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COMMISSION STAFF WORKING DOCUMENT

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

Accompanying the document

REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

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

Third River Basin Management Plans
Second Flood Risk Management Plans

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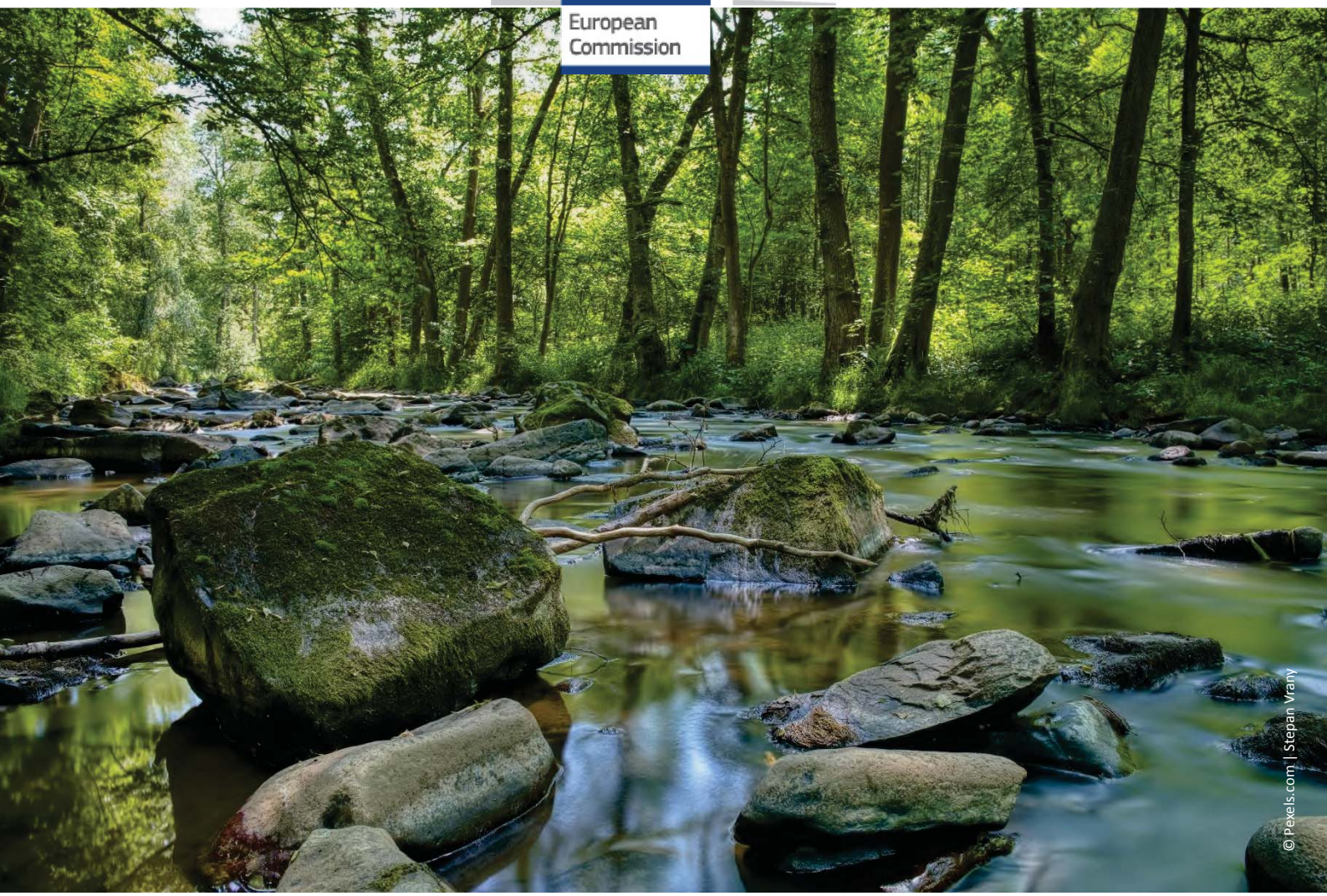
European Commission



Country specific staff working document

Romania

ENVIRONMENT

www.parlament.gv.at

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SECTION A:

WATER FRAMEWORK DIRECTIVE

1. General info, member state characterisation

Romania is a large country as a population of 19.4 million inhabitants[1] and a surface area of 238 400 km^2 [2]. It has a population density 82 people/km^2) lower than the EU average. Romania is bordered by five countries: Hungary and Serbia to the west, Ukraine in the north, Republic of Moldova to the northeast and Bulgaria in the south. It consists of the Carpathians mountains, hills, and plains. Before reaching the Black Sea, the Danube forms a delta, most of it being in Romania with the northern part of it in Ukraine. The entire surface of Romania is part of the international Danube River Basin District (iRBD), representing approximately 29 % of the iRBD surface area. The Romanian part of the Danube iRBD encompasses 11 sub-units / river sub-basins.

Even though Romania has designated a single River Basin District i.e. the Danube, more than three quarter of the Danube river itself is making the border in the south of the country with Serbia and Bulgaria. That means that most of the territory does not overlap with the Danube river itself which flows mainly along the southern border of Romania.

Romania has a total of 1 550 protected areas, comprising 944 sites designated under national laws and 606 recognized as Natura 2000 sites.[3] All in all, 23.4 % of land and 21.4 % of marine waters are covered by protected areas. The share of species with good conservation status is 45.7%.

[1] https://ec.europa.eu/eurostat/documents/12743486/14207633/RO-EN.pdf
[2] https://data.worldbank.org/indicator/AG.SRF.TOTL.K2?locations=RO
[3] https://biodiversity.europa.eu/countries/romania

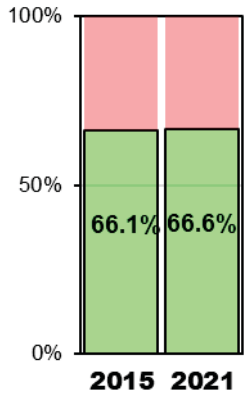
Reporting

The deadline for reporting the 3rd RBMPs was in March 2022. The Commission and the EEA together with Member States developed an electronic reporting system in WISE (Water Information System for Europe). Its use was voluntary. Some Member States (MS) used it to fulfil their obligations, others reported the plans in pdf format. The cut-off date for the WISE e-reporting was September 2023 and the MS were assessed based on the datasets available by this date.

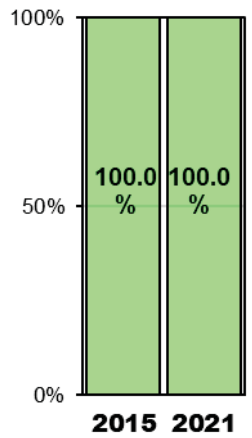
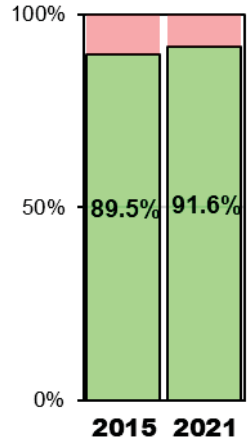
By September 2023 Romania submitted full electronic reporting and therefore the assessment is based on this dataset.

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

Changes in Status, Pressures, Exemptions & Measures

Surface Water Bodies (3025)	Trend (% good status/potential)	Main Pressures & Changes & Exemptions
ECOLOGICAL STATUS		The significant pressures affecting highest percentage of surface water bodies are diffuse source pressures from discharges not connected to the sewerage network and diffuse source pressures from agriculture. Nutrient and organic pollution are the most significant impacts affecting the highest percentage of surface water bodies. This has not changed significantly from the 2nd RBMP Approximately 67 % of all water bodies are in good ecological status / potential being at a similar level with a minor improvement compared to the 2nd RBMP. Monitoring programmes have improved, and new monitoring sites have been added.According to the prediction for Romania, 87.7 % of surface water bodies will be in good ecological status / potential by 2027. This would be a large improvement in comparison to the results now; however, there is a gap in achieving the good ecological status / potential of all water bodies. As in the 2nd RBMP, the exemptions according to Article 4(4) in the 3rd RBMP have been justified on the grounds of technical feasibility, disproportionate costs and natural conditions. Article 4(5) have been justified on the grounds of infeasibility (for 3 surface water bodies) and disproportionate costs (for 16 surface water bodies).
CHEMICAL STATUS		The chemical status assessment shows that 97.6 % of water bodies are in good status, with 2.4 % in poor status. The reasons for failing to achieve good status are largely due to uPBT substances, particularly mercury and polybrominated diphenyl ethers (PBDEs). The confidence in classification has improved. According to the prediction for Romania, the percentage of surface water bodies which will be in good chemical status / potential by 2027 will be approximately the same as compared to the results of 3rd RBMP. As in the 2nd RBMP, the exemptions according to Article 4(4) in the 3rd RBMP have been justified on the grounds of technical feasibility and natural conditions.

Ground Water Bodies (143)	Trend (% good status/potential)	Main Pressures & Changes & Exemptions

QUANTITATIVE STATUS		The 3rd RBMP reports that 100.0 % of total GWBs are in good quantitative status by 2021 and no GWBs are at risk of failing to achieve good quantitative status by 2027, similarly to the 2nd RBMP. Classification with high confidence has increased from 83.2 % of the assessments in the 2nd RBMP to 84.6 % of the assessments in the 3rd RBMP. However, a significant portion of the classifications have still been conducted with low confidence in the 3rd RBMP (i.e., 15.4 % of the assessments), with only minor improvement since the 2nd RBMP (i.e., 16.8 % of the assessments). There were no exemptions.
CHEMICAL STATUS		There is a slight improvement in terms of good chemical status from 89,5% in the 2nd RBMP to 91,6% of GWBs in the 3rd RBMP. There is a single pollutant causing failure to achieve good chemical status for all GWBs, namely nitrate Classification with high or medium confidence has remained the same since the 2nd RBMP at 97.9 % of the assessments. In the 3rd RBMP, 12 GWBs (i.e., 8.4 % of total GWBs) are expected to fail to achieve good chemical status by 2027. As in the 2nd RBMP, the exemptions according to Article 4(4) in the 3rd RBMP have been justified on the grounds of natural conditions (8.4 %).

2. Horizontal aspects

2.1 Governance

Romania has designated a single River Basin District (RBD): the Danube. This RBD is divided into 11 sub-basins / sub-units. Almost all of Romania's territory is part of the international Danube RBD[4]: 97.4 %. The rest are mainly coastal waters and associated small tributaries, which are attached to the Danube RBD (100 %).

There are two competent authorities in Romania: the National Administration "Romanian Waters"[5] responsible among others for the preparation of River Basin Management Plan as well as the reporting to the European Commission, and the Ministry of the Environment, Waters and Forests[6] responsible for the coordination of the implementation and enforcement of regulations.

Noteworthy, Romania's 3rd RBMP clearly indicates the synergies with the Flood Risk Management Plan[7], including Floods Directive measures, in particular those that are win – win measures i.e. Nature Water Retention Measures. Moreover, in developing the programme of measures as well as the exemptions, the integrated aspects between the 2 plans that are schematically presented in the RBMP[8] were taken into account.

It is positively noted that Romania's 3rd RBMP also pays attention to the objectives of Marine Strategy Framework Directive and includes those addressing e.g. aquaculture industry, preserving the morphological status of the Romanian Black Sea coast, sturgeon species (protection measures for sturgeon, preservation and restoration of ecological corridors) to mention just a few.

The timetable, work programme, consultation plan for the 3rd RBMP, overview of significant water management issues and the draft RBMP were submitted for consultation for six months in accordance with the WFD. However, the process was delayed, and the public consultation was ending at the time when, according to the WFD, the 3rd RBMP should have been nationally adopted. The RBMP has a chapter on public information, consultation and participation which includes the results of the public consultation[9]. The RBMP includes a summary of the consultation which was uploaded on the website. It is worth noting that Romania held joint consultations on its RBMP and the FRMPs prepared under the Floods Directive[10].

The Danube Basin level coordination is performed by an international River Basin Commission (International Commission for the Protection of the Danube River – ICPDR) to which Romania is a contracting party. In addition, Romania has bilateral agreements with all its neighbouring countries.

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[4] Romanian RBMP: "2. GENERAL PRESENTATION OF THE HYDROGRAPHIC BASINS/SPACES" (p. 27): the RBMP states that Romania has an area of 238 397 km2, and that of the total area of the country, 232,193 km2 are inside the Danube basin (representing 97.4% of the total of the country)

[5] Administratia Nationala "Apele Romane", https://rowater.ro

[6] Ministerul Mediului, Apelor si Padurilor https://www.mmediu.ro

[7] Romanian 3rd RBMP, A. Flood risk management

[8] See Figure 3.25 of the RBMP

[9] Source: 3rd RBMP, Chapter 122 Public information, consultation and participation (p.431), Annexes 12.1 and 12.2 of the 3rd RBMP)

[10] Directive 2007/60/EC on the assessment and management of flood risks entered into force on 26 November 2007

The international and bilateral cooperation activities are centrally coordinated by the Ministry of Environment, Waters and Forests and the National Administration "Apele Române" through the respective commissions.

It is worth highlighting a very recent agreement signed[11] between Romania, Moldova and Ukraine for Prut River basin, a tributary of the Danube River Basin to strengthen the transboundary cooperation. A relevant working group is being formed under the ICPDR. This is a very welcomed initiative that will help the countries to further improve their cooperation on the management of one of the longest tributaries of the Danube River.

2.2 Characterization of River Basin District

Romania has designated 3026 surface water bodies and 143 groundwater bodies (see below the number of water bodies per category).

Table 1: Overview of Romania 's River Basin Districts (RBDs) and waterbodies

RBD (Index)	Rivers	Lakes	Transitional Waters	Coastal Waters	Territorial Waters	Groundwater Bodies
Danube (RO1000)	2754	265	2	4	1	143
TOTAL	2754	265	2	4	1	143

It is noted very positively that overall, there have been substantial improvements in the number of surface water types with type-specific reference/type-specific conditions established. Indeed, 90 % of river types, 89 % of lake types and 100 % of coastal water types have type-specific reference conditions established for all relevant biological quality elements.

Moreover, 75 % of river types, 100 % of lake types, 50 % of transitional water types and 100 % of coastal water types have type-specific conditions established for all relevant hydromorphological quality elements. 100 % of river types, 95 % of lake types, 50 % of transitional water types and 100 % of coastal water types have type-specific conditions established for all relevant physico-chemical quality elements. 100 % of transitional water body types have all but fish fauna type-specific reference conditions for biological quality elements which is the same as in the 2nd RBMP. It is worth mentioning that the harmonisation of water types and reference conditions has been coordinated at the international level (ICPDR) for the whole Danube River basin.

The methodology for the identification of significant pressures and the assessment of the impact on surface water bodies has been revised and presented in the 3rd RBMP. Romania defines significant pressures as follows: if the environmental objectives of the water body are achieved, the potentially significant pressures identified are not considered significant pressures; if the environmental objectives are not met, then all potentially significant pressures are considered significant pressures.

[11] https://eu4waterdata.eu/images/pdf/library/MD-UA-RO_PrutDeclaration_Final_20102023.pdf

Romania's agriculture is characterised by a structure with a very large number of small individual holdings, many of which are practicing agriculture on small plots of land. Romania is the country with the highest number of farmers in the EU, amounting to almost 3.5 million. However, 90% of these are small farms of less than 5 hectares. Romania is one of the biggest producers of cereals in the EU and the largest producer of sunflower seeds, honey and plums. However, the share of organic farming is less than 5% of the total utilised agricultural area. The report on the implementation of the Nitrates Directive[12] shows that Romania adopted a whole territory approach having 51% percent of the monitoring points already in eutrophic state (41%) or the possibility to become eutrophic (10%).

The pressure posed by invasive alien species on waters is recognised in the RBMP. In total, there are 84 aquatic species of EU concern in Romania[13]. The RBMPs referred also to the work agreed in the frame of the international RBMP for the Danube e.g. to improve the methodology of assessing the invasive alien species.

Surface waters

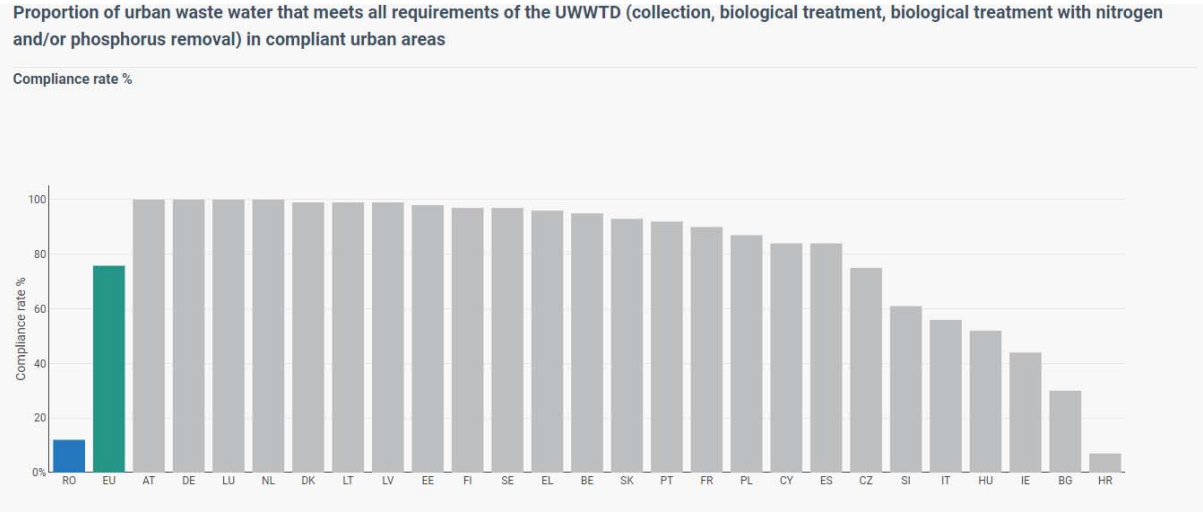
In Romania, hydropower capacity has slightly increased from 2008 to 2022. In 2021, they accounted for 29.8%[14] electricity generation. The number of hydropower plants is estimated to be between 545 and 674[15]. Evidence shows that 49% of the documented 545 hydropower plants in Romania are located in Natura 2000 or other protected areas, 5% are located in water bodies with 'very good' ecological status, and another 12% in water bodies with 'good' ecological status and 'very good' hydromorphological status according to the EU Water Framework Directive.

Worth mentioning is that very large part of this electricity is provided by 2 hydropower plants: Iron Gate 1 and Iron Gate 2, the largest dam on the Danube river and one of the largest hydropower plants in Europe. They are located on the Iron Gate gorge, between Romania and Serbia. While they have succeeded in providing a considerable amount of renewable energy, they have also had a very significant impact on the sturgeons, an iconic migratory fish. In the frame of the ICPDR and funded by the European Commission, the project We Pass aimed to facilitate fish migration in the Danube River Basin, for the preservation and reestablishment of endangered fish species migration routes in the Danube and its tributaries, and specifically at the Iron Gates. These fish passes would open up 960 km of the Danube.

As recognised by Romania, additional efforts are needed to comply with the Urban Waste Water Treatment Directive (UWWTD). As shown by the graph below only 12% of the urban waste water meet all the requirements of the Urban Waste Water Treatment Directive.

[12] https://water.jrc.ec.europa.eu/arcgis/rest/services/nid/msNidReporting7/MapServer/2/1167/attachments/214
[13] EASIN - European Alien Species Information Network: https://easin.jrc.ec.europa.eu/easin/
[14] https://www.iea.org/countries/romania
[15] A review of hydropower plants in Romania: Distribution, current knowledge, and their effects on fish in headwater streams - ScienceDirect

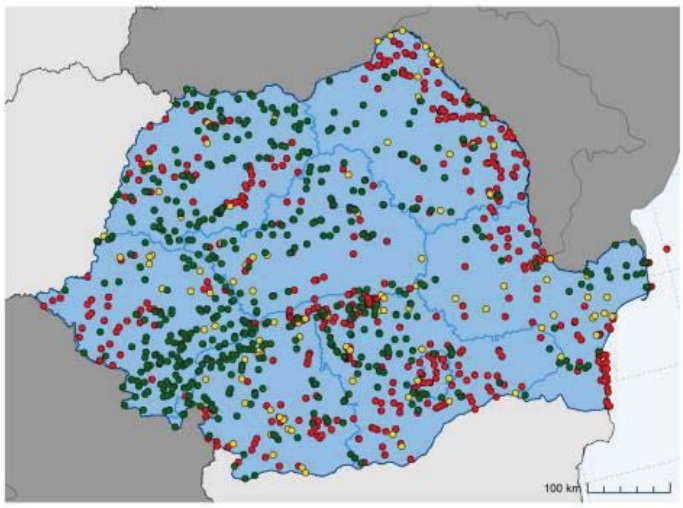
Figure 1 Proportion of urban waste water that meets all requirements of the UWWTD



Source: http://water.europe.eu/freshwater/countries/uwwt/romania

Just as it was the case for the previous cycle, the significant pressures having the biggest impact on surface water bodies are diffuse pollution from discharges not connected to the sewerage network (affecting 26 % of surface water bodies in this cycle and 25% in the previous) and diffuse pollution from agriculture (affecting 15 % of surface water bodies in this cycle and 12% in the previous), visible in the eutrophication of surface waters in agricultural areas (see fig 2). Hence the pressure coming from agricultural pollution has increased. In terms of impacts, nutrient pollution and organic pollution are the most significant pressures affecting the highest percentage of surface water bodies respectively: 23% (27% in the previous cycle) and 21 % (17% in the previous cycle).

Figure 2 Map of the monitoring points showing eutrophication assessment in Romania, according to the reporting of the Nitrates Directive



Source: JRC NITRATES DIRECTIVE - Reporting Period 7 (2016-2019) Trophic Status

Note : 0% of the monitoring stations are above the threshold of 50mg/l

Groundwater bodies

Just as for surface water and mirroring to the 2nd RBMP, the most significant pressures on groundwater bodies are also diffuse source pressures from discharges not connected to the sewerage network (8% of the groundwater bodies in the 3rd and 10% in the 2nd RBMP) and diffuse source pressures from agriculture (8% of the groundwater bodies in the 3rd and 10% in the 2nd RBMP). In terms of impact, the highest percentage of groundwater bodies (8%) is affected by chemical pollution, a small decrease comparing with 10% in the 2nd RBMP.

3. Policy elements contributing to biodiversity and climate change adaptation

3.1 Surface Water: what is their ecological status or potential

Monitoring

In the 3rd RBMP, the number of monitoring sites and the proportion of water bodies covered by monitoring has significantly increased for surveillance and operational monitoring, especially in rivers and lakes. Surveillance and operational monitoring[16] are undertaken in most surface water categories as follows: in rivers, 51.2 % and 38.0 %, respectively and in lakes, 41.6 % and 37.5 % of lake area, respectively. Coastal and transitional water bodies are 100% covered with operational monitoring. If no monitoring was performed, the principle of grouping of water bodies was applied, which consists of the use of monitoring data collected from another site, located on another body of water that presents the same typology, the same types, and the same magnitudes of anthropogenic pressures.

Romania reports that the monitoring network of the 3rd RBMP has been re-adjusted after the evaluation of the findings from the 2nd RBMP on pressures, status and impacts. One thing to notice is a decrease in surveillance monitoring whereas there is an increase in operational monitoring. According to the 3rd RBMP, changes of monitoring sites from surveillance to operational monitoring ensure higher frequency of monitoring, of those SWBs at risk of failing to achieve good chemical status due to pollution.

Status assessment

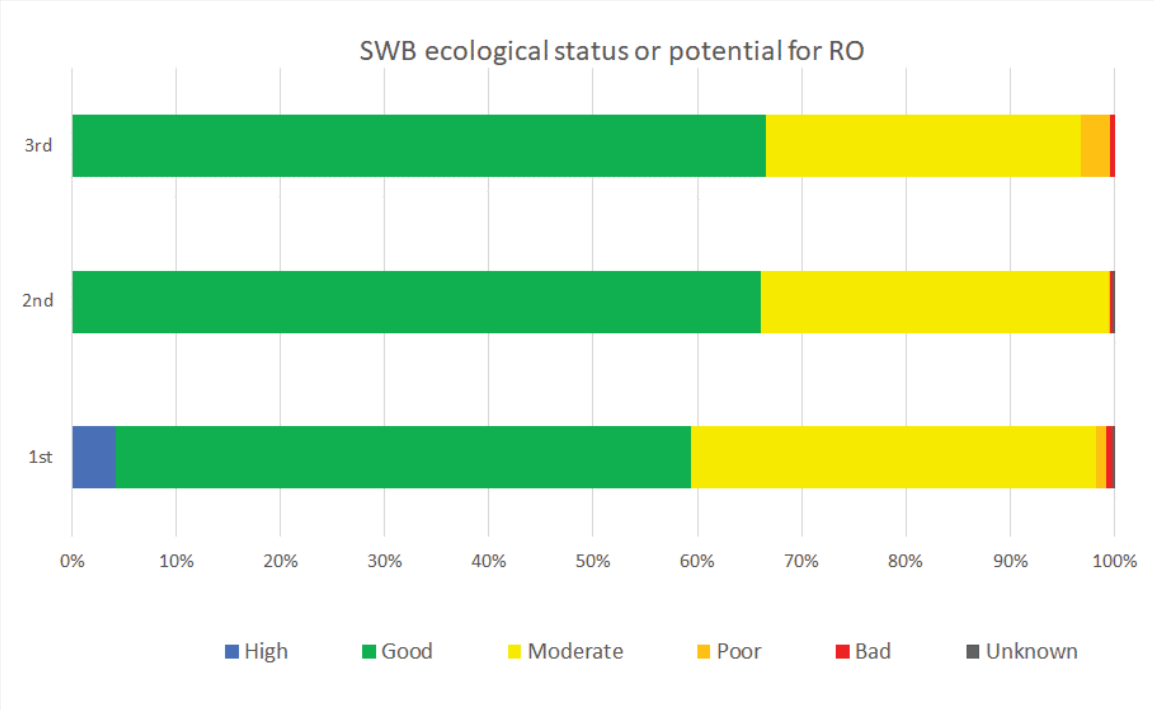
All surface water bodies have been classified for ecological status or potential for all RBDs/sub-units. This classification relies on both surveillance and operational monitoring, as well as on grouping and

[16] The WFD distinguishes between surveillance and operational monitoring: i) operational monitoring to determine the status and which covers all water bodies at risk and ii) surveillance monitoring aimed at identifying impacts and long-term changes

expert judgment (see figure below). It is worth highlighting the progress achieved by Romania in the evaluation of ecological status/potential by e.g. finalising the intercalibration exercise at the European level based on biological elements, adjusting the system of evaluation of physico-chemical quality elements etc. However, there is still a gap in the intercalibration of reference conditions for fish fauna in lakes and transitional waters. Moreover, confidence has improved since the 2nd RBMP since Romania took into account the increase in the number of monitored water bodies and of monitored quality elements.

Figure 2 depicts the evolution of the good ecological status of surface water bodies in Romania. It shows that, for the share of surface water bodies in good ecological status, there is almost no real change compared to the previous cycles. Moreover, a certain deterioration can be seen in the moderate status since there are now more water bodies in poor or bad status. Rather than only an actual deterioration, this may be partly due to the improvement of knowledge and the assessment of ecological status with higher confidence.

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



Source: 3rd RBMP e-reporting

Romania has estimated that by 2027, 87.7 % of surface water bodies will be in good ecological status / potential by 2027, respectively 12.3% of surface water bodies not achieving the objective. It is argued that the later will reach good status after 2027 due to natural conditions.

3.2 Hydromorphological changes and artificialization (HMWBs and AWBs)

Romania made some progress in the implementation of the provisions related to hydromorphology e.g. specific methodologies are in place for rivers, lakes, transitional and coastal waters to assess hydromorphological criteria leading to a robust assessment of AWBs/HMWBs. For assessing the good

ecological potential, Romania has a well-developed method which has been improved by adding to the lake assessment a new quality element (i.e. macrophytes).

According to the 3rd RBMP, the national methodological instructions were revised in 2020, following the Driver - Pressure - State - Impact – Response concept. As a follow-up, potentially significant hydromorphological pressures and possible changes in the ecological status / potential of the water body have been identified, and for each type of hydromorphological pressure responses have been developed (i.e. measures taken to improve hydromorphology and achieve good ecological status/potential). Furthermore, an impact assessment has been carried out based on monitoring data relevant to ecological status / potential for the period 2018 - 2020. Thus, the potentially significant hydromorphological pressures identified before this period have also been validated considering the monitored impacts on the water bodies and the gaps to environmental objectives.

The 3rd RBMP reports that good ecological potential has been defined by using a hybrid approach which combines elements of the Common Implementation Strategy Guidance approach based on biological quality elements[17] and the so called "Prague approach" based on the identification of mitigation measures[18]. Good ecological potential (GEP) has been defined at the water body level or for groups of heavily modified water bodies / artificial water bodies. Physico-chemical quality elements have been used in the definition of GEP. Good ecological potential is reported to have been defined in terms of biology. The biological quality elements for which biological values are used to define maximum ecological potential and good ecological potential for rivers are phytobenthos, benthic invertebrates, fish, and macrophytes. Macrophytes are used for lakes and they have been introduced in the evaluation of the ecological status and ecological potential of heavily modified lakes in the 3rd RBMP.

In terms of human intervention in the water system, rivers remain fairly natural whereas lakes and coastal water considerably impacted by human intervention as it can be seen in the table below. A much smaller percent of water bodies is artificial (around 2%) i.e. water bodies created by human activity.

Table 2: Overview of Romania 's HMWBs and AWBs

Modifications	Rivers	Lakes	Transitional Waters	Coastal Waters	Territorial Waters	Total (% of total SWBs)
HEAVILY MODIFIED	12.10%	57%	0%	50%	0%	16.50%
ARTIFICIAL	2.50%	0.40%	0%	0%	0%	2.28%

The 3rd RBMP reports a slight increase in the number of Heavily Modified Water Bodies (from 488 to 500) while the Artificial Water Bodies remain unchanged i.e. 69. According to the authorities, this increase is due to changes in delineation and categories of water bodies (mostly from river to lake) and to the new methodological approaches.

[17] CIS guidance document nº 4
[18] CIS guidance document nº 37

The main causes for which water bodies are designated as heavily modified or artificial are flood protection (41.3 % of water bodies), hydropower (13.5 %), fisheries and aquaculture (18.5 %), and drinking water for urban settlements (10.2 %).[19]

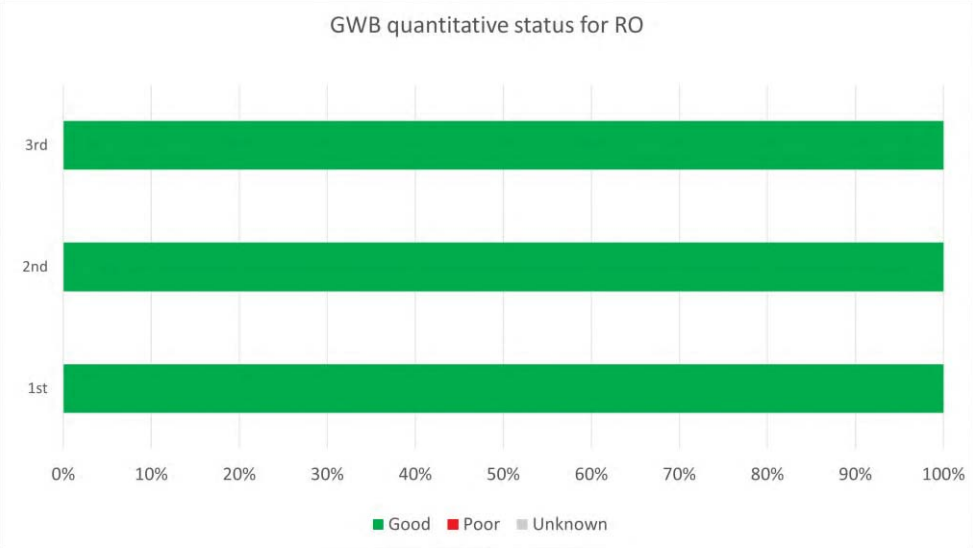
3.3 Groundwater bodies - have they sufficient water – quantitative status

The share of GWBs with quantitative monitoring is 77.6 % of total GWBs (111 out of 143) whereas it was 79.0 % in the previous cycle. Romania explained that the slight decrease in quantitative monitoring is related to changes made i.e. re-adjusting the monitoring network after the evaluation of the findings from the 2nd RBMP on pressures, status and impacts. Similar to the 2nd RBMP, grouping of GWBs was not used in the assessment of the quantitative status of GWBs. Romania reports that, where monitoring results are lacking, the assessment of quantitative status has been based on a risk assessment for the identified pressures in each GWB.

While classification with high confidence has increased from 83.2 % in the 2nd RBMP to 84.6 % in the 3rd RBMP, only minor improvement can be seen for low confidence i.e. from 16,8 % in the 2nd RBMP to 15, 4% in the 3rd RBMP respectively.

Progress has been made by Romania in that, the consideration of the needs of groundwater dependent terrestrial ecosystems is now included together (unlike the 2nd RBMP) with the needs of groundwater associated surface waters.

Figure 4 Groundwater bodies quantitative status



Source: 3rd RBMP e-reporting

The sufficient replenishment of the groundwater bodies seems to be secured since all GWBs are considered in good quantitative status. Moreover, no GWBs are reported to be at risk of failing to meet good quantitative status by 2027.

[19] Percentages exclude missing data

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

Surface water and groundwater protected areas have been identified for all relevant directives within Romania. Protected areas for surface waters include Bathing Waters, Nationally Designated Areas (CDDA) and areas for the protection of economically significant aquatic species, including areas protected under the repealed Shellfish Directive[20].

As can be seen in the figure below, a number of protected areas are associated with both surface and groundwaters including Article 7 WFD Drinking Water Protection areas and Natura 2000 sites protected under the Birds and Habitats Directives. It is worth noting that Romania has adopted a whole territory approach for nitrate vulnerable zones and nutrient sensitive areas.

Table 3 Number of water bodies associated with protected areas in Romania in 2021

Protected area type	Number of Water Bodies associated with protected areas in Romania				
	Rivers	Lakes	Coastal	Transitional	Groundwater
Bathing waters			3	1	
Drinking water protection area	207	35			135
Nationally-designated Area (CDDA)	340	60	2		
Natura 2000 protected site	1637	190	4	2	45
Shellfish designated water			3	1	

Source: 3rd RBMPs e-reporting

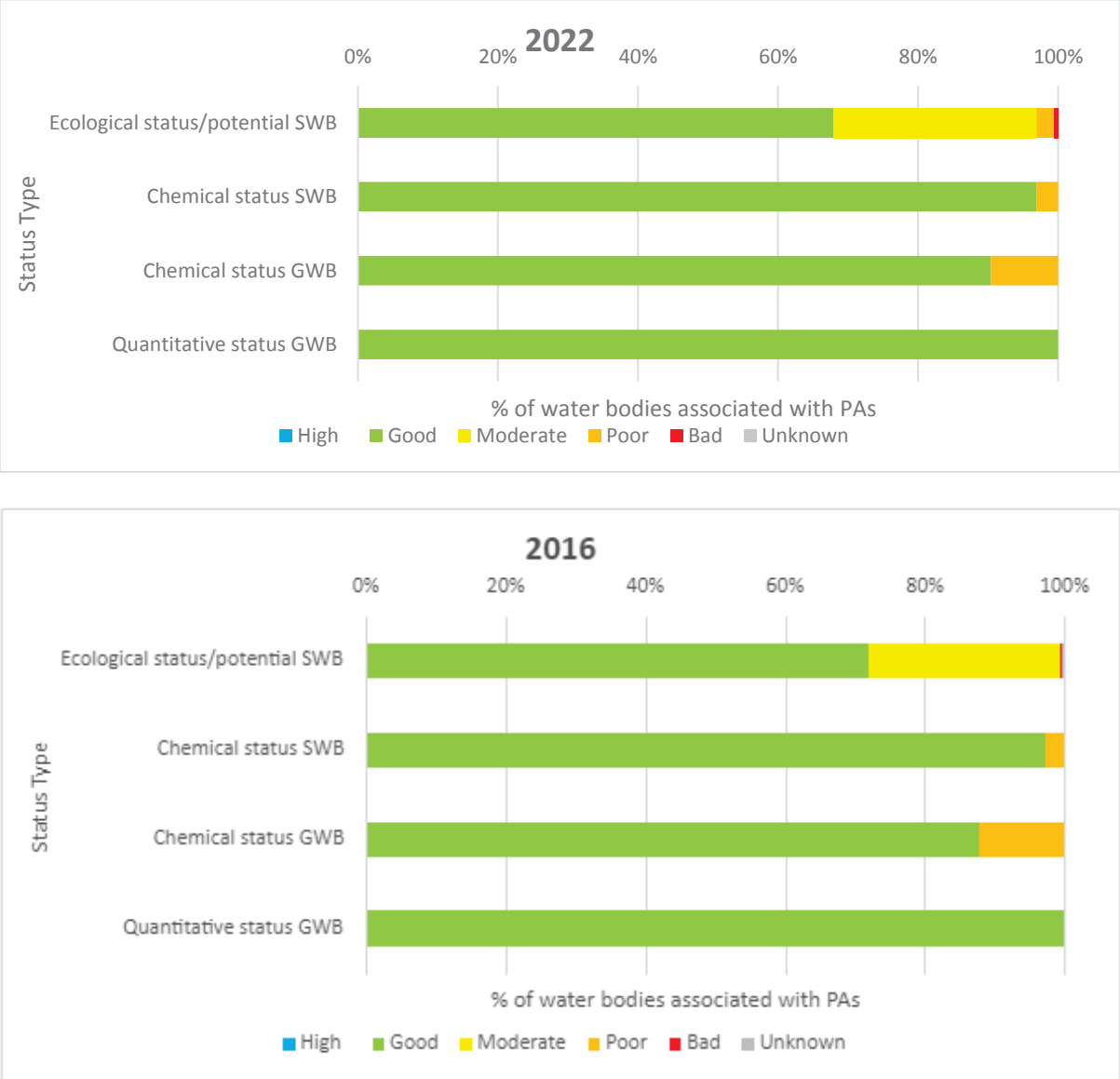
In terms of the number of water bodies associated with different types of protected areas, since the 2nd RBMP the number of Natura 2000 sites has decreased from 507 to 473 while the number of drinking water protection areas has increased from 2790 to 3374. This is because Romania has grouped a number of protected areas i.e. 245 nationally designated areas. Coastal bathing areas designations have not changed since the 2nd RBMP (49 bathing areas).

Monitoring of protected areas is carried out in surface waters associated with drinking water protection areas, nationally designated areas and Natura 2000 sites. Monitoring of bathing area is carried out and reported under the Bathing Waters Directive. Due to the 'whole country' approach, the Nitrates Action Plan is applicable to the whole territory thus applying the principle of prevention in the context of nitrate pollution. The monitoring of the compliance of the water bodies is done by monitoring the concentration of nitrates and the parameters indicating the eutrophication process.

[20] The Governmental Decision (201/2002 with subsequent amendments) which transposes the Directive is still in place in Romanian legislation.

It can be seen from the figure 4 below that there has been a slight improvement in the status of water bodies associated with protected areas between 2016 and 2022.

Figure 5 Progress in the status of water bodies associated with protected areas by 2016 and 2022



Source 3rd RBMP e-reporting

No additional objectives have been reported or found in the RBMP related to water bodies associated with Natura 2000 protected areas (Birds and Habitats Directives): this is because good WFD status was deemed sufficient to meet the environmental objectives for these areas. However, the RBMP indicates that work is ongoing to determine possible additional needs in these areas.

The electronic reporting indicates that objectives have been set for surface waters associated with drinking water protection areas (318) and for areas associated with the Shellfish Directive (7). 8 out of 318 surface water bodies associated with drinking water protection areas have not met the objectives set for different reasons e.g. due to exceeding the following indicators: Total Coliforms, Faecal and Faecal Streptococci, Manganese. For the water bodies associated with the Shellfish Directive all fixed objectives have been met.

Additional measures are described in the RBMP for surface waters associated with Natura 2000 sites (e.g. supporting the collection and management of data on the fishing sector) as well as measures for protection of drinking water zones such as restriction of the use of land to prevent the risk of contamination of water, because of human, economic and social activity. No exemptions are reported for water bodies associated with protected areas.

3.5 What is being done to prevent/reduce hydromorphological pressures

An authorisation and / or permitting regime was reported to be in place during the 2nd RBMP and 3rd RBMP, to control physical modifications, which covers changes to the riparian area of water bodies as well as a register of physical modifications of water bodies.

Win-win measures in terms of achieving the objectives of the WFD and Floods Directive, drought management and use of nature-based solutions / natural water retention measures were reported in the 3rd RBMP. An example was the creation or restoration of wetland retention areas. Also, the design of new and existing structural measures, such as flood defences, storage dams and tidal barriers, are reported to have been adapted to take into account WFD objectives.

As mentioned earlier, Romania is also working towards opening the migration route for sturgeon and other migratory fish species at the Iron Gates through the feasibility study "Making Iron Gates dams passable for Danube sturgeons"[21] known as 'We Pass' project. Once this project is finalised, Romania will need to ensure the necessary funds for the actual construction of the fish passes.

Noteworthy also is that Romania started in 2019 an inventory of all hydrotechnical works and update the relevant geospatial dataset to these works to support the update of the RBMP, the update of the FRMP and the update of the Cadastre of Romanian Waters.

3.6 What Romania is doing for abstractions and water scarcity

Just as it was the case in the previous cycle, Romania has not considered that water abstraction, understood as consumptive use or net consumption, is a significant pressure at the RBD level. As mentioned earlier, all GWB are considered to be in good quantitative and none would be at risk of failing by 2027.

Nevertheless general, basic and supplementary measures to address water abstraction have been planned. There is a register of abstractions from surface water and groundwater and a register of impoundments. Small abstractions are defined with certain thresholds (0.2 l/s) and those under the threshold are exempted from controls. Permits are issued by competent water management authorities, who define their duration based on data and information contained in the technical documentation. Furthermore, permits can be refused or revised under specific conditions, in order to maintain or achieve the environmental objectives.

It is worth highlighting that even though the water abstraction and water scarcity are not identified as a significant pressure, steps have taken by Romania to prevent these to happen by performing a water demand forecast in which three scenarios were examined with a time horizon up to 2030, comparing with 2020. The forecasts show that the water demand is expected to be similar for public water supply,

[21] https://www.cdmsmith.com/en-EU/News/Helping-Danube-Fish-To-Pass-The-Iron-Gate-Dams

but it may increase around 20 % for industry and 16% for aquaculture, and triple for irrigation. Moreover, climate change is expected to cause an increase of water scarcity conditions in the country. According to the 3rd RBMP, each river basin is required to prepare plans for restrictions in use of water during periods of scarcity. The plans are updated yearly by river basin authorities, outlining responsibilities of water users during drought periods. A dedicated chapter in the RBMP outlines projected water availability and water demands.

In this context of increasing water demands, it is very welcome that Ecological flows (e-flows) have been defined for all relevant water bodies. Yet they are being implemented only in a number of water bodies, but work is still on-going. For those water bodies where e-flows have been implemented, Romania has established an explicit link between the implementation of e-flows and the authorisation process and / or review of permits to control water abstractions and impoundments[22]. National authorities may conduct relevant sample checks after authorisation or targeted checks after complaints to prevent cases of unauthorised abstractions or violation of permit conditions.

3.7 Adaptation to climate change

Romania has not adopted a specific Drought Management Plan but at national level there are different pieces of legislation that are applied during drought events[23]. Regarding climate change, Romania has also in place the "National Strategy of Romania regarding climate change 2013 - 2020" and the "National Action Plan 2016 - 2020 regarding climate change" which is being updated to include among others the European strategy regarding adaptation to climate change.

The 3rd RBMP has a dedicated chapter on quantitative aspects and climate change, which includes an analysis on the evolution of flow rates until 2050. The analysis outlines that 9 out of 10 rivers analysed are projected to decrease in flow rate under climate change scenarios. Furthermore, the projected climate change impacts show an increase in drought intensity and frequency in some regions of the Danube, with a 20 % probability of severe droughts occurring in the next 10 years. The impacts are projected to affect 50 % of total agricultural land. Also, according to the European Droughts Atlas[24] the projections for Romania show an increase in risk e.g. for agriculture, water supply, hydropower production, terrestrial and freshwater ecosystems.

Climate change adaptation measures, based on the projected impacts of climate change, were prioritised against three principles: benefits to implement the requirements of the European water directives (win-win); no-regret and low- regret that are flexible enough for varied conditions (floods, drought, biodiversity). The climate adaptation measures include implementation and integration of the national climate change action plan, study impacts of drought on aquifers, plans for restrictions and use of water in periods of scarcity.

[22] The situations that can lead to a deterioration of the hydrological regime are taken into account in the procedure for issuing the water management opinion. A preliminary analysis is performed taking into account the availability of water resource, the existing uses, but also the ecological requirements (ensuring e-flows). This preliminary analysis can lead to the modification of the solutions proposed by the project and provided in the technical documentation subject to approval.
[23] Plans for Water Restrictions and Use in Deficit Periods", "National Strategy for reduction of the effects of droughts on short-, medium-, and long-term" (2007) and "National Strategy and Action Plan / Plan of Measures for Mitigating the Effects of Drought and, Combatting Land Degradation and Desertification on short-, medium-, and long-term" (2008)
[24] European Drought Risk Atlas https://publications.jrc.ec.europa.eu/repository/handle/JRC135215

Furthermore, a range of drought measures are planned to be implemented in the 3rd cycle, including measures to improve knowledge on climate change impacts on drought, scenario development, identification and implementation of water efficiency, water saving and analysis of possible water reuse, and the promotion and implementation of natural water retention measures. It is worth highlighting that Article 4(6) exemptions have not been applied in Romania.

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

Compared to the first FHRMs, when climate change was not taken into account, for the second FHRMs a scenario for medium probability of occurrence was developed considering climate change.

In the PFRA stage, climate change scenarios and data from Romanian-partnered international projects were considered[25]. Scenario A1B developed by the Intergovernmental Panel on Climate Change (IPCC) was used to estimate the impact of climate change on maximum river discharges (for floods with a 0.1% probability, i.e. once in 100 years). The projections for 2021-2050 were compared with a reference period of 1970-2000. Three geographical areas were identified: (1) regions where the maximum discharge will not change (stationary); (2) regions with a moderate increase of maximum discharge (10 %) and (3) regions with a significant increase of discharge (20 %)[26]. The FRMPs refer to Romania's national adaptation strategy and discuss projected impacts of climate change on flooding. The MCA for measures includes criteria for climate adaptation and mitigation. Measures directly for improving knowledge for climate change are included in the FRMPs. The FRMPs identify several very high priority measures at national level to address climate change and to be completed by 2027. Compared to the first FRMPs, the second FRMPs refer to Romania's National Climate Change Strategy and provide information on the potential impacts of climate change on floods.

4. Policy elements contributing to zero pollution

4.1 Surface Water: what is their chemical status

Monitoring

It is positively noted that there has been an increase in the monitoring network in Romania between the 2nd and the 3rd cycles, from 24% to 35%. The 3rd RBMP states also that based on the previous round of monitoring (under the 2nd RBMP) a risk based approach has been adopted with greater numbers of monitoring sites and a focus on high risk areas where exceedances may be expected, and less in other

[25] Second PFRAs, Danube UoM (RO1000), p. 82: IPCC scenarios, and Romanian-partnered EU projects (e.g. CLIMHYDEX, CC Waters, CC Ware) were taken into account.
[26] Anx1_Meto Modelare si Cartografiere Hazard Inundatii, p. 131. The geographical distribution of the three categories is presented in Fig. 10.1, p. 132. Based on these estimates, FHRMs for T100 scenario were developed and can be downloaded as a PDF from the portal.

areas. In the 3rd RBMP greater effort has been placed on operational monitoring and less on surveillance, again to address the confidence in chemical status. Grouping and expert judgement have been used for water bodies where monitoring is not undertaken.

Efforts have been also made to increase the number of substances, and analytical capabilities apart from short chain chlorinated paraffins (C_{10-13}) and tributyltin in water, and dioxins and dioxin-like compounds in biota. According to the authorities, for these substances either standards do not exist, or there are unacceptable risks to personnel in terms of collecting and analysing samples. It is welcome that monitoring in biota was further expanded in 2021 to include new substances, with a particular focus on PFOS.

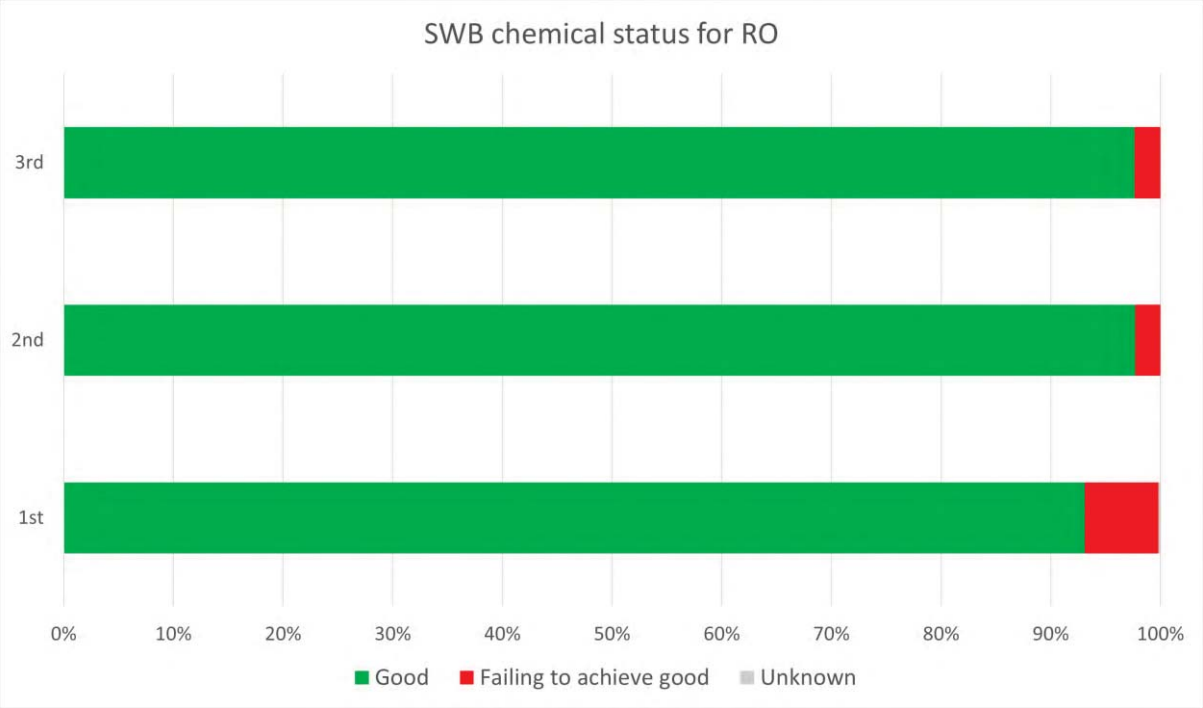
The 3rd RBMP states that the monitoring frequency is according to the WFD requirements.

Status assessment

In Romania, 95 % of all water bodies are river water bodies, whilst the remaining 5% (seven water bodies in total) is the sum of coastal, transitional, and territorial water bodies.

Romania assessed in the 3rd RBMP that 97% of the water bodies (2954 water bodies) are in good chemical status and 3% (71 water bodies which are all rivers) fail to achieve good chemical status (see Figure 5). These results are more positive than in other Member States upstream in the Danube river basin. Also the results published by the ICPDR suggest that, as in other countries, ubiquitous PBT substances such as mercury are present in the Romanian part of the Danube. Hence, the comparability of the Romania chemical status assessment will have to be further investigated.

Figure 6 Evolution of chemical status for surface water bodies in Romania between the 1st, 2nd and 3rd RBMP (i.e. by 2009, 2015 and 2021)

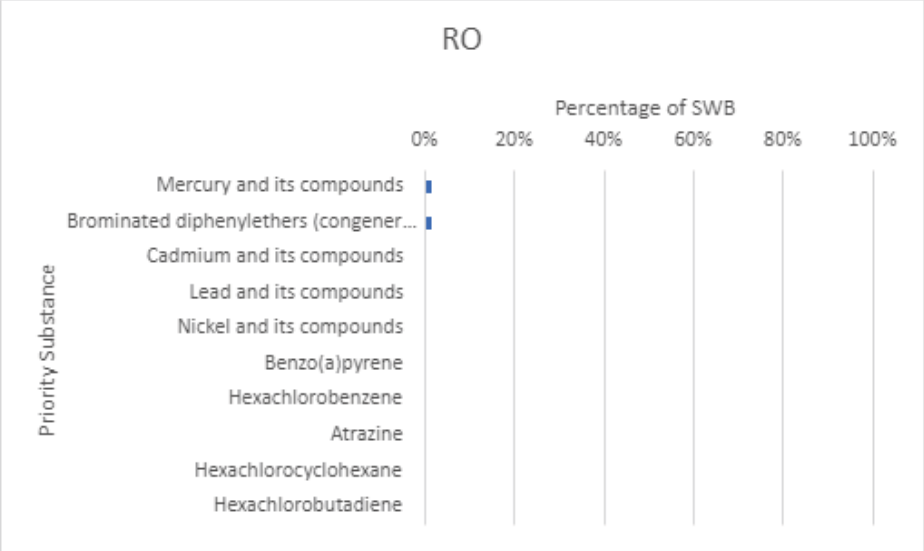


Source: 3rd RBMP e-reporting

Romania's forecast is that by 2027 less than 2% of the water bodies would still fail to achieve good chemical status.

The top ten Priority Substances list causing failure to achieve good chemical status is dominated by ubiquitous, persistent, bioaccumulative and toxic (uPBT) substances. Those are mercury, PBDEs and heptachlor, heptachlor epoxide, as well as Benzo(a)pyrene and metals such as cadmium, lead and nickel. These uPBT substances are causing 52 water bodies to fail to achieve good chemical status. If the uPBT would be excluded the number of water bodies failing would drop from 71 to 19.

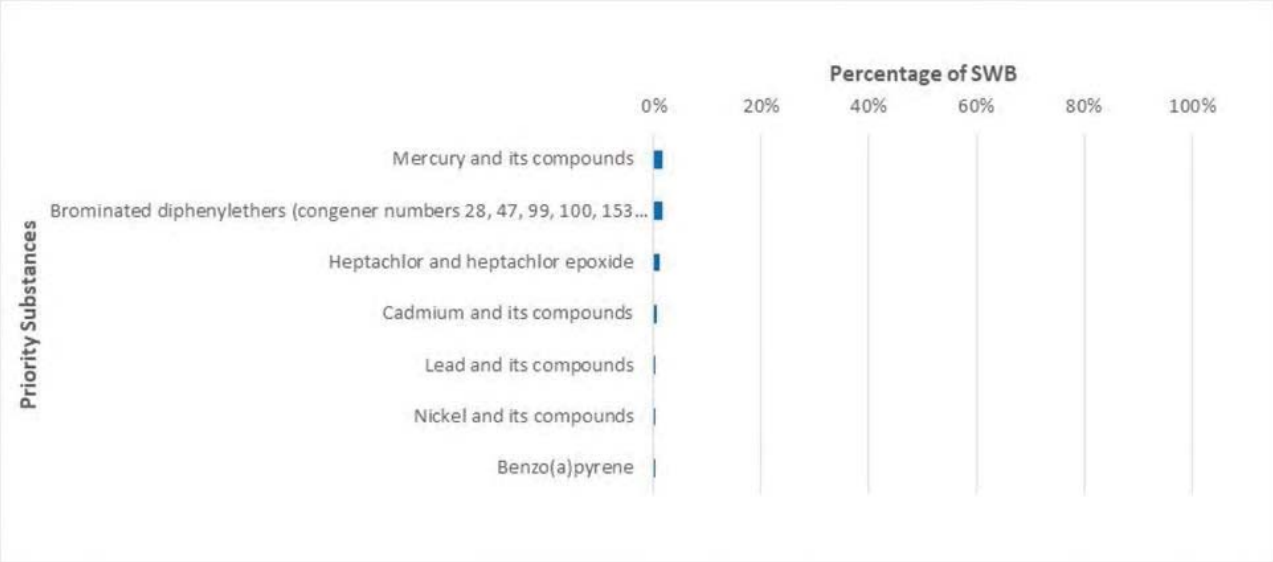
Figure 7 Top ten priority substances causing failure to achieve good chemical status



Source: 3rd RBMP e-reporting

Figure 8 Top ten priority substances causing failure if the new priority substances added by the 2008/105/EU as amended by 2013/39/EU are also included[27]

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



Note: Assessment report figure does not include hexachlorobenzene, atrazine, hexachlorocyclohexane, and hexachlorobutadiene. Each of these affects 0.03% of SWBs in RO.

Source: 3rd RBMP e-reporting

4.2 Groundwater Bodies: what is their chemical status

Monitoring

As mentioned earlier, there has been a decrease in surveillance monitoring in parallel with an increase in operational monitoring. According to the 3rd RBMP, changes of monitoring sites from surveillance to operation monitoring ensure higher frequency of monitoring, of those GWBs at risk of failing to achieve good chemical status due to pollution.

All substances causing risk of deterioration, i.e. GWD Annex I and Annex II (Part B) substances and WFD Annex V (Point 2.4.2) core parameters are monitored. Other parameters are also included, depending on water use.

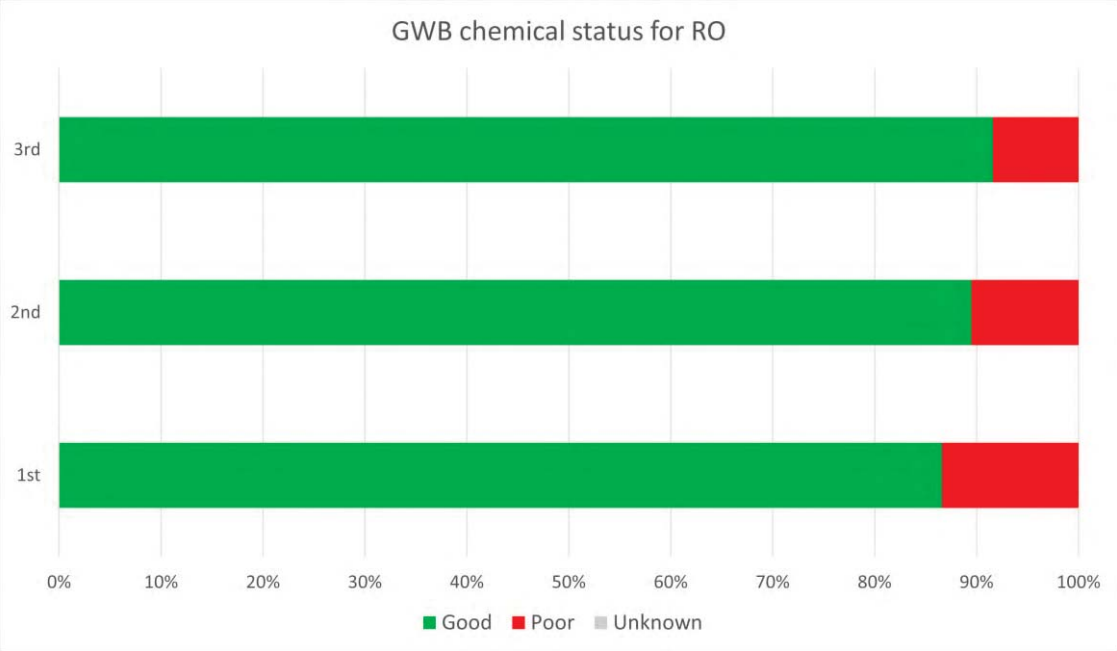
Status assessment

The assessment of the general chemical situation of a groundwater body is based on the harmonised methodology proposed in the EU Guidelines,[28] which is considered as good practice.

It is worth noting that it is assessed in the 3rd RBMP, that 91,6% of GWB are in good chemical status revealing a slight improvement compared to the previous cycle. Romania forecasts that 8,4 % of the total GWB i.e. 12 GWBs are to be expected to fail to achieve food chemical status by 2027. The cause for failure for all these GWB is the concentration of nitrates. Furthermore, the top five pollutants showing sustained upward trends in GWBs are nitrates, chloride, arsenic and its compounds, nitrite and phosphate.

Figure 9 Chemical status of groundwater bodies by 2009, 2015 and 2021

[28] CIS Guidance document 18 (2009): Groundwater status and trend assessment, derived as a 'conceptual model' in line with point 3 of Annex III (*Assessment of groundwater chemical status*) of the GWD.



Source: RBMP e-reporting

4.3 What Romania is doing to combat pollution from agriculture

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. It is very welcome that the RBMP presents an overview of the quantified gaps and how much the planned measures are expected to achieve in terms of closing the gaps as follows:

- Need for reduction of the nitrogen load from agriculture: 15662 tons per year and area of agricultural land where the nutrient load from agriculture needs to be reduced: 28025 km²;
- Area of agricultural land where pesticides from agriculture need to be reduced[29]: 1918 km²;
- Area of agricultural land where pesticides from agriculture need to be reduced in relation to brominated diphenyl ethers: 2421 km² (as reported by Romania);
- Area of agricultural land where pesticides used in agriculture need to be reduced in relation to heptachlor and heptachlor epoxide: 1795 km²; and
- Area of agricultural land where pesticides used in agriculture (among other sectors) need to be reduced in relation to hexachlorobenzene: 114 km²(as reported by Romania);
- Number of groundwater bodies not reaching target due to nitrate concentration exceedances: 12 (out of 143 ground water bodies).

The agricultural area of Romania is about 146,300 km². It means that for example the requirement to reduce the nutrient load from agriculture covers around 18 % of the utilised agricultural area.

Most water protection measures are mandatory measures for farmers i.e. measures following the existing legislation such as the Nitrates Directive or being required as Good Agricultural and

[29] Reported by two entries: 1482 km² and 436 km²

Environmental and Climate and management requirements practices in order to receive CAP funding[30]. In terms of key supplementary/additional measures for agricultural activities, the following are planned to be implemented for the period 2022 – 2027: the reduction of soil erosion, the application of cultivation practices to reduce the use / pollution with phytosanitary products, the protection of water bodies against pesticide pollution, consultancy / training for farmers, conversion of arable land to pasture, creation and maintenance of buffer zones along water at a distance greater than that provided by the legislation in force, the application of organic farming, the prevention and combatting of pollution from agricultural activities in areas facing natural constraints, significant natural constraints or other specific constraints (e.g. conversion of arable land to pastures).

One of the important additional measures is the construction of communal manure storage platforms. Through the "Integrated control of nutrient pollution in Romania" project, 68 communal platforms for the storage and management of manure in the amount of EUR 29 million were built at the national level. The RBMP states that the operation and maintenance of communal manure storage platforms, an average cost of approximately EUR 25,000 per year per platform is expected. In the period 2022 - 2027, it is planned to build communal platforms for the storage and management of manure in the amount of EUR 95 million covering investment and other costs.

The RBMP also includes information on the cost related to the implementation of measures for the protection of water against nutrient pollution from agricultural sources e.g. 477 million EUR for manure storage facilities, 5.4 million EUR for the creation of buffer strips and 91 million EUR for monitoring of surface and groundwater bodies. There is a reference to the international Danube River Basin to which Romania is part of in particular about the specific coordination of the needs for agricultural measures to reduce the nutrient loads. Two of the four Romanian coastal water bodies show deterioration of their ecological status in the biological quality elements since de 2nd RBMP and even more since the 1st RBMP. There is a continued pressure of nitrogen conditions in all four coastal waterbodies since the 2nd RBMP. The River Basin Specific Pollutants have also some negative impacts on the status of two coastal waters. It is important to note that specific measures established at international level (presented in the Danube River Management Plan) were taken on board by Romania and included at the national level.

4.4 What Romania is doing to combat pollution from other sectors

The 3rd RBMP addresses pollution from other sectors than agriculture including the measures to address chemical pollution. Therefore, there are measures planned to address both point and diffuse pollution sources.

The 3rd RBMP includes investments in construction and upgrading of wastewater collection and treatment infrastructures. This is very welcome since, as mentioned earlier, considerable efforts must be done to comply with the Urban Waste Water Treatment Directive (UWWTD).

Apart from the waste water treatment related measures, the 3rd RBMP described in generic terms at national level and in detail at sub-units level other planned measures to reduce chemical pollution including Priority Substances and other pollutants: remediation of contaminated sites (historical pollution including sediments, groundwater and soil), measures for the phasing-out of emissions,

[30] Mapping and analysis of CAP strategic plans (2023 2027) Mapping and Analysis of CAP Strategic Plans - European Commission (europa.eu)

measures to reduce sediment from soil erosion and surface run-off, research to improve the knowledge base etc. The RBMP includes an assessment of the expected effect(s) of the planned measures. It is stressed that the effect of measures on the water bodies status takes more time, especially for the groundwater bodies.

Romania presented also gap indicators such as:

- Length (km) of river network requiring measures to achieve objectives: 124 km
- Number of urban wastewater treatment plants associated with specific pollutants requiring measures to achieve the objectives: 48
- Number of discharges required to be connected to sewerage network to achieve objectives: 3705
- Area (km2) of groundwater bodies affected by discharges not connected to sewerage network: 19,897 km2
- Population equivalent where wastewater treatment plants need construction or upgrade: 3.5 million p.e..

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

It is noted with concern that over half of the planned measures from the 2nd RBMP have not been implemented. A small percentage of these measures are deemed to be no longer necessary (4%) and the majority of those that were not implemented (56 %) have been postponed for implementation in the 3rd RBMP (36 %).

Romania did a prioritisation of measures based on a number of factors that include:

- Measures which aim to prevent deterioration of water bodies;
- Measures which apply to sectors where legal mechanisms and enforcement is available to comply with the EU and national obligations;
- Focus on sectors that have traditionally been regulated and subject to improvement of measures;
- Measures to reach the environmental objectives of water bodies according to the DPSIR concept and analysis.

In addition, the measures are prioritised based on the investments needed to comply with the obligations arising from the community acquis.

Measures listed in the 3rd RBMP are split between basic and supplementary measures against each KTM. There are a total of 140 measures, 52 basic measures and 88 supplementary measures.

Romania's 3rd RBMP indicates that 83 % of the budget allocated for investment costs is for measures for human agglomerations and is related to the financing of measures to ensure drinking water and wastewater infrastructure. This matches well the most significant pressures identified in the Member State. The 3rd RBMPs report a summary overview of financing sources for the PoMs, including details presented per RBD per type of measure for the entire programme of measures for the period 2022-2027, i.e. approx. 18 872 billion Euros (excluding operation-maintenance costs).

Gap analyses are presented for all significant pressures, with quantitative pressure indicators and measure indicators and gap values for 2021. Regrettably, no gap has been presented for 2027.

5. Exemptions and economics

5.1 To what extent are exemptions applied in Romania

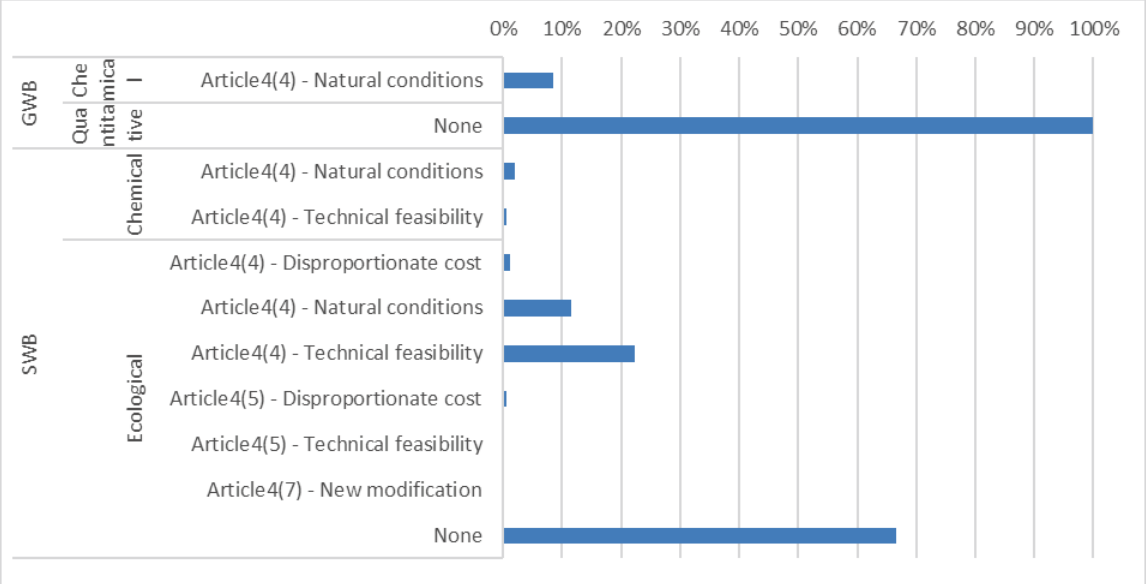
Romania has used the possibility to apply exemptions under Article 4(4), Article 4(5), and Article 4(7). The figure below shows the percentage of water bodies subject to each type of exemption and the main justification.

In a nutshell, there has been less than 2% increase in the number of Article 4(4) exemptions applied to surface water bodies and a very small increase (by one surface water body) in the number of Article 4(5) exemptions applied. The number of applied exemptions under Article 4(7) has increased from four to five while the number of groundwater bodies for which exemption to the achievement of good chemical status was applied, has decreased from 15 to 12 groundwater bodies. Exemptions under Article 4(6) of the Water Framework Directive and Article 6(3) of the Groundwater Directive have not been applied in the 2nd and 3rd RBMPs.

In terms of justification and level of detail provided, it should be noted that the RBMPs provide a detailed explanation as regards the methodology used for applying exemptions (how and when) including some useful concrete examples, but the individual descriptions established at the water body level only focused on the measures necessary to implement to reach good status. However, Article 4 of the WFD applies at the level of the water bodies, which in turn implies that justifications presented in the RBMP should also be specific to the water bodies for which the exemption is invoked. Therefore, the individual descriptions established at the level of the water body should include more detailed explanations on the reasons for applying the exemption or refer to publicly available documents including such more detailed justifications.

Zooming in on the water bodies on the Danube river itself (seven in total) which are reported to the ICPDR, six out of seven water bodies are in bad ecological and/or chemical status. As a result, Romania applied Article 4(4) exemptions for six out of seven water bodies.

Figure 10 Type of exemptions applied to surface water and groundwater bodies for the 3rd RBMP in Romania



Source: 3rd RBMP e-reporting

Note: Ecological status and groundwater quantitative status exemptions are reported at the water body level. Chemical exemptions for groundwater are 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. For the purposes of this figure the number of water bodies exempted for chemical status is used. Please note that while the WISE reporting uses a label "Article 4(5)- Technical feasibility" it should be read as "Article 4(5)- Infeasibility". Article 4(7) exemption are not visible in the graph.

Article 4(4) exemptions (time related exemptions which can be applied on the grounds of technical feasibility, disproportionate costs or natural conditions)

As in the 2nd RBMP, the exemptions under Article 4(4) in the 3rd RBMP have been justified on the grounds of technical feasibility, disproportionate costs and natural conditions. It is to be noted that natural conditions were not used as exemption ground in the 2nd RBMP.

Article 4(5) exemptions (lowered objectives)

The exemptions under Article 4(5) have been justified on the grounds of infeasibility (for 3 surface water bodies) and disproportionate costs (for 16 surface water bodies).

Article 4(6) exemptions (temporary deterioration for reason of 'force majeure')

Similar to the 2nd RBMP, no exemptions according to Article 4(6) have been applied in the 3rd RBMP.

Article 4(7) exemptions

Exemptions under Article 4(7) to justify deterioration/non achievement of good status/potential as a result of new modifications or new sustainable human development activities, have been applied to five surface water bodies (four surface water bodies with new modifications and one surface water body for which investment works began in the year 2000 and not fully completed at the time of RBMP reporting). The projects have been subject to an impact assessment. The RBMP also provides the general indication that in case of Article 4(7) applications, steps have been taken / will be taken to mitigate the adverse impacts on the status of the affected water bodies.

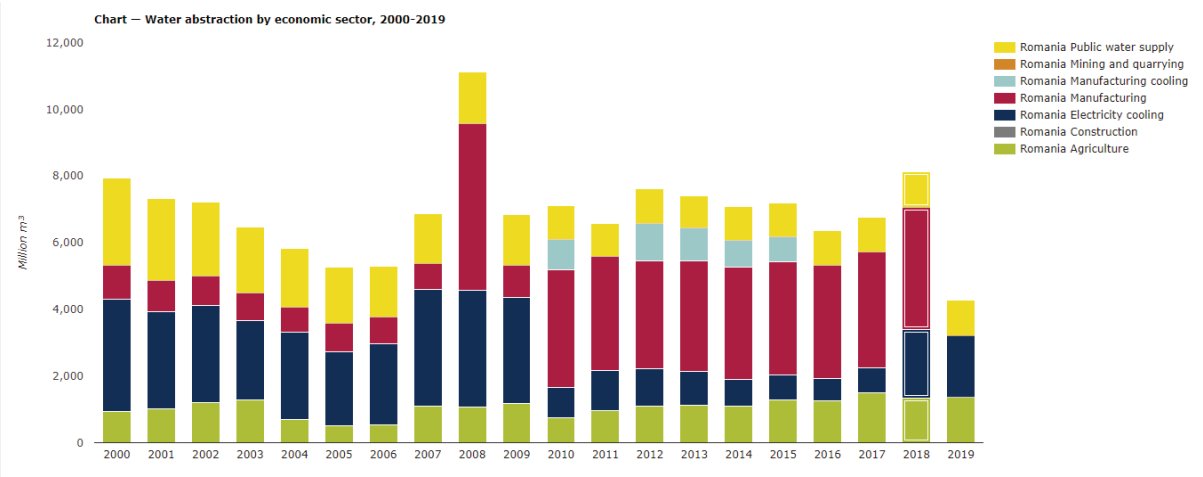
5.2 Use of economic analysis and water pricing – cost recovery

The economic analysis in the 3rd RBMP reports all items as listed in WFD Annex III. While it does not discuss explicitly the actual progress since the 2nd RBMP as regards the economic analysis and the implementation of Article 9 of the WFD. However, the discussion below suggests that progress has been made.

Water services and water uses are clearly defined in the RBMP. There are two primary water services which corresponds to the definition of broad water services in the WFD i.e. provision of water supply services related to the delivery of drinking water and obtained from surface and / or groundwater; and wastewater collection and treatment services.

Water services are administered at the communal, city, or county level. Furthermore, the water services can be disaggregated into the three main water user sectors: industry, households, and agriculture. In addition to the water services mentioned, other water uses have also been identified e.g. hydropower generation use (the users are economic operators producing electricity through hydroelectric power stations); cooling water use (the users are economic operators producing electricity and thermal energy through thermal power stations, nuclear power stations) and irrigation use. Figure 10 below presents the water abstraction by economic sector in Romania between 2009 and 2019.

Figure 11 water abstraction by economic sector in Romania between 2009 and 2019.



Source: EEA Wise (using Eurostat data, but also OECD and own data) as Eurostat data are not available for all economic sectors in all MS[1].

The forecasts for water demand run until 2030, but it is reported that the National Administration "Romanian Waters" together with National Institute of Hydrology and Water Management have

[1] Conventional statistic abstraction data of Eurostat, EEA and OECD exclude water disappearing after abstraction via leakages or evaporation from the surfaces of reservoirs and canals. Leakage and evapotranspiration losses can however be significant in MSs with many reservoirs and/or older distribution systems, as is illustrated by French data. Page 14, French analytical note on total water consumption (incl. evapotranspiration and losses) adding up to 54.000 million m^3 abstracted, instead of 30.000 million m^3 used: https://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/fs-2024-na_136_enjeux_et_usages_de_leau_avril.pdf

started the preparation for producing long-term water demand scenarios considering the influence of climate change with 2050 as time horizon.

As regards cost recovery, Romania gives an overview of the methodological principles and references to national laws on cost recovery, but no clear account of the calculations. The reported rates pertain to both financial and broader cost recovery, with the latter encompassing Environmental and Resource Cost (ERC). The information reported on cost recovery indicates full financial cost recovery for all water services. The rates were provided for the different water services and user sectors..

Romania explains also that the cost recovery rates are influenced by the established practice exemption at macro and sectorial levels. Although WFD Article 9(4) on established practice exemption(s) asks that the RBMP specifies for which "water use activities" the exemption applies and for what reasons, the RBMP does not provide further details on the application of this exemption.

As regards the environmental and resource costs, the RBMP refers to the documentation of the national methodology for calculating these costs. It covers both the broad water services (drinking water abstraction (surface and/or groundwater), treatment and distribution, sewage collection and wastewater treatment). Furthermore, the calculation of the (broad) cost recovery rates takes these ERC on board.

The RBMP does not provide an explicit account as to whether the current water pricing policies provide adequate incentives for an efficient water consumption. However, Romania presents the national legislative framework[31] underlying the tariffs for for public water supply and sewerage services, including their regional variation. The tariff for wastewater discharges depends on the type of pollutant and their effects on the water resources and are expressed in lei[32]/tonne of pollutant. Some key features of the water supply tariffs suggest an incentivising effect, such as the full financial cost recovery, volumetric pricing, the possibility of penalties when exceeding authorized water volumes, and the possible variation in tariffs and charges across water user sectors and regions, but as only average prices are reported, it is not fully clear whether these prices incentives can be considered adequate. H

The consideration of the polluter pays principle is clearly specified in different sections of the RBMP. However, with its focus on policy principles and legislation, the RBMP does not explicitly indicate whether the contribution from different water uses/ user sectors to the water services costs can be considered adequate. However, it is clearly indicated that the water uses for electricity generation through hydro, thermal, and nuclear power plants, aquaculture, irrigation fall under the water resource management payment system, with the number of contributions (payment instruments) presented.

[31] Order no. 65 of February 28, 2007, approving the Methodology for establishing, adjusting, or modifying prices/tariffs for public water supply and sewerage services,
[32] Romanian currency

6. WFD recommendations

Recommendations - Romania should:

increase the level of ambition and accelerate actions to reduce the compliance gap as much as possible by 2027. This implies tackling obstacles identified in the implementation of measures such as administrative capacities and resources.

1. Increase investments and ensure adequate funding including implementation of cohesion funding to effectively implement the Programmes of Measures to reach the objective of the WFD by e.g. developing long – term investment plans and clearly identifying the source of financing for implementation of all measures in particular related to waste water treatment or building the fish passes at the Iron Gates dams
2. Identify and put in place additional measures to reduce existing persistent environmental challenges (pressures) preventing the achievement of good status. This implies for example:
   a) the measures show concretely the expected results to achieve the objectives set for each water bodies
   b) reduction of nutrients and other chemical pollution to achieve the objectives of WFD and Nitrates Directive.
   c) Stepping up efforts in the implementation of all necessary restoration and mitigation measures by especially prioritising nature-based solutions
   d) The mitigation measures show exactly how their implementation improve the status of the various BQEs
   e) The review of permits for hydropower plants and the implementation of measures to tackle modifications to hydrological and physical characteristics of surface waters should be accelerated.
   f) Step up efforts to achieve the objectives set for protected areas, by setting appropriate objectives and measures for all designated areas.
3. In the light of the water scarcity challenge experienced by across the EU, Romania should:
   a) Finalise the implementation of e-flows in all the water bodies, and also in cooperation with neighbouring countries if that is the case.
   b) Enhance the international cooperation on water abstraction and water scarcity considering the climate and socio-economic changes in the Danube
   c) Take effective measures to promote water reuse
   d) If/when planning new dams or reservoirs, carefully assess their environmental impacts, including as regards the objectives of the WFD and ensure that such interventions are part of coherent water resilience strategies, which, among others duly considers long-term climate scenarios
4. To more effectively achieve the objectives of the WFD, Romania should further enhance transboundary cooperation such as:

a) Delineation and characterization of the water bodies as well as status assessment methodologies (e.g. commonly agreed reference conditions for biological quality elements)

b) Harmonisation efforts towards comparable data, assessment methods, etc

5. On the use of economic tools, Romania should present more transparently:

a) the calculation of the financial, environmental and resource costs and how they inform the water tariffs and the contributions of the different users including polluters

b) the efficiency incentives of water-pricing policy and

c) a comprehensive overview of estimated investments and investment needs for the longer term.

6. Where the objectives of the Directive for specific water body cannot be met and exemptions are invoked, this should be done in line with ECJ jurisprudence on the restrictive interpretation of exemptions, providing a detailed justification at the level of the water body and it should be ensured that their application is regularly reviewed. This implies for Romania:

a) Romania has given detailed explanation as regards the methodology used for applying exemptions (how and when) including some useful concrete examples but the individual descriptions established at the water body level only focused on the measures necessary to implement to reach good status. However, Article 4 of the WFD applies at the level of the water bodies, which in turn implies that justifications presented in the RBMP should also be specific to the water bodies for which the exemption is invoked. Therefore, the individual descriptions established at the level of the water body should include more detailed explanations on the reasons for applying the exemption, or refer to publicly available documents including such more detailed justifications

b) Recognise that the possibilities for time extensions (Article 4 (4)) are extremely limited and will no longer be allowed after 2027 (except if duly justified for natural conditions) and taking action appropriately

c) Ensure a proper implementation of Article 4(7) in relation to all projects potentially deteriorating status of water bodies/preventing water bodies from achieving good status (also if this would only be temporary).

7. As regards monitoring, assessment, data management and reporting Romania should:

a) Further continue the work to establish reference conditions for the surface water types where there are still gaps

b) Increase the monitoring coverage of priority substances as well as of quality elements in surface water bodies. In particular, monitoring should be expanded for the water bodies in good status at the time of introducing the biota measurements requirement of the 2008/105/EC as amended by 2013/109/EU especially the measurement of mercury in biota

c) include the trend analysis as a result of long-term surveillance undertaken in biota and sediments

d) Romania should continue its efforts to implement and report hydro morphological measures for all water bodies affected by hydro morphological pressures, and for all RBDs, also to meet international commitments to remove obstacles to river continuity. Given the importance of the hydro morphological pressures to cause failure in ecological status in Romania mitigating measures should receive priority attention

e) maximise the efforts to ensure timely electronic reporting of WFD data to facilitate comparison between implementation cycles and allow for easier monitoring of progress in reaching the objectives of the WFD.

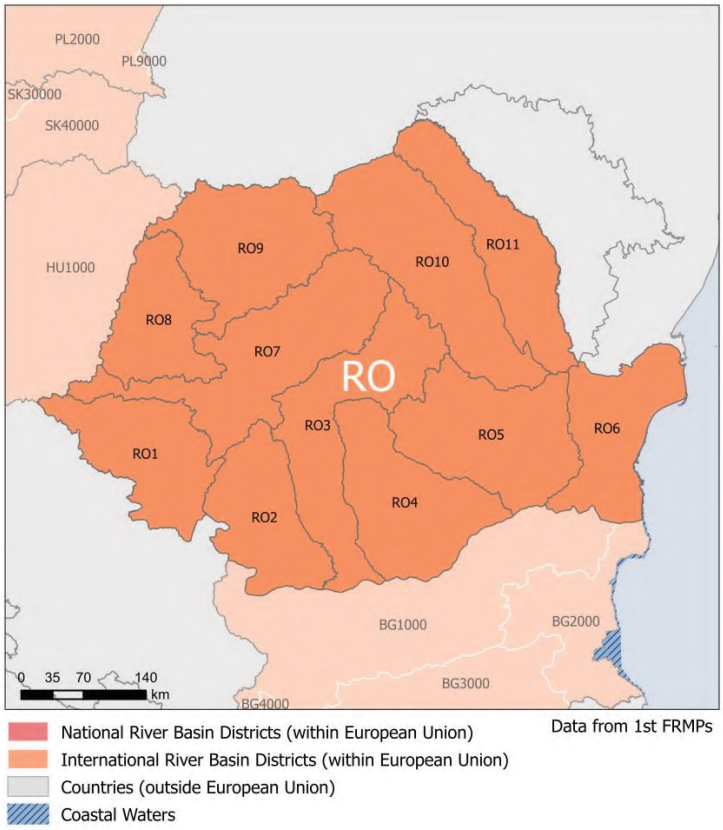
SECTION B:

FLOODS DIRECTIVE

7. Flood risk management under floods directive (FD)

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

There are 12 Units of Management (UoMs) in Romania, which are the same as the Water Framework Directive's River Basin Districts (RBD). Fluvial, pluvial, groundwater, sea water, and Artificial Water Bearing Infrastructure types of floods are considered as potentially significant sources of flooding in Romania. Romania has designated 526 Areas of Potential Significant Flood Risk (APSFRs). The impacts of climate change on flood risk have been considered in Romania at the time of the second preliminary flood risk assessment. In the second PFRAs it is stated that in order to determine the vulnerability of water resources to climate change, adaptation measures at the level of each river basin are required. An analysis of the impact of climate change on the maximum runoff regime of various river basins was carried out using hydrological flow simulation models with input data obtained from climate change simulations.



7.1 Flood hazard and risk maps

Romania is using an online map portal[33] for their FHRMs. FHRMs were prepared at the national level and show the whole country. Maps for floods with low probability (1/1 000 years), with medium probability (1/200 and 1/100 years) and with high probability (1/2.5, 3 and 10 years) are provided. Flood extent is shown on all maps. Water depth is presented on the map. The current GIS version of the FHRM[34] (2023) does not directly show the number of inhabitants potentially affected. The number of potentially affected inhabitants is available via the GIS web viewer on the pdfs generated for specific locations and return periods. Type of economic activity is shown on all maps. IED installations are shown. Potentially affected protected areas identified in Annex IV(1)(i), (iii) and (v) to Directive 2000/60/EC are not all shown in the FHRMs. Only Natura2000 areas are presented on the map.

The number of APSFRs increased from 399 to 526 APSFRs for the second PFRAs. Also, for the second PFRAs, three costal and 17 pluvial source APSFR were identified whereas previously APSFRs were designated exclusively for fluvial flood risk. From the point of view of the length of the water courses designated as APSFRs, the increase is of 1,962 km (from 17 520 km to 19 482 km).

In terms of changes of contextual information (i.e. the way in which information about the maps is conveyed to the public) since the first FHRMs, for the second FHRMs a harmonized approach was developed at the national level, with a similar structure. One single GIS portal was created displaying the FHRMs; in addition, pdf files can be downloaded for specific UoM and APSFRs. The website is bilingual (Romanian and English). Low, medium and high probability scenarios have been developed for the FHRMs, including a scenario for climate change impacts (a return period of 100 years was considered in this case. The current online version of the FHRMs does not include itself information regarding the number of inhabitants potentially affected. For technical reasons this type of information is available instead on the pdf files generated for specific APSFRs and return periods. Different economic activities such as agriculture, industry, transport, culture, IPCC and EPRTR installations are presented on the GIS and pdf versions of FHRM. The risks, i.e. total direct tangible damages (TDTD) or annual expected damages (AED)[35] are presented on the GIS map, while TDTD are available also on the pdf versions.

In terms of changes in methodologies used to prepare flood hazard maps since the first FHRMs, when only fluvial floods were mapped, for the second FHRMs pluvial, coastal and flash floods were considered for the FHRMs. In addition, low, medium and high probability scenarios were developed for all the above-mentioned type of floods.

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[33] https://harticiclul2.inundatii.ro/map@45.5281462,23.5955807,7z

[34] https://harticiclul2.inundatii.ro/map@45.4498550,23.5343714,7z

[35] Anx2_Meto_evaluare pagube_cartografiere risc.pdf. Anexa 2 Metodologia de evaluare a pagubelor și cartografierea riscului. Testarea metodologiei pentru bazine pilot (Methodology for damage assessment and risk mapping. Testing methodology for pilot basins).
The total damages and losses are calculated based on four components: (1) direct tangible, (2) indirect tangible, (3) direct intangible and (4) indirect intangible damages. The FHRM include the total direct tangible damages (TDTD) comprising physical damages on goods: buildings, content/inventory, vehicles, infrastructure (p. 8, upper scheme). The other three types of damages used to calculate total damages include: (i) indirect tangible – loss of production/incomes due to floods, costs of not ensuring public services, disaster response costs; (ii) direct intangible – life losses, morbidity (sick, injured, suffering people), land use, nature, cultural heritage; (iii) indirect intangible - the inconveniences of recovery after floods, increased vulnerability of survivors (p. 8, upper scheme). The Annual Estimated Damage (AED) is calculated for each type of flood on the basis of total damages (p. 50).

In terms of changes in methodologies used to prepare flood risk maps since the first FHRMs, for the first FHRMs, all UoMs used the same approach to determine the indicative number of potentially affected inhabitants. Land use, property and industry locations were not shown on the map; infrastructure locations were accessible through the layers menu. The second FHRMs include information on the Total Direct Tangible Damages (TDTD) and Annual Expected Damage (AED) and present information on utilities, transport, cultural heritage, Natura2000 sites and economic activities. The number of potentially affected inhabitants and properties are not presented in the GIS version of the FHRM, but this information is available in pdf format. Moreover, except for Natura2000 areas, no other WFD protected areas were included in the FHRMs (both GIS and pdf versions) – this is consistent with the assessment of the first FHRMs.

Climate change in the second FHRMs

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

7.2 Flood risk management plans

Objectives and measures

The FRMPs can be downloaded from a webpage[36]. Romania has set a general aim and nine objectives. The general aim of the FRMPs is to manage and reduce the flood risks for the population, economy, environment and cultural heritage. Objectives 1 to 5 call for the reduction of negative impacts in these four areas. Three of the objectives target non-structural initiatives: raising awareness and resilience, capacity-building for early warning, and increasing stakeholder participation. It is noted that the fourth objective addresses negative impacts of floods on cultural heritage whereas the fifth objective addresses the mitigation of flood impacts on the environment and achievement and maintenance of WFD objectives. The FRMPs present Romania's national catalogue of potential measures, which provides a national list of measure types. Measures based on the catalogue's list of measure types are identified and selected in the FRMPs for implementation at APSFR and UoM level. In addition, measures to be implemented at national level were identified. The FRMPs describe how measures are prioritised in 'strategies' for the APSFRs, using multi-criteria analysis (MCA) and cost-benefit analysis (CBA). Romania reports the priority of all measures, using all five categories in EIONET, from critical to low priority. The largest share of measures is reported as moderate priority (1 097, 42 %), while 615 measures are reported as high priority (23 %). The remaining categories make up around 12 % of the measures each: 301 measures are reported as critical priority, 306 with very high priority and 308 with low priority. The FRMPs list indicators to monitor the progress of their measures. For the second FRMPs, Romania has identified indicators that have clear targets linked to the level of priority of the APSFR strategies[37]. Although the FRMPs only provide a link between the nine objectives and three broad categories of measures, a national methodology[38] was used to develop the measures along the lines of the objectives. The FRMPs and the National Synthesis report provide the overall costs of the measures and identify funding sources. For the national measures (category A), EU funds and the

[36] https://inundatii.ro/en/resources/
[37] Alternative strategies for each APSFR that can be evaluated and compared with each other.
[38] Methodology for the elaboration of the Programme of Measures (Metodologie de elaborare Programe de Masuri). Document reported to EIONET. The methodology aims to identify prevention and protection measures, viable, likely to be financed and implemented, to be included in the Programme of Measures (FRMP RO 1, p. 72).

national budget are planned as the primary funding sources. The FRMPs indicate that the feasibility of using these sources will be examined and a multiannual financial plan prepared by the end of 2023.

The FRMPs state that the progress of the measures reflects the achievement of the objectives but do not provide further detail. All FRMPs include a dedicated sub-chapter presenting the steps for coordination with the WFD. Water retention measures are foreseen in the FRMPs. Romania reported 192 prevention measures to EIONET; 74 protection measures and 252 preparedness measures to EIONET. Measures for territorial and urban planning are included in the FRMPs and the MCA for measures includes a criterion on spatial planning. The MCA used to assess measures includes eight environmental criteria, including one for biodiversity. The second FRMPs indicate that over half of all measures in the first FRMPs are either completed or ongoing. The National Synthesis for the second FRMPs mentions that at the national level, 56 % of the measures in the first FRMPs are either finalised or on-going[39]. The five second FRMPs assessed indicate the share of measures in the corresponding first FRMPs that are completed or ongoing - and state that this reflects the achievement of their objectives[40].

Romania reported to EIONET that the majority of its measures – 1 769 out of 2 627 (67 %) – are not started. The great majority of these are protection measures: 1 598 measures (90 % of all measures not started and 76 % of all protection measures). The next highest share, 425 measures (16 %), are in preparation, followed by 382 measures (11 %) that are ongoing (recurrent e.g., maintenance works). In addition, 44 measures (2 %) are in ongoing construction, and seven measures are completed: all the measures in ongoing construction and completed are protection measures. More than half of the preparedness measures are reported as ongoing maintenance (recurrent, e.g. maintenance works): 144 measures, 53 % of all preparedness measures. All 12 recovery and review measures are in preparation, while the two 'other' measures have not started. For prevention measures, 174 measures (72 % of all prevention measures) are either not started or in preparation. The National Synthesis states that 1 179 (41.6%) measures in the first FRMPs are completed and 408 (14.4%) are ongoing (over 1 500 of the total 2 832 measures)[41]. These include a broad range of measures, such as consolidation, rehabilitation and maintenance of river sections, maintenance of flood protection structures, and reforestation. The National Synthesis also reports that 1 245 of the 2 832 measures in the first FRMPs (44 %) are not started. No explanation is given for that high number.

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[39] National Synthesis, p. 22

[40] FRMP RO 1000 Danube states that "following the analysis of the progress of implementation of measures proposed by River Basin Administrations Buzau-Ialomita (RO5), Dobrogea Litoral (RO6) and Prut Barlad (RO11), as well as of measures proposed by other authorities, for the period 2017-2022 the degree of finalized measures is 45%, and by similarity, it is considered that the management objectives have been achieved 45% (p. 59). Similar statement for FRMP RO5 Buzau-Ialomita, where the proportion of achieved measures is 52, i.e. it is considered that management objectives have been reached 52% (p. 64); for FRMP RO 6 – 29% (p. 62); FRMP RO9 – 17% (p. 75); FRMP RO 11 – 38%, p. 68.

[41] National synthesis, sub-chapter 3.4, Table 6, p. 23.

The FRMPs assessed state that Romania regularly exchanges information with neighbouring countries in the framework of bilateral agreements[42] and the ICPDR[43]. Romania has bilateral agreements on water management with Bulgaria, Hungary, Moldova, Serbia and Ukraine.

The approach used for stakeholder involvement and public consultations is presented in all five FRMPs assessed[44]. The plans refer to using the internet and social media to provide information on floods, including on the draft plans, under the RO FLOODS project. Multiple communication channels were used. The draft of the second FRMPs were available for public consultations for nearly one year. It appears that there was less involvement from NGOs, the private sector, citizen associations or individuals The five FRMPs assessed provide information on changes to the plans after public consultations.

Consideration of climate change

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

Progress identified in the second FRMPs

In the second FRMPs Romania identified progress indicators that have clear targets linked to the level of priority of the APSFR strategies. Although the FRMPs only provide a link between the nine objectives and three broad categories of measures, a national methodology[45] was used to develop the measures along the lines of the objectives. In addition, the second FRMPs provide estimated costs for the implementation of the measures and identify funding sources for some of the measures. Romania also provides the methodology for prioritisation, which includes a MCA and CBA. The MCA used in the prioritisation of measures comprises 23 indicators, including multi-benefits, such as environmental benefits, in fact, the second FRMPs identify 'win-win' measures that support both FD and WFD objectives. Compared to the first FRMPs, the second FRMPs refer to Romania's National Climate Change Strategy and provide information on potential impacts of climate change on floods. In addition, robustness tests for vulnerability to climate change have been carried out. The RO FLOODS project[46] carried out a major public information campaign via internet and social media on flood risks and measures. The FRMPs include annexes outlining the activities undertaken during the public consultations, some of the feedback received, and the impact on the plans.

8. FD recommendations

Based on the reported information and the FHRMs and FRMPs assessed, the following recommendations are made to enhance flood risk management:

[42] Bilateral agreements, https://rowater.ro/despre-noi/cooperare-internationala/
[43] Sub-chapter 5.6.4: An overview of international coordination for water management can be found on the website of Romanian Waters, https://rowater.ro/activitatea-institutiei/cooperare-internationala/
[44] FRMPs, Chapter 8.
[45] Methodology for the elaboration of the Programme of Measures (Metodologie de elaborare Programe de Masuri). Document reported to EIONET. The methodology aims to identify prevention and protection measures, viable, likely to be financed and implemented, to be included in the Programme of Measures (FRMP RO 1, p. 72).
[46] Supported by the World Bank.

- The FHRM web-viewer should integrate all relevant information (including pdf version of the FHRM);
- Potentially affected protected areas identified in Annex IV(1)(i), (iii) and (v) to Directive 2000/60/EC, especially areas designated for the abstraction of water intended for human consumption, should be considered in the FHRM;
- The FRMP's measures should be linked to its objectives;
- The FRMP should provide information on the costs of measures (next to the overall cost which is provided);
- The likely impact of climate change in the FRMP should also be based on future climate scenarios;
- The FRMP should provide detail on the public consultation comments received, and how they were taken into account;
- Where appropriate, the FHRM should consider flow velocity or relevant water flow and the FRMP flood conveyance routes, as these are relevant to emergency response.