

River Basin Management Plans

4th cycle

Water Framework Directive – Electronic reporting data model review

River Basin Management Plan & Programme of Measures – MEASURES

PROPOSAL

Version 2026.02.13

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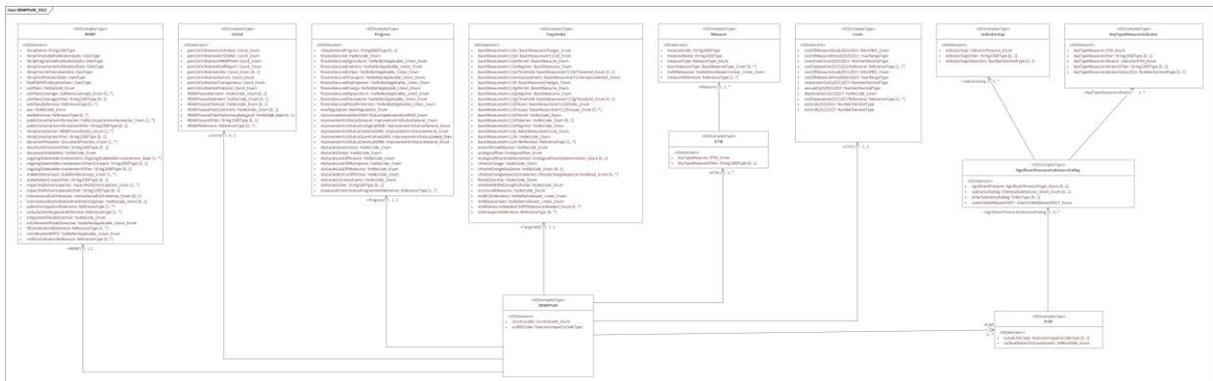
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Purpose and overview

This document revises the **River Basin Management Plan & Programme of Measures** schema used in the 3rd cycle of reporting of the Water Framework Directive River Basin Management Plans (Figure 1) and presents a proposal for the simplification of the electronic reporting in the 4th cycle (Figure 2).

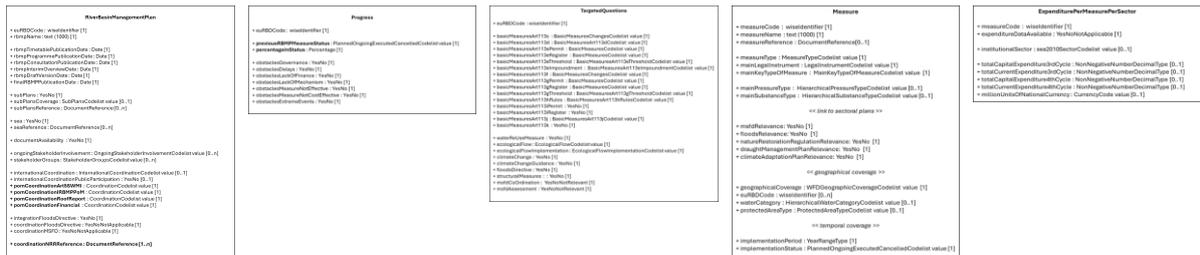
Not all the information in the RBMPs can be accurately provided using a common European model – but it is possible to improve and simplify the reporting of structured data, accepting that part of the relevant information will remain in documentation to be analysed during the Commission's implementation assessment. Using this principle, the data model can focus on the aspects that are amenable to structured reporting, allowing adequate comparisons between different river basin districts (RBDs). Specific or more detailed information can be kept in the RBMP documents, the analysis of which can in the future be facilitated e.g. using large language models (LLMs) supported by retrieval-augmented generation (RAG) techniques.

Figure 1. Partial class diagram for River Basin Management Plan & Programme of Measures (RBMPoM_2022) schema.



Source : https://cdr.eionet.europa.eu/help/WFD/WFD_715_2022/UML%20Data%20specification/WFD2022.EAP

Figure 2. River Basin Management Plan & Programme of Measures – 4th cycle of reporting



Current structure (3rd cycle of reporting)

The schema used in the 3rd cycle of reporting contains 3 main groups:

1. Summary information about the **RBMP**, the **Progress** since the previous RBMP, the mechanisms of international **Coordination** (if applicable).
2. Information about the **Programme of Measures**, comprising a summary questionnaire of **Targeted Questions** and aggregated data about the overall **Cost** of measures.
Disaggregated information is requested about each **Measure** and its classification into key type of measures (**KTM**) and basic type of measures (if applicable).
3. Summary information about pressures and substances causing failure and their link to **KTM Indicators** and **Indicator Gaps**.

Proposed structure (4th cycle of reporting)

1. The RBMP and Coordination tables are simplified to a single **RiverBasinManagementPlan** table, containing a selected subset of attributes.
The **Progress** table is modified to request only aggregated information about the overall status of the measures of the previous cycle (3rd cycle).
2. The reporting of the Programme of Measures is also simplified.
The **TargetedQuestions** table, containing the questionnaire at RBD level, is simplified.
Information about measures is requested in a single **Measure** table. Information about the planned **ExpenditurePerMeasure** is reported in a separate table, if data is available.
3. The KTM indicators and indicator gaps group is completely removed.

River Basin Management Plan, Coordination and Progress

Current structure (3rd cycle of reporting)

In the 3rd cycle of reporting, this group comprised 3 tables, collecting summary information about the **RBMP**, the **Progress** since the previous RBMP and the mechanisms of international **Coordination**, if applicable (Figure 3).

The data is structured as a simple questionnaire, mostly with Yes/No or multiple-choice answers, accompanied by links to additional documentation (which can be uploaded or kept in national websites). Only one record per table is required for each River Basin District.

Reporting by MS should not present technical difficulties, and there is limited scope for any technical simplification. Nevertheless, the Commission has verified if the data requested is strictly required and proposes the simplification detailed in the next sections.

Figure 3. Class diagram for the RBMPPoM_2022 schema: River Basin Management Plan, international Coordination and Progress since the previous cycle – 3rd cycle of reporting.



RiverBasinManagementPlan – 4th cycle of reporting

The simplified **RiverBasinManagementPlan** table (Figure 4) contains a subset of the data previously requested in the RBMP and Coord classes in the 3rd cycle are.

A new attribute **coordinationNRRReference** allows the reporting of information pertaining to the coordination with the Nature Restoration Regulation.

The reporting of the **pomCoordinationArt5SWMI**, **pomCoordinationIRBMPPoM**, **pomCoordinationRoofReport** and **pomCoordinationFinancial** attributes is only required for international RBDs.

Figure 4. RiverBasinManagementPlan table - 4th cycle of reporting.

RiverBasinManagementPlan
+ euRBDCode: wiselIdentifier [1]
+ rbmpName: text (1000) [1]
+ rbmpTimetablePublicationDate: Date [1]
+ rbmpProgrammePublicationDate: Date [1]
+ rbmpConsultationPublicationDate: Date [1]
+ rbmpInterimOverviewDate: Date [1]
+ rbmpDraftVersionDate: Date [1]
+ finalRBMPPublicationDate: Date [1]
+ subPlans: YesNo [1]
+ subPlansCoverage: SubPlansCodelist value [0..1]
+ subPlansReference: DocumentReference [0..n]
+ sea: YesNo [1]
+ seaReference: DocumentReference [0..n]
+ documentAvailability: YesNo [1]
+ ongoingStakeholderInvolvement: OngoingStakeholderInvolvementCodelist value [0..n]
+ stakeholderGroups: StakeholderGroupsCodelist value [0..n]
+ internationalCoordination: InternationalCoordinationCodelist value [0..1]
+ internationalCoordinationPublicParticipation: YesNo [0..1]
+ pomCoordinationArt5SWMI : CoordinationCodelist value [1]
+ pomCoordinationIRBMPPoM : CoordinationCodelist value [1]
+ pomCoordinationRoofReport : CoordinationCodelist value [1]
+ pomCoordinationFinancial : CoordinationCodelist value [1]
+ integrationFloodsDirective: YesNo [1]
+ coordinationFloodsDirective: YesNoNotApplicable [1]
+ coordinationMSFD: YesNoNotApplicable [1]
+ coordinationNRRReference : DocumentReference [1..n]

Progress – 4th cycle of reporting

The **Progress** table is modified to provide an overview of the proportion of the measures of the 3rd RBMPs that was executed, cancelled, etc., and of the obstacles faced during the implementation of the 3rd RBMP Programme of Measures (Figure 5).

The only constraint is that, for each RBD, the sum of the values in the **percentageInStatus** must be 100. The level of detail is adaptable, depending on needs and the data available.

Figure 5. Progress table - 4th cycle of reporting.

Progress	
+ euRBDCode:	wisidentifier [1]
+ previousRBMPMeasureStatus:	PlannedOngoingExecutedCancelledCodelist value [1]
+ percentageInStatus:	Percentage [1]
+ obstaclesGovernance:	YesNo [1]
+ obstaclesDelays:	YesNo [1]
+ obstaclesLackOfFinance:	YesNo [1]
+ obstaclesLackOfMechanism:	YesNo [1]
+ obstaclesMeasureNotEffective:	YesNo [1]
+ obstaclesMeasureNotCostEffective:	YesNo [1]
+ obstaclesExtremeEvents:	YesNo [1]

A numerical example illustrates per proposed approach.

Consider a hypothetical 3rd RBMP Programme of Measures with 10 different measures, which are in different statuses and may have faced different obstacles (Figure 6). The example in Figure 7 illustrates how to synthesize the information in the Progress table.

Figure 6. Illustrative example - hypothetical list with the status of the 10 measures of the 3rd cycle.

Measure	Status	Obstacles
M01	Ongoing	No obstacles.
M02	Executed	No obstacles.
M03	Executed	No obstacles.
M04	Executed	Extreme event.
M05	Executed	Extreme event.
M06	Cancelled	Extreme event.
M07	Cancelled	Extreme event.
M08	Postponed to the next cycle	Delays, Lack of finance.
M09	Postponed to the next cycle	Delays, Lack of finance.
M10	Cancelled	Not cost effective.

Figure 7. Illustrative example: Progress table records for the example in Figure 6.

previousRBMPMeasureStatus	percentageInStatus	obstaclesDelays	obstaclesLackOfFinance	obstaclesMeasureNotCostEffective	obstaclesExtremeEvents
Ongoing	10	No	No	No	No
Executed	20	No	No	No	No
Executed	20	No	No	No	Yes
Cancelled	20	No	No	No	Yes
Planned	20	Yes	Yes	No	No
Cancelled	10	No	No	Yes	No

TargetedQuestions – 4th cycle of reporting

The **TargetedQuestions** table collects summary information about the measures in the RBMP, and the progress since the previous cycle. For each RBMP, only one record is required. The data is structured as a simple questionnaire, with Yes/No or multiple-choice answers.

Reporting by MS should not present technical difficulties, and there is limited scope for any technical simplification. The Commission has revised and simplified the **TargetedQuestions** table (Figure 9), keeping a subset of the questions requested in the previous cycle.

Figure 9. TargetedQuestions table - 4th cycle of reporting.

TargetedQuestions
+ euRBDCode : wiselIdentifier [1]
+ basicMeasuresArt113c : BasicMeasuresChangesCodelist value [1]
+ basicMeasuresArt113d : BasicMeasuresArt113dCodelist value [1]
+ basicMeasuresArt113ePermit : BasicMeasuresCodelist value [1]
+ basicMeasuresArt113eRegister : BasicMeasuresCodelist value [1]
+ basicMeasuresArt113eThreshold : BasicMeasuresArt113eThresholdCodelist value [1]
+ basicMeasuresArt113eImpoundment : BasicMeasuresArt113eImpoundmentCodelist value [1]
+ basicMeasuresArt113f : BasicMeasuresChangesCodelist value [1]
+ basicMeasuresArt113gPermit : BasicMeasuresCodelist value [1]
+ basicMeasuresArt113gRegister : BasicMeasuresCodelist value [1]
+ basicMeasuresArt113gThreshold : BasicMeasuresArt113gThresholdCodelist value [1]
+ basicMeasuresArt113hRules : BasicMeasuresArt113hRulesCodelist value [1]
+ basicMeasuresArt113iPermit : YesNo [1]
+ basicMeasuresArt113iRegister : YesNo [1]
+ basicMeasuresArt113j : BasicMeasuresArt113jCodelist value [1]
+ basicMeasuresArt113k : YesNo [1]
+ waterReUseMeasure : YesNo [1]
+ ecologicalFlow : EcologicalFlowCodelist value [1]
+ ecologicalFlowImplementation : EcologicalFlowImplementationCodelist value [1]
+ climateChange : YesNo [1]
+ climateChangeGuidance : YesNo [1]
+ floodsDirective : YesNo [1]
+ structuralMeasures : : YesNo [1]
+ msfdCoOrdination : YesNoNotRelevant [1]
+ msfdAssessment : YesNoNotRelevant [1]

Measure – 4th cycle of reporting

Figure 10 illustrates the simplified Measure table proposed for the 4th cycle.

Figure 10. Measure table – 4th cycle of reporting.

Measure
+ measureCode : wiselIdentifier [1]
+ measureName : text (1000) [1]
+ measureReference : DocumentReference[0..1]
+ measureType : MeasureTypeCodelist value [1]
+ mainLegalInstrument : LegalInstrumentCodelist value [1]
+ mainKeyTypeOfMeasure : MainKeyTypeOfMeasureCodelist value [1]
+ mainPressureType : HierarchicalPressureTypeCodelist value [0..1]
+ mainSubstanceType : HierarchicalSubstanceTypeCodelist value [0..1]
<< link to sectoral plans >>
+ msfdRelevance: YesNo [1]
+ floodsRelevance: YesNo [1]
+ natureRestorationRegulationRelevance: YesNo [1]
+ draughtManagementPlanRelevance: YesNo [1]
+ climateAdaptationPlanRelevance: YesNo [1]
<< geographical coverage >>
+ geographicalCoverage : WFDGeographicCoverageCodelist value [1]
+ euRBDCode : wiselIdentifier [0..n]
+ waterCategory : HierarchicalWaterCategoryCodelist value [0..1]
+ protectedAreaType : ProtectedAreaTypeCodelist value [0..1]
<< temporal coverage >>
+ implementationPeriod : YearRangeType [1]
+ implementationStatus : PlannedOngoingExecutedCancelledCodelist value [1]

For each measure:

- Use a unique persistent European identifier for each **measureCode**.
- Use the original **measureName** (or an English translation thereof).
- If needed, provide a link to documentation (**measureReference**).
- Identify the primary **measureLegalInstrument**, using a single codelist value.
- Identify the **measureType**, using a single codelist value.
- Classify the measure using a single **mainKeyTypeOfMeasure** codelist value from a simplified classification. The closest match should be selected.
- Optionally or if applicable, identify the main pressure or pressure group addressed by the measure using the **measurePressureType** attribute, at the level of detail deemed more adequate. The closest match should be selected.

- Optionally or if applicable, identify the main substance or group of substances addressed by the measure using the **measureSubstanceType** attribute, at the level of detail deemed more adequate.
- Flag the sectoral plans for which the measure might be relevant using the **msfdRelevance**, **floodsRelevance**, **natureRestorationRegulationRelevance**, **draughtManagementPlanRelevance** and **climateAdaptationPlanRelevance** attributes.
- Specify the **geographicalCoverage** and **temporalCoverage** of the measure (illustrative examples are provided in page 14).

Narrative description:

Each different measure must have a persistent unique identifier at national level and European level (**measureCode**), a descriptive name (**measureName**), and zero or more links to documentation (**measureReference**).

The **measureType** typology is described in Table 1.

The primary **measureLegalInstrument** under which the measure was defined must be clearly identified. This avoids double reporting in other Directives: the measures can be reported only once under the RBMP electronic reporting.

An updated list of EU water and other environmental legislation is provided (Table 2).

The scope of some basic measures is clearly linked to the two Daughter directives:

- Measures to prohibit direct discharges to ground water: Groundwater Directive
- Measures to eliminate or reduce pollution by Priority Substances: Environmental Quality Standards Directive.

These two legal instruments are part of the codelist (see Table 2). The option 'Other' (Other Directives mentioned in Part A of Annex VI of the WFD) is eliminated: it was frequently used in the 3rd cycle and does not convey relevant information.

Table 1. Types of measures: proposed measureType values, definitions and example – 4th cycle of reporting.

MeasureTypeCodeList value	Definition and examples from the Commission's assessment of the 3 rd RBMPs
legislativeOrRegulatoryMeasure	<p>Definition: Measures that involve the adoption or modification of laws, by-laws, and binding standards to restrict activities or enforce compliance with environmental objectives. This includes the establishment of mandatory constraints on pollutants.</p> <p>Examples: Legislative and regulatory measures include <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Nitrates Action Plans: Measures to reduce nutrient pollution from agriculture often involve regulatory changes. For instance, Romania applies the Nitrates Action Plan to its whole territory, imposing mandatory restrictions on fertiliser application. Germany adopted a revised Fertilizer Ordinance in 2020 to designate nitrate-contaminated areas and reduce fertiliser use by 20%. • Bans on Substances: Measures include prohibitions on specific hazardous substances. For example, the Netherlands has forbidden the use of PAH (Polycyclic Aromatic Hydrocarbons) coatings on inland ships. Additionally, PFOA (Perfluorooctanoic acid) has been prohibited in consumer products since 2020 to contribute to reduced emissions into water. • Ecological Flow Standards: Establishing legally binding standards for ecological flows (e-flows) to ensure sufficient water remains in rivers. Austria has a decree in force since 2010 setting values for biological and hydrological quality elements.
administrativeOrGovernanceMeasure	<p>Definition: Procedural actions taken by competent authorities to manage water use, including the issuance and review of permits, the maintenance of registers, inspections, and the coordination of governance structures.</p> <p>Examples: Administrative and governance measures include <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Permitting and Authorisation: Controlling activities through licensing systems. Germany reports using authorisation regimes for wastewater point source discharges in all River Basin Districts (RBDs). Spain manages a registry of water abstractions, although it notes challenges with data updates in the registry entries. • Review of Permits: The periodic update of existing licenses. France is advised to increase the frequency of its periodic review of abstraction and impoundment permits, which currently occurs once every 15 years. • Registers: Maintaining databases of physical modifications. Latvia maintains a register of anthropogenic barriers, listing 1137 different types of man-made dams. • Inspections: Enforcement activities to ensure compliance. Estonia noted that current resources for inspection and enforcement regarding agricultural pressures were insufficient. • Advisory services: For example, services are designed to help farmers implement environment-friendly practices, such as the establishment of buffer strips and sustainable nutrient management. Finland report measures such as farm advisory services and training as part of the efforts to address pollution from agriculture and forestry.
physicalOrTechnicalMeasure	<p>Definition: Concrete interventions involving construction, removal, or modification of infrastructure, as well as technical upgrades to facilities to reduce emissions or restore morphology. This category covers both "grey" infrastructure (e.g., wastewater plants) and "green" restoration (e.g., river continuity).</p> <p>Examples: Physical and technical measures include <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Wastewater Infrastructure: Construction or upgrading of Urban Wastewater Treatment Plants (UWWTPs). Czechia prioritises measures related to wastewater plants and sewage systems to address point source discharges. Romania has invested in 68 communal platforms for manure storage. • River Continuity and Restoration: Physical removal of barriers or installation of passes. Austria reports funding for fish passes and the demolition of old dams to improve longitudinal continuity. Luxembourg highlights the renaturalisation of the River Pétrusse. • Reduction of leakages and losses during water abstraction and supply. For example: Italy supports investment in the improvement of existing irrigation infrastructure and on-farm irrigation installations specifically to reduce losses and increase efficiency. • Remediation: Cleanup of contaminated sites. Czechia maps measures for the remediation of contaminated sites covering 15,772 km².
economicOrFinancialMeasure	<p>Definition: Instruments involving financial incentives, pricing mechanisms, taxes, or subsidies designed to influence water use behaviour or fund environmental improvements.</p> <p>Examples: Economic and financial measures include <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Water Pricing: The application of tariffs for water services. Italy reports that current pricing structures provide some incentives for efficient water use but requires better analysis of their adequacy. Hungary abolished the payment exemption for agricultural water use in 2017. • Subsidies and Compensation: Payments to support voluntary measures. In Estonia, measures to reduce agricultural pollution are supported by the Common Agricultural Policy (CAP), involving compensation for organic farming. Slovakia uses CAP funding to support voluntary supplementary measures in agriculture. • Cost Recovery: Mechanisms to recover costs of water services. The Netherlands reports nearly full cost recovery for collective water supply and sanitation services.
knowledgeOrPreparatoryMeasure	<p>Definition: Actions focused on research, data collection, and gap analysis to reduce uncertainty and inform future decision-making.</p> <p>Examples: Knowledge and preparatory measures include <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Research Studies: Latvia assigned 23% of its 3rd RBMP measures to KTM14 to improve the knowledge base. • Gap Analyses: Poland performed a gap assessment for nutrients, estimating necessary load reductions for each surface water body. • Source Identification: Finland completed detailed work to identify point sources and diffuse emissions for 53 monitored substances.

Table 2. Legal instruments: proposed measureLegalInstrument options – 4th cycle of reporting.

Acronym	Name	EI
WFD	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy	http://data.europa.eu/eli/dir/2000/60/oj
FLOODS	Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks	http://data.europa.eu/eli/dir/2007/60/oj
MSFD	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://data.europa.eu/eli/dir/2008/56/2017-06-07
BWD	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://data.europa.eu/eli/dir/2006/7/oj
DWD (recast)	Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption (recast)	http://data.europa.eu/eli/dir/2020/2184/oj
EIA Directive	Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment	http://data.europa.eu/eli/dir/2011/92/2014-05-15
EQSD2008	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://data.europa.eu/eli/dir/2008/105
EQSD2013	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://data.europa.eu/eli/dir/2008/105/2013-09-13
GWD	Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration	http://data.europa.eu/eli/dir/2006/118/oj
Birds Directive	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds	http://data.europa.eu/eli/dir/2009/147/2019-06-26
Habitats Directive	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora	http://data.europa.eu/eli/dir/1992/43/2025-07-14
IED (formerly IPPC)	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://data.europa.eu/eli/dir/2010/75/2024-08-04
NRR	Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869	http://data.europa.eu/eli/reg/2024/1991/oj
NITRATES	Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC)	http://data.europa.eu/eli/dir/1991/676/oj
PPPR (formerly PPPD)	Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC	http://data.europa.eu/eli/reg/2009/1107/2022-11-21
Seveso III Directive	Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance	http://data.europa.eu/eli/dir/2012/18/oj
Sewage Sludge Directive	Council Directive of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture (86/278/EEC)	http://data.europa.eu/eli/dir/1986/278/2022-01-01
UWWTD (recast)	Directive (EU) 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment (recast)	http://data.europa.eu/eli/dir/2024/3019/oj
WRR	Regulation (EU) 2020/741 of the European Parliament and of the Council of 25 May 2020 on minimum requirements for water reuse	http://data.europa.eu/eli/reg/2020/741/oj

The **mainKeyTypeOfMeasure** attribute contains the classification to be used for both basic and supplementary measures (see Table 3). It simplifies, consolidates and replaces both the **basicMeasureType** and the **keyTypeOfMeasure** classifications used in the 2nd and 3rd cycles.

Table 3. Proposed simplified classification of measures: **mainKeyTypeOfMeasure** – 4th cycle of reporting.

mainKeyTypeOfMeasure (4th cycle)	mainPressureType	mainSubstanceType
B - Measure to implement recovery of costs for water services	P3%,P1%,P2%	optional
C - Measure to promote efficient and sustainable water use	P3%	optional
D - Measure to protect drinking water quality and reduce the level of treatment required	P1%,P2%,P3%,P9	optional
E - Measure to control abstraction from surface and groundwater, and impoundment of surface water	P3%	not applicable
F - Measure to control artificial recharge or augmentation of groundwater	P6%	not applicable
G - Measure to control point source discharges	P1%	optional
H - Measure to prevent or control inputs of diffuse pollutants	P2%	optional
J - Measure to prohibit direct discharges to groundwater	P1%,P2%	optional
K - Measure to eliminate by Priority Substances and reduce pollution by other substances	P1%,P2%	optional
L - Measure to prevent accidental pollution	P1%,P2%,P9	optional
I2-2 - Measure to address significant impacts on surface waters - Altered habitats due to hydrological changes	P4-3%	not applicable
I2-3 - Measure to address significant impacts on surface waters - Altered habitats due to morphological changes	P4%	not applicable
I2-4 - Measure to address significant impacts on surface waters - Acidification	P2-7, others?	optional
P - Measure to address significant pressures on surface waters	P%	conditional
X01 - Construction or upgrades of wastewater treatment plants	P1%,P2%	optional
X12 - Advisory services	P%	optional
X14 - Research, improvement of knowledge base reducing uncertainty	P%	optional
X23 - Natural water retention measures	P%	optional
X24 - Climate change adaptation measure	P%	optional

In the 3rd cycle, the reporting guidance stated that “*name should reflect the pressure that is being tackled by the measure*” – i.e. the pressure(s) should be described **textually** in the name of the measure. This recommendation was not consistently followed, and an analysis of the measure names across Europe does not yield useful results.

It is easier to keep the original name of the measure, and to allow MS to optionally select the **mainPressureType** that the measure addresses, **at the adequate level of detail** (e.g. a generic measure may address “P2 - Diffuse sources” while a more targeted measure may address only “P2-5 - Diffuse - Contaminated sites or abandoned industrial sites”).

The **mainPressureType** attribute allows more clarity and flexibility and can be applied to supplementary measures too.

The **mainPressureType** attribute is optional, except for measures of type **G** and **H**.

For measures of type G and H, the Commission requires additional information to be able to differentiate measures addressing issues related to Urban Waste Water (**P1-1**) and diffuse pollution from Agriculture (**P2-2**).

If needed and applicable, a similar approach can be used for **mainSubstanceType** allowing MS to identify measures targeted that specific substances or groups of substances.

The geographical scope of a measure is specified in the **geographicalCoverage** attribute, by selecting the most appropriate option: {'national' | 'riverBasinDistrict' | 'waterBody' | 'protectedArea'}.

The option 'national' should be used for measures that target any waterbody affected by a given significant pressure or substance failing. Similarly, the option 'riverBasinDistrict' should be used for measures that target any waterbody affected by a given significant pressure or substance failing within the RBDs indicated in the **euRBDCode** attribute.

If appropriate and necessary, it is possible to specify that a measure only applies to a specific category of waterbodies, using the optional **waterCategory** attribute.

If appropriate and necessary, it is possible to specify that a measure only applies to a specific type of WFD protected area, using the optional **protectedAreaType** attribute.

The option **geographicalCoverage** = 'waterBody' should be reserved for measures that target specific water bodies (for example, a given river, or a set of lakes). The option **geographicalCoverage** = 'protectedArea' should be reserved for measures that target specific protected areas (for example, a set of bathing waters or a specific UWWTD sensitive area). In these cases, it is not requested to individually identify the waterbodies or protected areas.

The temporal scope of a measure is provided in the **implementationPeriod** – the range of years indicated is used to check the reporting of information related to expenditures (e.g. if a measure is yet to start, then no past expenditures exist). The **implementationStatus** attribute allows the distinction between planned and ongoing measures – and may also be used for measures planned for the 3rd cycle but already executed or cancelled by the end of 2027.

Economic data in the Programme of Measures

The revision of the electronic reporting focuses on the main issues described in the Note to the CIS Working Group Economics ⁽¹⁾ quoted below:

"[...] Both the Commission's 6th and 7th WFD Implementation Reports indicate persistent problems in the (electronic) reporting on the investments and the costs of other measures in the Programme of Measures (PoM).

The 6th WFD Implementation Report notes that the "Member States' reporting on costs and financing of the PoMs appears overall patchy [and] a consultant's study [estimate] is an underestimation for the total costs, as there are significant data gaps and it excludes operational and infrastructure maintenance costs." The corresponding investment overview table shows indeed large gaps ⁽²⁾.

The Commission's evaluation of the 3rd River Basin Management Plans ⁽³⁾, as part of the 7th WFD Implementation Report, notes that the "third PoMs presented in the (...) RBMPs show that Member States continue to have different approaches to their design and reporting" and that "[t]he costs and the financing of the planned measures are often missing." Hence the Commission recommends that "[in order] to effectively implement the PoMs to [develop] long-term investment plans and clearly identifying the source of financing for each measure." A good planning is also necessary for the acquisition of support from EU Funds, the EIB and other promotional banks.

The challenge is thus to improve the reporting of the costs of the PoM measures, including the investment amounts, and to specify the funding of these investments and other measures. This requires a clear distinction between capital costs (CAPEX) and operational costs (OPEX). [...]

The proposal here is to agree on a clear conceptual basis for the PoM costs.

It is natural to consider the PoM as a **budget of government outlays** – however, there can be costs on other economic agents without government payment involved (cf. banning an activity).

The budget orientation would imply to look at foreseen **spending amounts**. This has three consequences:

- 'Welfare costs' should not be included in the reporting. However, they can be taken up as "negative benefits" in the CEA (cost-effectiveness analysis).
- The reporting is on investment spending (purchases / commitments) and not on capital costs (depreciation).
- To make the link with financial support from EU Funds, EIB and other promotional banks, one needs to distinguish OPEX and CAPEX when reporting investment cost.

⁽¹⁾ P. Arnoldus, "Workstream 1: proposing a simplification and standardisation of the economic data reporting," note to the CIS Working Group Economics, 15 December 2025, [available](#) in Circabc

⁽²⁾ 6th WFD Implementation Report, [COM\(2021\) 970](#), p15. The table concerns Table 4, p24, of [SWD\(2021\) 970](#) – note that the differentiation is based.

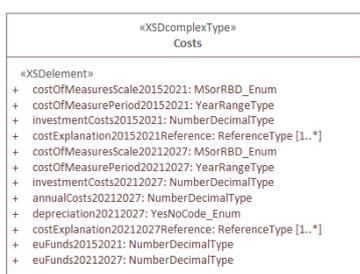
⁽³⁾ Quotes are from 7th WFD Implementation Report, [COM\(2025\) 2](#) (p15, p36)

There is a readily available conceptual basis for the reporting on the PoM investment and other costs, with which the Member States are already familiar with, namely the “**environmental protection expenditures.**” They are namely required to collect and report this data annually to Eurostat⁽⁴⁾, who publishes the Environmental Protection Expenditures Accounts (EPEA) as one of the environmental-economic satellite account to the economic National Accounts. The EPEA are based on a clear, publicly available protocol (following on the UN statistical standards), defining the environmental domains, spending economic sector, and expenditure type. The latter includes the distinction between capital and current expenditures. Hence, it meets the features in the 3 bullets [points] above. [...]"

A brief review of the reported data confirms the issues mentioned above.

In the 3rd cycle of reporting, the overall cost of the PoM was reported in the Costs class (Figure 11). Reporting of costs was, *de facto*, optional – since all numerical attributes admitted the option -9999 to denote 'data not available'. Out of the 146 RBD reported by EU Member States, 24 do not have data on investments, 54 do not have data on operational costs and 64 do not have data on EU funds.

Figure 11. Class diagram for the RBMPPoM_2022 schema: Costs – 3rd cycle of reporting.



The variability of the geographical and temporal coverage of the reported data adds to the difficulty in achieving a meaningful analysis. Table 4 illustrates the issues regarding temporal coverage. Table 5 illustrates the issue with geographical coverage.

Table 4. Temporal coverage: period to which the reported costs refer – 3rd RBMP electronic reporting (including Norway).

costOfMeasurePeriod20152021	costOfMeasurePeriod20212027	Number of RBDs
2014--2020	2022--2027	5
2015--2020	2021--2027	1
2015--2020	2022--2027	2
2015--2021	2007--2027	1
2015--2021	2021--2027	62
2015--2021	2022--2027	23
2016--2021	2009--2015	1
2016--2021	2010--2015	7
2016--2021	2021--2027	4
2016--2021	2022--2027	40
2016--2021	2023--2027	3
2016--2022	2023--2027	4
2016--2027	2019	4
2017--2021	2021--2027	4
2017--2021	2022--2027	1

⁽⁴⁾ An obligation under Regulation (EU) No 691/2011, amended by Commission Delegated Regulation (EU) 2022/125; the consolidated version can be found [here](#).

Table 5. Geographic coverage: scale to which the reported costs refer – 3rd RBMP electronic reporting (including Norway).

costOfMeasuresScale20152021	costOfMeasuresScale20212027	Number of RBDs
National	National	48
River Basin District	River Basin District	103
National	River Basin District	4
River Basin District	National	7

ExpenditurePerMeasurePerSector – 4th cycle of reporting

Figure 12 illustrates the ExpenditurePerMeasurePerSector table proposed for the 4th cycle.

The data is reported for each Measure, *if it is available*: the **measureCode** identifier and the **expenditureDataAvailable** attribute are the only mandatory attributes.

The geographical scope of the measure is inherited from the parent record in the Measure table and doesn't need to be reported again. Likewise, the temporal scope is inherited from the parent records and can be used to verify the reported data ⁽⁵⁾.

The attribute **millionUnitsOfNationalCurrency** was introduced to facilitate the reporting by MS outside the Euro area, in alignment with common statistical practices ⁽⁶⁾. It also facilitates human analysis, namely the cross checking against the RBMP documentation.

Figure 12. ExpenditurePerMeasurePerSector – 4th cycle of reporting.

ExpenditurePerMeasurePerSector
+ measureCode : wisIdentifier [1]
+ expenditureDataAvailable : YesNoNotApplicable [1]
+ institutionalSector : sea2010SectorCodelist value [0..1]
+ totalCapitalExpenditure3rdCycle : NonNegativeNumberDecimalType [0..1]
+ totalCurrentExpenditure3rdCycle : NonNegativeNumberDecimalType [0..1]
+ totalCapitalExpenditure4thCycle : NonNegativeNumberDecimalType [0..1]
+ totalCurrentExpenditure4thCycle : NonNegativeNumberDecimalType [0..1]
+ millionUnitsOfNationalCurrency : CurrencyCode value [0..1]

⁵ An error should be raised when there is missing data. In pseudo-code (the && operators tests whether a range of values overlaps):
a) IF expenditureDataAvailable = 'Yes' AND Measure.implementationPeriod && '[2022,2027]' AND Measure.implementationStatus IN ('executed', 'ongoing', 'implemented') AND totalCapitalExpenditure3rdCycle IS NULL AND annualCurrentExpenditure3rdCycle IS NULL.

b) IF expenditureDataAvailable = 'Yes' AND Measure.implementationPeriod && '[2028,2033]' AND Measure.implementationStatus IN ('ongoing', 'implemented', 'planned') AND totalCapitalExpenditure4thCycle IS NULL AND annualCurrentExpenditure4thCycle IS NULL.

⁶ Data must be reported in Millions of Euro for Euro Area Member States, and in Millions of National currency for non-Euro Area countries. (The unit multiplier is set to 6 and it is applied to all the data, so it doesn't need to be specified.) Non-Euro Area countries should use the relevant code for its national currency (e.g. BGN, CZK, DKK, HRK, HUF, PLN, RON, SEK) rather than common code for domestic currency (XDC). Euro Area countries must use EUR. Generally, the number of decimal digits is "0". If a country wants to send a figure lower than 1 million, decimals may be used. In this case, the separator must be a dot (.). (Example: if a country wants to report a value of 10 000 the figure 0.01 must be sent). If necessary the proposal can be modified to use a different multiplier (e.g. thousands).

A clear separation is done between **capital** expenditure vs. **current** expenditure and between the 3rd cycle and the 4th cycle data. Only total values are requested.

The **institutionalSector** attribute identifies of the institutional sector doing the outlay.

This aspect will be explained below.

The European System of Accounts (ESA 2010) has a standard classification of institutional sectors (see Table 6). The topmost class (S.1 – Total Economy) encompasses all national institutional sectors: implicitly, the 3rd cycle of WFD reporting used it. The dichotomous key in Figure 13 clarifies the allocation of units to sectors.

The Environmental Protection Expenditures Accounts (EPEA) uses 4 groups of sectors ⁽⁷⁾:

- S13 and S15 – General government and NPISH
- S11 and S12 – Corporations
- S14 – Households
- S2 – Rest of the World

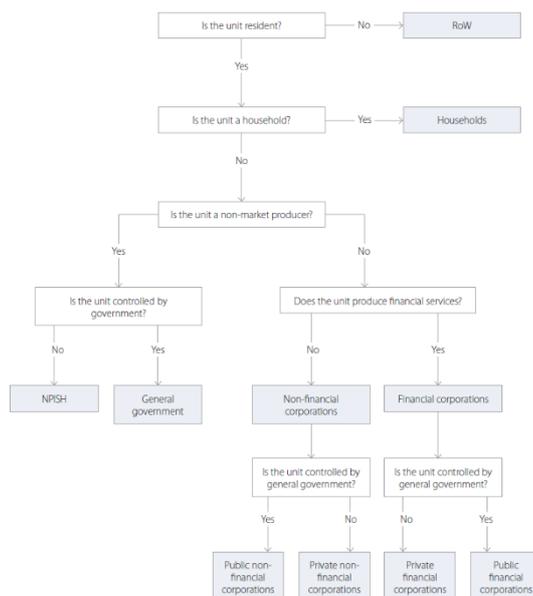
Table 6. European System of Accounts (ESA 2010) sectors.

ESA Sector	Definition
S.1	Total economy
S.11	Non-financial corporations (e.g., waste companies, manufacturers).
S.11001	Public non-financial corporations. All non-financial corporations, quasi-corporations and non-profit institutions, recognised as independent legal entities, that are market producers and are subject to control by government units.
S.11002	National private non-financial corporations.
S.11003	Foreign controlled non-financial corporations.
S.12	Financial corporations (rarely main EPEA actors, but valid).
S.13	General government. Central, state, and local government units (e.g., municipalities, ministries).
S.14	Households. Private individuals acting as consumers.
S.15	NPISH. Non-profit institutions serving households (e.g., environmental charities).
S.2	Rest of the world. Used for reporting transfers (subsidies/grants) paid to or received from abroad.
S.21	Member states and institutions and bodies of the European Union
S.212	Institutions and bodies of the European Union (e.g. European Central Bank, European Commission)
S.22	Non-member countries and international organisations non-resident in the European Union

Source : <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:174:0001:0727:EN:PDF>

Figure 13. European System of Accounts (ESA 2010) allocation of institutional units to sectors.

⁷ See e.g. the Environmental protection expenditure accounts Handbook, 2017 edition <https://ec.europa.eu/eurostat/documents/3859598/7903714/KS-GQ-17-004-EN-N.pdf/7ea9c74b-eda4-4c23-b7bd-897358bfc990?t=1489135578000>



Source: <https://ec.europa.eu/eurostat/esa2010/chapter/view/2/>

Table 7 presents a proposed list of institutional sectors that can be used in 4th cycle of reporting. The list should be revised and discussed with the CIS WG Economics.

It is also important to provide technical guidance and examples on the proper reporting of expenditures. For example, in the context of the EPEA, research and development (R&D) expenditure is primarily classified as current expenditure, while the National Accounts framework (ESA 2010) typically capitalizes R&D as an investment.

Table 7. Proposed list of institutional sectors – 4th cycle of reporting.

ESA Sector*	Definition and comments
S.1	Total economy. Allows the provision of aggregated data.
S.13	General government. The "default" option, if the RBMPs only include government outlays.
S.13_S.15	General government + NPISH. Aligned with EPEA, can be used if preferred.
S.11_S.12	Corporations. Aligned with EPEA, can be used if preferred.
S.11	Non-financial corporations. Can be used if the distinction of outlays by public and private companies is not relevant.
S.11001	Public non-financial corporations. Can be used if the distinction of outlays by public and private companies is relevant.
S.11002_S.11003	Private non-financial corporations. Can be used if the distinction of outlays by public and private companies is relevant.
S.212	Institutions and bodies of the European Union (e.g. European Central Bank, European Commission)

* The underscore '_' denotes a list of code values (Code1_Code2). The hyphen '-' denotes a range of code values (StartCode-EndCode).

It is also important to address the reporting of transfers of EU Funds.

If institutionalSector = 'S.212' then the value represents a transfer of EU funds into the national economy. Depending on the purpose, it can be a capital transfer (e.g. to build a new UWWT plant), or a current transfer (e.g. a CAP subsidy to pay farmers to reduce or eliminate pesticides). It is not necessary to identify which sector receives the transfer.

A numerical example can be used to illustrate the proposed approach.

A new Urban Waste Water Treatment Plant required a total capital expenditure of 10M€.

- Scenario 1 : the General Government (S.13) built the plant using national funds.
- Scenario 2 : a public utility company (S.11001) built the plant, using 10M€ of national funds transferred by the government.
- Scenario 3 : the government built the plant using 8M€ of national funds and 2M€ from the EU Cohesion Fund.
- Scenario 4 : a public utility company (S.11001) built the plant, using 8M€ of national funds transferred by the General Government (S.13) to the company and 2M€ of EU funds transferred to the company via the national government.
- Scenario 5 : a public utility company (S.11001) built the plant, using 5M€ of their own funds, 4M€ of national funds transferred by the General Government (S.13) to the company and 1M€ of EU funds transferred to the company via the national government.

Table 8 illustrates the reporting of the different scenarios.

Note that scenario 1 and scenario 2 are identical from a reporting point-of-view.

Likewise, scenario 3 and scenario 4 are identical.

Table 8. Illustrative example with the reporting of expenditure per sector.

Scenario	Institutional Sector	Total Capital Expenditure
1	S.13 – General Government	10 M€
2	S.13 – General Government	10 M€
3	S.13 – General Government	8 M€
3	S.212 – Institutions and bodies of the European Union	2 M€
4	S.13 – General Government	8 M€
4	S.212 – Institutions and bodies of the European Union	2 M€
5	S.11001 – Public non-financial corporations	5 M€
5	S.13 – General Government	4 M€
5	S.212 – Institutions and bodies of the European Union	1 M€

The Commission must provide guidance on the reporting of expenditure for measures where mainKeyTypeOfMeasure IN ('C - Measure to promote efficient and sustainable water use', 'E - Measure to control abstraction from surface and groundwater, and impoundment of surface water') which may be outside the scope of the EPEA.

Alignment with the Classification of environmental protection activities

The EPEA categorises activities using the Classification of environmental protection activities (CEPA 2000, Table 10). The proposed classification of Measures using the `mainKeyTypeOfMeasure` value (Table 3) is not based on the CEPA 2000 classification.

Note also that CEPA strictly covers *Environmental Protection* (preventing pollution and degradation) and excludes *Resource Management* (saving water or energy), which falls under CReMA⁽⁸⁾ (Classification of Resource Management Activities).

Nevertheless, it seems to be possible to map most of the `mainKeyTypeOfMeasure` classes to a primary CEPA 2000 class (Table 11).

The mapping and post-classification can be done by the Commission, using the reported data per Measure, to analyse and aggregate the data according CEPA classes, if that is required.

⁸ See <https://ec.europa.eu/eurostat/documents/1798247/12177560/CEPA+and+CReMA+explanatory+notes+-+technical+note.pdf/b3517fb9-1cb3-7cd9-85bd-4e3a3807e28a?t=1609863934103>

Annexes

Simplified classification of measures – 4th cycle of reporting

This annex presents the **mainKeyTypeOfMeasure**, a simplified classification of measures that consolidates and replaces the **basicMeasureType** and the **keyTypeOfMeasure** classifications used in the 3rd cycle.

The purpose of the simplified classification is:

- To reduce the number of classes to a manageable set (19 options).
- To use a single classification scheme applicable to both basic measures and supplementary measures.
- To avoid redundancy and reporting burden in the classification of the measures.
- To maintain the options directly linked to the basic measure types in Articles 11(3)(b) to 11(3)(l) of the WFD – see codes B, C, D, E, F, G, H, J, K, L.
- To maintain the disaggregation in the measures to address significant impacts in the status of water as per Article 11(3)(i) – see codes I2-2, I2-3 and I2-4.
- To allow flexibility in the reporting of the measures to address significant pressures, when combined with the optional **mainPressureType** attribute.
- To maintain the previous KTM that do not fit the criteria above and were reported with high frequency in the 3rd cycle – see codes X01, X12, X14, X23 and X24.

Table 9 aligns the **mainKeyTypeOfMeasure** with the previous separate classification schemes. It supports MS in the migration to the single simplified codelist to be used in the **mainKeyTypeOfMeasure** attribute in the 4th cycle of reporting.

The proposed classification is provisional and can be reviewed by MS to detect potential issues and clarify the scope of the definitions.

Regarding the measures to address significant impacts in the status of water as per Article 11(3)(i) – see codes I2-2, I2-3 and I2-4 – note that only some of the impacts applicable to surface water are detailed.

Table 9. Mapping between the proposed mainKeyOfTypeOfMeasure (4th cycle) and current basicMeasureType and keyTypeOfMeasure (2nd and 3rd cycle).

mainKeyOfTypeOfMeasure (4th cycle)	basicMeasureType (2nd and 3rd cycle)	keyTypeOfMeasure (2nd and 3rd cycle)
B - Measure to implement recovery of costs for water services	Measure to implement recovery of costs for water services	KTM9 - Water pricing policy measures for the implementation of the recovery of cost of water services from households KTM10 - Water pricing policy measures for the implementation of the recovery of cost of water services from industry KTM11 - Water pricing policy measures for the implementation of the recovery of cost of water services from agriculture
C - Measure to promote efficient and sustainable water use	Measure to promote efficient and sustainable water use	KTM8 - Water efficiency, technical measures for irrigation, industry, energy and households
D - Measure to protect drinking water quality and reduce the level of treatment required	Measure to protect drinking water quality and reduce the level of treatment required	KTM13 - Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)
E - Measure to control abstraction from surface and groundwater, and impoundment of surface water	Measure to control abstraction from surface and groundwater	
F - Measure to control artificial recharge or augmentation of groundwater	Measure to control recharging of groundwater	
G - Measure to control point source discharges	Measure to control point source discharges	
H - Measure to prevent or control inputs of diffuse pollutants	Measure to prevent or control inputs of diffuse pollutants	KTM17 - Measures to reduce sediment from soil erosion and surface run-off KTM2 - Reduce nutrient pollution from agriculture KTM21 - Measures to prevent or control the input of pollution from urban areas, transport and built infrastructure KTM22 - Measures to prevent or control the input of pollution from forestry
I2-2 - Measure to address significant impacts - Altered habitats due to hydrological changes	Measure to address significant impacts on the hydromorphological conditions	KTM7 - Improvements in flow regime and/or establishment of ecological flows
I2-3 - Measure to address significant impacts - Altered habitats due to morphological changes		KTM5 - Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams) KTM6 - Improving hydromorphological conditions of water bodies other than longitudinal continuity
I2-4 - Measure to address significant impacts - Acidification		KTM25 - Measures to counteract acidification
J - Measure to prohibit direct discharges to groundwater	Measure to prohibit direct discharges to groundwater	
K - Measure to eliminate by Priority Substances and reduce pollution by other substances	Measure to eliminate or reduce pollution by Priority Substances	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 KTM3 - Reduce pesticides pollution from agriculture
L - Measure to prevent accidental pollution	Measure to prevent accidental pollution	
P - Measure to address significant pressures		KTM18 - Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases KTM19 - Measures to prevent or control the adverse impacts of recreation including angling KTM20 - Measures to prevent or control the adverse impacts of fishing and other exploitation/removal of animal and plants KTM4 - Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)
X01 - Construction or upgrades of wastewater treatment plants		KTM1 - Construction or upgrades of wastewater treatment plants KTM16 - Upgrades or improvements of industrial wastewater treatment plants (including farms)
X12 - Advisory services		KTM12 - Advisory services for agriculture
X14 - Research, improvement of knowledge base reducing uncertainty		KTM14 - Research, improvement of knowledge base reducing uncertainty
X23 - Natural water retention measures		KTM23 - Natural water retention measures
X24 - Climate change adaptation measure		KTM24 - Adaptation to climate change

Classification of environmental protection activities (CEPA 2000)

Table 10. Subset of CEPA classes potentially applicable to the classification of WFD Measures.

Based on the information in <http://publications.europa.eu/resource/dataset/cepa2000>.

Note: this table is not relevant for the reporting process, it is only relevant for the analysis of reported data.

CODE	NAME	SCOPE
CEPA 2	Wastewater management	<p>Wastewater is defined as water that is of no further immediate value for the purpose for which it was used or in the pursuit of which it was produced because of quality, quantity, or time of its occurrence.</p> <p>Wastewater management comprises activities and measures aimed at the prevention of pollution of surface water through the reduction of the release of wastewater into inland surface water and seawater.</p> <p>It includes:</p> <ul style="list-style-type: none"> • the collection, treatment of wastewater; • monitoring and regulation activities; • septic tanks. <p>Septic tanks are settling tanks through which wastewater is flowing and the suspended matter is decanted as sludge. Organic matter (in the water and in the sludge) are partly decomposed by anaerobic bacteria and other micro-organisms.</p> <p>It excludes:</p> <ul style="list-style-type: none"> • actions and activities aiming to protect groundwater from pollutant infiltration and the cleaning up of water bodies after pollution (see CEPA 4).
CEPA 2.1	Prevention of pollution through in-process modifications	<p>Activities and measures aimed at reducing the generation of wastewater through IPMs related to:</p> <ul style="list-style-type: none"> • cleaner and more efficient production processes and other technologies (cleaner technologies); • the consumption or use of 'cleaner' (adapted) products. <p>It includes:</p> <ul style="list-style-type: none"> • replacing existing production processes with new processes designed to reduce water pollutants or wastewater generated during production. Examples include separation of networks and treatment and re-use of water used in production processes, etc.; • modifying or adapting an existing production process or facilities to enable the substitution of raw materials, catalysts and other inputs by non- (or less) water polluting products.
CEPA 2.2	Sewerage networks	<p>Activities aimed at the operation, maintenance and repair of sewerage networks.</p> <p>Sewerage networks are the systems of collectors, pipelines, vehicles, tanks, conduits and pumps used in the process of transporting wastewater (rainwater, domestic and other wastewater) from the points of generation to either a sewage treatment plant or to a point where wastewater is discharged.</p>
CEPA 2.3	Wastewater treatment	<p>Wastewater treatment is the process which bring wastewater up to environmental standards or other quality norms. Three broad types of treatment (mechanical, biological, and advanced treatment) are defined below. Alternative definitions of types of treatment may be used, e.g. based on removal rates for biological oxygen demand</p> <ol style="list-style-type: none"> 1. Mechanical (or physical) treatment separates wastewater into treated water and sludge. Mechanical treatment includes the use of sedimentation and the use of screens to separate large solids. Sedimentation may be assisted by chemicals or flotation (elimination of sand, oil, part of the sludge, etc.). 2. Biological treatment employs aerobic or anaerobic microorganisms to treat wastewater and results in treated wastewater and separate sludge containing microbial mass and pollutants. This activity is designed to eliminate pollution from oxidisable materials through the use of bacteria: activated sludge techniques or anaerobic treatment for specific concentrated wastewater. Biodegradable materials are treated with the addition of bacteria-enriched sludge in open or closed tanks. 3. Advanced treatment reduces specific constituents in wastewater not normally achieved by other treatment options. It covers all processes which are not considered to be mechanical or biological. This activity is aimed at eliminating oxidisable non-biodegradable matter at a higher level, as well as metals, nitrate, phosphorous, etc. Special equipment is required for each depollution process. <p>Septic tanks, their maintenance and emptying and other products for septic tanks (biological activators, etc.) are included.</p> <p>Construction and operation of sewage treatment plants, and the treatment of sewage sludge for disposal or other uses (e.g. agriculture, incineration with energy recovery and biogas production) are also included.</p>
CEPA 2.4	Treatment of cooling water	<p>Treatment of cooling water designates processes which bring cooling water up to environmental standards before releasing into the environment. Cooling water is used to remove heat. This can involve air cooling (extra cost compared with water cooling), cooling towers (to the extent they are required to reduce pollution, as distinct from technical needs), cooling circuits for processing water and for condensing released vapour, equipment for enhancing the dispersion of cooling water on release, closed cooling circuits (extra cost), circuits for use of cooling water for heating purposes (extra cost).</p> <p>Activities associated with the reduction of the use of cooling water and more efficient water cooling in the energy sector are included.</p>
CEPA 2.5	Measurement, control, laboratories and the like	<p>Activities aimed at monitoring the concentration of pollutants in wastewater and the quality of inland surface water and marine water at the place wastewater is discharged (analysis and measurement of pollutants, etc.)</p>
CEPA 2.6	Other activities	<p>All other activities and measures aimed at wastewater management, including regulation and ETIGA activities specific to CEPA 2, when they can be separated from other activities belonging to CEPA 2 and from similar activities related to other environmental protection classes.</p>
CEPA 4	Protection and remediation of soil, groundwater and surface water	<p>Protection and remediation of soil and water concerns surface water, groundwater and marine waters. It refers to measures and activities aimed at the prevention of pollutant infiltration, cleaning up of soils and water bodies and the protection of soil from erosion and other physical degradation including salinisation. Monitoring of soil and groundwater pollution is included as well as activities for protection and remediation of marine environment.</p> <p>Excluded are wastewater management activities (see CEPA 2), activities of soil protection in forests (CREMA 11A) as well as activities aimed at the protection of biodiversity and landscape (see CEPA 6).</p> <p>Aquaculture is outside the scope of environmental activities with the exception of organic aquaculture, included under CEPA 4.3.</p>
CEPA 4.1	Prevention of pollutant infiltration	<p>Activities and measures aimed at reducing or eliminating the penetration of polluting substances into soil and water.</p> <p>It includes:</p> <ul style="list-style-type: none"> • activities related to sealing of soils of industrial plants; • installation of catchment for pollutant run-offs and leaks; • strengthening of storage facilities; • transportation of pollutant products.

CODE	NAME	SCOPE
CEPA 4.2	Cleaning up of soil and water bodies	Processes to reduce the quantity of pollutants in soil and water bodies either in situ or in appropriate installations. It includes: <ul style="list-style-type: none"> soil decontamination at former industrial sites, landfills and other black spots; dredging of pollutants from water bodies (rivers, lakes, estuaries, etc.); the decontamination and cleaning up of surface water following accidental pollution e.g. through collection of pollutants or through application of chemicals; the cleaning up of oil spills on land, inland surface waters and seas – including coastal areas. It excludes: <ul style="list-style-type: none"> the liming of lakes and artificial oxygenation of water bodies (see CEPA 6); civil protection services (classified outside of CEPA and CReMA).
CEPA 4.3	Protection of soil from erosion and other physical degradation	Activities and measures aimed at protecting soil from erosion and other physical and chemical degradation of soil and water (compacting, encrusting, marine water contamination, etc.). It includes: <ul style="list-style-type: none"> activities intending to restore the protective vegetal cover of soils; construction of anti-erosion walls; organic farming as well as agricultural and grazing practices less harmful for soils and water bodies; organic aquaculture. It excludes: <ul style="list-style-type: none"> conventional agricultural production (outside the scope of CEPA or CReMA); protection of settlements against natural hazards such as landslides (outside the scope of CEPA or CReMA). Soil erosion is the detachment and movement of topsoil or soil material from the upper part of the profile by the action of wind or running water especially as a result of changes brought about by human activity (such as unsuitable or mismanaged agricultural methods).
CEPA 4.4	Prevention and remediation of soil salinity	Activities and measures aimed at preventing salinisation or reducing salinity. Concrete actions will depend on climatic, geological and other country-specific factors. It includes, if undertaken for an explicit purpose of prevention and remediation of soil and groundwater salinity: <ul style="list-style-type: none"> actions to increase groundwater tables, e.g. through increased freshwater infiltration to avoid infiltration of seawater into groundwater bodies; lowering of groundwater tables (when groundwater contains high levels of salts) through long-term re-vegetation programmes, changes in irrigation practices, etc. It excludes: <ul style="list-style-type: none"> measures that respond to economic purposes (conventional agricultural production, reclamation of land from the sea, etc.).
CEPA 4.5	Measurement, control, laboratories and the like	All activities and measures aimed at monitoring the quality and pollution of soils, groundwater and surface water, measuring the extent of soil erosion and salinisation etc. It includes: <ul style="list-style-type: none"> the operation of monitoring systems; inventories of "black spots"; maps and databases of groundwater and surface water quality, soil pollution, erosion and salinity, etc.
CEPA 4.6	Other activities	All other activities and measures aimed at protecting and remediating soil, groundwater, surface water and marine waters. It includes ETIGA activities specific to the CEPA 4, when they can be separated from other activities belonging to CEPA 4 and from similar activities related to other environmental protection classes.
CEPA 6	Protection of biodiversity and landscapes	Biological diversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Protection of biodiversity and landscape refers, accordingly, to measures and activities aimed at protecting and replenishment of wild fauna and flora, safeguarding and restoring their habitats, ecosystems of which they are part, natural or semi-natural landscapes. Such measures and activities are included regardless of whether they occur in areas which are classified as protected areas. The environmental rehabilitation of abandoned mining and quarrying sites and related expenditure are included; while activities related to soil cleaning are to be reported under CEPA 4. It excludes: <ul style="list-style-type: none"> the protection and rehabilitation of historic monuments or predominantly built-up landscapes; the control of weeds for agricultural purposes; the recreational structures and spaces such as urban parks and gardens, golf courses and other sports facilities; management of zoos, oceanarium, aquarium, and of city greenery; establishment and maintenance of green spaces along roads; 'extraction' activities, such as 'hunting' or 'fishing'; farming and gardening activities, (outside the scope of CEPA or CReMA with the exception of organic farming included under CEPA 4). Protection against forest fires falls under the scope of environmental activity. By convention, all activities and measures against forest fires are to be reported under CReMA 11A.
CEPA 6.1	Protection and rehabilitation of species and habitats	Activities and measures aimed at the conservation, reintroduction or recovery of wild fauna and flora, and the restoration, rehabilitation and reshaping of damaged habitats for the purpose of strengthening their natural functions. All activities and measures aimed at maintenance and replenishment of all species of wild flora or fauna (irrespective of whether threatened by extinction), including maintenance of their habitats, are covered. Activities aimed at the minimisation of the intake of wild flora and fauna (wild growing forest products are excluded) for the production purposes, through IPMs, are also covered, with the exception of activities aimed at the minimisation of the intake wild growing forest products (CReMA 11). Management and development of protected areas, whatever their denomination, is included, i.e. areas in which economic exploitation is prohibited or in which it is subject to regulatory restrictions whose explicit goal is the conservation and protection of habitats It includes: <ul style="list-style-type: none"> conserving genetic heritage, monitoring and restricting (placing bans on) exploitation, trade, etc. of specific animal and plant species, for protection purposes; creation of gene reserves or banks, improvement of linear infrastructures (e.g., underground passages or bridges for animals at highways or railways, the restoration of small-scale structures like hedges or orchards, green bridges etc.), feeding of the young, management of special natural reserves (botanical conservation areas, etc.); re-introduction of native species and control of invasive alien species that pose a threat to native fauna, flora and habitats; restoration activities (replenishment of wild flora and fauna stocks). For example: repopulation of stocks of wild fauna by introducing new individuals; <ul style="list-style-type: none"> purchase of land for protection of species and habitats; production of fishing nets which reduce the by-catch, production of pesticides with no (lower) impact on the wild flora, algorithm to switch off the wind turbines, the installation of warning sounds to protect the bats.

CODE	NAME	SCOPE
CEPA 6.2	Protection of natural and semi-natural landscapes	<p>Activities and measures aimed at protecting natural and semi-natural landscapes to maintain and increase their ecological value.</p> <p>It includes:</p> <ul style="list-style-type: none"> • the preservation of legally protected natural objects; • expenditures incurred for the environmental rehabilitation of abandoned mining and quarrying sites; • renaturalisation of river banks; • burying electricity lines; • maintenance of landscapes that are the result of traditional agricultural practices threatened by prevailing economic conditions, etc.; • activities for the restoration of water bodies as aquatic habitats: artificial oxygenation and lime-neutralisation actions; • biodiversity and landscape protection related to agriculture. <p>It excludes:</p> <ul style="list-style-type: none"> • measures taken in order to protect historic monuments, measures to increase aesthetic values for economic purposes (e.g., re-landscaping to increase the value of real estates); • protection of predominantly built-up landscapes.
CEPA 6.3	Measurement, control, laboratories and the like	Monitoring, analysis and inspection activities which are not classified under the preceding items. Censuses, inventories, databases of flora and fauna are included.
CEPA 6.4	Other activities	All other activities and measures aimed at protecting species and habitats and landscapes. It includes ETIGA activities specific to CEPA 6, when they can be separated from other activities belonging to CEPA 6 and from similar activities related to other environmental protection classes. For example: general government activities for preserving stocks through the enforcement of quotas, regulation, monitoring, control for e.g. fishing activities, the management of wild game reserves which preserves resource functions.
CEPA 8	Research and development	<p>This class covers R&D for the prevention and elimination of all forms of pollution and R&D oriented towards equipment and instruments for pollution measurement and analysis. When separable, all R&D activities even when referring to a specific class have to be classified under CEPA 8.</p> <p>Research and development (R&D) comprises "creative and systematic work undertaken in order to increase the stock of knowledge...and to devise new applications of available knowledge" (see Frascati manual, OECD 2015) in the field of environmental protection. Environmental R&D is classified in accordance with the 2007 NABS (Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets).</p> <p>It includes:</p> <ul style="list-style-type: none"> • identification and analysis of sources of pollution, mechanisms of dispersion of pollutants in the environment as well as their effects on human beings and the biosphere. <p>It excludes:</p> <ul style="list-style-type: none"> • R&D activities related to the management of natural resources (see CReMA 15)
CEPA 8.2	Protection of water	
CEPA 8.4	Protection of soil and groundwater	
CEPA 8.6	Protection of species and habitats	
CEPA 8.8	Other research on the environment	
CEPA 9	Other environmental protection activities	<p>Other environmental protection activities refer to regulation and ETIGA activities related to environmental protection that cannot be classified elsewhere. When possible such activities should be allocated to other classes.</p> <p>It includes:</p> <ul style="list-style-type: none"> • activities aimed at the general support of decisions taken in the context of environmental protection activities by government or non-government bodies; • regulation by government bodies; • environmental management by businesses; • activities not elsewhere classified.
CEPA 9.1	General environmental administration and management	<p>It includes:</p> <ul style="list-style-type: none"> • the administration, management and support to decisions regarding environmental protection by government and non-government bodies. <p>In turn, this includes:</p> <ul style="list-style-type: none"> o preparation of declarations or requests for permission; o internal environmental management; o environmental certification process (ISO 14000, environmental management) ; o activities of units specialised in environmental consultancy, supervision and analysis; • regulation by the government.
CEPA 9.1.1	General administration, regulation and the like	
CEPA 9.1.2	Environmental management	
CEPA 9.2	Education, training and information	<p>Activities aimed at providing general environmental education or training and disseminating environmental information not elsewhere classified.</p> <p>It includes:</p> <ul style="list-style-type: none"> • high school programs related to environmental protection; • university degrees or special courses specifically aimed at training for environmental protection; • environmental reports, environmental communication, etc. are also included.
CEPA 9.4	Activities not elsewhere classified	<p>This position groups together all environmental protection activities that cannot be classified under other CEPA classes.</p> <p>It includes international financial aid where it may be difficult for the donor countries to attribute related expenditure to individual CEPA classes. If international aid is important in volume and/or of specific political interest, a separate 2-digit heading under CEPA 9 could be adequate for national purposes.</p>

Mapping between mainKeyTypeOfMeasure and CEPA 2000

Table 11. Tentative mapping between the proposed mainKeyTypeOfMeasure classification and the CEPA 2000 classification.

Note: this table is not relevant for the reporting process, it is only relevant for the analysis of reported data.

mainKeyTypeOfMeasure (4th cycle)	Primary CEPA 2000 class	Rationale / Notes
B - Measure to implement recovery of costs for water services	CEPA 9.1 (General Administration)	Administrative and economic regulation activities fall under "General environmental administration."
C - Measure to promote efficient and sustainable water use	[CReMA 10]	Technically outside CEPA. This is Resource Management, not Protection. If forced, it fits CReMA 10 (Management of Water Resources).
D - Measure to protect drinking water quality and reduce the level of treatment required	CEPA 4.1 (Protection of soil, groundwater and surface water)	Measures to prevent pollutants from entering water bodies (Source Water Protection) fall under CEPA 4.1.
E - Measure to control abstraction from surface and groundwater, and impoundment of surface water	[CReMA 10]	Technically outside CEPA. Controlling abstraction is managing the stock of water (Resource Management).
F - Measure to control artificial recharge or augmentation of groundwater	CEPA 4.2 or CEPA 4.4	If the recharge is to remedy salinity or pollution, it is CEPA 4. If it is purely for managing water supply, it is CReMA 10.
G - Measure to control point source discharges	CEPA 2 (Wastewater Management)	Control of discharges (sewerage, treatment plants) is the core definition of CEPA 2.
H - Measure to prevent or control inputs of diffuse pollutants	CEPA 4.1 (Protection of soil/water)	Diffuse pollution (e.g., agricultural runoff) is usually treated as soil/water protection (CEPA 4) rather than wastewater (CEPA 2).
J - Measure to prohibit direct discharges to groundwater	CEPA 4.1 (Protection of soil/water)	Prevention of pollutant infiltration into groundwater.
K - Measure to eliminate by Priority Substances and reduce pollution by other substances	CEPA 2 or CEPA 4	CEPA 2 if treating wastewater (end-of-pipe). CEPA 4 if remediating a water body or controlling sources in the soil.
L - Measure to prevent accidental pollution	CEPA 4 (Protection of soil/water)	Preventing spills and infiltration into soil and water bodies.
I2 - Measure to address significant impacts on surface waters - Altered habitats due to hydrological changes	CEPA 6.1 (Biodiversity & Landscapes)	Restoring natural flows to support habitats is predominantly protection of biodiversity.
I3 - Measure to address significant impacts on surface waters - Altered habitats due to morphological changes	CEPA 6.1 (Biodiversity & Landscapes)	Measures like removing dams, restoring river banks, and re-meandering are CEPA 6.
I4 - Measure to address significant impacts on surface waters - Acidification	CEPA 4.2 (Cleaning up of water bodies)	Remediation of acidified water bodies.
P - Measure to address significant pressures on surface waters	CEPA 4 (General)	A broad category: usually defaults to protection of surface water (CEPA 4) unless it is clearly wastewater (CEPA 2).
X01 - Construction or upgrades of wastewater treatment plants	CEPA 2.3 (Wastewater Management)	Specific infrastructure investment for wastewater treatment.
X12 - Advisory services	CEPA 9.1 or 9.2	Administration (9.1) or Education/Information (9.2) related to environmental protection.
X14 - Research, improvement of knowledge base reducing uncertainty	CEPA 8 (R&D)	Specific class for all environmental Research & Development.
X23 - Natural water retention measures	CEPA 6 or CEPA 4	"Natural" measures (e.g., wetlands restoration) are often CEPA 6 (Biodiversity). If purely for flood defence, they may be excluded from CEPA entirely (Safety).
X24 - Climate change adaptation measure	CEPA 4 or CEPA 6	Adaptation is not CEPA 1 (which is Climate Mitigation). Adaptation measures usually map to the domain protected (e.g., Water/Biodiversity).