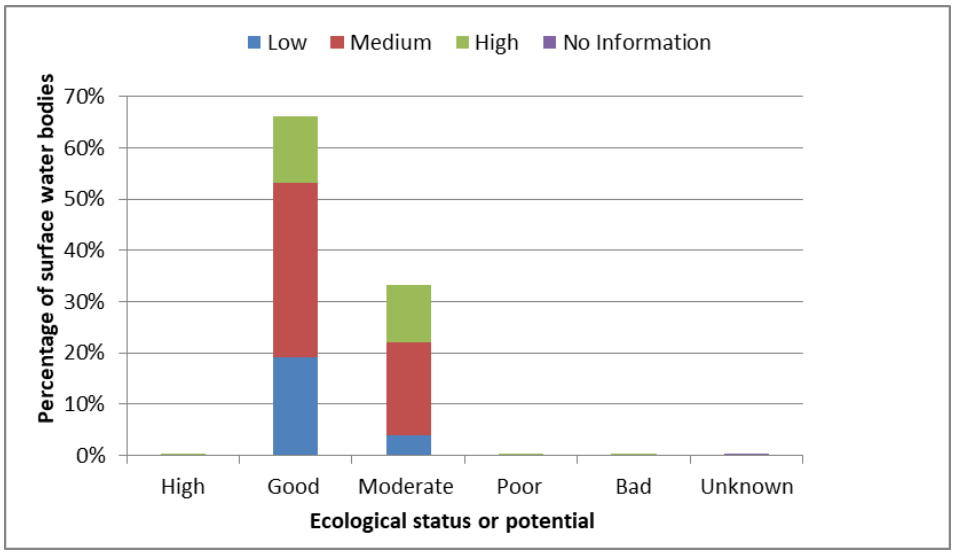
High
Good
Moderate
Poor
Bad
Unknown
River Basin Districts
Countries outside the European Union

Figure 3.4 shows the confidence in the classification of ecological status/potential. For the first RBMP no surface water body was classified with high confidence; for the second this had increased to 24%. There had also been a decrease in the proportion classified with low confidence, from 52% to 23%.

Figure 3.5 compares the ecological status of surface water bodies in Romania for the first RBMP with that for the second (based on the most recent assessment of status/potential) and that expected by 2015.

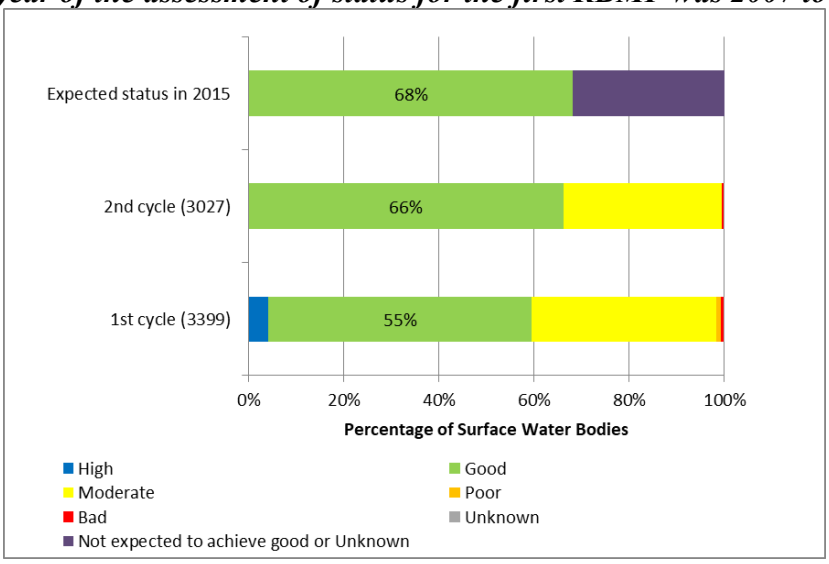
Member States were asked to report the expected date for the achievement of good ecological status/potential. The information for Romania is shown in Figure 3.6. Romania expects to achieve good ecological status/potential in surface water bodies by 2027 at the latest.

Figure 3.4 Confidence in the classification of ecological status or potential of surface water bodies in Romania based on the most recently assessed status/potential



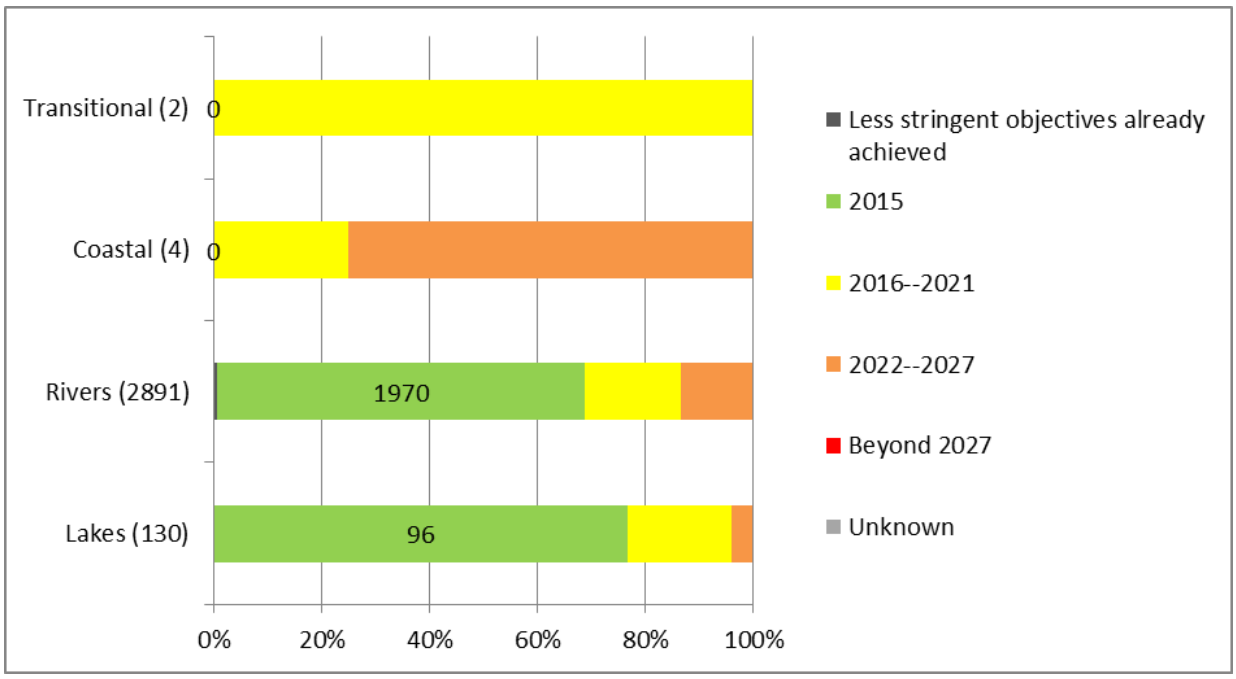
Source: WISE electronic reports

Figure 3.5 ***Ecological status or potential of surface water bodies in Romania for the second RBMP, for the first RBMP and expected in 2015. The number in parenthesis is the number of surface water bodies for each cycle. Note the period of the assessment of status for the second RBMP was 2010 to 2015. The year of the assessment of status for the first RBMP was 2007 to 2009***



Source: WISE electronic reports

Figure 3.6 ***Expected date of achievement of good ecological status/potential of surface water bodies in Romania. The number in the parenthesis is the number of water bodies in each category***



Source: WISE electronic reports

The ecological status/potential is good or better in most of the lakes and rivers, but in none of the transitional and coastal waters. There are very few water bodies with unknown status/potential (6 lakes, most of them explained by Romania in their WISE reporting as "therapeutic" lakes with very different reference conditions). The confidence in lake assessment is quite low, while that of the assessments of rivers and transitional and coastal waters are mostly high or medium.

The proportion of river water bodies in good or better status/potential has increased from 66% to 71% from the first to the second RBMPs, while that in lakes has increased a lot more from 17% to 79% during the same period[31]. The natural lake assessment does not include macrophytes or fish (but those were also missing in the first RBMP[32]). None of the transitional and coastal water bodies have changed status/potential, as they are still in less than good with 50% reported to be in bad status.

The Member State reports that the assessment of ecological status and ecological potential shows an increase in the number of surface water bodies in good and high status/good potential between the first and second RBMPs, of 6.71% (from 59.43% to 66.14%). It is noted in the RBMPs that due to the use of methodologies with stricter class boundaries for some biological elements (as a result of the intercalibration process), as well as changes in the grouping of water bodies, the percentage of water bodies in "high" status in the second RBMPs has been reduced compared to the first RBMPs, but the number of water bodies in "good " status has increased..

Classification of ecological status in terms of each classified quality element

Figure 3.7 illustrates the biological quality elements used in the classification of ecological status/potential.

Figure 3.8 compares the classification of biological quality elements in terms of ecological status/potential for the first and second RBMPs. It should be noted that this comparison should be treated with some caution as there are differences between the numbers of surface water bodies classified for individual elements from the first to the second RBMPs.

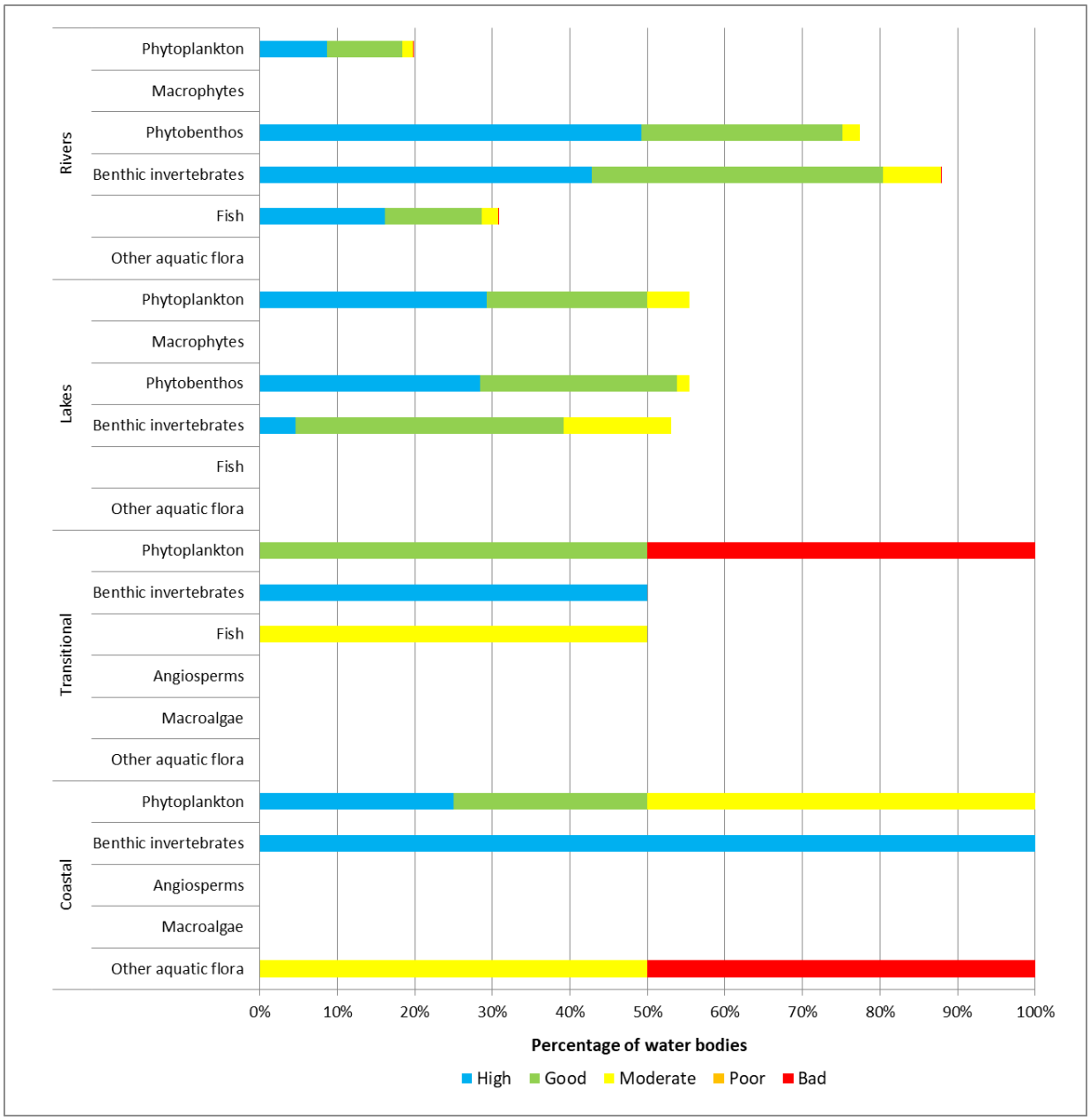
Figure 3.9 illustrates the basis of the classification of ecological status/potential of rivers and lakes in Romania for the second RBMPs.

[31] Romania clarified that in the first RBMP, these figures are referring only to the natural water bodies in relation to all natural water bodies in all categories, not only to river water bodies

[32] Romania reported that, in the case of fish, 25 % of natural lake water bodies represent not-applicable situations.

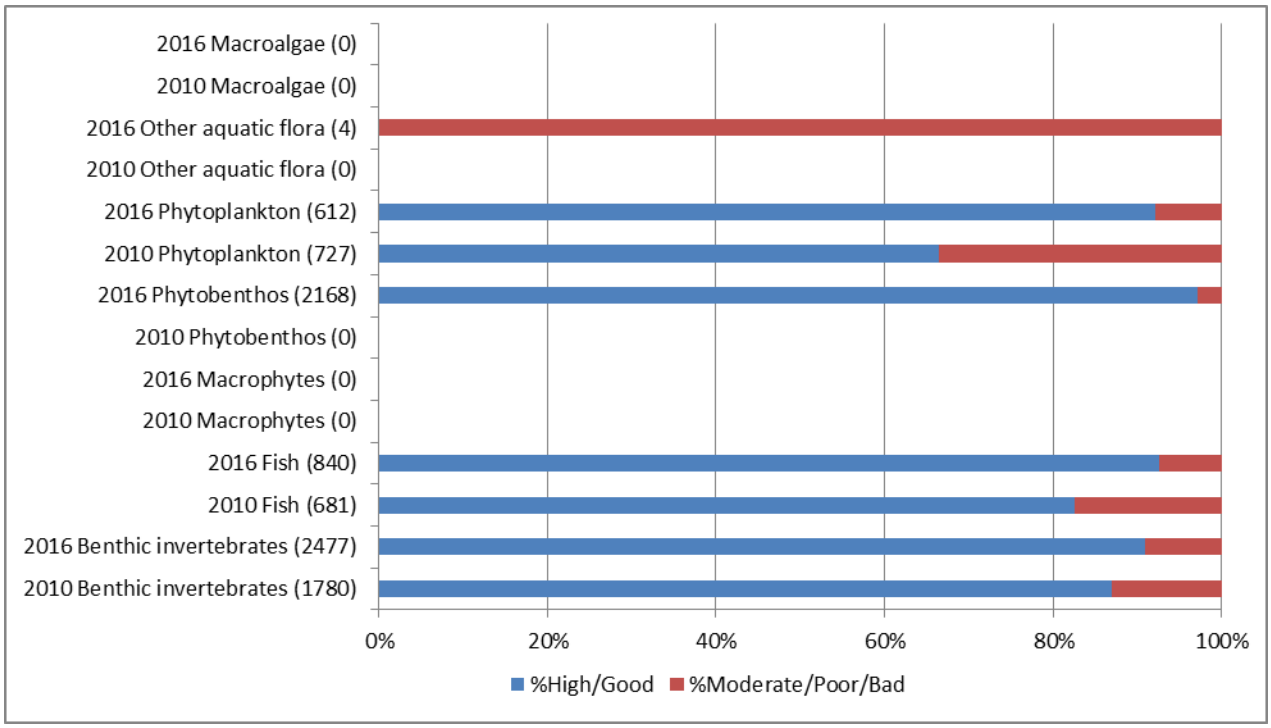
A larger proportion of water bodies have been classified for more biological quality elements (Figure 3.7) and supporting quality elements than in the first RBMP, e.g. phytobenthos and benthic invertebrates and supporting quality elements in lakes, and phytobenthos and supporting quality elements in rivers. These quality elements were not classified in the first RBMPs due to lack of methods.

Figure 3.7 Ecological status/potential of the biological quality elements used in the classification of surface waters in Romania. Note that water bodies with unknown status/potential, and those that are monitored but not classified or not applicable, are not presented.



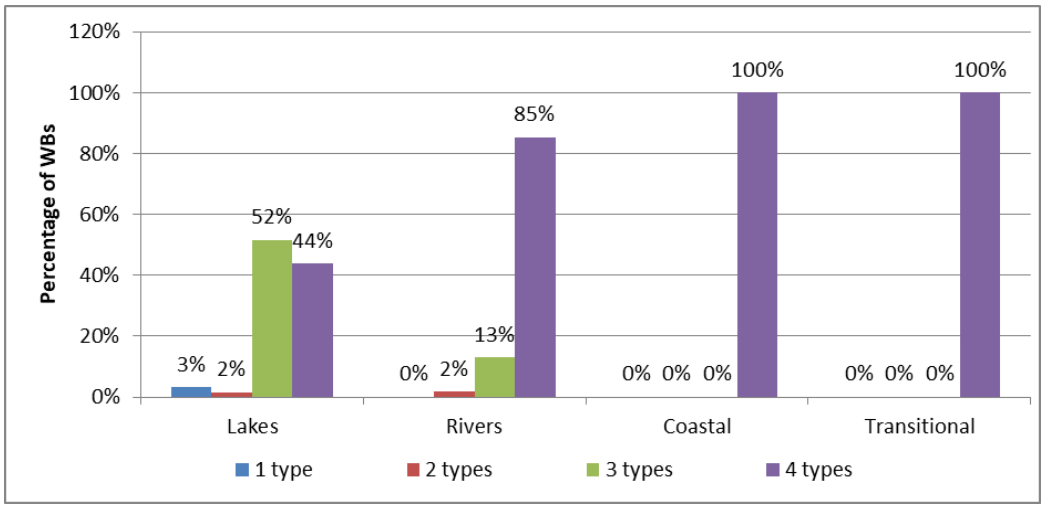
Source: WISE electronic reports.

Figure 3.8 ***Comparison of ecological status/potential in Romania according to classified biological quality elements in surface water bodies between the first and second RBMPs. The numbers in parenthesis show the number of water bodies with a classification for that element***



Source: WISE electronic reports

Figure 3.9 ***The classification of the ecological status or potential of surface water bodies in Romania using 1, 2, 3 or 4 types of quality element. Note: The four types are: biological; hydromorphological, general physicochemical and River Basin Specific Pollutants***



Source: WISE electronic reports

Macroalgae and angiosperms are listed as not applicable, but other aquatic flora is used (Figure 3.8). Romania reported that the methodology was developed considering the macroalgae and angiosperms as a single biological quality element. More than 40% of lakes have unknown status/potential for phytobenthos and for benthic invertebrates. Macrophytes are not classified in rivers and lakes, and fish is not classified in lakes[33], due to missing methods.

Changes in quality element class have also been reported for many water bodies. Those quality elements that have changed class are mostly showing improvements, and most of the changes were reported to be consistent.

Assessment methods and classification of biological quality *elements*

More assessment methods have been developed since the first RBMP: phytobenthos in rivers and lakes, benthic invertebrates in lakes, other aquatic flora in coastal waters (macroalgae and/or angiosperms). All the biological quality element methods required in the WFD have been developed, except macrophytes in rivers[34], fish in lakes, and angiosperms and macroalgae in transitional waters[35]. Reference conditions are available for some biological quality elements in the majority of river types: they are available for all biological quality elements in three river types.

Romania subsequently clarified that the biological type-specific reference conditions (for rivers and lakes) were interpreted to be represented only by the currently existing reference situations, while the type-specific reference values could also represent an ideal situation or a situation in the past (based on e.g. modelling, expert judgement).

Reference conditions are available for all biological quality elements in all coastal water types, and some biological quality elements in all lake and transitional waters types.

None of the biological quality element assessment methods were reported to be sensitive to chemical pollution even though chemical pollution was reported to have a significant impact on rivers. Also in rivers, there were no methods sensitive to hydrological changes, acidification and saline intrusion even though they were reported as a significant impact.

There is information in the RBMP on the biological elements for which intercalibration (within the Geographical Intercalibration Groups) has not been completed and the steps (recommended in the WFD Intercalibration Manual) that have yet to be taken. The remaining gaps and

[33] Romania considers that, in the case of fish, 26% of natural lake water bodies represent not-applicable situations
[34] The method for macrophytes has been intercalibrated and included in the 2018 Intercalibration Decision
[35] Romania explained that aquatic flora is not relevant for transitional waters due to the absence of adequate conditions for the development of aquatic flora.

inconsistencies in the methods concern monitoring results for macrophytes in lakes and rivers and fish in lakes.

Intercalibration of biological assessment methods and national classification systems

For the biological quality element methods, a large proportion of national river and lake types are not linked to any intercalibration type. Romania has later informed that for all national types, the class boundaries used were those of the intercalibrated types.

Assessment methods for hydromorphological quality elements

Hydrological or tidal regime in all categories and river continuity were reported to be assessed in terms of ecological status/potential but the classification boundaries are not related to the class boundaries for the sensitive biological quality elements. Morphological conditions are also assessed in terms of ecological status/potential and the classification boundaries are related to the class boundaries for the sensitive biological quality elements.

Reference conditions are available for all hydromorphological quality elements in all but three river types. Reference conditions for some hydromorphological quality elements are available in all lake types, but according to the reporting in WISE none are available in coastal and transitional waters.

The RBMP indicates that for the hydromorphological quality elements, the National Institute of Hydrology and Water Management has developed a new status assessment methodology for the second RBMP, both for rivers and lakes (natural and heavily modified water bodies). The new methodology ensures a higher data confidence. The remaining gaps and inconsistencies in the methods for assessing the hydromorphological quality elements are not specified in the RBMP. The methodology for assessment of hydromorphological status for rivers is presented in an annex to the RBMP. Romania's evaluation of this methodology concluded that the interlinkages between hydromorphological and biological quality elements still remain an issue. This is currently included as a prioritised activity at EU level.

Assessment methods for general physicochemical quality elements

More assessment methods have been developed since the first RBMP for most of the physicochemical quality elements.

All relevant physicochemical quality elements are assessed in rivers in terms of ecological status/potential and all but the assessment of acidification status was related to the class boundaries for the sensitive biological quality elements.

Transparency, thermal conditions and salinity conditions in lakes, and thermal conditions in coastal and transitional waters are not assessed in terms of ecological status/potential. Romania has informed that thermal conditions are not relevant for the lakes, transitional and coastal WBs, since there are no discharges of thermally polluted waters. The classification of transparency and acidification status methods is not related to the class boundaries of the sensitive biological quality elements. Oxygenation and nutrient conditions are assessed in all water categories in terms of ecological status/potential and their classification is related to the class boundaries for the sensitive biological quality elements.

Standards were reported for all relevant physicochemical quality elements in rivers and all except for pH were reported to be consistent to the good-moderate status boundary of the relevant sensitive biological quality elements. For lakes, standards were reported for four physicochemical quality elements in lakes, all except for pH were consistent to the good-moderate status boundary of the relevant sensitive biological quality elements. There were no standards for transparency and thermal conditions. Standards were reported for five physicochemical quality elements in coastal and transitional waters, all except for pH (acidification status) and secchi disk depth (transparency) were consistent to the good-moderate status boundary of the relevant sensitive biological quality elements. There were no standards for thermal conditions.

However, although the nutrient standards are type-specific, the standards for total phosphorus in some river types may not support good status for the sensitive biological quality elements, although they were reported to do so (>0.2 mg/l total phosphorus).

Reference conditions are not available for any of the physicochemical quality elements in any water category and type, except for some in lake type ROLN07.[36] However, the high/good boundaries have been set for nutrients in different types in all the water categories, which means that the upper end of the reference conditions has been defined.

Selection of River Basin Specific Pollutants and use of Environmental Quality Standards

Environmental Quality Standards were reported for 11 River Basin Specific Pollutants (four metals, six persistent organic pollutants and detergents[37]), all for water in each of the four water categories. The standards were not derived in accordance with the Common

[36] Romania subsequently informed that the reported reference conditions for ROLN07 was an error made in the WISE reporting

[37] Polychlorinated biphenyls, acenaphthylene, toluene, zinc, copper, arsenic, chromium, phenol, xylenes, total cyanides and anionic-active detergents.

Implementation Strategy Guidance Document No 27.[38] The environmental quality standards set for the first River Basin Specific Pollutants were derived based on the requirements of from Annex V from the point 1.2.6 – Procedure for the setting of chemical quality standards by Member States. The applied methodology has focussed on the development of thresholds that are called Predicted No-Effect Concentrations (PNEC) based on toxicology testing. The environmental quality standards values were based on these thresholds, but applying the most appropriate safety factor (1-1000, depending on confidence in the toxicity data).[39] In the procedure for deriving environmental quality standards for metals the limit values take natural background levels into account.

From the reported background information, identification and assessment of the River Basin Specific Pollutants has been done. The methodology to identify River Basin Specific Pollutants is described in the RBMPs. At national level the River Basin Specific Pollutants are identified taking into account the inventory of sources of pollution from the identified 669 potentially significant industrial and agricultural point sources. 218 of these have installations falling under the Integrated Pollution Prevention and Control Directive.[40] There are also 451 industrial and agricultural establishments, other than those under the Integrated Pollution Prevention and Control Directive. For the period 2013-2014 there were identified 56 significant point source pressures (54 industrial and 2 agricultural).

Compared with the 2007 situation, which was the reference year used to assess the same emissions in the first RBMP, a reduction is observed. These emission reductions are mainly due to the implementation in 2010-2014 of the basic and additional measures for agglomerations, industrial activities and other activities (including agricultural activities), but also the reduction, closure or conservation of the activities of some economic sectors.

River Basin Specific Pollutants have been assessed on a basis of a specific monitoring programme, which ensures a minimum of four or eight (depending on the monitoring programme) concentration values per year for the monitored substances.

[38] https://circabc.europa.eu/sd/a/0cc3581b-5f65-4b6f-91c6-433a1e947838/TGD-EQS%20CIS-WFD%2027%20EC%202011.pdf

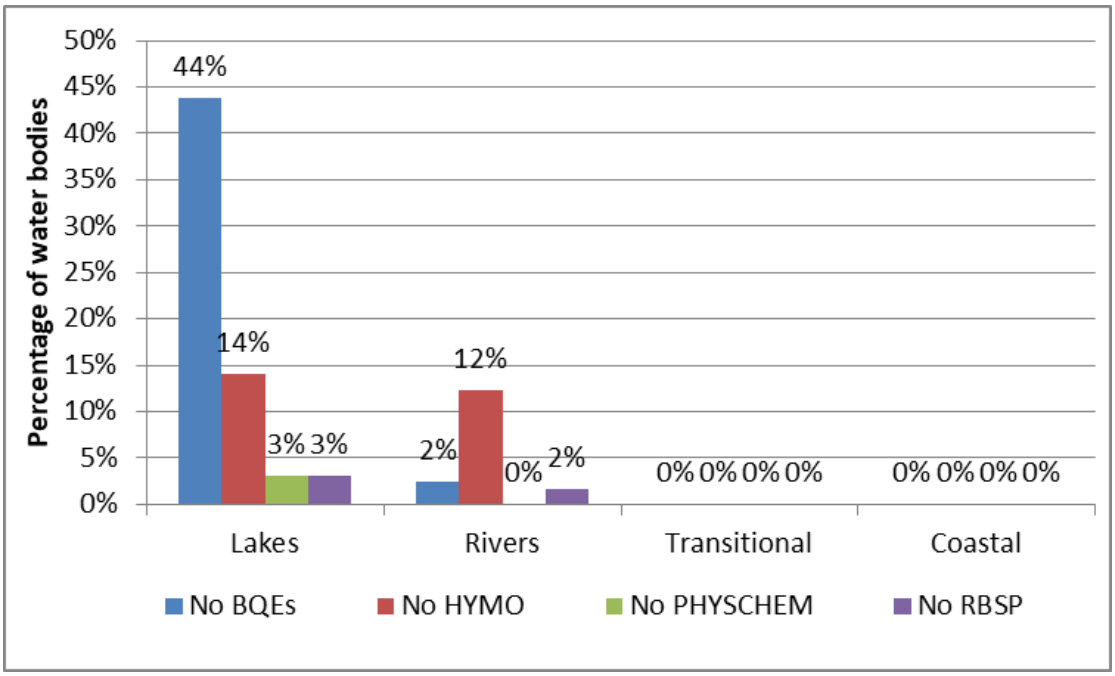
[39] Romania subsequently informed that the derivation process for EQS-values continued with national validation of the derived PNECs to seek confirmation that they are scientifically valid, and that the data used to derive them were sound and complete. For each substance, the recommended PNECs were adopted as EQS's - EQSx≈PNECx.

[40] Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Al28045

Overall classification of ecological status (one-out, all-out principle)

The overall classification of ecological status is based on all four of the groups of quality elements only in coastal and transitional waters with increasing proportions of river and lake water bodies not using one of the quality element groups (Figure 3.10).

Figure 3.10 The percentage of surface water bodies in Romania where no biological quality element (No BQEs) or no hydromorphological (No HYMO) or no general physicochemical (No PHYSCHEM) or no River Basin Specific Pollutant (No RBSP) has been used in the classification of ecological status or potential



Source: WISE electronic reports

The one-out-all-out principle has been used and the details on combination rules applied for the biological quality elements versus the supporting quality elements are provided in the RBMP.

3.2 Main changes in implementation and compliance since the first RBMP

There were significant differences in the numbers of monitoring sites between the first and second RBMPs. Romania informed that the changes are mainly due to the updated methodology applied in comparison with the first RBMP. This entails a clearer monitoring

programme for each surface water body monitoring site (surveillance monitoring for the WBs which achieved the environmental objectives and operational monitoring for surface water bodies which are at risk of failing to meet the objectives) and merging some monitoring sites and sub-sites for lakes and reservoirs. For the first RBMP, the same monitoring sites/water bodies were used for both programmes, which caused a double counting of monitoring sites in WISE. In this respect, no meaningful comparison between the figures of both plans can be made, but the numbers of monitored SWBs have increased in the second RBMP (see further details in section on monitoring at the start of chapter 1.1.).

More assessment methods have been developed since the first RBMP: phytobenthos in rivers and lakes; benthic invertebrates in lakes; other aquatic flora in coastal waters (including macroalgae and angiosperms); physicochemical quality elements, hydromorphological quality elements and River Basin Specific Pollutants in all water categories. Macrophytes are monitored in a few water bodies in rivers and lakes.

The confidence in assessments of ecological status has improved for rivers from around 50% in high or medium confidence in the first to almost 80% in high or medium confidence in the second RBMP. Change in quality element class has also been reported for many water bodies. Those quality elements that have changed class are mostly to the better rather than to the worse, and most of the changes were reported to be consistent. More biological quality elements and supporting quality elements have been used for classification in the second RBMP than in the first.

3.3 Progress with Commission recommendations

The Commission recommendations based on the first RBMP and PoM requested action on the following:

- Recommendation: *"Strengthen monitoring as there are not enough monitoring data related to ecological and chemical elements and this is one of the reasons for low confidence in the status assessment."*

  Assessment: A large proportion of water bodies have been classified for more biological quality elements and supporting quality elements than in the first RBMP, e.g. phytobenthos and benthic invertebrates and supporting quality elements in lakes, and phytobenthos and supporting quality elements in rivers. These quality elements were not classified in the first RBMP due to lack of methods. For chemical elements, all the relevant physico-chemical quality elements are included in the monitoring. For the River

Basin Specific Pollutants, 11 substances are monitored, the number of monitoring sites have increased, the frequency and the analytical methods are in line with Article 4.1 of Directive 2009/90/EC[41] for all substances, except "EEA_33-09-0 Detergents", where the best available method (Article 4(2) of WFD) has been used.

All expected biological quality elements were reported to be monitored in coastal waters, lakes and rivers. However, there are still gaps in the monitoring of transitional waters where other aquatic flora were reported not to be monitored. Romania explained that aquatic flora is not relevant for transitional waters due to the absence of adequate conditions for the development of aquatic flora.

Morphological conditions were reported as not being monitored in coastal and transitional waters although Romania subsequently clarified that they are indeed monitored in one of the two transitional water bodies. There has been some progress on this respect. There have been very significant decreases in the number of monitoring sites reported for the second RBMP compared to the first, but Romania has informed that this is mainly due to updating of the monitoring methodology and to double counting of the sites used in the first RBMP, as the same sites were used both for surveillance and for operational monitoring. In reality the number of the monitored WBs has increased (see further details in section 1.1.1 above).

Romania reported operational monitoring programmes for all water categories and 233 (23%) out of 1019 water bodies at less than good ecological status/potential were included in operational monitoring for the second RBMP. This aspect of the recommendation has been met.

The confidence in status assessment has also improved.

The recommendation is mostly fulfilled.

- Recommendation: *"Complete the development of methods for the status assessment of water bodies and definition of reference conditions and apply them through the implementation of a robust monitoring programmes."*

  Assessment: More assessment methods have been developed since the first RBMP: Phytobenthos in rivers and lakes, benthic invertebrates in lakes and other aquatic flora in coastal waters (including both macroalgae and angiosperms). All the biological quality

[41] Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1524565750309&uri=CELEX:32009L0090

element methods required in the WFD have been developed, except macrophytes in rivers[42] and fish in lakes.

More assessment methods have also been developed since the first RBMP for most of the physicochemical quality elements. However, there are still gaps. Transparency, thermal conditions and salinity conditions in lakes, and thermal conditions in coastal and transitional waters are not assessed in terms of ecological status/potential.

Hydrological or tidal regime in all categories and river continuity were reported to be assessed in terms of ecological status/potential but the classification boundaries are not related to the class boundaries for the sensitive biological quality elements. Morphological conditions are also assessed in terms of ecological status/potential and the classification boundaries are related to the class boundaries for the sensitive biological quality elements.

The recommendation is partially fulfilled.

- Recommendation: *The monitoring activity should check also the efficiency of the implemented measures (e.g. fish passes, construction of buffer strips or wetland restoration effect on water quality etc.).*

  Assessment: Morphological conditions were reported to be monitored in rivers and lakes but not in transitional and coastal waters. River continuity was also monitored in rivers. In theory and according to the recommendation, the results of monitoring these elements could be used for checking the efficiency of implemented measures but in practice no details were found in the RBMPs consulted.

  The recommendation is partially fulfilled.

[42] The method has in the meantime been intercalibrated and included in the 2018 Intercalibration Decision.

Topic 4 Monitoring, assessment and classification of chemical status in surface water bodies

4.1 Assessment of implementation and compliance with WFD requirements in the second cycle

4.1.1 Monitoring of chemical status in surface waters

Monitoring sites and monitored water bodies used for monitoring of chemical status

Member States implement surveillance and operational monitoring programmes in accordance with the requirements of the WFD and of the EQS Directive, for the assessment of ecological status/potential and chemical status.

Surveillance monitoring programmes should allow Member States to supplement and validate the impact assessment procedure, to efficiently and effectively review the design of their monitoring programmes, and to assess the long-term changes in natural conditions and those resulting from widespread anthropogenic activity. For operational purposes, monitoring is required to establish the status of waterbodies identified as being at risk of failing to meet their environmental objectives, and to assess any changes in the status of such waterbodies resulting from the PoM.

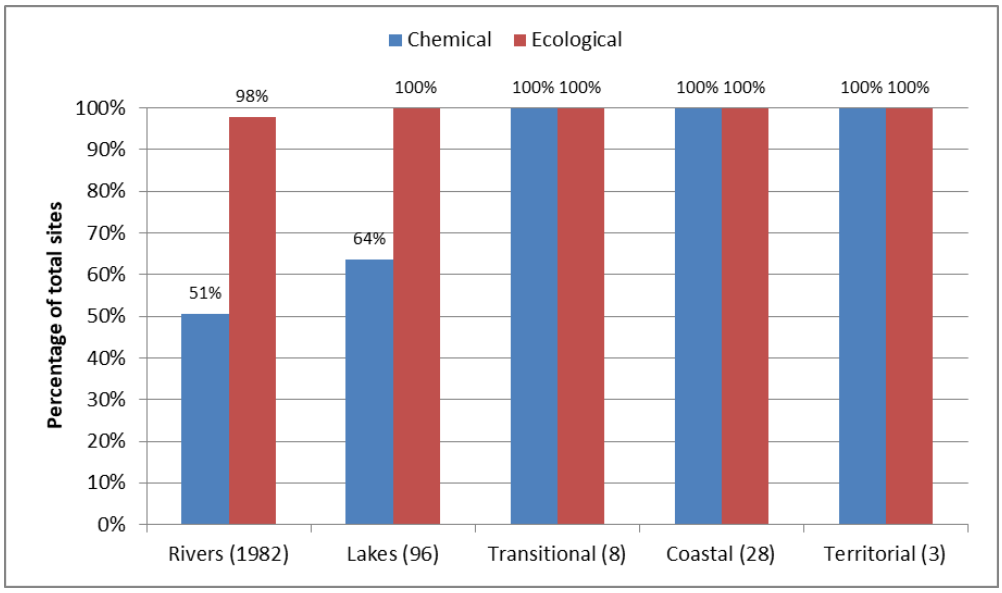
Section 3.1.1 of this report summarises the characteristics of the surveillance and operational monitoring programmes in Romania for the second RBMP.

Figure 4.1 summarises the proportion of sites used for the monitoring of chemical status in surface waters for the second RBMP. In this figure, no distinction is made between sites used for surveillance and/or operational purposes. More detailed information can be found on the website of the European Environment Agency[43].

Figure 16 shows that all sites in transitional and coastal waters are used for ecological and chemical monitoring and sites in territorial water are used for monitoring of chemical status. Just over half of all river water body sites and 64 % of lake water body sites are used for monitoring chemical status. Romania subsequently clarified that territorial waters are not monitored for ecological status (this was a reporting mistake).

[43] https://www.eea.europa.eu/publications/state-of-water

Figure 4.1 ***Proportion of sites used for monitoring of chemical status and, for comparison, ecological status, in Romania. The number in parenthesis next to the category is the total number of monitoring sites irrespective of their purpose***



Source: WISE electronic reporting

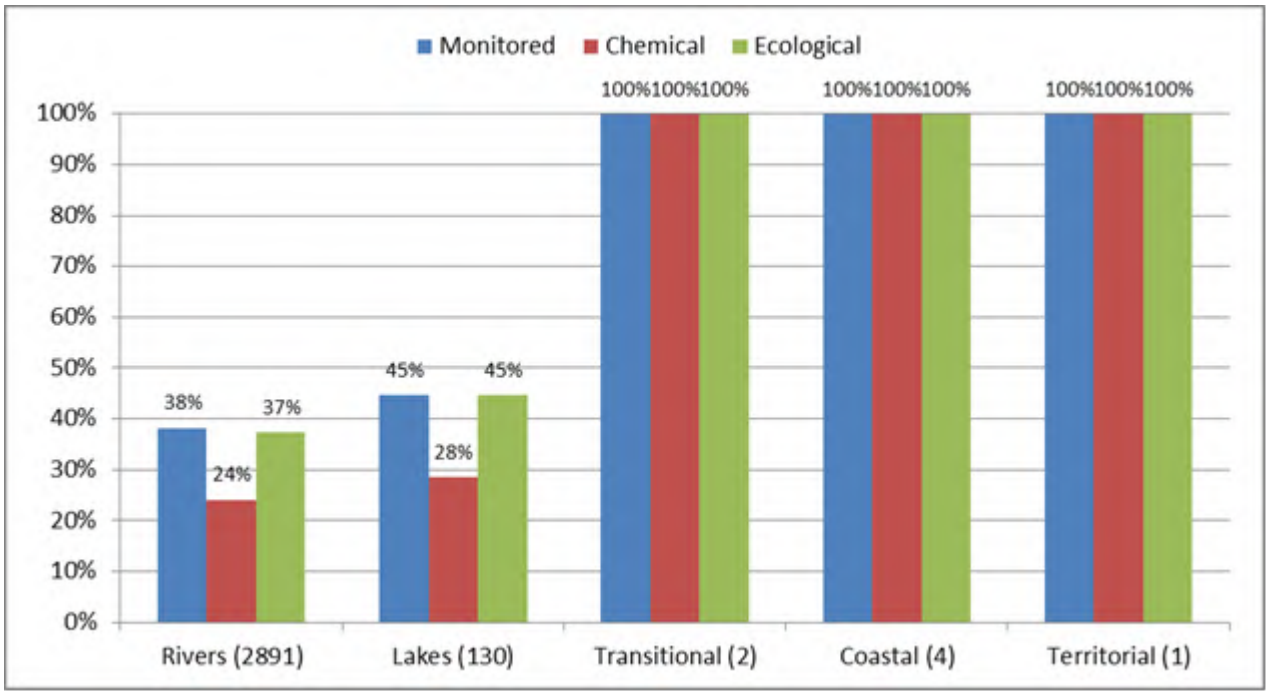
Figure 4.2 summarises the proportion of water bodies monitored for chemical status in surface waters for the second RBMP. In this figure, no distinction is made between sites used for surveillance and/or operational purposes. Also given is the proportion of water bodies monitored for any purpose and, for comparative purposes, those for ecological status.

Figure 4.3 shows that all transitional water bodies, coastal water bodies and territorial waters are monitored for chemical status. A quarter of river water bodies are monitored and 28% of lake water bodies indicating that several sites are monitored for some of these waterbodies.

In Romania, 90% of water bodies failing to achieve good chemical status were reported to be monitored.

Romania indicated that the international RBMP for the Danube RBD provides information on the monitoring programme and international network (Danube Transnational Network) and that Romania has bilateral agreements with neighbouring countries that foresee monitoring and exchange of data.

Figure 4.2 ***Proportion of total water bodies in each category which are monitored, monitored for chemical status and monitored for ecological status, in Romania. The number in parenthesis next to the category is the total number of water bodies in that category[44]***



Source: WISE electronic reporting

Long-term trend monitoring and monitoring of Priority substances in water, sediment and biota

Monitoring for status assessment

Requirements

Article 8.1 of the WFD requires Member States to establish monitoring programmes in order to provide inter alia a coherent and comprehensive overview of water status within each RBD. The amount of monitoring undertaken in terms of priority substances, frequency and numbers of sites should be sufficient to obtain a reliable and robust assessment of status. According to the EQS Directive (version in force in 2009), mercury, hexachlorobenzene and hexachlorobutadiene have to be monitored in biota for status assessment, unless Member States derived a standard for another matrix, which is at least as protective as the biota standard.

[44] Romania clarified that 25% (and not 28%) of lakes water bodies are monitored for chemical status.

Spatial coverage

In Romania, all coastal and transitional water bodies, and territorial waters are monitored for more than 10 Priority Substances in water. For lakes, 71% are not monitored for any Priority Substances[45], 22% are monitored for 10 or more Priority Substances with the remainder being monitored for between two and six Priority Substances. Similarly for rivers, 75% are not monitored for any Priority Substances, 16% are monitored for 10 or more with the remainder being monitored for between one and six Priority Substances.

For status assessment, Romania has monitored in biota three Priority Substances (hexachlorobenzene, mercury and hexachlorobutadiene) in river water bodies.[46] No monitoring is undertaken in other water categories. For the three Priority Substances, 17 of the 1040 monitoring sites for chemical status in rivers are monitored in biota.

Frequencies

The WFD indicates that, for the surveillance and operational monitoring of Priority Substances in water, the frequency of monitoring should be at least monthly for one year during the RBMP cycle and at least monthly every year, respectively. Monitoring in biota for status assessment should take place at least once every year according to the EQS Directive. In all cases greater intervals can be applied by Member States if justified on the basis of technical knowledge and expert judgement.

Monitoring frequencies were reported for 37 Priority Substances in water at site level in Romania. Monitoring frequencies for different Priority Substances were reported to range from between 1 and 12 times per year every year. For over 80% of the monitoring data the monitoring frequencies meet the recommended minimum frequency, but there are some particular cases, where the frequency was lower. Romania subsequently clarified that this is due to sampling conditions for the temporary water bodies, winter sampling conditions or incorrect reporting in WISE of the screening or investigative monitoring

For monitoring of priority substances in biota, the sampling frequency is once every year which meets the once per year minimum recommended frequency for status assessment.

[45] Romania clarified that 75% of lakes water bodies are not monitored for any Priority Substance.
[46] Romania informed that the biota monitoring for status assessment will be used for trend assessment in subsequent RBMPs.

Monitoring for long term trend assessment

Requirements

Article 3.3 of the EQS Directive (version in force in 2009) requires Member States to monitor 14 priority substances[47] that tend to accumulate in sediment and/or biota, for the purpose of long-term trend assessment. Monitoring should take place at least once every three years, unless technical knowledge and expert judgment justify another interval.

Spatial Coverage

According to WISE, Romania has monitored in sediment nine of the fourteen Priority Substances which the EQS Directive requires for the monitoring of the long-term trend. Monitoring was carried out in river and lake water bodies for trend assessment. Romania does not monitor for brominated diphenylether, C10-13-chloroalkanes, DEHP, tributyltin compounds and indeno(1,2,3-cd)-pyrene. Romania subsequently clarified that all substances of the polyaromatic hydrocarbon groups are monitored. Three (lead, mercury and cadmium) of these nine were also monitored in coastal, transitional and territorial waters.

Romania also subsequently mentioned that the monitoring reported in biota will be used in the next RBMP to assess trends.

The highest number of sites monitored for sediment in Romania as a whole was 125 for mercury, while the lower number of sites (2) was for lead, and cadmium.

Frequencies

Sampling is undertaken once or twice every year which meets the every three year recommended minimum frequency in the EQS Directive for trend monitoring.

Monitoring of Priority Substances that are discharged in each RBD

Annex V of the WFD states, in Section 1.3.1 (Design of surveillance monitoring), that "Surveillance monitoring shall be carried out for each monitoring site for a period of one year during the period covered by a river basin management plan for [*inter alia*]: priority list pollutants which are discharged into the river basin or sub-basin." Section 1.3.2 (Design of

[47] Anthracene, brominated diphenylether, cadmium, C10-13 chloroalkanes, DEHP, fluoranthene, hexachlorobenzene, hexabutadiene, hexachlorocyclohexane, lead, mercury, pentachlorobenzene, PAH, Tributyltin.

operational monitoring) of the Directive states that "In order to assess the magnitude of the pressure to which bodies of surface water are subject Member States shall monitor for those quality elements which are indicative of the pressures to which the body or bodies are subject. In order to assess the impact of these pressures, Member States shall monitor as relevant [*inter alia*]: all priority substances discharged, and other pollutants discharged in significant quantities."

Member States are therefore required to monitor all Priority Substances which are discharged into the river basin or sub-basin.

According to the information reported for Romania, all 37 Priority Substances in inventories (so including those assessed as discharged in these inventories) are monitored. The four substances which are not included in the inventories are not monitored. It is not clear whether these substances are discharged in Romania.

Performances of the analytical methods used

For 23 Priority Substances, the analytical methods used meet the minimum performance criteria laid down in Article 4(1) of the QA/QC Directive[48] for the strictest standard applied. For 14 substances, the analytical methods are in line with the requirements laid down in Article 4(2) of the QA/QC Directive for the strictest standard applied. The following four Priority Substances are not monitored: pentachlorophenol, tributyltin-cation, chloroalkanes C10-13, brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154).

The method of dealing with measurements of Priority Substances lower than the limit of quantification was reported to be as specified in Article 5 of the QA/QC Directive.

4.1.2 Chemical Status of surface water bodies

Member States are required to report the year on which the assessment of chemical status is based. This may be the year that the surface water body was monitored. In case of grouping this may be the year in which monitoring took place in the surface water bodies within a group that are used to extrapolate results to non-monitored surface water bodies within the same group. All assessments across Romania were carried out between 2009 and 2015.

[48] Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1524565750309&uri=CELEX:32009L0090

The chemical status of surface water bodies in Romania for the second RBMP is illustrated in Map 4.2. This is based on the most recent assessment of status. The map shows that 98% of water bodies are at Good status and that 2% of water bodies are failing to achieve good.

Map 4.2 ***Chemical status of surface water bodies in Romania based on the most recently assessed status of the surface water bodies***

Note: Standard colours based on WFD Annex V, Article 1(4)(3)

Source: WISE, Eurostat (country borders)

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

The chemical status of surface waters in Romania for the first and second RBMPs is given in Table 4.1.

Table 4.1 ***Chemical status of surface water bodies in Romania for the second and first RBMP. Note: the number in parenthesis next to the water category is the number of water bodies. Note: Chemical status was supposed to be reported based on the standards from the Environmental Quality Standards, version in force in 2009, but Romania used the more stringent standards from Directive***

2013/39/EU to assess chemical status. Some Member States did not implement the Directive in the first RBMP as the transposition deadline was in July 2010, after the adoption of the first RBMP

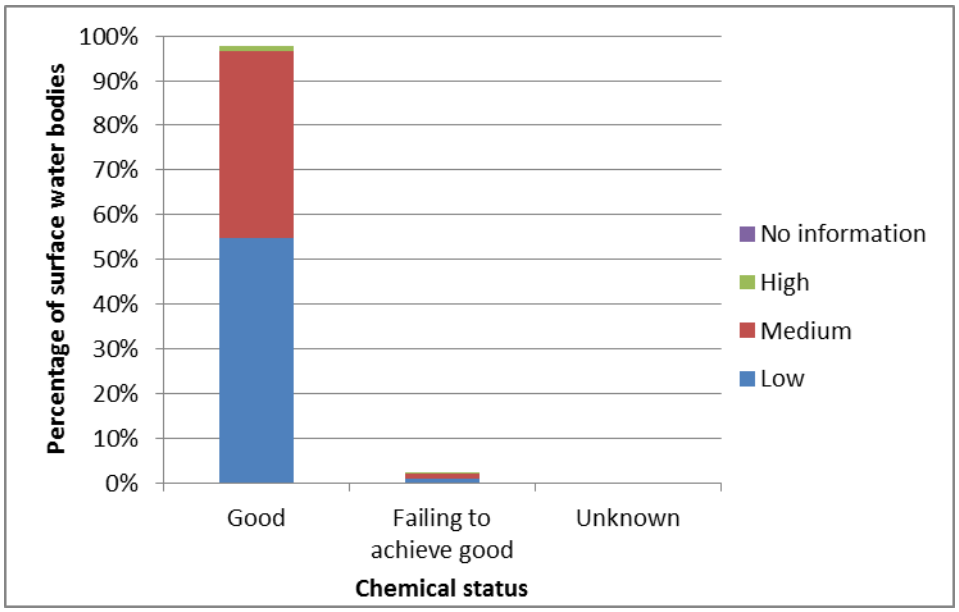
Category	Good		Failing to achieve good		Unknown	
	Number	%	Number	%	Number	%
Second RBMP						
Rivers (2891)	2 822	98%	69	2%		
Lakes (130)	130	100%				
Transitional (2)	2	100%				
Coastal (4)	4	100%				
Territorial (1)	1	100 %				
Total (3028)	2959	98%	69	2%		
First RBMP						
Rivers(3262)	3 110	95.00%	146	4.00%	6	0%
Lakes (131)	55	42.00%	76	58.00%		
Transitional (2)			2	100.00%		
Coastal (4)			4	100.00%		
Total (3399)	3165	93%	228	7%	6	0%

Source: WISE electronic reporting

There has been a re-delineation of water bodies between the two cycles, and therefore the comparison of status between the two cycles should be treated with some caution. Overall, between the two RBMP there was a decrease in the proportion of surface water bodies failing to achieve good chemical status from 7% down to 2%. For water bodies with good chemical status, there was a slight increase from 93% in the first RBMP to 98% in the second RBMP. The first RBMP also listed some water bodies with unknown status but these were not reported in the second RBMP, showing that the status of these waterbodies has been assessed.

Figure 4.3 shows the confidence in the classification of chemical status for the second RBMP. Overall, 56% of surface water bodies in Romania were classified for chemical status with low confidence, 43% with medium confidence and only 1% (all rivers) with high confidence. Confidence in the classification of chemical status for the first RBMP was not reported.

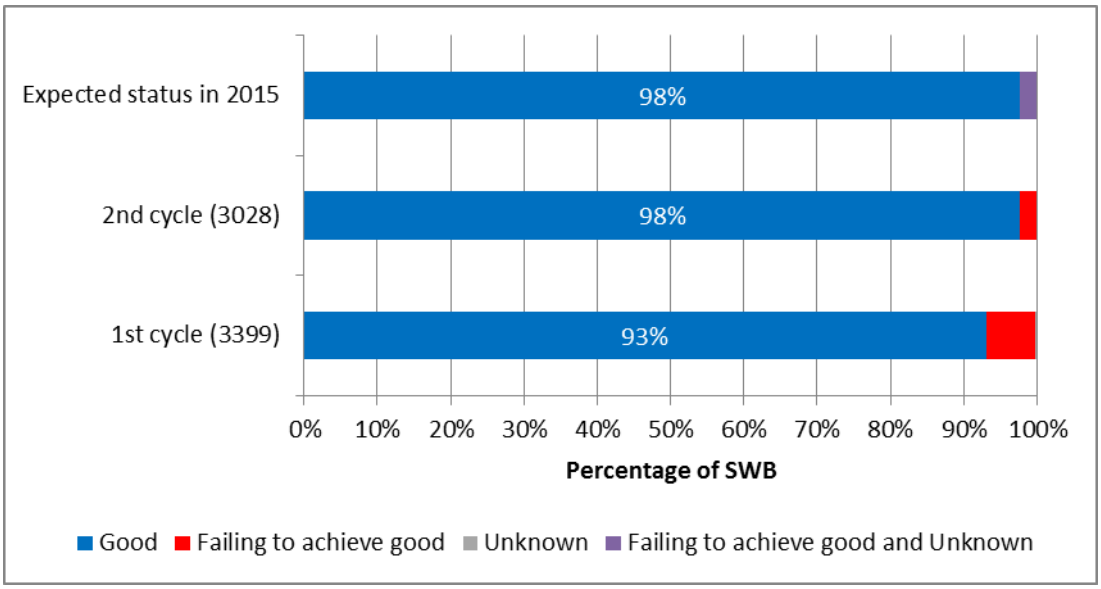
Figure 4.3 Confidence in the classification of chemical status of surface water bodies in Romania based on the most recently assessed status/potential



Source: WISE electronic reporting

Figure 4.4 compares the chemical status of surface water bodies in Romania for the first cycle with that for the second RBMP (based on the most recent assessment of status) and that expected by 2015.

Figure 4.4 ***Chemical status of surface water bodies in Romania for the second RBMP, for the first RBMP and expected in 2015. The number in the parenthesis is the number of surface water bodies for both cycles. Note the period of the assessment of status for the second RBMP was 2009 to 2015. The year of the assessment of status for first RBMP is not known***



Source: WISE electronic reporting

The assessment of chemical status for the second RBMP was expected to be reported based on the standards laid down in EQS Directive (version in force on 13 January 2009[49]). However Romania used the more stringent standards from Directive 2013/39/EU. Some Member States did not implement the Directive in the first cycle as the transposition deadline was in July 2010, after the adoption of the first RBMP.

Classification is carried out according to the "one-out-all-out" principle.

More information on the chemical status in each RBD and water category can be found on the website of the European Environment Agency[50].

[49] Please note that Directive 2013/39/EU, which amended the Environmental Quality Standards Directive, introduced a less stringent annual average environmental quality standard for naphthalene in transitional and coastal waters. This less stringent environmental quality standard should be taken into account for the determination of surface water chemical status by the 2015 deadline laid down in Article 4 of the WFD.

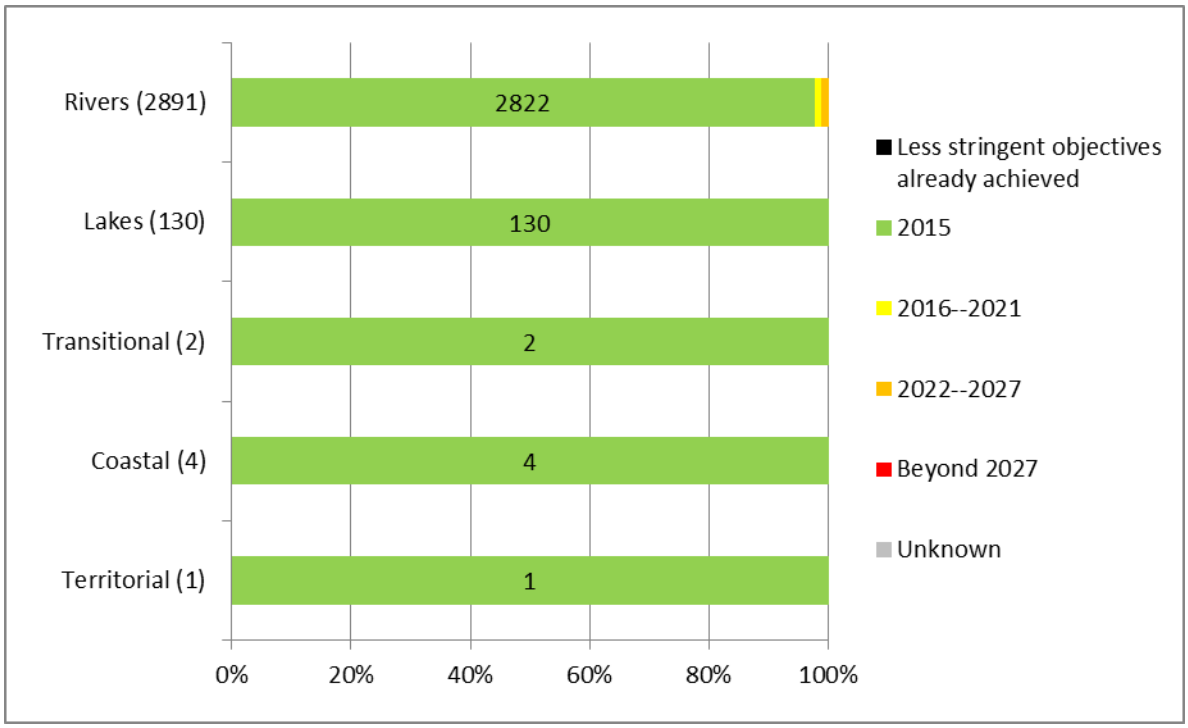
[50] https://www.eea.europa.eu/publications/state-of-water

Directive 2013/39/EU amended the EQS Directive. In particular, it sets more stringent environmental quality standards for seven substances[51]. Member States were required to indicate if the new standards caused the status of the surface water body to appear to deteriorate. Romania reported that none of the more stringent standards caused the status of surface water bodies to appear to deteriorate.

Good chemical status should be reached by 2021 in relation to the revised environmental quality standards, unless Member States apply exemptions under WFD article 4(4) or less stringent objectives under WFD article 4(5).

Member States were asked to report the expected date for the achievement of good chemical status. The information for Romania is shown in Figure 4.5.

Figure 4.5 Expected date of achievement of good chemical of surface water bodies in Romania. The number in the parenthesis is the number of water bodies in each category



Source: WISE electronic reporting

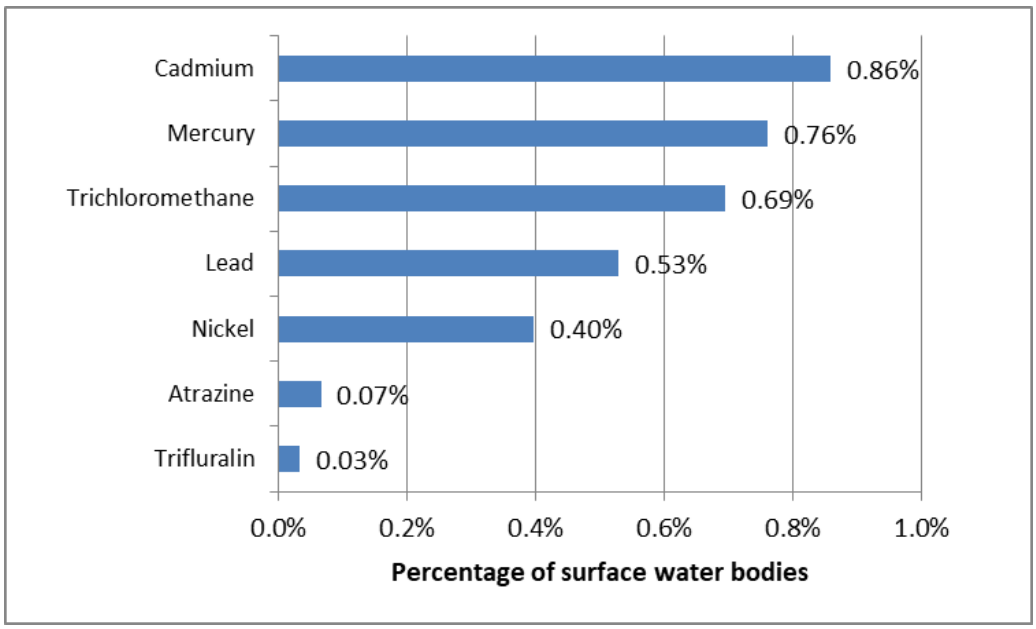
[51] Anthracene, Brominated diphenylether, Fluoranthene, Lead and its compounds, Naphthalene, Nickel and its compounds, Polyaromatic hydrocarbons (PAH)

Priority substances causing the failure of good chemical status

The exceedances identified below are assessed based on the revised, more stringent standards from Directive 2013/39/EU.

The "top" substances causing failure are shown in Figure 4.6. In particular, cadmium is causing failure in 0.86% of water bodies, mercury in 0.76% and trichloromethane in 0.69%.

Figure 4.6 The Priority Substances causing failure to achieve good chemical status in surface water bodies in Romania



Source: WISE electronic reporting

Overall for surface water bodies in Romania, the largest proportion of exceedances were for the annual average environmental quality standard for trichloromethane. Exceedances of maximum allowable concentration environmental quality standards were the greatest for mercury, trichloromethane and nickel. In terms of exceedance of both types of standard, the largest proportion was for cadmium, mercury and lead.

Ubiquitous persistent, bioaccumulative and toxic Priority Substances

According to article 8(a) of the EQS Directive[52], eight priority substances and groups of priority substances are behaving like ubiquitous, persistent, bioaccumulative and toxic

[52] Amended by Directive 2013/39/EU

substances[53]. These substances are generally expected to cause widespread exceedances, and their emissions can be challenging to tackle (e.g. due to long-range atmospheric transport and deposition). In order to show the progress made in tackling other priority substances, Member States have the possibility to present the information related to chemical status separately for these substances.

In Romania, 69 river water bodies were reported to be failing to achieve good chemical status (representing 2% of the total number of waterbodies). At least one ubiquitous persistent, bioaccumulative and toxic Priority Substance was causing failure in 23 waterbodies. The influence of these substances on the reported chemical status is therefore assessed as limited. This is also illustrated in the 2018 State of Water report of the European Environment Agency[54].

Mercury is monitored in biota in what seems to be a very limited number of sites. A more thorough spatial coverage would give a more precise picture of the influence of this substance.

Priority substances used in the assessment of chemical status compared to those monitored

37 Priority Substances were monitored and used in the assessment of chemical status. Four substances: pentachlorophenol, tributyltin-cation, chloroalkanes C10-13, brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154) were reported not to be monitored or used in the status assessment.

All coastal and transitional water bodies and territorial waters bodies were classified on the basis of monitoring. Expert judgment and grouping were used to classify the status of the non-monitored lake and river waterbodies (about a quarter of water bodies in each category are classified based on expert judgment, grouping is used in about 50% of the water bodies in each of these categories). Romania clarified that where grouping was not possible, water bodies were assigned a status on the basis of the risk of failing environmental objectives as performed under the requirements of Article 5 of the WFD (see chapter 2 for further details).

[53] Brominated diphenylether, Mercury and its compounds, Polyaromatic hydrocarbons (PAH), Tributyltin, PFOS, dioxins, hexabromocyclodecane and heptachlor

[54] https://www.eea.europa.eu/publications/state-of-water (p40-41 of the report). Also available in a more interactive format at : https://tableau.discomap.eea.europa.eu/t/Wateronline/views/WISE_SOW_SWB_Chemical_Status_Maps/SWB_Failing_Good_Chemical_Status_RBD?iframeSizedToWindow=true&:embed=y&:showAppBanner=false&:display_count=no&:showVizHome=no

Application of alternative environmental quality standards for water, biota and sediment

According to the EQS Directive, Member States may opt to apply environmental quality standards for another matrix than the one specified in the Directive for a given substance. If they do so, they have to ensure the environmental quality standard they set in the other matrix (or matrices) offers at least the same level of protection as the standard established in the Directive.

Reporting to WISE was not entirely explicit on this issue. However Romania subsequently clarified that the standards from the Environmental Quality Standards were applied for all substances monitored. The more stringent water standards from Directive 2013/39/EU were used when they existed. Biota standards were applied for the three substances monitored in biota (mercury, hexachlorobenzene, hexachlorobutadiene).

Use of mixing zones

Article 4 of the EQS Directive provides Member States with the option of designating mixing zones adjacent to points of discharge in surface waters. Concentrations of priority substances may exceed the relevant environmental quality standard within such mixing zones if they do not affect the compliance of the rest of the surface water body with those standards. Member States that designate mixing zones are required to include within their RBMPs a description of the approaches and methodologies applied to define such zones, and a description of the measures taken to reduce the extent of the mixing zones in the future.

Mixing zones have not been designated under Article 4 of the EQS Directive in Romania.

Background Concentrations and Bioavailability

The EQS Directive stipulates that Member States have the possibility, when assessing the monitoring results against the environmental quality standard, to take into account:

> (a) natural background concentrations for metals and their compounds, if they prevent compliance with the environmental quality standard, and;
>
> (b) hardness, pH or other water quality parameters that affect the bioavailability of metals.

Natural background concentrations for metals and their compounds were taken into consideration where such concentrations prevent compliance with the relevant environmental quality standard.

No information was provided in WISE to indicate whether bioavailability of metals have been taken into account when assessing monitoring results against relevant environmental quality standards. However, further information in the RBMPs confirmed that the parameters that affect the bioavailability of metals (pH, hardness, dissolved organic carbon or other water quality parameters) were not taken into account when comparing concentrations with the maximum admissible and annual average concentration values.

4.2 Main changes in implementation and compliance since the first cycle

Romania started reviewing the monitoring programmes in 2011, to increase their efficiency, and collect more robust data for the assessment of status. The number of priority substances monitored and the number of water bodies monitored increased.[55]. Romania chose to include in priority in the revised monitoring programmes the water bodies failing good status in the first RBMPs, for which further investigative monitoring was required according to the first PoM.

Overall between the two RBMPs there was a decrease in proportion of surface water bodies failing to achieve good chemical status from 7% down to 2%. There was a slight increase in the proportion of water bodies in good chemical status (from 93 to 98%). Similar changes occurred across all water body types (artificial, heavily modified and natural). While some water bodies had an unknown status in the first plan, all water bodies were classified in the second RBMP.

Information on Priority Substances causing failure of good chemical status for the first RBMPs was not systematically reported making comparison with the second RBMP difficult. However, cadmium, lead and nickel were identified as causing the greatest proportion of surface water body status failures in the first RBMP. 19 Priority Substances were reported to have improved from failing to achieve good to good chemical status since the first RBMPs, with 23% of water bodies showing improvements for cadmium, lead (21%) and nickel (15%).

4.3 Progress with Commission recommendations

The Commission recommendations based on the first RBMP and PoM requested action on the following:

- Recommendation: *"Mercury, hexachlorobenzene and hexachlorobutadiene should be monitored in biota for comparison with the biota standards in the EQS Directive, unless*

[55] A direct comparison between the number of sites reported as monitored in the two RBMPs is not possible because Romania clarified that some sites were double counted in the first reporting (reported both under surveillance and operational monitoring).

water environmental quality standards providing an equivalent level of protection are derived. The monitoring being carried out in sediment and biota should cover the requirement for trend monitoring specified for several substances in EQS Directive Article 3(3).”

Assessment: Romania has monitored mercury, hexachlorobenzene and hexachlorobutadiene in biota for status assessment. Romania implemented the recommended minimum monitoring frequency from the Directive, however monitoring is performed in what seems to be a very limited number of river water bodies. Romania further clarified that this monitoring data will also be used to assess trend in the next RBMP.

Romania has monitored nine of the required fourteen Priority Substances in sediment for trend assessment (including the three substances above). Monitoring was performed once every year which is above the recommended minimum frequency. The number of monitoring sites used varied between the different substances, from 2 to 125, hence spatial coverage appears to be very limited for some of the monitored substances .

Whilst progress with meeting the requirements of this recommendation has been clearly demonstrated, the recommendation has been partially fulfilled.

- The following two recommendations are assessed jointly below ;

Recommendation: *“Strengthen monitoring as there are not enough monitoring data related to ecological and chemical elements and this is one of the reasons for low confidence in the status assessment.*

and

Recommendation : *““Where there are currently high uncertainties in the characterisation of the RBDs, identification of pressures, and in the assessment of status, these need to be addressed in the current cycle, to ensure that adequate measures can be put in place before the next cycle.”*

Assessment: Romania started reviewing the monitoring programmes in 2011, to increase their efficiency, and collect more robust data for the assessment of status.

The number of water bodies monitored increased.[58] All coastal and transitional waterbodies, and all territorial waters are now monitored. Romania chose to include in priority in the revised monitoring programmes the water bodies failing good status in the

first RBMP, for which further investigative monitoring was required according to the first PoM.

The number of priority substances monitored also increased. Romania report that 37 Priority Substances are monitored and used in the assessment of chemical status. These 37 substances include all substances identified as discharged in the inventories. Four substances were reported to be neither monitored (because of a lack of analytical method) nor used in the status assessment. It is unclear whether these four substances were discharged as they were not considered in the inventories.

Clear progress in monitoring has been demonstrated, and this has certainly reduced the uncertainties in the assessment of status. All water bodies are now classified in the second RBMP (based on expert judgment or grouping when monitoring data is not available). However 56% of water bodies are still classified with low confidence (no data on the level of confidence in the first RBMP could be found so no comparison is possible). The spatial coverage of monitoring in river and lakes may contribute to explain the low confidence in the assessment. In addition, very limited monitoring is performed in biota.

Progress has been made, and the recommendation has been partially fulfilled.

Topic 5 Monitoring, assessment and classification of quantitative status of groundwater bodies

5.1 Assessment of implementation and compliance with WFD requirements in the second cycle

5.1.1 Monitoring of quantitative status in groundwater

The total number of groundwater bodies in Romania is 143 (Table 4). Thirty groundwater bodies are not subject to monitoring for quantitative status (Table 5.1). This means that 21% of groundwater bodies are not monitored. Examination of the RBMP and background documents found that grouping for monitoring purposes was not applied.

Table 5.1 Number of water bodies in Romania directly monitored and the purpose of monitoring

RBD	Total ground-water bodies directly monitored	Monitoring Purpose					
		CHE – Chemi-cal status	NID - Nutrient sensitive area under the Nitrates Directive - WFD Annex IV.1.iv	OPE - Operational monitoring	QUA – Quantita-tive status	SOE - EIONET State of Environ-ment monitoring	SUR – Surveil-lance monitor-ing
RO1000	135	134		61	113	26	121

Source: WISE electronic reporting

The number of groundwater bodies increased by one from 142 in the first RBMP to 143 in the second RBMP and the total groundwater body area increased slightly by 1.5%. 26 groundwater bodies remained unchanged since the first RBMP.

The number of monitored groundwater bodies for quantitative purpose decreased from 120 in the first to 113 in the second RBMP (Table 5.2). The number of monitoring sites for quantitative status is listed in Table 5.3 and shows a significant decrease from 3338 sites in the first to 2834 in the second RBMP[56]. Having in view the pressure and impact analysis and status assessment results all GWBs are in good quantitative status and are not failing to meet the environmental objectives.

[56] Romania subsequently clarified that in the first cycle there was an error and monitoring sites may have been double counted when used for multiple monitoring purposes.

110 of 143 groundwater bodies are identified as Drinking Water Protected Areas.

Table 5.2 Proportion of groundwater bodies in Romania monitored for quantitative status

RBD	No of groundwater bodies with quantitative monitoring	Total No. groundwater bodies	% of total groundwater bodies monitored for quantitative status
RO1000	113	143	79.02

Source: WISE electronic reporting

Table 5.3 Number of groundwater monitoring sites in Romania and their purpose

RBD	Total ground-water monitor-ing sites	Monitoring Purpose				
		CHE - Chemical status	OPE - Operational monitoring	QUA - Quantitative status	SOE - EIONET State of Environment monitoring	SUR - Surveillance monitoring
RO1000	3 388	1 548 (1601)	499 (500)	2 834 (2838)	359	1 019 (1101)

Source: WISE electronic reporting. The numbers in brackets were subsequently provided by Romania and do not match the data reported to WISE.

5.1.2 Assessment and classification of quantitative status for groundwater

Map 5.3 displays the most recently assessed quantitative status of groundwater bodies. It shows that all 143 groundwater bodies (100%) were in good quantitative status (Figure 5.1) and they had already been in good status in the first RBMP. Figure 5.2 shows the confidence in status classification. All groundwater bodies had, and still have, a clear status, in the first and in the second RBMP.

In Romania, water balance was assessed by using reliable information on groundwater levels across the groundwater body.

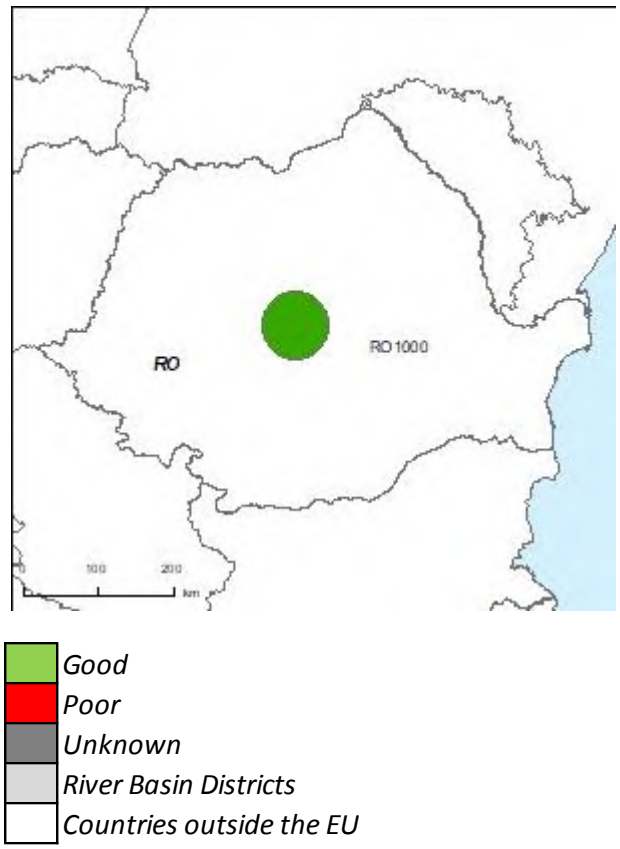
The criterion of 'available groundwater resource' has been partially applied in accordance with WFD Article 2(27).

From all the environmental objectives, only water balance has been considered in status assessment. No consideration of associated aquatic and groundwater dependent terrestrial ecosystems or of saline intrusion has been taken for the assessment of quantitative status in the

second cycle. However, there is no groundwater body at risk of failing good quantitative status[57].

The expected date of achievement of good quantitative status in Romania is shown in Figure 5.3.

Map 5.3 Map of quantitative status of groundwater bodies based on the most recently assessed status of the groundwater water bodies

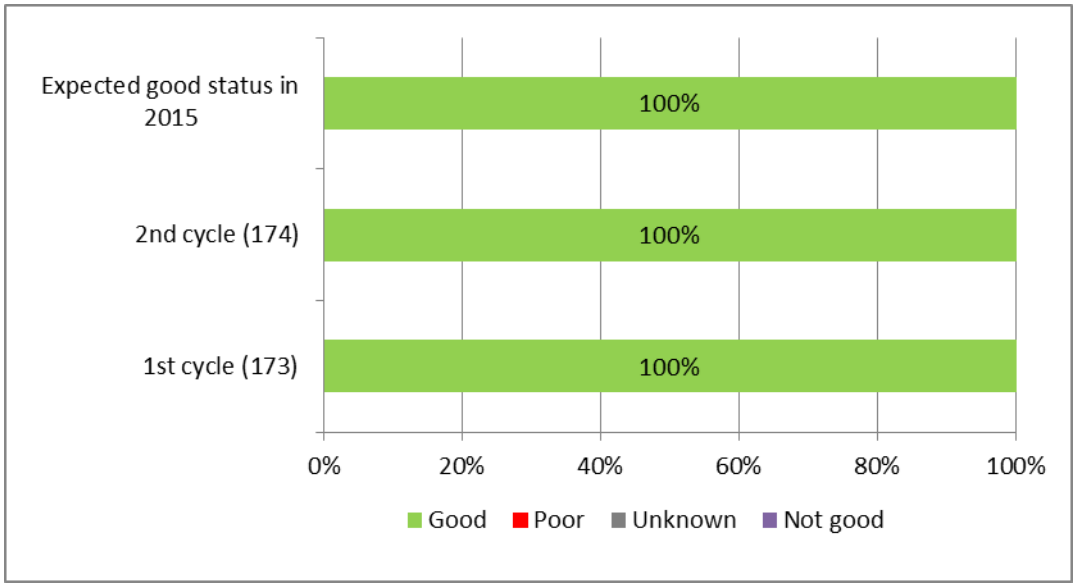


Note: Standard colours based on WFD Annex V, Article 2(2)(4)

Source: WISE, Eurostat (country borders)

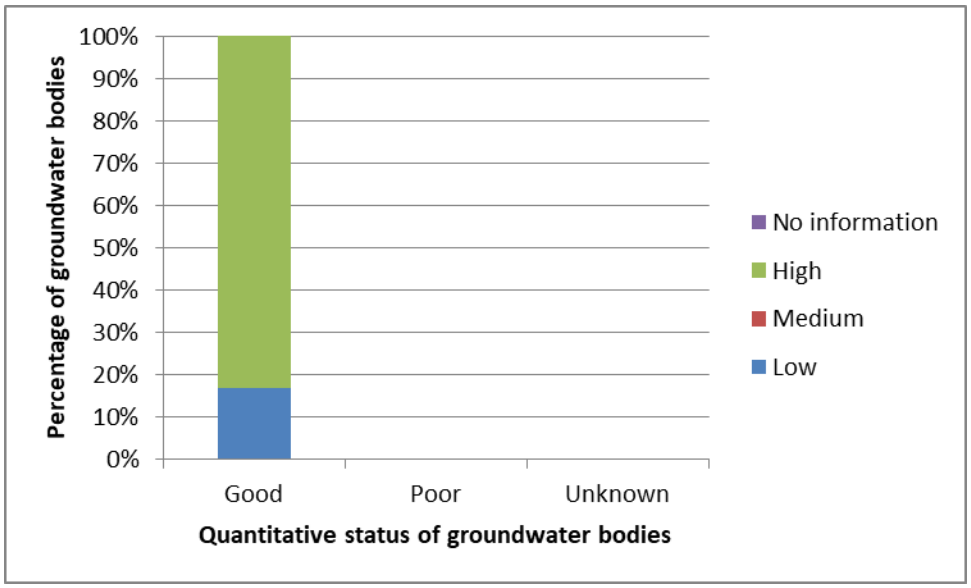
[57] Romania subsequently clarified that in the RBMP, Chapter 4.1.1. page 81, information regarding the associated aquatic and groundwater dependent terrestrial ecosystems is available and identification and assessment of the dependence of the groundwater bodies by terrestrial ecosystems was carried out.

Figure 5.1 ***Quantitative status of groundwater bodies in Romania for the second RBMP, for the first RBMP and expected in 2015. The number in parenthesis is the number of groundwater bodies for both cycles. Note the assessment of status for the second RBMP undertaken in 2013. The year of the assessment of status for first RBMP is not known***



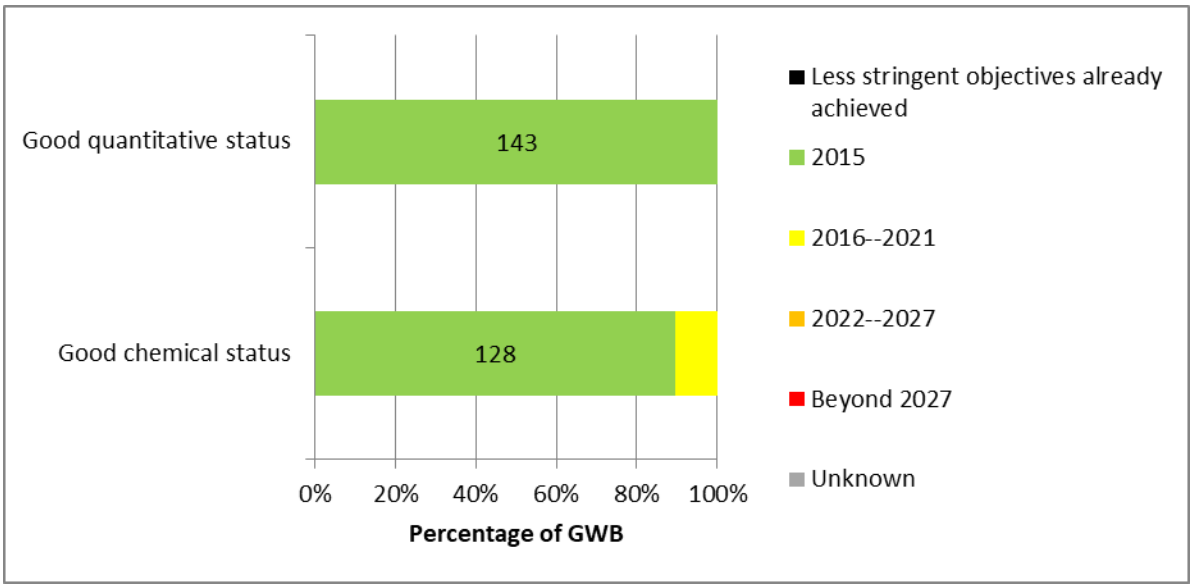
Source: WISE electronic reporting

Figure 5.2 ***Confidence in the classification of quantitative status of groundwater bodies in Romania based on the most recent assessment of status***



Source: WISE electronic reporting

Figure 5.3 Expected date of achievement of good quantitative and good chemical status of groundwater bodies in Romania. 143 groundwater bodies delineated for second RBMP



Source: WISE electronic reporting

5.1.3 Consideration of groundwater associated surface waters and/or groundwater dependent ecosystems

Groundwater associated surface waters have been reported, they are not related to risk and they have been considered in status assessment in Romania.

Groundwater dependent terrestrial ecosystems have been reported, they are not related to risk and they have not been considered in status assessment. In addition, the needs of these ecosystems have not been considered in status assessment in Romania[58].

5.2 Main changes in implementation and compliance since the first cycle

The number of groundwater bodies increased by one from 142 in the first cycle to 143 in the second RBMP and the total groundwater body area increased slightly by 1.5%. 26 groundwater bodies remained unchanged since the first RBMP.

[58] Romania subsequently clarified that in 2014 a national methodology taking into consideration the recommendations made in the Technical Report no. 6 "Groundwater Dependent Terrestrial Ecosystems" (GWDTEs) (2011) was finalised, and the results were applied (2014-2015) using all data and information available. Romania is in the process of updating this methodology taking into account more information (flow, chemical data etc.), in order to apply the results in the status assessment.

The examination of the RBMP and background documents found a chapter in the RBMP summarising changes and updates since the first RBMP, which mentions that the revision of the groundwater body delineation was due to new data and information.

Given the subsequent clarification from Romania indicating reporting errors in the first cycle, the monitoring situation of both cycles is not comparable. The reported number of monitoring sites has decreased by about 15% and the number of quantitative monitored groundwater bodies also decreased from 120 in the first cycle to 113 in the second RBMP[58]. Yet, having in view the pressure and impact analysis and status assessment results all GWBs are considered in good quantitative status and are not failing to meet the environmental objectives.

The examination of the RBMP and background documents found that it is proposed to extend the quantitative monitoring network with 95 monitoring wells.

The status situation remains the same with all groundwater bodies achieving good quantitative status.

The examination of the RBMP and background documents also found that the RBMP is in line with the requirements of the Danube RBD document "Methodology for the analysis of interdependence between groundwater bodies and terrestrial ecosystems with the identification of groundwater directly dependent on groundwater ecosystems".

5.3 Progress with Commission recommendations

There were no Commission recommendations based on the first RBMP and PoM for this topic.

Topic 6 Monitoring, assessment and classification of chemical status of groundwater bodies

6.1 Assessment of implementation and compliance with WFD requirements in the second cycle

6.1.1 Monitoring of chemical status in groundwater

The total number of groundwater bodies in Romania is 143 (Table 2.4). In total, 22 (15%) groundwater bodies are not subject to surveillance monitoring (Table 5.1). 15 groundwater bodies are at risk and 61 groundwater bodies are subject to operational monitoring. Examination of the RBMP and background documents found that grouping for monitoring purposes was not applied.

The number of groundwater bodies increased by one from 142 in the first RBMP to 143 in the second RBMP and the total groundwater body area increased slightly by 1.5%. 26 groundwater bodies remained unchanged since the first RBMP.

The number of groundwater bodies with surveillance monitoring increased from 109 to 121. The number of monitoring sites is listed in Table 5.3 and shows a significant decrease from 2365 in the first RBMP to 1019 in the second RBMP.[59] The number of operational monitoring sites decreased also significantly since the first RBMP, from 1224 (in 99 groundwater body) to 500 (in 61 groundwater bodies). These are based on the pressure and impact analysis and status assessment results (more GWBs are in good chemical status and are not failing to meet the environmental objectives).

Not all substances causing risk of deterioration in chemical status are subject to surveillance operational monitoring[60]. All WFD core parameters (nitrate, ammonium, electrical conductivity, oxygen and pH) are monitored.

6.1.2 Assessment and classification of chemical status in groundwater

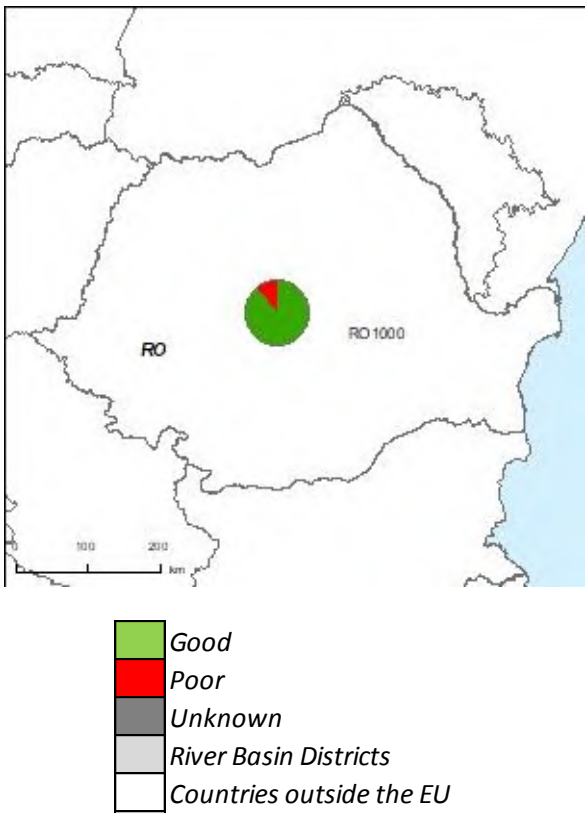
Map 6.1 and Figure 6.1 display the chemical status of groundwater bodies for the most recently assessed status. It shows that 128 of 143 groundwater bodies (89.5%) were of good chemical

[59] Romania subsequently clarified that the high number of monitoring sites in the first RBMP was caused by double counting of sites and the decrease of monitoring sites from the first to the second RBMP is therefore not significant.

[60] Romania subsequently clarified that all substances causing risk are subject to operational monitoring.

status, and the remaining 15 groundwater bodies (10.5%) are failing good status. In terms of area, this means that about 13.5% are failing good chemical status.

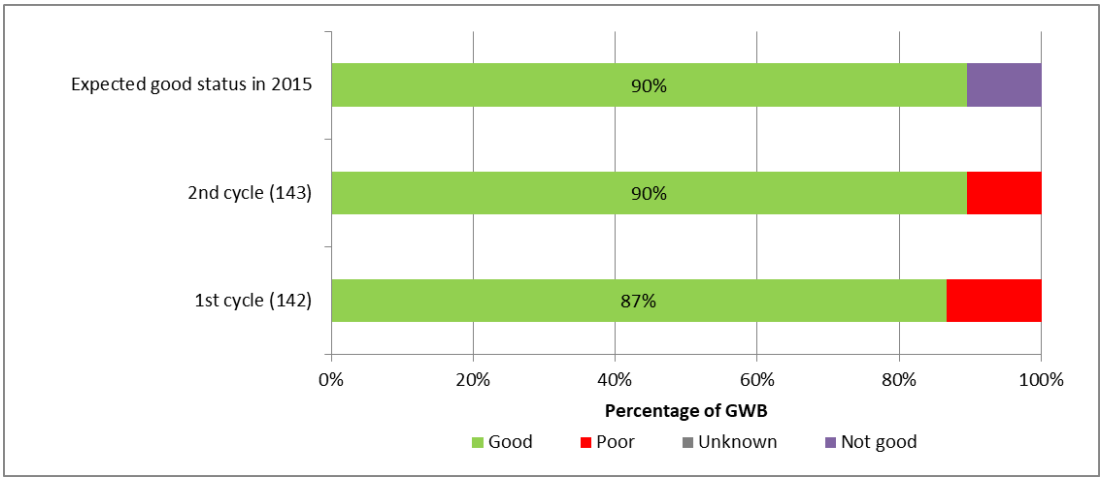
Map 6.1 Map on the most recently assessed chemical status of groundwater bodies in Romania



Note: Standard colours based on WFD Annex V, Article 2(4)(5)

Source: WISE, Eurostat (country borders)

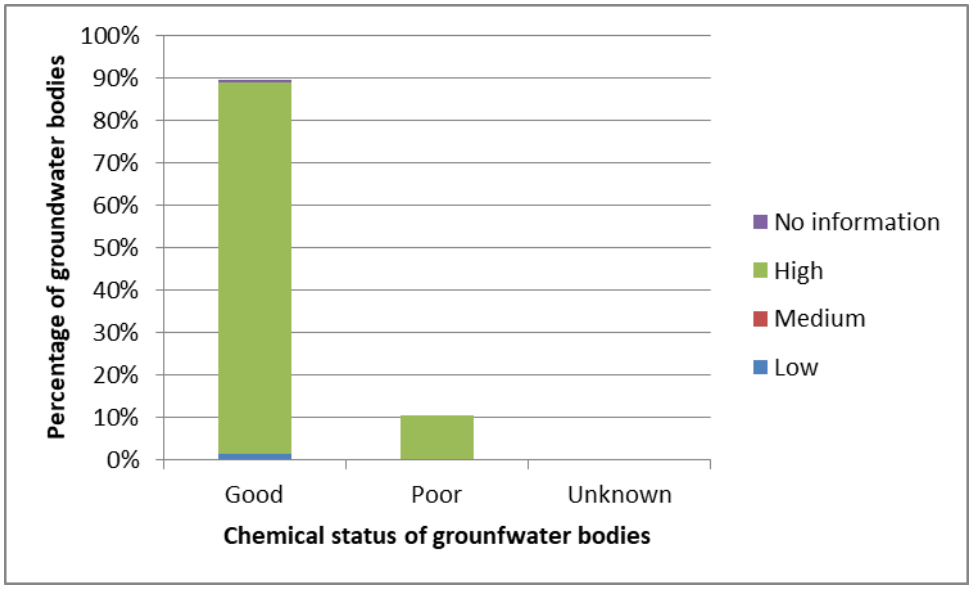
Figure 6.1 Chemical status of groundwater bodies in Romania for the second RBMP, for the first RBMP and expected in 2015. The number in parenthesis is the number of groundwater bodies for both cycles. Note the assessment of status for the second RBMP undertaken in 2013. The year of the assessment of status for first RBMP is not known



Source: WISE electronic reporting

Figure 6.2 shows the confidence in status classifications. Except for three groundwater bodies with low or unknown confidence, the confidence in status results is high for 140 groundwater bodies. All groundwater bodies had, and still have a clear status, in the first and second cycle.

Figure 6.2 Confidence in the classification of chemical status of groundwater bodies in Romania based on the most recent assessment of status



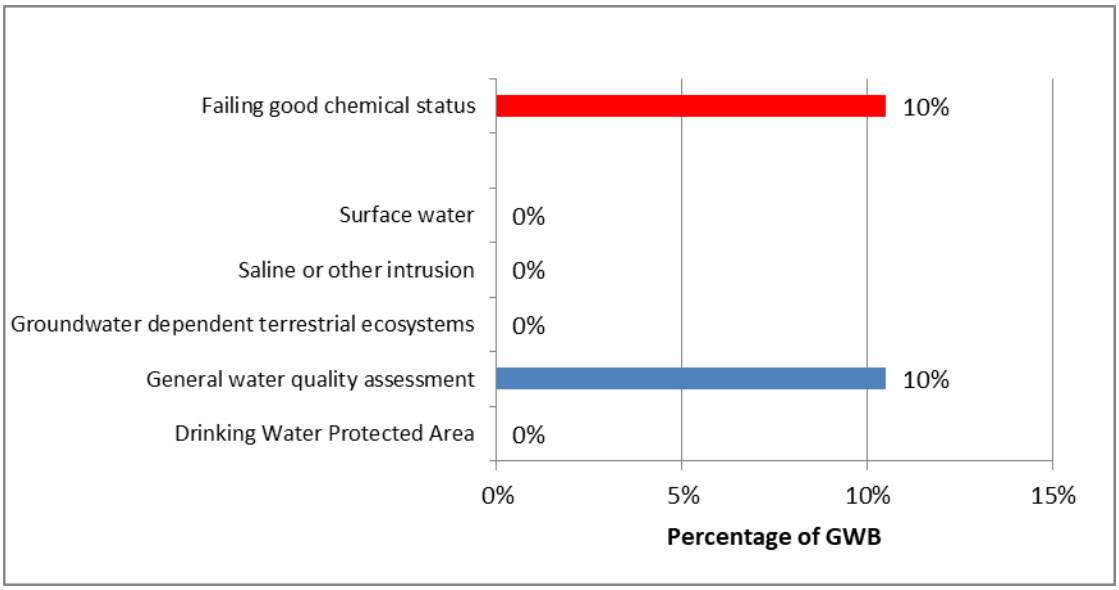
Source: WISE electronic reporting

The total number of groundwater bodies failing good chemical status decreased since the first RBMP from 19 (13%) to 15 (10%) groundwater bodies (Figure 6.1) (from 14.4% to 13.5% of the total groundwater body area).

The reasons for the failure of good chemical status of groundwater bodies are shown in Figure 6.3. For all 15 groundwater bodies, the general assessment of the chemical status for the groundwater body as a whole failed. This assessment considers the significant environmental risk from pollutants across a groundwater body and a significant impairment of the ability to support human uses.

Figure 6.4 shows the pollutants causing failure of status and sustained upward trends, and those pollutants showing an upward trend are given in Figure 6.5.

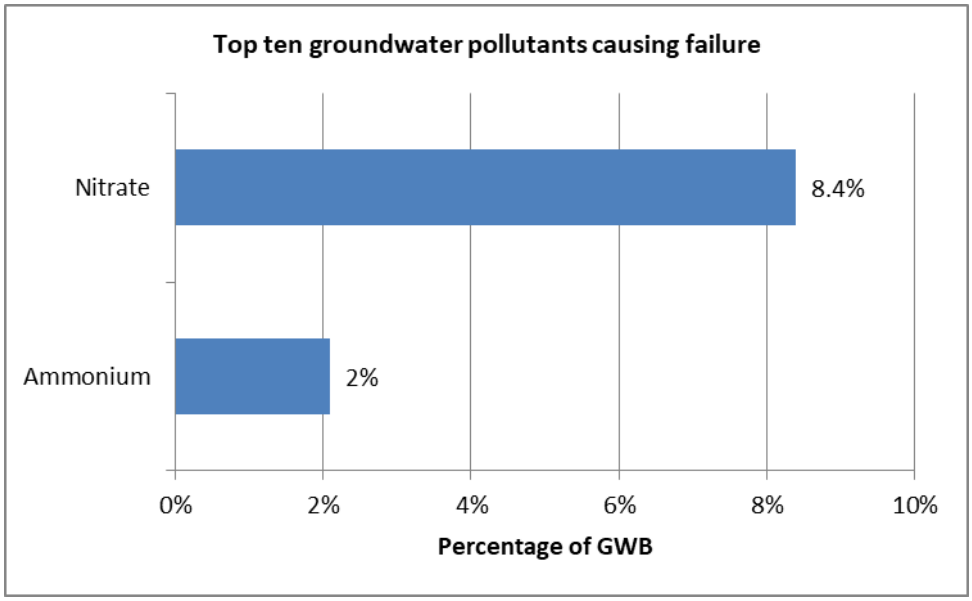
Figure 6.3 Reasons for failing good chemical status in Romania for the most recent assessment of status



Source: WISE electronic reporting

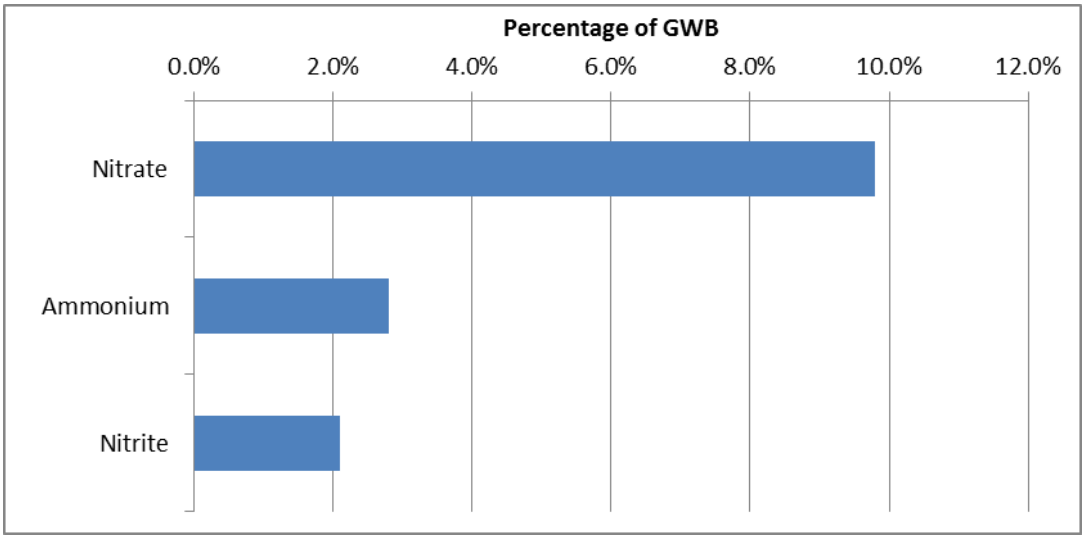
Notes:
'Surface water' = Failure to achieve Environmental Objectives (Article 4 WFD) in associated surface water bodies or significant diminution of the ecological or chemical status of such surface water bodies.
'Groundwater dependent terrestrial ecosystems' = Significant damage to terrestrial ecosystems which depend directly on the groundwater body.
'Saline or other intrusion' = Regional saline or other intrusions resulting from anthropogenically induced sustained changes in flow direction.
'Drinking Water Protected Area' = Deterioration in quality of waters for human consumption.
'General water quality assessment' = Significant impairment of human uses; significant environmental risk from pollutants across the groundwater body.

Figure 6.4 Top groundwater pollutants causing failure of good chemical status in Romania



Source: WISE electronic reporting
Note: only two pollutants reported causing failure.

Figure 6.5 Top pollutants with upward trends in groundwater bodies in Romania

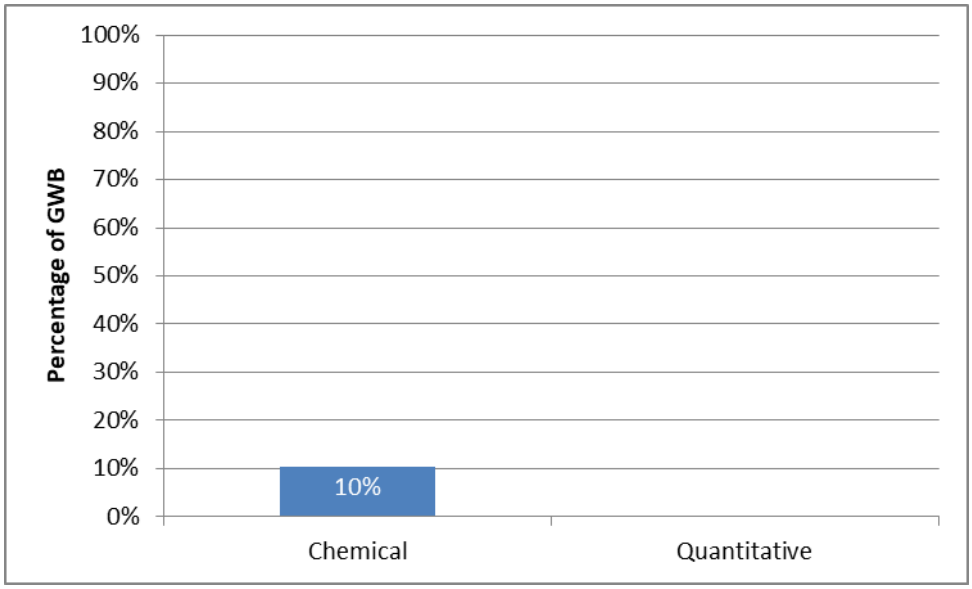


Source: WISE electronic reporting

The calculation of the extent of exceedance of a groundwater quality standard or a groundwater threshold value is based on the groundwater body area.

The percentage of groundwater bodies at risk of failing good chemical status and good quantitative status are shown in Figure 6.6.

Figure 6.6 Percentage of groundwater bodies in Romania at risk of failing good chemical status and good quantitative status for the second RBMP



Source: WISE electronic reporting

Groundwater threshold values have been established for all pollutants or indicators of pollution causing a risk of failure of good chemical status. The examination of the RBMP and background documents did find indications that the operational monitoring programme covers the mandatory parameters provided by the WFD and the Groundwater Directive[61] Annex II, as well as other parameters depending on the risk, the specific pollution type, the vulnerability to pollution and the international convention to which Romania is a party. This latter point is curious, as Romania reports no transboundary groundwater bodies [62].

Natural background levels have been considered in the groundwater threshold value establishment.

A trend and trend reversal methodology is available and assessments have been performed.

[61] Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards Priority Substances in the field of water policy http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32013L0039

[62] Romania subsequently clarified that there was a misunderstanding in the electronic reporting and that in fact 17 groundwater bodies are identified as transboundary.

6.1.3 Consideration of groundwater associated surface waters and/ or groundwater dependent ecosystems

Groundwater associated surface waters and groundwater dependent terrestrial ecosystems have been reported, they are not related to risk and they have not been considered in status assessment.

Groundwater associated aquatic ecosystems and groundwater dependent terrestrial ecosystems have not been considered in the establishment of groundwater threshold values.

6.2 Main changes in implementation and compliance since the first cycle

The monitoring situation improved by now covering more groundwater bodies but still surveillance monitoring is no more complete than the first cycle. There was a significant decrease in the number of monitoring sites. The examination of the RBMP and background documents did find a summary of changes and updates since the first cycle for this topic and in particular it was mentioned that the chemical monitoring network was increased by additional 115 new wells. This statement is in contradiction when looking at the number of groundwater monitoring sites reported in WISE, which decreased from 2365 sites in the first cycle to 1101 (this figures refers only at surveillance monitoring sites, not all GW monitoring sites) in the second RBMP.

The Romanian authorities subsequently explained that the comparison between the first and the second RBMP is difficult to assess since there are changes in the approaches. In the first RBMP, for many monitoring sites both monitoring programs (surveillance and operational) were established and this led to the double counting of some monitoring sites. In the second RBMP, an updated methodology has been used, establishing clear monitoring: surveillance or operational monitoring program, based on the updated results of the pressures and impacts analysis and status assessment.

The status situation improved slightly. The groundwater body area failing good chemical status decreased since the first RBMP from 14.4% to 13.5% of the total groundwater body area.

6.3 Progress with Commission recommendations

There were no Commission recommendations based on the first cycle and PoM for this topic.

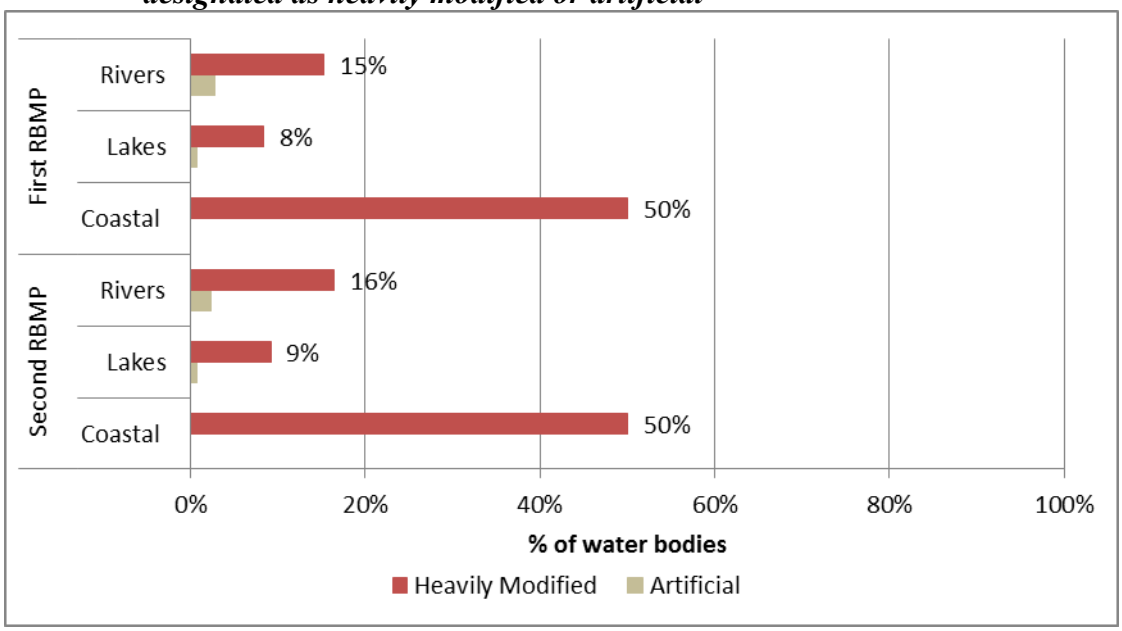
Topic 7 Designation of Heavily Modified and Artificial Water Bodies and definition of Good Ecological Potential

7.1 Assessment of implementation and compliance with WFD requirements in the second cycle for designation

7.1.1 Designation of Heavily Modified and Artificial Water Bodies

In the second RBMP, 16.1% of surface water bodies are designated as heavily modified water bodies and 2.3% as artificial water bodies. Approximately a third of the river heavily modified water bodies are reservoirs which were originally rivers. The proportion of surface water bodies in each cycle designated as heavily modified or artificial is shown in Figure 7.1.

Figure 7.1 Proportion of total water bodies in each category in Romania that has been designated as heavily modified or artificial



Source: WISE electronic reporting

The main water uses for which river water bodies are designated as heavily modified water bodies are flood protection, hydropower, urban development (for drinking water supply), irrigation, and storage for fisheries. The main water uses of lake heavily modified water bodies are storage for fisheries and the wider environment. The coastal heavily modified water bodies are designated due to transport.

The main physical alterations of river and lake heavily modified water bodies are channelization; straightening; bed stabilisation; bank reinforcement and weirs/dams/reservoirs.

Coastal heavily modified water bodies are affected by land reclamation, coastal modifications and ports.

7.1.2 Definition of Good Ecological Potential for Heavily Modified and Artificial Water Bodies

In the second RBMP, good ecological potential was reported as defined, using a hybrid approach which combines elements of the Common Implementation Strategy Guidance approach (based on biological quality elements as illustrated in Common Implementation Strategy Guidance No 4[63]) and the Prague approach (based on the identification of mitigation measures). Good ecological potential has not been defined at water body level or for groups of heavily modified water bodies/artificial water bodies, but according to the WISE reporting, another approach has been used.

A combined method has been applied for the establishment of good ecological potential at the level of the 11 sub-basins / hydrographic areas. The original method used in the first cycle (method A) based on biological quality elements as illustrated in Common Implementation Strategy Guidance No 4 has been developed and the Prague method has been used as well.

Good ecological potential was reported to have been defined in terms of biology. The biological quality elements for which biological values have been derived to define maximum ecological potential and good ecological potential are phytobenthos, benthic invertebrates, fish, phytoplankton, and other aquatic flora.

The evaluation systems for biological quality element values are comparable for ecological potential and ecological status. Individual indices and multimetric indices are calculated for each of the biological elements, applying the methodologies described in the Annexes of the RBMP. The estimation of biological values of biological quality elements for maximum ecological potential and good ecological potential is based on available data and monitoring, statistical analysis, and expert judgement.

A comparison between good ecological potential and good ecological status has been made. The good ecological potential of heavily modified water bodies is established as having a lower class compared to good status, in the case of the metrics for benthic invertebrates and phytoplankton.

63 https://circabc.europa.eu/sd/a/f9b057f4-4a91-46a3-b69a-e23b4cada8ef/Guidance%20No%204%20-%20heavily%20modified%20water%20bodies%20-%20HMWB%20(WG%202.2).pdf

For rivers, methods for assessing fish, phytobenthos and benthic invertebrates were reported as sensitive to altered habitats due to morphological changes, depending on the river types. For lakes, methods sensitive to morphology were reported for assessing phytoplankton and phytobenthos. No biological quality element assessment methods sensitive to hydrological or morphological changes for coastal waters were reported.

Mitigation measures for defining good ecological potential have been reported. According to information subsequently provided by Romania, a description of the ecological changes expected from the mitigation measures is provided in a generic catalogue of mitigation and restoration measures, which is included in the RBMP. As a general approach, each mitigation and restoration measure from the catalogue has been assessed in relation to the expected effects on each biological quality element.

7.2 Main changes in implementation and compliance since the first cycle

The number of river artificial water bodies and heavily modified water bodies has decreased but no major change is noted in terms of their length. The number of coastal heavily modified water bodies (2) is the same as in the first cycle. No major changes in the designation of lake heavily modified water bodies and artificial water bodies are noted.

Compared to the first RBMP, an updated analysis of anthropogenic pressures, in particular of hydromorphological alterations, has been carried to support the designation of heavily modified water bodies as well as a more detailed analysis of other alternative means to achieve the benefits of the modifications. Furthermore, the failure to achieve good status has been verified with improved assessment methodologies.

Concerning the definition of good ecological potential, a development in methodology has taken place. The original method used in the first cycle (method A) based on biological quality elements as illustrated in Common Implementation Strategy Guidance No 4, whereby the values of the biological elements at good ecological potential derive from those defined for maximum ecological potential, has been combined with the Prague method. Furthermore, the biological quality elements used for defining good ecological potential/maximum ecological potential have increased since the first cycle. In the second RBMP, biological quality elements for which biological values have been derived to define maximum ecological potential and good ecological potential are phytobenthos, benthic invertebrates, fish, phytoplankton, and other aquatic flora. In the first RBMP, due to the lack of data, only a few biological quality elements were used to assess ecological potential (macroinvertebrates for rivers, and in addition phytoplankton for reservoirs). According to information in the RBMP, the assessment

methods for various biological quality elements have been reviewed and improved since the first cycle. Therefore, the number of biological quality elements which are possible to assess in different water categories to classify status and potential has been increased. The confidence of the assessment of ecological potential has also improved since the first RBMPs.

7.3 Progress with Commission recommendations

The Commission recommendations based on the first cycle and PoM requested action on the following:

- Recommendation (report 2015): "*Review the designation of heavily modified water bodies and improve the methodology used for establishing good ecological potential in the second RBMP.*"

  Assessment: The designation of heavily modified water bodies has been reviewed on the basis of an updated analysis of anthropogenic pressures, in particular of hydromorphological alterations, as well as a more detailed analysis of other means to achieve the benefits of the modifications. Furthermore, the failure to achieve good status has been verified with improved assessment methodologies.

  Progress is also noted concerning the methodology for establishing good ecological potential. The assessment methods for various biological quality elements have been reviewed and improved since the first cycle. Therefore, the number of biological quality elements which are possible to assess in different water categories to classify status and potential has been increased. In the second RBMP, biological quality elements for which biological values have been derived to define maximum ecological potential and good ecological potential are phytobenthos, benthic invertebrates, fish, phytoplankton, and other aquatic flora. In the first RBMP, due to the lack of data, only a few biological quality elements were used to assess ecological potential (macroinvertebrates for rivers and in addition phytoplankton for reservoirs). In addition, the assessment of the ecological potential was in general of low confidence in the first cycle. According to the second RBMP reporting, the assessment of ecological potential of the majority of heavily modified water bodies and artificial water bodies is done with medium or high confidence level; only for some heavily modified water bodies and artificial water bodies, the confidence level is low. The work at European level on the intercalibration of good ecological potential was being done and continued at the time of the adoption of the second RBMPs.

  The recommendation has been largely fulfilled.

Topic 8 Environmental objectives and exemptions

8.1 Assessment of implementation and compliance with WFD requirements in the second cycle

8.1.1 Environmental objectives

The environmental objectives are defined in Article 4 of the WFD. The aim is long-term sustainable water management based on a high level of protection of the aquatic environment. Article 4(1) defines the WFD general objective to be achieved in all surface and groundwater bodies, i.e. good status by 2015. Within that general objective, specific environmental objectives are defined for heavily modified water bodies (good ecological potential and good chemical status by 2015[64]), groundwaters (good chemical and quantitative status by 2015) and for Protected Areas (achievement of the objectives of the associated Directives by 2015, unless otherwise specified).

Environmental objectives for ecological and chemical status in surface waters and quantitative and chemical status in groundwater have been reported in all RBDs.

Member States are also required to specify additional environmental objectives and standards in Protected Areas where these are required to ensure the requirements of the associated Directives are met. An assessment of such additional objectives for Romania is provided in Chapter 15 of this report.

Assessments of the current status of surface and groundwater bodies in Romania are provided elsewhere in this report: for ecological status/potential of surface waters (Chapter 3); chemical status of surface waters (Chapter 4); quantitative status of groundwater bodies (Chapter 5); chemical status of groundwater bodies (Chapter 6); status of surface and groundwater bodies associated with Protected Areas (Chapter 15).

For the second RBMP, Member States are required to report the date when they expect each surface and groundwater body to meet its environmental objective. This information is summarised for Romania elsewhere in this report: for ecological status/potential of surface waters (Chapter 3); chemical status of surface waters (Chapter 4); quantitative status of groundwater bodies (Chapter 5); chemical status of groundwater bodies (Chapter 6).

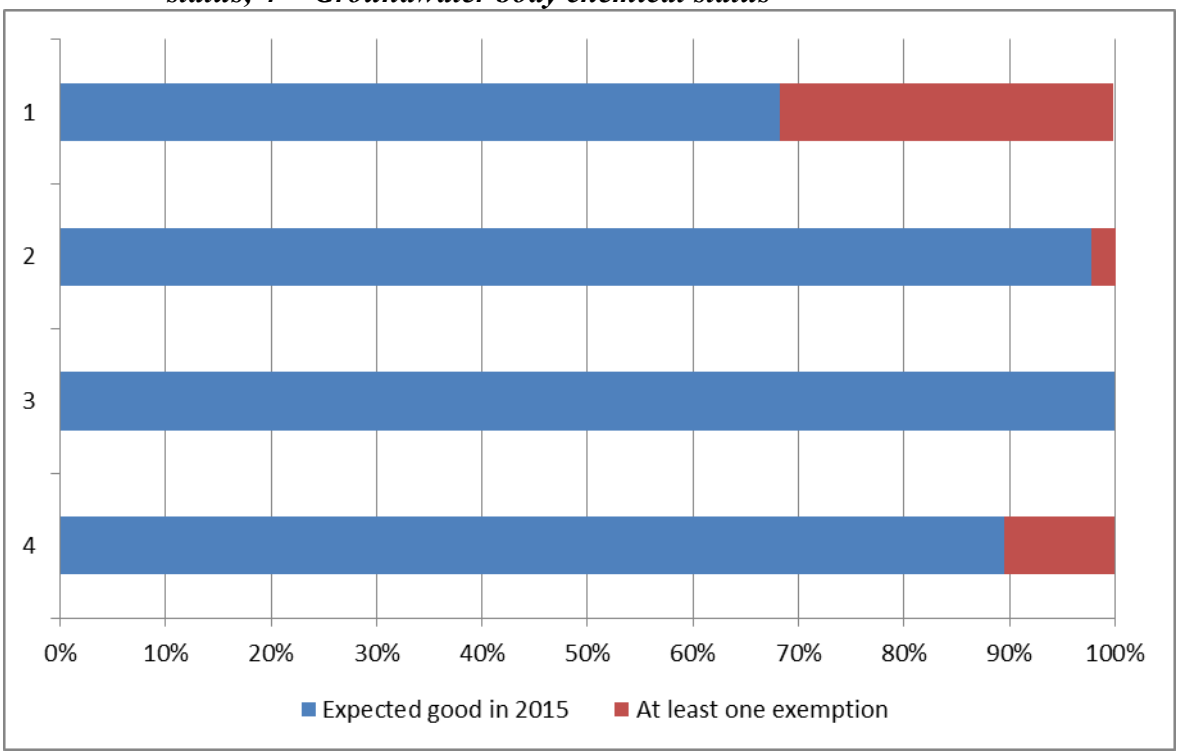
[64] For priority substances newly introduced by Directive 2013/39/EU, good status should be reached by 2027, and for the 2008 priority substances, for which the Environmental Quality Standards were revised by Directive 2013/39/EU, good status should be reached in 2021.

8.1.2 Exemptions

Where environmental objectives are not yet achieved exemptions can be applied in case the respective conditions are met and the required justifications are given in the RBMP.

Figure 8.1 summarises the percentage of water bodies expected to be at least in good status in 2015 and the use of at least one exemption in Romania for the four main sets of environmental objectives.

Figure 8.1 Water bodies in Romania expected to be in at least good status in 2015 and use of exemptions. 1 = Surface water body ecological status/potential; 2 = Surface water body chemical status; 3 = Groundwater body quantitative status; 4 = Groundwater body chemical status

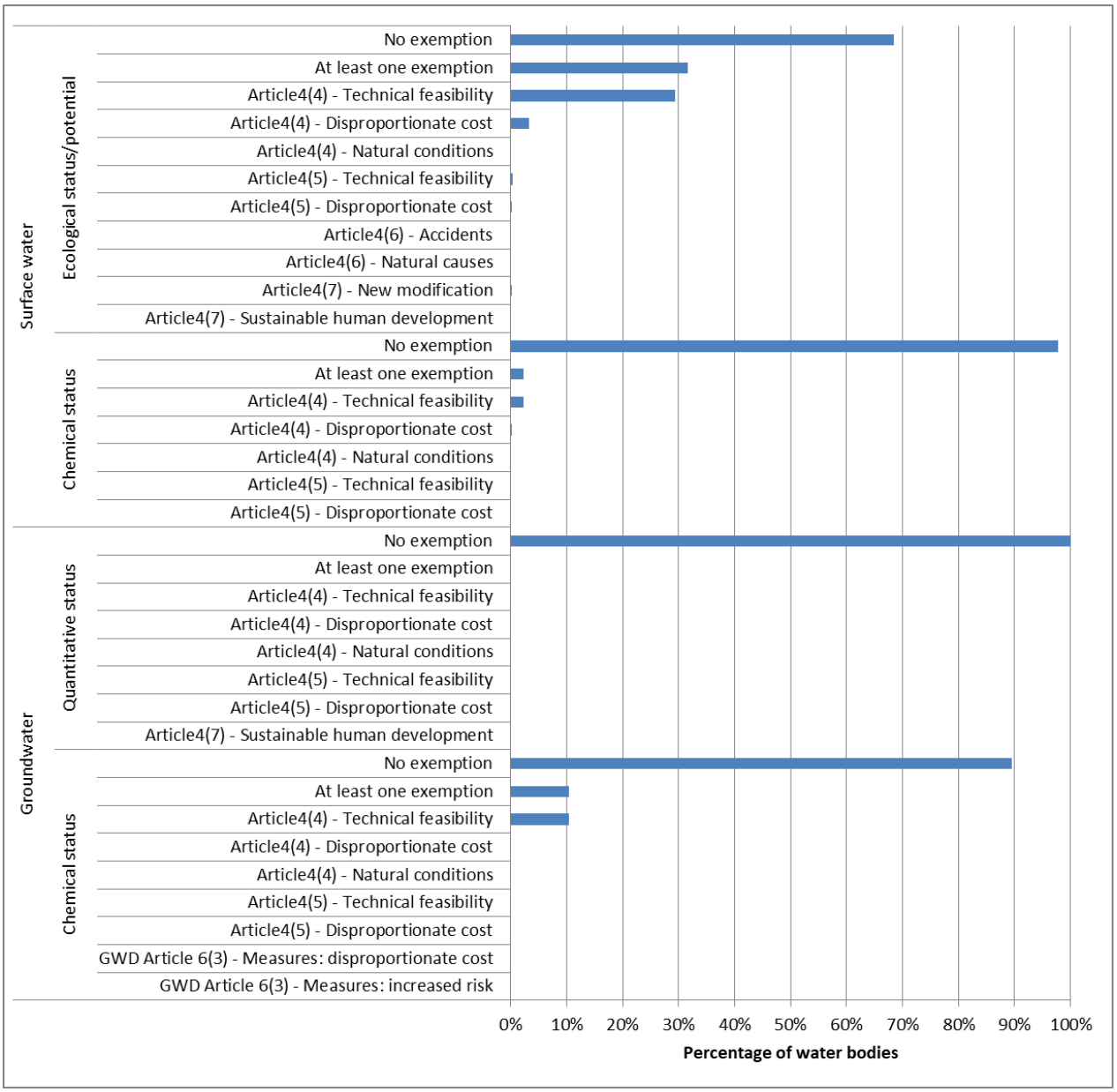


Source: WISE electronic reports

The exemptions under WFD Article 4 include the provisions in Article 4(4) - extension of deadline, 4(5) - lower objectives, 4(6) - temporary deterioration, and 4(7) - new modifications / new sustainable human development activities. Article 4(4) exemptions may be justified by: disproportionate cost, technical feasibility or natural conditions, and Article 4(5) by disproportionate cost or technical feasibility.

Figure 8.2 summarises the percentage of water bodies subject to each type of exemption (and reason) in relation to the four types of environmental objective in Romania.

Figure 8.2 ***Type of exemptions applied to surface water and groundwater bodies for the second plan in Romania. Note: Ecological status and groundwater quantitative status exemptions were reported at the water body level. Chemical exemptions for groundwater were reported at the level of each pollutant causing failure of good chemical status, and for surface waters for each Priority Substances that is causing failure of good chemical status***



Source: WISE electronic reports

Application of Article 4(4)

The application of Article 4(4) exemptions has been reduced in rivers and lakes between the first and second RBMP and remained stable for coastal and transitional water bodies. The numbers of groundwater exemptions in relation to chemical status increased slightly. In the first RBMP, the exemptions according to Article 4(4) were applied due to technical feasibility, disproportionate costs and natural conditions, whereas in the second RBMP justifications included technical feasibility and disproportionate costs. For groundwater, exemptions to the achievement of good chemical status by 2015 have been applied on the grounds of technical feasibility. Exemptions are applied and justifications are provided on waterbody level.

Disproportionate costs are justified by cost-benefit analysis and cost effectiveness analysis.
The main pressures to surface waters come from a broad range of activities including urbanisation, agriculture, activities causing changes in hydromorphology, industry, mining, aquaculture and activities causing changes in hydromorphology. The main drivers behind these pressures are agriculture, urban development, flood protection, transport, industry and energy. The main pressures to groundwater come from a broad range of activities including urbanisation, industry, agriculture, mining and aquaculture. The drivers behind these pressures are not reported.

Table 8.1 Pressure on surface waters responsible for Priority Substances in Romania failing to achieve good chemical status and for which exemptions have been applied

Significant pressure on surface water bodies	Failing Priority Substances	Article 4(4) - Technical feasibility exemptions	Article 4(4) - Disproportionate cost
	Number	Number	Number
1.1 - Point - Urban waste water	1	2	0
1.3 - Point - Industrial Emissions Directive plants	3	3	0
1.4 - Point - Non Industrial Emissions Directive plants	4	15	0
1.7 - Point - Mine waters	4	20	4
1.8 - Point - Aquaculture	2	2	0
2.2 - Diffuse - Agricultural	3	3	0
2.5 - Diffuse - Contaminated sites or abandoned industrial sites	5	24	2
2.6 - Diffuse - Discharges not connected to sewerage network	4	16	0
2.8 - Diffuse - Mining	4	29	4
2.10 - Diffuse - Other	3	4	0
8 - Anthropogenic pressure - Unknown	5	35	0

Source: WISE electronic reports

Table 8.2 Pressure responsible for pollutants in Romania failing to achieve good chemical status in groundwater and for which exemptions have been applied

Significant pressure on groundwater	Number of failing pollutants	Number of exemptions
		Article 4(4) - Technical feasibility
2.2 - Diffuse - Agricultural	2	15
2.6 - Diffuse - Discharges not connected to sewerage network	2	15

Source: WISE electronic reports

Application of Article 4(5)

Article 4(5) was applied in surface waters in the first RBMP and is applied more widely in the second RBMP. It is noted that this was applied to a limited number of surface water bodies, of which 56% are represented by temporary water bodies and 83% are heavily modified water bodies. Article 4(5) was applied for technical feasibility and disproportionate costs.

Application of Article 4(6)

Article 4(6) has not been applied.

Application of Article 4(7)

Article 4(7) has been applied because of new modifications in four river water bodies[65].

Application of Article 6(3) GWD

No exemptions according to Article 6(3) Groundwater Directive have been applied.

8.2 Main changes in implementation and compliance since the first cycle

Article 4(7) has been applied and is applied again in the second RBMP. There were no applications of Article 4(6) in the first or second RBMPs. Article 4(4) exemptions have been reduced in rivers and lakes. Article 4(5) has been applied in surface waters in the first cycle

[65] Three of these exemptions were applied for projects which lead to a change in water category, and which started before year 2000.

and is applied more widely in the second RBMP. The numbers of groundwater exemption under 4(4) increased slightly.

8.3 Progress with Commission recommendations

The Commission recommendations based on the first RBMP and PoM requested action on the following:

- Recommendation: *Only little improvement of the water status is expected by 2015 and the objectives for subsequent planning deadlines are not always clear. Objectives should be clearly indicated and transparent in order to be able to reach good status of waters in a reasonable timeframe.*

  Assessment: The number of waters bodies where exemptions under Article 4(4) was applied has been reduced in river and lake waters and remained stable for coastal and transitional water bodies. The numbers of groundwater exemptions in relation to chemical status slightly decreased since the first cycle. Article 4(5) was applied in surface waters in the first RBMP and is applied more widely in the second cycle. Clear information on when it is planned that water bodies will achieve good status (2021 or 2027) is provided for most exempted water bodies and exemptions are justified at water body level. In this context the recommendation has partly been fulfilled.

- Recommendation: *There have been a large number of exemptions applied in this first cycle of RBMPs. While the WFD does provide for exemptions, there are specific criteria that must be fulfilled for their use to be justified. The application of exemptions needs to be more transparent and the reasons for the exemptions should be clearly justified in the plans. The high number of exemptions applied in these first RBMPs is a cause of concern. Romania should take all necessary measures to bring down the number of exemptions for the next cycle, including the needed improvements in the characterisation process, monitoring networks and status assessment methods, as well as reducing significantly the degree of uncertainties*

  Assessment: See assessment above.

- Recommendation: *Indicate clearly in the second RBMPs when WFD objectives will be achieved.*

  Assessment: Clear information on when it is planned that water bodies will achieve good status (2021 or 2027) is provided for most exempted water bodies and exemptions are

justified at water body level. Information on the environmental objectives with the planned deadlines to achieve the objectives (2021 or 2027) and exemptions for water bodies are presented in the RBMP. The recommendation has been fulfilled.

- Recommendation: *Exemptions should be adequately justified at water body level.*

  Assessment: Exemptions are applied and justifications provided on waterbody level. The recommendation has been fulfilled.

- Recommendation: *Provide in the second RBMPs a detailed overview of new and planned infrastructure projects that could create hydromorphological pressures and an assessment of their impacts, any exemptions required, and any measures to address the pressures.*

  Assessment: In the RBMP, possible new infrastructure projects and new structural measures projects which might have a negative impact on the ecological status/potential or causing the non-achievement of environmental objectives have been identified. Article 4(7) has been applied because of new modifications in four river water bodies, of which 3 were related to infrastructure projects with multiple uses, leading to a change in water category (reservoirs), that had been started before year 2000.

  Modifications where exemptions under Article 4(7) were applied in the second RBMP were flood protection schemes, hydropower plants and impoundments for drinking water. Information was provided that these projects on new infrastructure will be assessed in the context of regulation process (permits issuing) and the requirements of Article 4(7) will be analysed by Romania. A further in-depth analysis is needed to assess whether all the requirements of Article 4(7) are fulfilled and whether the effects of all newly planned modifications on water body status/potential are assessed at quality element level, as required by Annex V of WFD, and according to ruling of the European Court of Justice C-461/13. The RBMP (chapter 7) includes this requirement of assessing the negative effects at quality element level. The recommendation has been partially fulfilled.

- Recommendation: *Justify adequately exemptions in general and especially new modifications, such as navigation projects and new hydropower plants, and support them by a proper assessment of alternative solutions and include all necessary mitigation measures.*

  Assessment: See assessments above.

Topic 9 Programme of measures

The aim of this chapter is to provide an overview of the PoM reported by the Member State; more specific information on measures relating to specific pressures (for example arising from agriculture) is provided in subsequent chapters.

The Key Types of Measures (KTM) referred to in this section are groups of measures identified by Member States in the Programme of Measures, which target the same pressure or purpose. The individual measures included in the Programme of Measure (being part of the RBMP) are grouped into Key Types of Measures for the purpose of reporting. The same individual measure can be part of more than one Key Types of Measure because it may be multi-purpose, but also because the Key Types of Measures are not completely independent. Key Types of Measures have been introduced to simplify the reporting of measures and to reduce the very large number of Supplementary Measures reported by some Member States in 2010 (WFD Reporting Guidance 2016).

A Key Types of Measure may be one national measure but it would typically comprise more than one national measure. The 25 predefined Key Types of Measures are listed in the WFD Reporting Guidance 2016.

The Key Types of Measures should be fully implemented and made operational within the RBMP planning period to address specific pressures or chemical substances and achieve the environmental objectives.

9.1 Assessment of implementation and compliance with WFD requirements in the second cycle

9.1.1 General issues

An indication of whether or not measures have been made operational is when they have been reported as being planned to tackle significant pressures (Key Types of Measure level). Significant pressures are also reported at the water body level. It would be expected that there would be measures planned to tackle all significant pressures. For groundwater, all significant pressures have been reported as being addressed by operational Key Types of Measure. For all GWs failing good chemical status, the reported associated pressure were 2.2 – Diffuse agriculture and 2.6 – Diffuse – Discharges not connected to sewerage systems types. Pressure 2.1 - Diffuse – Urban run-off is also indicated, although not in terms of numbers of

groundwater bodies failing good status; it is addressed through KTM21 – "Measures to prevent/control pollution from urban areas".

In surface water bodies, Key Types of Measure have been reported for most significant pressures causing failure of good status. The pressures which have not been addressed are: "Point - Waste disposal sites", "Physical alteration of channel/bed/riparian area/shore – Other", "Dams, barriers and locks – Irrigation" and "Hydrological alteration – Aquaculture".

Romania has mapped 22 national basic measures against 11 pre-defined Key Types of Measure and two nationally derived Key Types of Measure ("Closure and ecologisation of the ponds and tailings, rehabilitation and ecologisation (land reclaiming) of the waste dumps" and "Remediation of municipal landfills"). In addition, 93[66] national supplementary measures have been mapped against 12 pre-defined Key Types of Measure and four nationally derived Key Types of Measure ("Closure and ecologisation of the ponds and tailings, rehabilitation and ecologisation (land reclaiming) of the waste dumps", "Establishing management /environment objectives specific for fisheries and therapeutic lakes", "Implementing of the investigative monitoring adapted to the specific pressures on the water bodies (including longitudinal connectivity)" and "Measures to reduce nutrient and organic substance accumulation in lakes"). However, 63%[67] of the national supplementary measures have been mapped against KTM 14 –"Research, improvement of knowledge base reducing uncertainty". In the National Management Plan, Romania has reported that the basic measures reported do not cover the following aspects of Article 11(3):

- Article 11(3)(b): Measures for the recovery of cost of water services (Article 9)[68];
- Article 11(3)(f): Controls, including a requirement for prior authorisation of artificial recharge or augmentation of groundwater bodies[69]; and
- Article 11(3)(l): Any measures required to prevent significant losses of pollutants from technical installations and to prevent and/or reduce the impact of accidental pollution incidents[70].

[66] Romania subsequently mentioned that there were actually 94 national supplementary measures reported in WISE.

[67] Romania subsequently clarified that there were 24 out of 94 (26%) national supplementary measure reported in WISE related to KTM14 - Research, improvement of knowledge base reducing uncertainty.

[68] Romania subsequently explained that in the National RBMP (updated 2015) there is a description of the measures for the recovery of cost of water services (Article 9), in Chapter 9.2 Cost recovery of water resources management activities and for public services on water and sanitation, page 253-256.

[69] Romania subsequently clarified that the basic measures for controls, including a requirement for prior authorization of artificial recharge or augmentation of groundwater bodies, are applied if necessary. Artificial recharge or augmentation of groundwater bodies is not a usual practice in Romania.

Three of the Key Types of Measure against which national measures have been mapped have not been reported as operational measures in place to address significant pressures. These are KTM 8 –"Water efficiency, technical measures for irrigation, industry, energy and households", KTM 13 –"Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)" and KTM 24 –"Adaptation to climate change".[71] On the other hand, one nationally derived Key Type of Measure that has been reported as being operational to address significant pressures has not had national measures mapped against it, specifically "Study on development and application of methodology for assessing the ecological status in terms of salinity of water bodies with natural mineral loading". Given the likely nature of this measure it is not unreasonable to conclude that this is not a national measure. Romania has reported that some significant pressures are likely to be causing up to 10% of water bodies to fail to be of good status in 2027. The pressures concerned are "Point - Urban waste water", "Diffuse – Agricultural", "Diffuse - Discharges not connected to sewerage network", "Hydromorphological alteration - Physical loss of whole or part of the water body", "Dams, barriers and locks – Hydropower", "Physical alteration of channel/bed/riparian area/shore - Flood protection", and "Hydrological alteration – Hydropower".

12 groundwater bodies have been reported to be failing to achieve good chemical status as a result of the nitrates and three were reported to be failing due to ammonium[72]. No information has been reported on the Key Types of Measure in place to address these failures, nor has any information been provided on the River Basin Specific Pollutants affecting surface water bodies[73].

Romania reported that seven Priority Substances are causing between 1 and 26 water bodies to fail to achieve good chemical status (trifluralin, atrazine, trichloromethane, lead and its

[70] Romania subsequently noted that in the WISE RBMP KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms) and measures such as: specific measures for control and permit of point pollution sources; rehabilitation / extension of sewage network (RO11_B_PSD_01), reduction of pollutant losses from wastewaters (RO11_B_PSD_02). Also in the National RBMP (updated 2015) there were measures in Chapter 9.5 Measures for mitigation of the point pollution sources and other activities with impact on water status and in Chapter 9.8 Measures to prevent and reduce the impact of accidental pollution. Also in the sub-unit RBMPs (updated 2015) specific measures were presented for sewage networks of agglomerations (Annex 9.3) and industrial facilities (Annex 9.9).

[71] Romania subsequently noted that these measures can be considered as operational, since continuous implementation is mandatory.

[72] Romania subsequently clarified that Nitrate and Ammonium were reported as substances failing the good chemical status of groundwaters. But the associated KTMs for significant pressures for groundwaters (2.2 - Diffuse – Agricultural and 2.6 - Diffuse - Discharges not connected to sewerage network) were reported: KTM2 – "Reduce nutrient pollution from agriculture", KTM 21 – "Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure".

[73] Romania subsequently clarified that the Key Types of Measure associated with River Basin Specific Pollutants affecting surface water bodies are KTM1 – "Construction or upgrade of waste water treatment plants" and KTM8 – "Anthropogenic pressure - Unknown".

compounds, mercury and its compounds, nickel and its compounds, cadmium and its compounds). Key Types of Measure have not been reported for trifluralin, atrazine or trichloromethane despite the fact that a total of 24 surface water bodies are failing to achieve good chemical status because of those substances[74].

Indicators of the gap to good status and the level of implementation of the Key Types of Measure expected have generally been reported by Romania. Indicators of the gaps to good status have been reported for the majority of significant pressures on groundwater and surface water for 2015, 2021 and 2027, with most gaps expected to be filled by 2027, with some exemptions, such as, in surface water bodies, "Point - Urban waste water", "Diffuse – Agricultural", "Diffuse - Discharges not connected to sewerage network", "Physical alteration of channel/bed/riparian area/shore - Flood protection", "Dams, barriers and locks – Hydropower", "Hydrological alteration – Hydropower", and "Hydromorphological alteration - Physical loss of whole or part of the water body". The indicators of the gap to good status have been meaningfully defined, as for example, for the significant pressure "Point - Urban waste water" pressure: PE01 - Load (tonne per year) of biological oxygen demand to be reduced to achieve objectives, PE02 - Load (tonne per year) of nitrogen to be reduced to achieve objectives, PE03 - Load (tonne per year) of phosphorus to be reduced to achieve objectives; for the significant pressure "Diffuse – Agricultural": PO99 - Other indicator: Number of water bodies failing the environmental quality standard for nitrogen and phosphorus from diffuse agricultural sources, and for the significant pressure "Diffuse - Discharges not connected to sewerage network": PL01 - Length (km) of water bodies where diffuse urban runoff is preventing the achievement of objective.

For groundwater bodies, an assessment of the gap to good status and the level of implementation needed from the measures has been carried out for the significant pressure types, but has not been done for the substances causing groundwater bodies to fail to be of good status (nitrate and ammonium) for which measures have not been put in place[75]. Similarly, for the Priority Substances causing surface water bodies to fail to be of good status, indicators have been reported for those where measures are in place[5].

Indicators of the expected gap to good status in surface water bodies in 2027 have not been reported for the significant pressures "Point - Mine waters" and "Point – Aquaculture" despite

[74] Romania subsequently clarified that Key Types of Measure for priority substances are: KTM 1 – "Construction or upgrade of waste water treatment plants", KTM 3 – "Reduce pesticides from agriculture" and KTM8 – "Anthropogenic pressure- Unknown".

[75] Romania subsequently clarified that this assessment has been made in the Action Plan and Code of Good Agriculture Practices (KTM2 – "Reduce nutrient pollution from agriculture") and reduce the nitrate diffuse pollution from urban area without waste waters collecting systems (KTM 21 - "Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure").

100% compliance not being expected by 2021.[76] No indicators have reported for the significant pressure “Point - Waste disposal sites” on surface water bodies.

The indicators of the level of progress expected with the implementation of the Key Types of Measure show that, in some cases, a greater level of implementation is expected in the third PoM (2021-2027) than the second (2015-2021). For example, for the Key Types of Measure indicator: KTM 1 –“Construction or upgrades of wastewater treatment plants” (KS01 - Population equivalent required to be treated by construction or upgrade of wastewater treatment plants to achieve objectives), the value 143 525 was reported for 2015 while 511 612 for 2021, and zero for 2027.[77]

Cost-effectiveness analysis is an appraisal technique that provides a ranking of alternative measures on the basis of their costs and effectiveness, where the most cost-effective has the highest ranking. For the first PoM, cost effectiveness analysis was undertaken for measures at the sub-basin scale in order to identify which supplementary measures should be prioritised. However, the cost effectiveness analyses had a high level of uncertainty attached to them from both the assessment of the level of improvement expected, and the costs of the measures concerned. For the second PoM, Romania reported that a combination of both quantitative and qualitative analysis has been carried out for supporting the selection of measures proposed. The prioritisation of measures was further explored in the examination of the RBMP and background documents and it was found that, in the process of identifying important water management issues both at the level of the Danube International Water Danube Region and at national level, four major categories of important water management issues have been identified (organic pollution, nutrient pollution, pollution with priority / hazardous substances and hydromorphological alterations) for which specific Programmes of Measures have been established to achieve environmental objectives. It is also important to note that the specific measures established at the international level (presented in the Danube International Water Management Plan - Part A) have been integrated at the national level. The measures apply to man-made (anthropogenic) pressures, mainly due to human agglomerations, industrial and agricultural activities, hydromorphological pressures and other types of activities generating significant pressures. By applying economic analysis and scenario trends (through modelling),

[76] Romania subsequently clarified that research studies have been proposed to identify measures for reaching the environmental objectives in these water bodies.

[77] Romania subsequently clarified that in 2021 the indicator values KS01 - Population equivalent required to be treated by construction or upgrade of wastewater treatment plants to achieve objectives is higher than in 2015 due to the fact that in the period 2016-2021 the number of measures for construction or upgrade of wastewater treatment plants are more numerous that the previous period. The 2027 value is zero because no measures were planned after 2027.

the combinations of measures (basic measures and additional measures) with the best cost-effectiveness ratio are selected.

A critical factor in the success of the implementation of the PoM is the availability of funding to support the investments required. Romania has reported that, for the first PoM, €7 987 m was invested in measures to fulfil Article 11(3)(a) requirements (measures required to implement Community legislation for the protection of water) and €993 m was invested in measures to meet the requirements of and Articles 11(3)(b-l), 11(4) and 11(5) (all other measures). For the second PoM (2016-2021), capital investment of €13 274[78]m is needed to implement all the measures planned under Article 11(3)(a) with annual operation and maintenance costs of €824[79]m, while capital investment of €388 m is needed to implement the measures under Articles 11(3)(b-l), 11(4) and 11(5) with annual operational and maintenance costs of €477[80]m. Depreciation has not been taken into account in the investment figures. For the first PoM €4 376 m of European Union funding was received, and €6 204[81]m is expected to support the second PoM. Romania has reported that clear financial commitments have been secured for the PoM from all relevant sectors, namely agriculture, industry, urban, hydropower, aquaculture and flood protection. The transport, energy and recreation sectors have been reported to not be relevant in Romania.

There was no joint consultation carried out on the RBMP and Marine Strategy in Romania, but the preparation of RBMP and PoM have been coordinated with the implementation of the Marine Strategy Framework Directive[82]. It was reported that there is no need for additional or more stringent measures beyond those required by WFD in order to contribute to the achievement of the relevant Marine Strategy Framework Directive objective in coastal and marine environment[83] considered in the Programmes of Measures. National measures relevant to the Marine Strategy Framework Directive have been reported as KTM 1 –"Construction or upgrades of wastewater treatment plants", KTM 14 –"Research, improvement of knowledge base reducing uncertainty". These are basic and supplementary measures.

[78] Romania subsequently clarified that this figure should be €13 662 m. (Ref: the National RBMP updated, Chapter 9 – Programmes of measures, Tables 9.6.1 and 9.6.2, page 285-286.)

[79] Romania subsequently clarified that this figure should be €711 m. (Ref: the National RBMP updated, Chapter 9 – Programmes of measures, Tables 9.6.1 and 9.6.2, page 285-286.)

[80] Romania subsequently clarified that this figure should be €54 m. (Ref: the National RBMP updated, Chapter 9 – Programmes of measures, Tables 9.6.1 and 9.6.2, page 285-286.)

[81] Romania subsequently clarified that this figure should be €6 233 billion of EU support. (Ref: the National RBMP updated, Chapter 9 – Programmes of measures, Tables 9.6.1 and 9.6.2, page 285-286.)

[82] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056

[83] Romania subsequently clarified that only the coastal environment is relevant to the Marine Strategy Framework Directive.

The RBMP and Flood Risk Management Plans[84] have not been integrated into a single plan in Romania (this is according to the Water Law), however joint consultation was carried out on the RBMP and Flood Risk Management Plans, and the objectives and requirements of the Floods Directive have been considered in the second RBMP and PoM. Romania indicated that specific win-win measures in terms of achieving the objectives of the WFD and Floods Directive, drought management and use of Natural Water Retention Measures (NWRM) have been included in the PoM. The design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, have been adapted to take into account WFD Environmental Objectives and clear financial commitment has been secured for the implementation of the PoM in the flood protection sector. Article 9(4) has not been applied to impoundments for flood protection in Romania.

9.1.2 Measures related to other significant pressures

Other significant pressures in Romania were reported as "anthropogenic – other" or "anthropogenic – unknown" and apply only to surface waters. Indicators of the gap to good status have been provided for 2015, 2021 and 2027. In most cases little progress is expected in the second PoM, but good status is expected to be achieved by 2027. In terms of the level of progress expected in the implementation of each Key Type of Measure, approximately 50% of the measures have been reported to reduce the pressure to a level that would enable affected water bodies to achieve WFD objectives by 2021. The remaining ones will do so by 2027.

9.1.3 Mapping of national measures to Key Types of Measure

It was expected that Member States would be able to report their PoM by associating their national measures with predefined Key Types of Measure. Key Types of Measure are expected to deliver the bulk of the improvements through reduction in pressures required to achieve WFD Environmental Objectives. A Key Type of Measure may be one national measure but it would typically comprise more than one national measure. Member States are required to report on the national measures associated with the key types of measure, and whether the national measures are basic (Article 11(3)(a) or Article 11(3)(b-l)) or supplementary (Article 11(4)).

Table 9.1 summarises the number of national measures that have been mapped to the relevant Key Types of Measure in Romania. Also shown is the number of River Basin Districts for which the Key Type of Measure has been reported. Table 9.2 then summarises the type of

[84] Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060

basic measures associated with the national measures mapped against the Key Type of Measure.

Table 9.1 Mapping of the types of national measures to Key Types of Measure in Romania

Key Type of Measure	National basic measures	National supplementary measures	Number of RBDs where reported
KTM 1 - Construction or upgrades of wastewater treatment plants	3	1	1
KTM 13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	1		1
KTM 14 - Research, improvement of knowledge base reducing uncertainty		60	1
KTM 15 - Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances	1	2	1
KTM 16 - Upgrades or improvements of industrial wastewater treatment plants (including farms).	4	5	1
KTM 2 - Reduce nutrient pollution from agriculture	2	4	1
KTM 20 - Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants	2	1	1
KTM 21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure	3	1	1
KTM 23 - Natural water retention measures		2	1
KTM 24 - Adaptation to climate change		3	1
KTM 3 - Reduce pesticides pollution from agriculture.	1		1
KTM 4 - Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)	1	1	1
KTM 5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)		2	1
KTM 6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity		5	1
KTM 7 - Improvements in flow regime and/or establishment of ecological flows	1		1

Key Type of Measure	National basic measures	National supplementary measures	Number of RBDs where reported
KTM 8 - Water efficiency, technical measures for irrigation, industry, energy and households	1		1
KTM 99 - Other key type measure reported under the PoM - Closure and ecologisation of the ponds and tailings, rehabilitation and ecologisation (land reclaiming) of the waste dumps	1	1	1
KTM 99 - Other key type measure reported under the PoM - Establishing management /environment objectives specific for fisheries and therapeutic lakes		2	1
KTM 99 - Other key type measure reported under the PoM - Implementing of the investigative monitoring adapted to the specific pressures on the water bodies (including longitudinal connectivity)		1	1
KTM 99 - Other key type measure reported under the PoM - Measures to reduce nutrient and organic substance accumulation in lakes		3	1
KTM 99 - Other key type measure reported under the PoM - Remediation of municipal landfills	1		1
Total number of Mapped Measures	**22**	**94**	**1**

Source: Member States reports to WISE

Table 9.2 Type of basic measure mapped to Key Type of Measures in Romania

	Basic Measure Type									
Key Type of Measure	**Controls water abstraction**	**Efficient water use**	**Hydromorphology**	**IPPC IED**	**Nitrates**	**Other**	**Point source discharges**	**Pollutants diffuse**	**Surface Priority Substances**	**Urban Waste Water**
KTM1 - Construction or upgrades of wastewater treatment plants						1				2
KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)	1									
KTM15 - Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances									1	
KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms).		1		1			1		1	
KTM2 - Reduce nutrient pollution from agriculture					2					
KTM20 - Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants						1		1		
KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure										3
KTM3 - Reduce pesticides pollution from agriculture.									1	
KTM4 - Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)								1		
KTM7 - Improvements in flow regime and/or establishment of ecological flows			1							
KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households		1								
KTM99 - Other key type measure reported under PoM								1	1	

Source: Member States reports to WISE

Key

'Controls water abstraction' = Article 11(3)(e): Controls over the abstraction of fresh surface water and groundwater and impoundment of fresh surface waters including a register or registers of water abstractions and a requirement for prior authorisation of abstraction and impoundment.
'Efficient water use' = Article 11(3)(c): Measures to promote efficient and sustainable water use.
'Hydromorphology' = Article 11(3)(i): Measures to control any other significant adverse impact on the status of water, and in particular hydromorphological impacts.
'IPPC IED' = Integrated Pollution Prevention Control Directive (96/61/EC) and the Industrial Emissions Directive (2010/75/EU) .
'Nitrates' = Nitrates Directive (91/676/EEC).
'Other' = Other Directives mentioned in Part A of Annex VI of the WFD.
'Point source discharges' = Article 11(3)(g): Requirement for prior regulation of point source discharges liable to cause pollution.
'Pollutants diffuse' = Article 11(3)(h): Measures to prevent or control the input of pollutants from diffuse sources liable to cause pollution.
'Surface Priority Substances' = Article 11(3)(k): Measures to eliminate pollution of surface waters by Priority Substances

and to reduce pollution from other substances that would otherwise prevent the achievement of the objectives laid down in Article 4.
'Urban Waste Water' = Urban Waste Water Treatment Directive (91/271/EEC).

9.1.4 Pressures for which gaps to be filled to achieve WFD objectives and the Key Types of Measure planned to achieve objectives

Member States are required to report the gaps that need to be filled to achieve WFD Environmental Objectives in terms of all significant pressures on surface waters and groundwaters, in terms of Priority Substances causing failure of good chemical status and in terms of River Basin Specific Pollutants causing failure of good ecological status/potential. Member States were asked to report predefined indicators of the gaps to be filled or other indicators where relevant. Values for the gap indicators were required for 2015 and 2021, and were optional for 2027.

The information reported in WISE on the gaps to fulfil to achieve good ecological status include detailed data on the significant pressures on surface and groundwaters that may cause failure on the environmental objectives. For chemical status, the Member States reported the specific chemical substances causing failure.

This information is reported at the sub-unit level. Sub-units are smaller geographic areas within particular RBDs identified by Member States. Not all Member States have defined and reported sub-units.

Member States were required to report which KTMs are to be made operational to reduce the gaps to levels compatible with the achievement of WFD environmental objectives. A number of indicators were predefined for each KTM. Values of the indicators for the second and subsequent planning cycles were also to be reported to give an indication of the expected progress and achievements: the values for 2027 could be optionally reported. This means that the value of the indicator will be reduced with time as measures are implemented. A value of zero is comparable with 100 % good ecological status or potential or good chemical status.

This information was reported at sub-unit level, or at RBDs level if sub-units have not been reported by the Member State.

9.2 Main changes in implementation and compliance since the first cycle

In general the amount and quality of readily available information has improved between the two cycles because of the revised WISE reporting. Often there is no equivalent information for the first cycle and it is difficult, therefore, to make direct comparisons between the two RBMPs on what has changed significantly. Romania has reported that some measures have been completed, while the obstacles to implementation for some other measures were delays, lack of finance, a lack of mechanism and measure being not cost effective. Romania has also reported that the legal regime in the country and the tendering process to issue contracts for work has also caused delays. Romania has provided a good summary of the progress made in relation to this topic which was explored in the examination of the RBMP and background documents. From this, it can be summarised that the financing of the first PoM was achieved mainly from:

- 48.73% European Funds - Cohesion Funds, European Agricultural Fund for Rural Development, European Regional Development Funds, European Fisheries Fund, LIFE funds, other funds;
- 31.17% Governmental and local government funds (state budget, local, contribution royalties, etc.);
- 14.74% Own resources of the economic operator;
- 0.09% Public-Private Partnership;
- 3.32% Sources of National Administration Romanian Waters;
- 1.97% Other sources.

In the period of the first cycle, most of the costs were related to the implementation of basic and additional measures for human agglomerations (drinking water, waste water, sludge from sewage treatment plants) and industrial and agro-zootechnical activities (Industrial Emissions Directive[85], Seveso III) and other basic measures related to the regulation/authorisation, control and monitoring of significant sources of pollution, as well as those related to hydromorphological alterations. By the end of 2015, basic and additional measures have been implemented under the program of measures of the first planning cycle, which, from a financial point of view, is at the value of the investment and other costs of approximately €9m, which represents approx. 61% of the total planned for the first cycle.

[85] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075

Based on the analysis of the progress in the implementation of the basic and additional measures as compared to the planned situation in the Management Plan approved by Governmental Decision No. 80/2011 it was found that:

- 74.38% of the measures were implemented;
- 8.19% of the measures are new measures, not envisaged in the Management Plan approved by Governmental Decision No. 80/2011;
- 4.04% of the measures have been modified in view of new information on the effectiveness of the measure, etc.;
- 6.82% of the measures were no longer necessary due to either the reduction in the various objective causes of pollution caused by significant pressures (some measures were abandoned, no longer necessary, after the re-evaluation of the situation in the economic units (closed units, preservation) and reaching of the environmental objectives of water bodies or other measures implemented in parallel on the same body of water have already led to the achievement of environmental objectives;
- 6.57% of the measures were not implemented, being transferred for implementation in the second planning cycle.

9.3 Progress with Commission recommendations

The Commission recommendations based on the first RBMP and PoM requested action on the following:

- Recommendation: *"Review the pressures and impacts analysis and status assessment in the second RBMP and ensure that the measures are based on the updated pressures and impacts analysis and status assessment of water bodies. Ensure that the RBMPs clearly identify the gap to good status, and that the Programmes of Measures are designed and implemented to close that gap."*

  Assessment: From the information provided both to WISE, and in the supporting documents reviewed in the examination of the RBMP, it appears that the measures have been targeted on four main pressure types. It is not clear whether the status assessment of the water bodies has been considered in the targeting of the measures[86].

[86] Romania subsequently noted that the National Management Plan details the approach: Chapter 3.4 indicates that the status of the water bodies was taken into consideration when significant pressures were established.

However, Romania has clearly identified the gap to good status, reporting indicators of the gaps or 2015 and 2021 and 2027, and the level of progress expected to be made in the implementation of the measures. This recommendation has been largely addressed.

- Recommendation: *"Provide a presentation of the approach and results of cost-effectiveness analysis in the second RBMPs."*

  Assessment: Romania reported that a combination of both quantitative and qualitative analysis had been carried out in for supporting the selection of measures proposed under the second cycle PoM. Further information on the prioritisation of measures was sought in the examination of the RBMP and background documents where it was found that by applying economic analysis and scenarios / trends (through modelling), combinations of measures (basic measures and additional measures) with the best cost-effectiveness ratio are selected. It is not possible to determine from this assessment whether this recommendation has been fulfilled or not. However, Romania has subsequently clarified that the cost benefit analysis and disproportionality analysis is presented in detail in Chapter 10 of the RBMP. Therefore this recommendation would be largely fulfilled.

An evaluation of the impacts of significant pressures on the water body status is presented in Chapter 3.6 and in the Chapter 9.1 basic measures were applied to all water bodies with potential significant pressures and for prevention of deterioration of the good status of water bodies. In Chapter 9.9 supplementary measures were applied in the cases where after implementation of the basic measures the water body is still at risk of failing to reach the environmental objective. Also in the Annexes 9.2-9.12 of the 11 sub-basin RBMPs updated there are included links between pressures and measures at the water body level (code of water body) and consequently the link with the status of the water bodies and the reaching the environmental objectives from Annexes: 6.1.A and 6.2 (ecological status/ecological potential and chemical status) and 7.1 (Environmental objectives).

Topic 10 Measures related to abstractions and water scarcity

10.1 Assessment of implementation and compliance with WFD requirements in the second cycle

10.1.1 Water exploitation and trends

Water abstraction pressures were not reported as relevant for Romania. All groundwater bodies are in good quantitative status and water abstraction pressures do not significantly affect surface water bodies. The Water Exploitation Index + is not calculated at the sub-unit level[87]; but water quantity data have been reported to support the European State of the Environment Report in relation to Water Quantity. Water scarcity is not considered an issue in the international RBMP. The RBMP in Romania does not include a water resource allocation and management plan, but legislative provisions regarding the water resource allocation are in place.

10.1.2 Main uses for water consumption

No data have been reported to WISE for the uses of water consumption, as water quantity pressures are not reported as significant. However, the European Commission has expressed concern that the Romanian authorities have requested an amendment of the Rural Development Programme to expand irrigation from 0.8 to 1.8 m hectares. This can lead to significant abstraction pressures.[88] Furthermore, according to the World Bank, there are some sub-units in Romania under water scarcity i.e. Arges - Vedea and Dobrogea. Apparently, the situation varies widely from sub-unit to sub-unit, both in terms of demands and availability, so national average figures can be misleading and fail to reflect the situation of water scarcity or water stress in Romania.

[87] Romania subsequently clarified that in chapter 11 (Quantitative aspects and climate change) of the National Management Plans, there is information about WEI+ , underlying that a relatively low water stress/deficit was identified in Romania, with WEI + annual average around 19.6%, with a minimum of 15.2% in 2013 and a maximum of 41.4 % in 1990. Chapter 8.6 of the National Management Plan (Trends in water demand, and Annex 8.1. Trends in Water demand) indicate that there will be no water deficit in water demand until 2020/2030.

[88] Romania subsequently indicated that according to the information provided by Ministry of Agriculture, there is no intention to extend the surface of the irrigation systems, but to rehabilitate and modernize the existing ones. A study regarding potential impacts on water resources in terms of quantity, as a result of the updating of the investment strategy in the irrigation sector, has been performed and indicates that no related surface water bodies will be at risk from the quantitative point of view. The specific Romanian legislation in place allows for the control of all future potential significant pressures (projects) on water.

10.1.3 Measures related to abstractions and water scarcity

Regarding the basic measures (Article11(3)(e)), in Romania there is a concession, authorisation and/or permitting regime to control water impoundment and a register of impoundments. Small abstractions for households (drinking water purposes) are exempted from these controls.

Measures promoting efficient and sustainable water use (Basic Measure Article 11(3)(c)) were implemented in the previous cycle, and new measures and/or significant changes are planned for the second RBMP period.

Measures for the prior authorisation of artificial recharge or augmentation of groundwater bodies (Article 11(3)(f)) are of low relevance and have been implemented in the previous cycle, and new control and permit measures are included for the second RBMP.

Complementary measures under Key Types of Measure are not reported for addressing abstraction pressures. Water reuse is not foreseen as a measure.

10.2 Main changes in implementation and compliance since the first cycle

Water abstraction was reported as a significant pressure in the first cycle but only affecting a small proportion of surface water bodies (1.44%). This is no longer the case in the second cycle according to information reported to WISE. Romania reports a development of the approach for the assessment of pressures in the second cycle including the use of numerical tools for the assessment of water abstraction pressures (section 2.1.7 of this report). The quantitative status of groundwater bodies continues to be in good status in the second cycle; the rate of abstraction from groundwater was noted to be exceeded by natural recharge in the first cycle.

10.3 Progress with Commission recommendations

There were no recommendations in the first RBMP and PoM relating to this topic.

Topic 11 Measures related to pollution from agriculture

11.1 Assessment of implementation and compliance with WFD requirements in the second cycle and main changes in implementation and compliance since the first cycle

Agriculture is considered to be one of the main sources of point and diffuse pollution with nutrients, organic and hazardous substances present in surface water and is also causing altered habitats due to morphological changes.

'Diffuse agricultural pressures' were reported to be among the two most widespread significant pressures for surface and groundwater affecting 15% of surface water bodies and 10% of groundwater bodies in the second cycle. Such pressures were among those identified in the first cycle.

The most significant impact in both the first and second cycle was nutrient pollution/enrichment affecting 27% and 32% of surface water bodies, respectively. For groundwater, only chemical pollution was reported as a significant impact. Nitrate is the most common cause of the failure of good chemical status in 8% of groundwater bodies. One water body is failing good status because of not meeting an environmental quality standard for pesticides originating from diffuse agricultural sources.

A gap assessment for nutrients and pesticides was performed and the areas that need to be covered by measures are indicated.

The measures correspond to the pressures and cover:

- KTM 2 – Reduce nutrient pollution from agriculture;
- KTM 3 – Reduce pesticides pollution from agriculture;
- KTM 8 – Water efficiency, technical measures for irrigations;
- KTM 13 – Drinking water protection measures; and,
- KTM 23 – Natural water retention measures.

Romania applied, in accordance with the provisions of Article 3 (5) of the Nitrates Directive[89], the Action Program and Codes of Good Agricultural Practice throughout the whole territory. Consequently, most water protection measures are basic measures (the minimum requirement to be complied with). Only KTM 23 is supplementary and KTM 2 is both basic and supplementary. KTM 2, KTM 3 and KTM 8 cover both basic (mandatory) and supplementary measures.

Basic measures under Article 11(3)(h) for the control of diffuse pollution from agriculture at source are applied across the whole RBD. General binding rules to control diffuse pollution are applied for nitrates, organic pollution, phosphorus, pesticides and other pollution. These measures are broadly in line with those reported in the first RBMP though categorised differently due to the change in the second cycle reporting to WISE. The second RBMP indicates that further additional measures would be considered where water bodies remained at risk of non-compliance after the application of the measures in the second RBMP.

Romania has declared that it applies the whole national territory approach, instead of delineation of nitrates vulnerable zones, having in view pollution prevention. In the process of implementing the Nitrates Directive, Codes of Good Agricultural Practice and Action Programs have been developed and implemented. Since June 2013, the decision has been taken to implement the Action Program throughout Romania, in accordance with Article 3 paragraph 5 of the Nitrates Directive.

Farmers and Farmers' Associations have been consulted under the Public Consultation process in Romania. Financing of agricultural measures is secured.

11.2 Main changes in implementation and compliance since the first cycle

No major changes in any of the RBDs for aspects of the topic have been identified.

11.3 Progress with Commission recommendations

The Commission recommendations based on the first cycle and PoM requested action on the following:

- Recommendation: *Agriculture is indicated as exerting a significant pressure on the water resources in Romania. This should be translated into a clear strategy that defines*

[89] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:31991L0676

the basic/mandatory measures that all farmers should adhere to and the additional supplementary measures that can be financed. This should be developed with the farmers' community to ensure technical feasibility and acceptance. There needs to be a very clear baseline so that any farmer knows the rules this can be adequately advised and enforced and so that the authorities in charge of the CAP funds can adequately set up Rural Development programmes and cross compliance water requirements.

Assessment: The RBMP clearly define basic/mandatory measures that all farmers should adhere to and additional supplementary measures. Basic measures under Article 11(3)(h) for the control of diffuse pollution from agriculture at source are applied across the whole RBD. In the process of implementing the Nitrates Directive, Codes of Good Agricultural Practice and Action Programs have been developed and implemented. Financing of measures is secured. Farmers and Farmers' Associations have been consulted under the Public Consultation process in Romania. This recommendation has been fulfilled.

- Recommendation: "*Ensure that diffuse sources of pollution in the agricultural sector are controlled, including mandatory requirements for farmers where necessary. Include in the second RBMPs measures related to nitrates also outside of Nitrate Vulnerable Zones (NVZs).*"

  Assessment: Most measures are basic measures (i.e. KTM3), only KTM 23 is supplementary and KTM 2 is both basic and supplementary. Basic measures under Article 11(3)(h) for the control of diffuse pollution from agriculture at source are applied across the whole RBD. General binding rules to control diffuse pollution are applied for nitrates, organic pollution, phosphorus, pesticides and other pollution under the Action Programme for the protection of waters against nitrate pollution from agricultural sources. Also, Romania applies a whole territory approach and the measures related to nitrates are applied on all agricultural land. The second RBMP indicates that further additional measures would be considered where water bodies remained at risk of non-compliance after the application of the measures in the second RBMP. This recommendation is fulfilled.

- Recommendation: "*Ensure in the second RBMPs that relevant links are established with the Common Agricultural Policy mechanisms and with its pesticides national action plan.*"

Assessment: Certain information was found in the RBMP to establish if Common Agricultural Policy mechanisms would be used and what is the contribution of the pesticide action plan to the achievement of environmental objectives. The RBMP mentions as important measure for protecting of waters against pesticides used in agriculture the Measure 10 - Agro-environment and climate[90]. The recommendation has been implemented.

[90] Romania clarified that all farmers in Romania who are applying this measure have obligation not to use pesticides at all in specific protected areas. This applies to about 800 thousand ha of agricultural land.

Topic 12 Measures related to pollution from sectors other than agriculture

12.1 Assessment of implementation and compliance with WFD requirements in the second cycle and main changes in implementation and compliance since the first cycle

In the context of this topic, pollution is considered in terms of nutrients, organic matter, sediment, saline discharges and chemicals (Priority Substances, River Basin Specific Pollutants, groundwater pollutants and other physico-chemical parameters) arising from all sectors and sources apart from agriculture.

Key types of measures (KTM) are groups of measures identified by Member States in their Programmes of Measures which target the same pressure or purpose. A KTM could be limited to one national measure but would typically comprise more than one national measure. The same individual measure can also be part of more than one KTM because it may be multipurpose, but also because the KTMs are not completely independent of one another.

The following KTMs relevant to non-agricultural sources of pollution causing failure of WFD objectives have been reported for RBDs in Romania:

- KTM 1 - “Construction or upgrades of wastewater treatment plants“
- KTM 4 - “Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)“
- KTM 14 – “Research, improvement of knowledge base reducing uncertainty”
- KTM 15 – “Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances”
- KTM 16 - “Upgrades or improvements of industrial wastewater treatment plants (including farms)“
- KTM 20 – “Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants”
- KTM 21 - “Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure“
- KTM 99 – “Other type measure reported under POM“

The WFD specifies that the Programmes of Measures shall include, as a minimum, "basic measures" and, where necessary to achieve objectives, "supplementary measures" when basic measures are not enough to address specific significant pressures (see the chapter 9 in this report). Quantitative information on basic and supplementary measures used to tackle pollution from non-agricultural sources (number of measures per KTM) has been provided. Quantitative information on types of basic measures to tackle pollution from non-agricultural sources (number of measures per KTM) is provided for six measure types.

Romania provided more targeted information on basic measures required under Article 11(3)(c to k). Basic measures corresponding to Article 11(3)(g), i.e. the use of authorization and/or permitting regimes to control waste-water point source discharges is in place for surface water only. A register of waste water discharges (Basic measures Article 11(3)(g)) is available for surface water only. There are no thresholds in Romania below which waste water discharges do not require permits, and are not subject to registration. Romania clarified that all waste water discharges require a water management permit according to the national specific legislation and are subject to registration[91]. There is prohibition of all direct discharges to groundwater in Romania.

Romania reported that there are measures in place to eliminate / reduce pollution from Priority Substances and other substances. According to information reported to WISE, there are measures in place to eliminate / reduce pollution from Priority Substances and other substances (Basic measures Article 11(3)(k)). It is also reported that KTMs have been made operational based on pressures from four specific Priority Substances which have caused non-compliance. Substance-specific measures were already addressed in the sub-basin management plans in the first cycle.

12.2 Progress with Commission recommendations

The Commission recommendations based on the first RBMP and PoM requested action on the following:

- Recommendation: *Identify in the second RBMPs measures that are more targeted to specific substances.*

  Assessment: Information reported to WISE indicates that there are measures in place to eliminate / reduce pollution from Priority Substances and other substances (Basic measures Article 11(3)(k)). It also shows that KTMs have been made operational based

[91] This information can be found in the updated national RBMP, chapter 9, page 260.

on pressures from four specific Priority Substances causing non-compliance and that KTM 15 - "Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances" is among the KTMs mapped and tackling significant pressures.

Progress with the recommendation cannot be fully judged from this assessment but the reported information indicates progress.

- Recommendation: *Impose stricter measures in the second RBMPs on plants treating waste water and industries discharging to the public sewage system, if needed in order to reach good chemical status. The results of the gap assessment should indicate where further measures are required for plants treating waste water and industries discharging to the sewage system. These could be other basic measures under Article 11.3(g) or supplementary measures.*

  Assessment: Measures taken to tackle pollution from non-agricultural sources include KTM 1 - "Construction or upgrades of wastewater treatment plants" and information reported to WISE indicates that KTM1- - "Construction or upgrades of wastewater treatment plants" includes both basic and supplementary measures. The gap assessment indicators indicate gaps to the achievement of environmental objectives will be closed by 2027 in the vast majority of cases though this relies on greater emphasis on the third cycle PoM than on the second.

  Basic measures to reduce the effects of pressures caused by effluents from human agglomerations have been established with a view to reducing the pollution from point sources and diffuse sources of pollution in order to comply with the legislation in force. The measures are related to the implementation of the requirements of the European Directives in the field, namely those referring to drinking water, sewage treatment and sludge from sewage treatment plants.

  The necessary work for collecting and purifying wastewater from human agglomerations consists of the rehabilitation, upgrading and extension of sewage networks, waste water treatment plants and plants, in order to achieve technical compliance with the provisions of Directive 91 / 271 / EEC.

  Significant progress has been made. This recommendation is partially fulfilled.

- Recommendation: *Pay special attention to the implementation of basic measures (Urban Waste Water Treatment[92] and Industrial Emissions[93] Directives) that account for a large number of exemptions. In the second RBMP Romania should demonstrate that the basic measures required under Article 11(3)(a) have been fully implemented. An assessment should be carried out of how far these measures will go towards the achievement of good status.*

- Assessment: Information reported to WISE shows that a number of KTMs will be made operational to reduce the pressures: KTM 1 - "Construction or upgrades of wastewater treatment plants", KTM 4 - "Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)", KTM 15 - "Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances", KTM 16 - "Upgrades or improvements of industrial wastewater treatment plants (including farms)", KTM 21 - "Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure".

  Basic measures to reduce the effects of pressures caused by effluents from human agglomerations have been established in Romania with a view to reducing the pollution from point sources and diffuse sources of pollution in order to comply with the legislation in force. The measures are related to the implementation of the requirements of the European Directives in the field, namely those referring to drinking water, sewage treatment and sludge from sewage treatment plants. A gap assessment has been undertaken indicating achievement of environmental objectives by 2027 in the vast majority of cases. This recommendation is partially fulfilled.

- Recommendation: *Put in place the measures and allocate the necessary funds to fulfil the requirements of the Urban Waste Water Treatment Directive and ensure that the discharges are in line with good ecological status / good ecological potential in the second RBMPs cycle. 14 agglomerations will require supplementary measures because of stricter emissions considering the requirements of Urban Waste Water Treatment Directive. Romania should make efforts to ensure that the discharges will be in line with good ecological status/potential in the second RBMP cycle.*

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[92] Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271

[93] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075

Assessment: Measures taken to tackle pollution from non-agricultural sources in include KTM1 – "Construction or upgrades of wastewater treatment plants" and information reported to WISE indicates that KTM1 includes both basic and supplementary measures.

Investment expenditures required to implement measures to reduce the effects of potentially significant point pressures caused by effluents from human agglomerations (potentially significant point pressures are set out in the RBMP), were estimated at national level at around €5 362.933 m for the second cycle.

This recommendation is partially fulfilled.

Topic 13 Measures related to hydromorphology

13.1 Assessment of implementation and compliance with WFD requirements in the second cycle

Significant hydromorphological pressures are identified for rivers and reservoirs. The significant hydromorphological pressures are assigned to specific sectors and the dominating uses/sectors related to such pressures are flood protection and hydropower. Although an updated analysis of hydromorphological alterations has been carried, the share of surface water bodies affected by significant hydromorphological pressures has decreased in the second RBMP compared to the first RBMP. Overall, the share of water bodies affected by hydromorphological pressures (5%) is relatively low in the second cycle.

Several operational Key Types of Measure were reported to address significant hydromorphological pressures including KTM 5 – "Improving longitudinal continuity", KTM 6 – "Improving hydromorphological conditions of water bodies other than longitudinal continuity", KTM 7 – "Improvements in flow regime and/or establishment of ecological flows", KTM 23 – "Natural water retention measures" as well as KTM 99 – "other" and KTM 14 – "Research activities". In addition, overall management objectives and quantitative objectives in terms of restoring river continuity have been set. However, for water bodies affected by hydromorphological alterations (physical loss of whole or part of the water body), which represent the highest share of water bodies with significant hydromorphological pressures, only research measures are proposed, as the first step of setting appropriate measures for the next cycle.

Regarding hydromorphological pressures related to hydropower (including micro-hydropower) as well as other types of utilities affecting longitudinal continuity, it is emphasized that measures are planned for mitigating their effects on ecological status / potential both in the investment phase and in the operational phase (with emphasis on ensuring minimum flow and the passage of migratory fish). Measures are also planned to ensure lateral connectivity: restoration or creation of wetlands, restoring the meanders or side arms, diversification of the bank, bed and habitats structure.

In order to improve the assessment of some aspects of the RBMP and to reduce uncertainties, it is proposed to carry out a series of research studies, feasibility studies and pilot studies in the second cycle, to be developed at national level and applied at RBD / sub-basin level.

In terms of basic measures, there is an authorisation and/or permitting regime in place to control physical modifications, which covers changes to the riparian area of water bodies according to WFD Article 11(3)(i). There is also a register of physical modifications of water bodies.

Win-win measures in terms of achieving the objectives of the WFD and Floods Directive[94], drought management and use of Natural Water Retention Measures were reported as included in the PoM and KTM 23 – "Natural Water Retention Measures" has been made operational to tackle physical alterations due to flood protection. A number of the lateral connectivity measures (mentioned above) may be considered natural water retention measures, especially if they provide multiple benefits. Some of the lateral connectivity measures of the RBMP were also included in the Flood Risk Management Plan Measures. It is also noted that there has been a proposal to set up an inter-ministerial working group for the reconstruction of wetlands along the Danube and the main tributaries as a measure to reduce the risk of floods and to implement green infrastructure and water retention.

Also, the design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, was reported to have been adapted to take into account WFD objectives and some explanations are provided on how this is being done. At national level, it is necessary to carry out a study on the sustainable development of the Danube meadows taking into account aspects related to the prevention and reduction of flood risk, the achievement of the environmental objectives of the water bodies as well as socio-economic aspects. The measures included in the study will be subject to consultation of local communities and the central public authority on agriculture and rural development. At the level of the International Danube RBD, Romania has promoted a project concept on flood risk reduction by restoring the Danube floodplain (starting in 2016).

Ecological flows have been derived and implemented partly, i.e. for some relevant water bodies, but the work is still on-going. The National Institute of Hydrology and Water Management developed a "Methodology for ecological flow determination" based on the following principles: Defining the ecological flow according to the typology of water courses in Romania (in three geographical areas: mountain, hill, plain) and habitat needs of dominant species (mainly fish), corresponding to each typology. The methodology applies to both natural and heavily modified water bodies.

[94] Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060

The process of validating the methodology for determining the ecological flow is underway and may lead to adjustments, for example some corrections of the ecological flow assessment methodological elements[95]. The application of the methodology will be phased due to the need to amend the legislation in force, as well as the subsequent legislation for the regulation of water management, taking into account both the technical feasibility and the socio-economic effects of the measure.

Indicators on the gap to be filled for significant hydromorphological pressures and Key Type of Measure value indicators were reported for 2015, 2021 and 2027. The level of ambition varies between closing none of the gap to fully closing the gap between 2015 and 2021 for significant hydromorphological pressures. For river stretches affected by significant hydromorphological pressures where no progress is expected by 2021, the reported information indicates that the gap will be fully closed by 2027, with the exception of certain river stretches affected by flood protection and hydropower whose pressure levels remain unchanged until 2027.

13.2 Main changes in implementation and compliance since the first cycle

The second RBMP indicates that additional measures and instruments related to the mitigation of the effects of significant hydromorphological pressures have been identified at a national level.

In the first RBMP, no specific information was found on how hydromorphological measures would improve the ecological status/potential. The improved WISE reporting for the second RBMP clearly provides information for Romania on progress expected by 2021 and 2027 in terms of closing the gap for significant hydromorphological pressures.

13.3 Progress with Commission recommendations

The Commission recommendations based on the first RBMP and PoM requested action on the following:

- Recommendation: *Consider and prioritise the use of green infrastructure and/or natural water retention measures that provide a range of environmental (improvements in water quality, in-crease water infiltration and thus aquifer recharge, flood protection, habitat conservation etc.), social and economic benefits which can be in many cases more cost-effective than grey infrastructure.*

[95] Romania subsequently clarified that this process was finalised after the adoption of the second RBMPs

Assessment: In the second RBMP, KTM 23 – "Natural Water Retention Measures" has been made operational to tackle physical alterations due to flood protection. In addition, some measures related to natural water retention are also included in the Flood Risk Management Plan measures establishing a link between the WFD and the Floods Directive[96]. It is also noted that there has been a proposal to set up an inter-ministerial working group for the reconstruction of wetlands along the Danube and the main tributaries as a measure to reduce the risk of floods and to implement green infrastructure and water retention.

Therefore, based on the information found, this recommendation is considered to be fulfilled.

- Recommendation (report 2012): *The RBMPs should indicate how hydromorphological measures will improve the ecological status/potential*.

  Assessment: Indicators on the gap to be filled for significant hydromorphological pressures and Key Type of Measure value indicators have been reported, therefore providing indications of how measures will contribute to the achievement of objectives. The level of ambition varies between closing none of the gap to fully closing the gap between 2015 and 2021 for significant hydromorphological pressures.

  Therefore, this recommendation is considered as fulfilled.

- Recommendation: *To fully assess the ecological impact of varying flows, the second RBMPs should provide evidence that the concept of ecological flows has been developed and implemented. This methodology must take account of the need to achieve good ecological status.*

  Assessment: For the first RBMP, there were no guidelines for defining the ecological flow, but there were obligations to ensure the minimum flow for protection of aquatic ecosystems, according to the Water Law. In the second RBMP, ecological flows have been derived and implemented partly, i.e. for some relevant water bodies, but the work is still on-going. A methodology for ecological flow determination has been elaborated but in 2015 it was still in the process of validation. Romania subsequently informed that at the time of publishing this assessment report, the methodology is finalised. The methodology defines the ecological flow according to the typology of water courses in

[96] Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007L0060

Romania and habitat needs of dominant species (mainly fish), corresponding to each typology.

As the process of determining and implementing ecological flows was still ongoing in 2015, this recommendation is partly fulfilled in the second RBMPs.

Topic 14 Economic analysis and water pricing policies

14.1 Assessment of implementation and compliance with WFD requirements in the second cycle and main changes in implementation and compliance since the first cycle

A broad definition of water services is used. The defined water services are: drinking water abstraction/treatment/distribution, infrastructure for navigation, irrigation water abstraction/treatment/distribution, sewage collection/waste water treatment and seven "other" services. Flood protection and navigation are not considered.

The use of Article 9(4) was reported for flood protection and navigation[97].

Overall, cost recovery rates are provided for all water services, indicating 100% for all of them. Only for drinking water provision and sewage services are some explanations provided in the RBMP regarding the methodologies used.

The contributions of different users to cost recovery rates, broken down for households, industry and agriculture, are not provided or explained in detail in the RBMP.

In WISE, it was reported that environmental and resource costs are calculated for two out of the 11 water services (for drinking water provision and sewage services). For these two services, environmental and resource costs are significant and internalized, for the other nine services they are not.

With regard to the explanation of how water-pricing policies provide adequate incentives for users to use water resources efficiently, national legislative requirements and penalties are mentioned, but without describing their impact on all defined water services. For all water services, volumetric charging is applied.

The RBMP include several references to legislative acts that are inspired by the Polluter Pays Principle.

Some more details on methodologies are provided, but not comprehensively for all the topics and/or water services.

[97] Drinking water, irrigation, self-abstraction, waste water and water storage are also mentioned in WISE, but it was clarified by Romania that this is a reporting error.

The economic analysis was reported to be updated.

14.2 Progress with Commission recommendations

The Commission recommendations based on the first cycle and PoM requested action on the following:

- Recommendation: *The cost-recovery should address a broad range of water services, including impoundments, abstraction, storage, treatment and distribution of surface waters, and collection, treatment and discharge of waste water, also when they are "self-services", for instance self-abstraction for agriculture. The cost recovery should be transparently presented for all relevant user sectors, and environment and resource costs should be included in the costs recovered. Information should also be provided on the incentive function of water pricing for all water services, with the aim of ensuring an efficient use of water. Information on how the polluter pays principle has been taken into account should be provided in the RBMPs.*

  Assessment:

  A broad definition of water services is used. The defined water services are:

  - drinking water abstraction/treatment/distribution,
  - infrastructure for navigation,
  - irrigation water abstraction/treatment/distribution,
  - sewage collection/waste water treatment
  - seven "other" water services (using groundwater for households, using groundwater for industrial units, using groundwater for livestock, using surface water for aquaculture, using surface water for households, public institutions, agro-industrial units, using surface water for thermal power plants and using surface water for hydropower).

  Flood protection and navigation are not considered.

  The use of Article 9(4) was reported for the following water services: drinking water, irrigation, self-abstraction, waste water and water storage.

  Overall, cost recovery rates are provided for all water services, indicating 100% for all of them. Only for drinking water provision and sewage services are there some explanations provided regarding the methodologies used in the RBMP, stating that the recovery of the

financial costs at the level of the invoiced services is more than 100%, the difference being the level of the development and the profit share of water operators established in accordance with the legislation in force.

The contributions of the different users to cost recovery rates, broken down for at least households, industry and agriculture, are not provided/explained in detail.

According to WISE, for all water services legal/regulatory instruments exist that require cost recovery as well as that users contribute to the cost recovery of all water services, referring to Governmental Decision No. 1202/2010. The effectiveness "on the ground" of these legal/regulatory instruments cannot be assessed.

Regarding environmental and resource costs, on WISE it was reported that they are calculated for two out of the 11 water services (for drinking water provision and sewage services). For these two services, environmental and resource costs are significant and internalized, for the other nine services they are not.

Environmental costs are assessed based on the environmental damage caused by the degradation or loss of aquatic ecosystems due to pressure from certain water users (cost-based approach).

Resource costs are defined as the cost of missed opportunities by other water users due to the quantitative depreciation of the resource above the recovery. It is concluded that because the water requirements until 2021 will be completely covered, the resource cost is zero.

With regard to the explanation on how water-pricing policies provide adequate incentives for users to use water resources efficiently, national legislative requirements and sanctions are mentioned, but without describing their impact on all defined water services. Instead, it is stated that a national water pricing policy was put in place in accordance to Article 9 of the WFD, which is based on the economic analysis and takes into consideration the principle of cost recovery, the effects of the recovery of the costs of water services and the Polluter Pays Principle as well as the users pay principle (the principles are explained).

It cannot be assessed how effectively the water pricing policy is implemented on the ground.

For all water services, volumetric charging is applied.

Regarding the Polluter Pays Principle, only general statements are presented in the RBMP. It is stated that the polluter or the water user, which exerts a qualitative risk on the water body, bears the costs of activities related to preventing the damage caused by the activity performed (meaning the monitoring and prevention measures). It is explained that these costs function as an incentive to use less harmful practices.

Regarding details on methodologies, some more information is provided, but not comprehensively for all the topics and/or water services.

Overall, this recommendation has been largely fulfilled (improved information supplied), but gaps remain (the information provided is not very specific).

- Recommendation: *"Develop fully the economic analysis of water use, including the calculation of Environmental and Resource Costs covering those generated by diffuse and point sources, and ensure that the water tariff and the water fees lead to adequate recovery of the costs of water services."*

  Assessment: See recommendation above.

  Overall, this recommendation has been partially fulfilled (all topics are addressed to some extent), but gaps remain.

Topic 15 Considerations specific to Protected Areas (identification, monitoring, objectives and measures)

15.1 Assessment of implementation and compliance with WFD requirements in the second cycle

All relevant types of Protected Areas have been identified (Table 15.1): there are no Protected Areas related to the Nitrates and the Urban Waste Water Treatment Directive, which is consistent with the whole territory approach to the implementation of these Directives in Romania. A large number of national Protected Areas have also been reported.

Table 15.1 Number of Protected Areas of all types in Romania, for surface and groundwater

Protected Area type	Number of Protected Areas Associated with[98]				
	Rivers	Lakes	Transitional	Coastal	Groundwater
Abstraction of water intended for human consumption under Article 7	274 (275)	1			2 479
Recreational waters, including areas designated as bathing waters under Directive 76/160/EEC[99]			1	48	
Protection of species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 79/409/EEC (Birds)[100]	123	25	2	2	
Protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC (Habitats)[101]	246	13	2	8	86
Areas designated for the protection of economically significant aquatic species	7		2	3	
Other	222 (223)	29 (28)	1	3	

Source: WISE electronic reporting. Romania subsequently corrected some of the data reported in WISE. The corrected data are shown in brackets in the table

Status assessments have been reported for the surface and groundwater bodies associated with the Protected Areas (Figure 15.1); the classifications have been assigned mainly medium or

[98] Romania subsequently corrected some of the reported data (the corrected number are in brackets in this table)

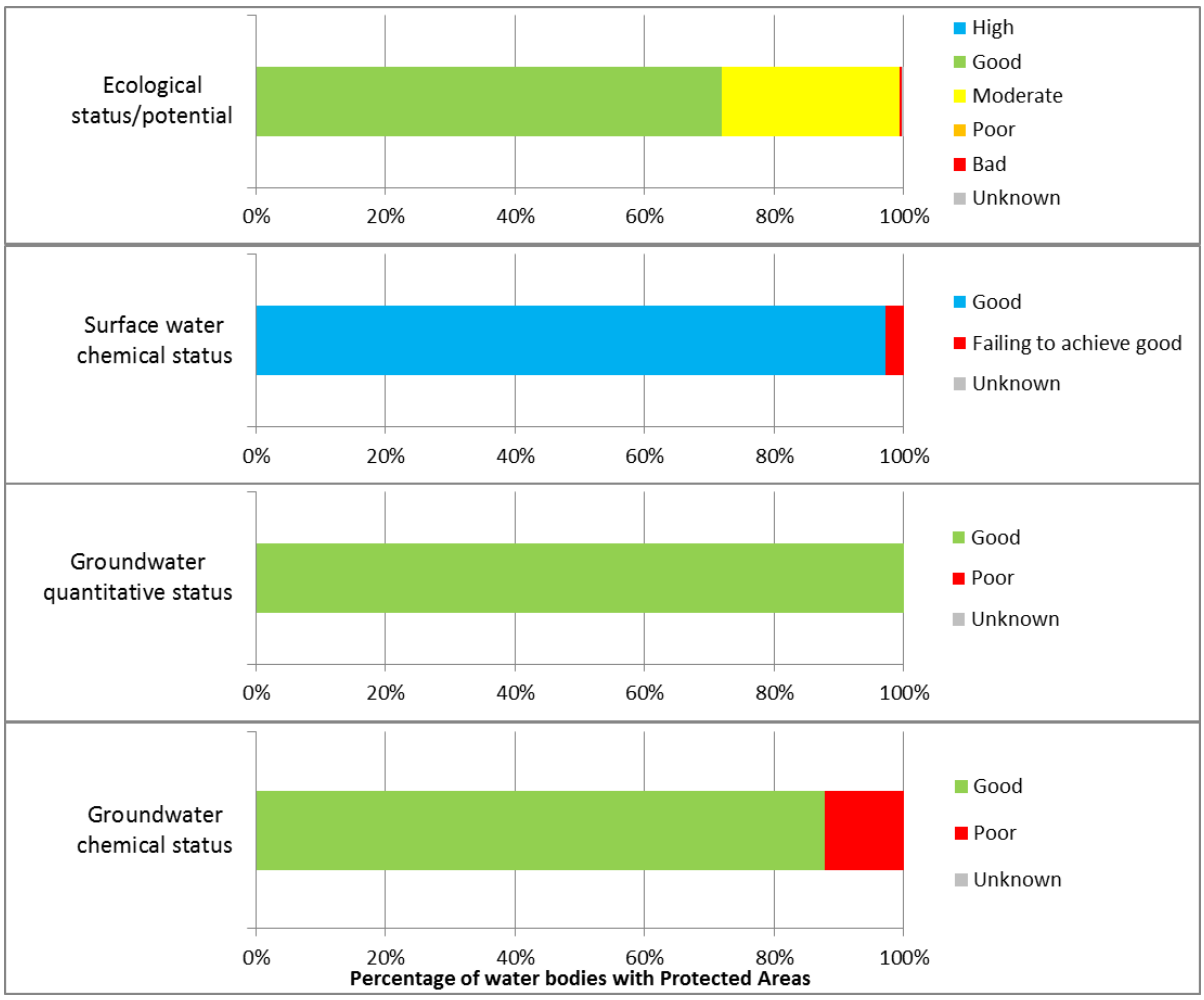
[99] Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0007

[100] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147

[101] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043

low confidence for chemical status and mainly high or medium confidence for ecological parameters. The status of associated groundwater bodies has been assigned high confidence for nearly all sites.

Figure 15.1 Status of water bodies associated with the Protected Areas report for Romania. Note: based on status/potential aggregated for all water bodies associated with all Protected Areas



Source: WISE electronic reporting

Additional objectives have been set for Article 7 related Protected Areas in surface waters and for shellfish production areas, but not for any other types of Protected Area[102].

[102] Romania subsequently explained that for Habitat and Bird protected areas no additional objectives have been set so far because the environmental objectives under the Water Framework Directive are sufficient to reach favourable conservation status assessed on biogeographical regions level.

Drinking water objectives for Article 7 Protected Areas have been met in the majority of areas and those for shellfish production areas have been met in all areas. The additional objectives set for the latter were equivalent to the microbiological standards in the repealed Shellfish Waters Directive. There is no evidence of an assessment of the needs of features in individual Protected Areas[103].

Specific monitoring of surface water Protected Areas has only been reported for a small number of monitoring sites in water bodies associated with Habitat areas and Drinking Water areas (Table 15.2), but also in National Management Plan, information on monitoring programs are given in the chapter 5. Such programmes for the other Protected Area types have not been reported, since Romania applies whole territory approach for nutrient sensitive and nitrate vulnerable areas.

No specific monitoring of groundwater Article 7 Protected Areas has been reported.

Table 15.2 Number of monitoring sites associated with Protected Areas in Romania

Protected Area type	Number of monitoring sites associated with Protected Areas in Romania	
	Lakes	Rivers
Abstraction of water intended for human consumption under Article 7		197
Protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC (Habitats)	37	156

Source: WISE electronic reporting

Additional measures and exemptions from specific objectives for Protected Areas have not been applied in Romania.

15.2 Main changes in implementation and compliance since the first cycle

The number of Protected Areas related to drinking water and habitats have increased from the first cycle of River Basin Management Plans to the second. In the first cycle, 42 Protected Areas related to the Nitrates Directive were reported, but none in the second cycle. This relates to the decision taken in 2013 to implement the whole territory approach and undertake the

[103] Romania subsequently clarified that issues related to additional objectives have been reviewed and updated in the light of available information on Natura 2000 sites and their natural species and habitats, and that most habitats and protected species potentially dependent on water are in favourable conservation status so specific objectives are not required.

Action Program throughout Romania, in accordance with Article 3 paragraph 5 of the Nitrates Directive. Specific monitoring of surface water Protected Areas covered more types of Protected Areas in the first cycle than the second - monitoring targeted towards the Birds, Fish and Shellfish Protected Areas was reported in the first plans, but no monitoring sites were reported in the second cycle.

15.3 Progress with Commission recommendations

The Commission recommendations based on the first cycle and PoM requested action on the following:

- Recommendation: "*Investigate cases in the second RBMPs where there are non-compliant Drinking Water Protected Areas in relation to the requirements of Articles 7 and 8 of the Water Framework Directive, and establish respective measures where necessary.*"

  Assessment: One of the proposed actions was to ensure a full status assessment of the Article 7 Protected Areas. 110 of 143 groundwater bodies are identified as Drinking Water Protected Areas. All groundwater bodies have been assigned both quantitative and chemical status classes. All surface water bodies have been assigned both ecological and chemical status classes. Therefore all water bodies associated with Drinking water protected Areas have a full status assessment. The recommendation has been partly fulfilled.

- Recommendation: "*Put in place measures in the second RBMPs for protecting drinking-water Protected Areas. Romania should consider establishing safeguard zones for all drinking water abstractions."*

  Assessment: Safeguard zones have been established and it was reported that there are no plans to change the regulations as a result of this RBMP. It is not clear if specific measures have been implemented in the zones. Romania subsequently clarified to the Commission that the safeguard zones have been established for water abstractions according with the national legislation. The recommendation has been fulfilled.

- Recommendation: "*Set objectives and measures for the management of water-dependent species and habitats in the second RBMPs*."

  Assessment: No specific objectives have been set. It is noted for all Protected Areas that the good ecological status is sufficient to reach the objectives according to the Habitat

and Birds Directives, based on the data assessed at biogeographical region level. As specific objectives have been considered as not required, then additional measures have not been defined for these Protected Areas. However, a detailed analysis seems to have been carried out at the level of the protected area. Therefore, this recommendation has been partially fulfilled.

Topic 16 Adaptation to drought and climate change

16.1 Assessment of implementation and compliance with WFD requirements in the second cycle

Climate change was considered in various ways in the preparation of the RBMP in Romania and it is stated that the guidance on how to adapt to climate change (Common Implementation Strategy Guidance Document No. 24[104]) was used.

Climate change was considered for flood and drought management as well when dealing with water scarcity. It was also considered for forecasting the economics of water supply and demand and in the context of maximisation of cross-sectoral benefits. Detecting climate change signals is also mentioned in the RBMP. KTM 24 – "Climate change adaptation measures" is not made operational to address significant pressures in the RBD, although national measures have been mapped against KTM 24. No specific sub-plans addressing climate change were reported.

Whilst in 2012 (see "Topic report on: Assessment of Water Scarcity and Drought aspects in a selection of European Union RBMPs"[105]) there was still not a clear distinction in Romania between droughts and water scarcity the authorities now make a clear identification of water scarcity and drought aspects and report that droughts are not relevant for the RBD.

Even though there is no legal obligation to prepare Drought Management Plans, many Member States have prepared them in order to cope with droughts. No change has occurred in terms of the development of Drought Management Plans, which are not reported in the second RBMP as was the situation in 2012[113].

16.2 Main changes in implementation and compliance since the first cycle

Climate proofing of measures had not been carried out in the first RBMP, but has now been undertaken in the second RBMP. Moreover, the RBMP identified clearly the water scarcity and droughts aspects and also put in place measures to be implemented to address them.

16.3 Progress with Commission recommendations

There were no Commission recommendations based on the first cycle and PoM for this topic.

[104] https://circabc.europa.eu/sd/a/a88369ef-df4d-43b1-8c8c-306ac7c2d6e1/Guidance%20document%20n%2024%20-%20River%20Basin%20Management%20in%20a%20Changing%20Climate_FINAL.pdf

[105] http://ec.europa.eu/environment/water/quantity/pdf/Assessment%20WSD.pdf