WFD reporting

Reporting on the Progress on the
implementation of the
Programmes of Measures

- A user manual

ATKINS

Tools and services for reporting under RBMP within WISE

Reporting of the Progress on the implementation of the Programmes of Measures

- A user manual

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Document History

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Glossary of Terms

Term	Meaning / Definition
CA	Competent Authorities
DB	Database
GWB	Ground Water Body (schema)
GWMET	Ground Water Methodologies (schema)
GWST	Ground Water Monitoring Stations (schema)
IMP_POM	Progress on the implementation of the Programmes of Measures
MON	Monitoring (schema)
MS	Member State
PA	Protected Areas (schema)
POM	Programme Of Measures
RBD	River Basin District
RBDSUCA	River Basin District/Sub Unit/Competent Authorities (schema)
RBMP	River Basin Management Plan (schema)
SWB	Surface Water Body (schema)
SWMET	Surface Water Methodologies (schema)
SWST	Surface Water Monitoring Stations (schema)
WB	Water Body
WFD	Water Framework Directive
WISE	Water Information System for Europe
XML	Extensible Markup Language

1. Introduction

The purpose of this guidance is to provide support to the workflow for WFD reporting in 2012 - Progress on the implementation of the Programmes of Measures. Fundamental to the reporting process are the schema which have been developed from the reporting sheets. The schema 'IMP_POM' is available online from EEA's ReportNet. To facilitate the submission of information according to the schema the following tools have been developed, which this tool addresses:

- Access database. This complements the schema and organises the information into database tables. This tool can be used either to manage the information or just to understand the WFD reporting requirements.

- XML Conversion tool which generates the schemas from the Access database

- QA/QC rules help ensure the information is filled out correctly. The QA/QC is run from the following:

  - ReportNet
  - Desktop validation tool.

1.1 Schema

The reporting schema is not dealt with in detail in this document. The schema is available from this web page http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/ along with supporting documentation.

1.2 Related documents

This is 'Document 1' providing support for the workflow. There are two other documents which provide additional support to the reporting process:

- Document 2: Schema user guidance
  http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/

- 2012 Progress POM Reporting sheet

  Available on CIRCA or in Annex C in this document

1.3 Getting help

The schema, tools and supporting documents are available from this web page:

http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/

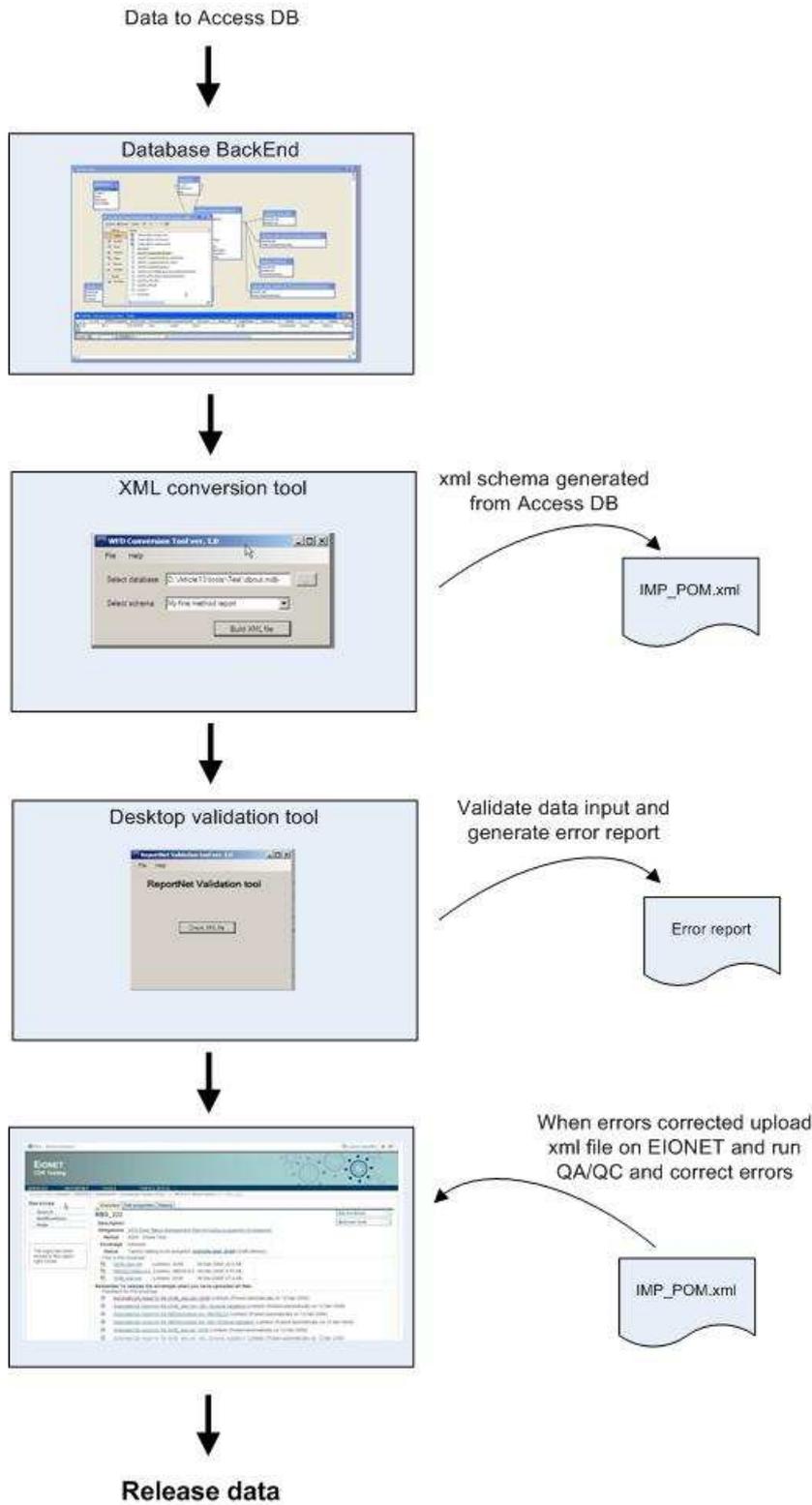If you need assistance on issues not addressed in this User Guidance please contact:

helpdeskWISEreporting@atkinsglobal.com

The helpdesk will assist you on any matter regarding the reporting of the WFD Progress on the implementation of the Programmes of Measures by the deadline of 31st of December 2012.

1.4　Overview of reporting steps

The main reporting steps are shown in the diagram below. The approach taken, depending on the tools and databases already available within the MS, can take different forms. Some MS are able to generate the XML files directly from their own systems and would therefore only be interested in the validation and upload steps. The reporting steps shown here are for MS where no local tools exist to easily build the xml files required for upload onto ReportNet.

1. **Access DB**: Structured around the agreed schema (IMP_POM), this MS Access database can be used to import and structure MS data into the required format for the generation of the XML files. Please notice that one Access database should only represent one RBD.

2. **XML conversion tool**: This tool converts the data entered into the MS Access tool into the xml format required for reporting.

3. **Desktop validation tool:** This tool checks the quality of the data within the xml files generated. It uses the same rules as the validation tool within ReportNet, and will detect and report any errors in the xml files at an early stage (rather than waiting until you have generated and uploaded onto ReportNet all the xmls, only to have to go back to the start to correct errors). This tool can therefore save you a lot of time. The tool could be the starting point for those MS generating the XML files directly from their systems.

4. **ReportNet upload**: Once the xml files have been generated, checked through the desktop validation tool, and no errors returned (or errors corrected), the files are ready to be uploaded onto ReportNet. There will be pre-defined envelopes for each RBD in all MS along with a national folder to contain information on national (e.g. other supporting documents).

5. **ReportNet QA/QC:** Once the xml have been uploaded into the various envelopes, it is recommended to also finally run the QA/QC facility on ReportNet to ensure that there are no errors remaining in the XML files. Once you are satisfied that no such errors occur, the files are ready to be released and a cover letter will be automatically generated verifying the date of the reporting along with a list of reported documents / files.

Data to Access DB

Database BackEnd

XML conversion tool

xml schema generated
from Access DB

IMP_POM.xml

Desktop validation tool

Validate data input and
generate error report

Error report

When errors corrected upload
xml file on EIONET and run
QA/QC and correct errors

IMP_POM.xml

Release data

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2.   MS Access WFD Database

2.1   Quick guide

A quick step by step guide for the advanced user who has experience in using previous similar reporting databases:

- Download the Access DB from http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/

- Make a copy of the DB for each RBD you are reporting.

- Fill in the required information into the relevant tables (using the guidance provided in Appendix A)

- When all the data has been entered into the reporting database use the xml conversion tool to generate the xml files

2.2   Overview

The purpose of the Access database is to present a data management structure which reflects the structure of the reporting schema into which the required information can be collated to allow easy generation of the XML schemas. The database allows for manual entry using drop-down lists, but also bulk data import can be used, depending upon the skill and the needs of the user.

In previous WISE reporting exercises (for WFD Articles 3, 5 and 8), similar MS Access 'Tools' / databases have been provided with a front end form for the MS to use when filling in the required data. In this reporting exercise for the IMP_POM, the Access DB will contain only the tables used to build the xml file (back-end only, no front end form).

A diagram to show how the various tables within the database inter-relate is provided in Appendix A. The table design contains a description of the data required in any specific field (same as the annotations in the schema design) along with drop down lists of data available to insert into fields where this is required.

The design of the Access DB is structured around the streamlined schema as described in the "User Guide to the streamlined schema" (Document 2) available from the link below:

http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/

Where possible however, the database has been designed in a more simplified structure compared to the schema design.

2.3 Download of Access database

The Access DB will be available for download at
http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/ and is available in 2000
and 2003-2007 versions.

The IMP_POM schema is designed to contain information at RBD level.

The DB reflects this design and hence each reporting DB should contain data from only *one* RBD.
A separate DB should therefore be created for every RBD.

2.4 Database design

2.4.1 Required data

The required elements in the Access database tables are bold in Appendix A and in the database
it is indicated in the description field whether the element is 'required', 'optional' or 'conditional' –
please note that several elements are only required to establish links between tables. To see the
specific rules laid down for a specific element please look in either the User Guide to the reporting
schema v1.0 or the Access database.

NOTE: The validation tool will indicate any required fields which have not been completed.

Figure 2.1. Access DB table design showing required/conditional elements.

2.4.2 Field descriptions

Every table within the database contains detail on what each field means (Description), and what
format of data is required in the field. To view these, click once on the table and go to Design
view. This description has been taken directly from the schema annotations, but in some cases
where the description was too long for the field length the description has been truncated and you
should refer back to the schemas themselves.

2.4.3 Text fields

Most of the fields within the DB are defined as text fields and an indication of number of
characters allowed can be found in either the description field (table design view), in the general
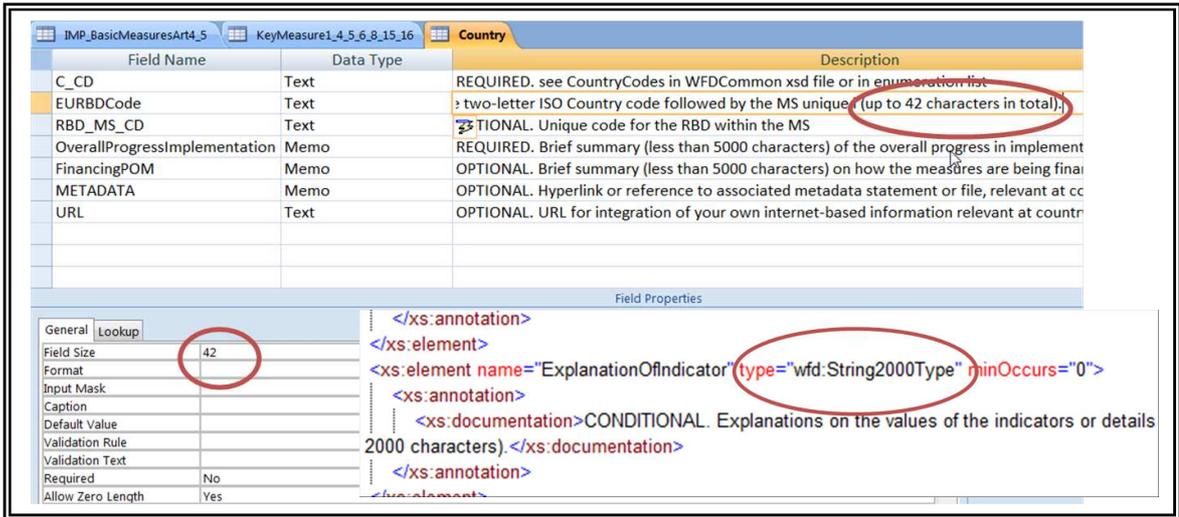field settings or in the schema (xml) file (as illustrated below).

Figure 2.2. Example of how to find text field size – in XML and DB.

If text fields in the DB are defined as "Memo" the information on how many characters allowed will be available in both the xml file and in the text description.

2.4.4 Enumeration / Drop-Down Lists

All code lists defined in the schema have already been incorporated into the DB, and are used to create drop-down lists where appropriate, e.g. country code (C_CD) list. This ensures that only valid codes are entered into the DB. Code lists are defined in the system schema WFDCommon and can also be found in section 4 of the User Guide to the streamlined schemas. (http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/)

The element SupplementaryAddMeasureCode in table 'IMP_BasicMeasuresArt4_5' will be pre-filled with SupplementaryAddMeasureCodes as reported in the RBMP (if this has been reported). The pre-filled information will be available from a drop-down list. Please notice that the MeasureName and MeasureDescription in the database only should be reported if a new supplementary/additional measure has been defined since the RBMP. For the pre-filled SupplementaryAddMeasureCodes both the measure name and measure description will be added to both the xml output and the HTML factsheet when running the conversion tool.
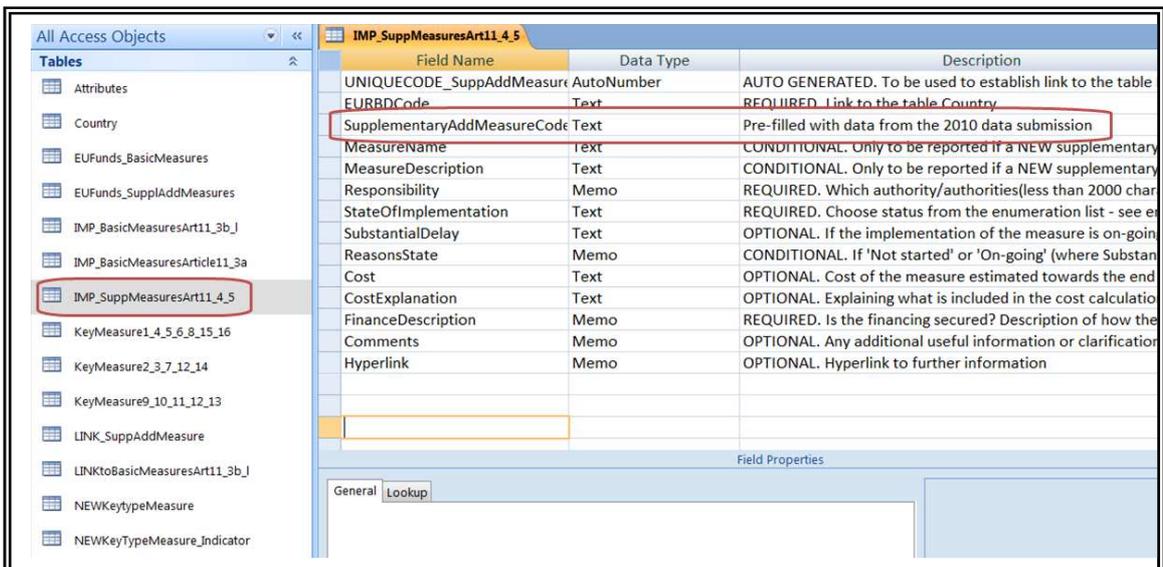

Figure 2.3. Pre-filled data from the RBMP will be available for the SupplementaryAddMeasureCode
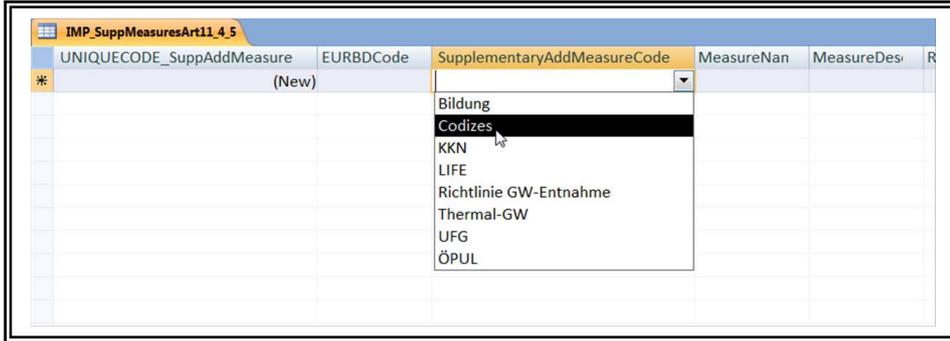
Figure 2.4. Pre-filled SupplementaryAddMeasureCodes from the RBMP will be available from a drop-down list. The drop-down list will be controlled by both CountryCode and EURBDCode provided in the Country table in the database.

2.4.5 Quantitative values and baseline

The quantitative values of all implementation stages under each key types of measure are required. The reason behind is that the question refers to "key TYPES of measures", which can contain one or more individual measures. If there is only 1 measure in the specific KeyTypesofMeasure6 which is not started yet, then the quantitative values should be reported as 1, 0, 0, 0. However if 10 measures belong to KeyTypesofMeasure6 where 3 of them is NotStarted, 3 is PlanningOnGoing, 3 is ConstructionOnGoing and 1 is Completed then all 4 quantitative values should be reported – is this example with a number, i.e. 3, 3, 3, 1.

The quantitative value for the baseline is required for KeyTypesofMeasure 9, 10, 11, 12 and 13 and should be understood as 100% progress in reference to the measure expected to be implemented (absolute value or percentage). The baseline should reflect the latest information available, i.e. if there are more up-to-date estimates of the needs than those in the RBMPs and PoMs, they should be used.

2.4.6 Numeric fields

It will be possible to enter numeric data with decimals using both comma (2,75) and a period (2.75) separator. The XML conversion tool will translate all the comma separated data into period separated data.

2.4.7 Date and URL

Date format must be in the format yyyy-mm-dd and links (URL) to relevant documentation (must be a valid URL format).

Note: Not having date fields in the correct format causes the conversion tool to crash!

2.5 Simplification of the schema structure

The database represents the underlying structure of the schemas. However a literal translation would result in many more tables than there are in the database. This is because some streamlining has been undertaken to identify areas where a single table can hold information for multiple schema structures.

2.5.1 Tables holding information for a repeated structure within the schema

The key measures 1, 4, 5, 6, 8, 15, 16 all hold the same structure in the schema and hence gathered in the same table 'KeyMeasure1_4_5_6_8_15_16' with a drop-down list to chose the key

measure from. This set-up also applies for table ' KeyMeasure2_3_7_12_14' and ' KeyMeasure9_10_11_12_13'.

Please notice that key type of measure 12 can be reported in both table 'KeyMeasure2_3_7_12_14' and 'KeyMeasure9_10_11_12_13'. The reason for this is because the required elements are different depending on which indicator is chosen. If indicator 12.2 (Number of advisory services) is chosen then the elements "Not started", "On-going" and "Completed" must be reported – which is possible in table "KeyMeasure2_3_7_12_14". If the indicator 12.1 or 12.3 is chosen then table "KeyMeasure 9_10_11_12_13" has to be used.
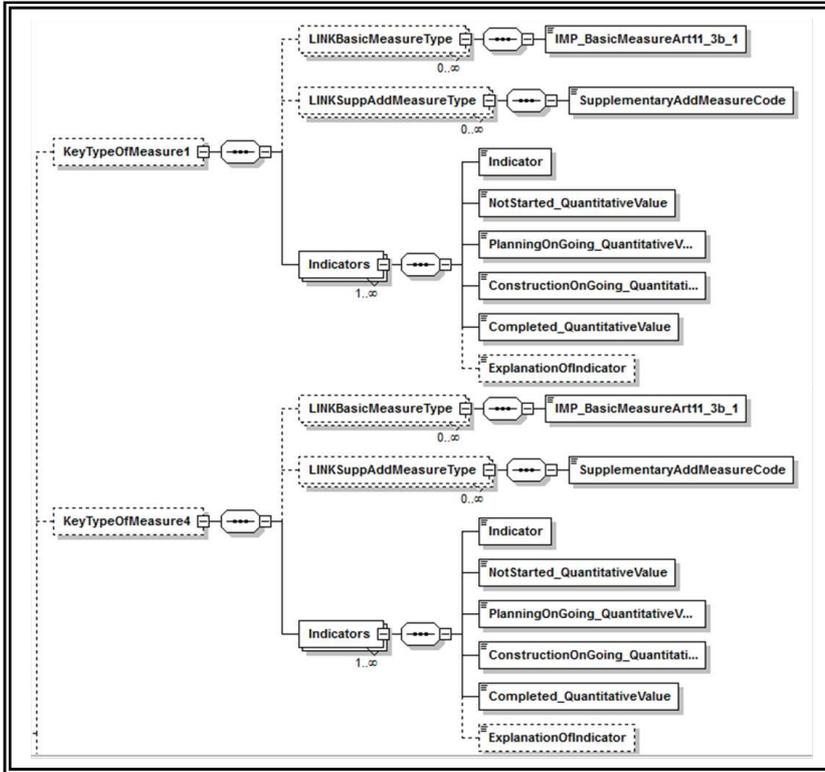
Figure 2.5. Identical schema structure for the key measures 1 and 4. The structure is gathered in the same table 'KeyMeasure1_4_5_6_8_15_16' with a drop-down list to chose the key measure from.

Figure 2.6. KeytypeofMeasure will be available from a drop-down list.

2.5.2 New key type of measure

It is possible to report a new key type measure if none of the sixteen defined key type of measures can be used. The structure is illustrated in Figure 2.7. Please notice that the link to a basic measure or/and a supplementary additional measure can be ignored if the measure has not been reported in the Programmes of Measures. For the new key type of measure both a name of the measure and a description is required – the same applies to the indicator. Depending on the indicator different quantitative values is required where an either/or restriction is applied. The quantitative values NotStarted, Completed and at least one of the three quantitative values

OnGoing, PlanningOnGoing and/or ConstructionOnGoing must be reported or the two elements quantitative value and baseline must be reported.
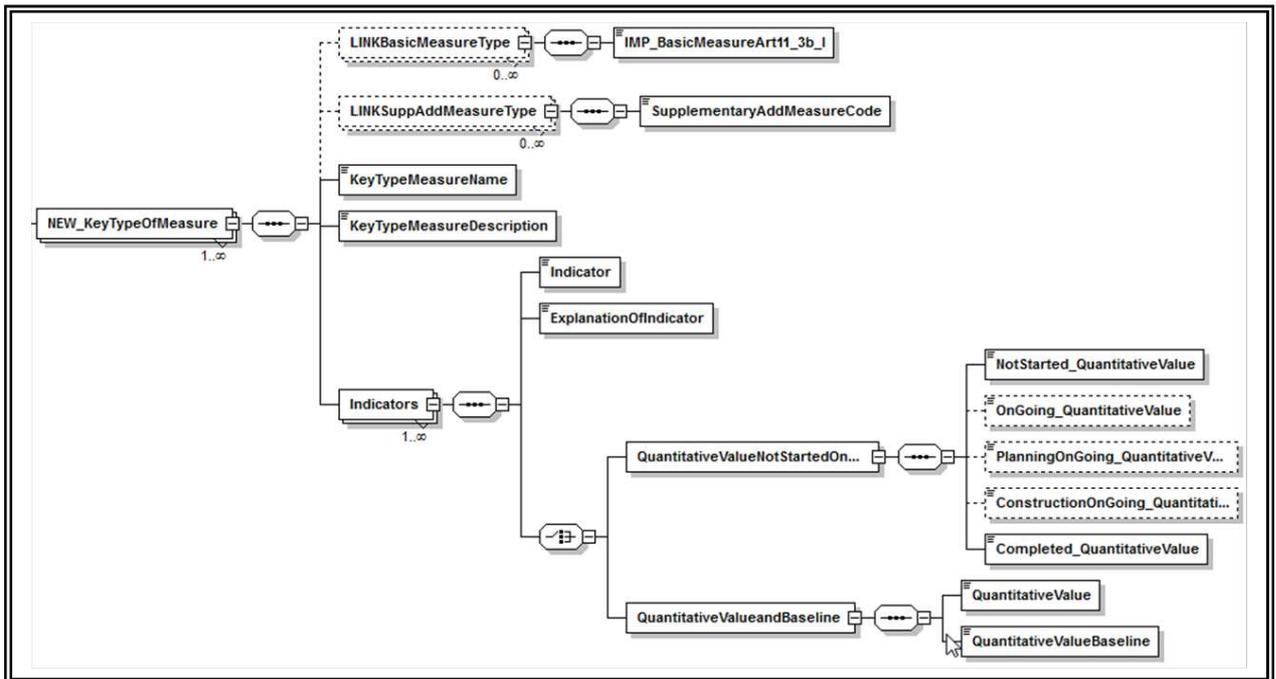
Figure 2.7. Structure for reporting a new key type of measure

2.5.3 Linkage of low-level tables within the database

Most tables will be linked through unique identifiers given by the MS – e.g. EURBDCode – but some tables require the use of an auto generated unique ID from the "parent" table. Where this is the case, it is clearly stated in the description field within the tables and will also be marked in the table linkage diagrams in Appendix A. Drop-down lists make the information easier to fill in, as long as the 'parent' tables are filled in first.

In order for the tables within the DB to link to each other unique ID's are required in different tables to be referenced against the relevant data in other corresponding tables. For example:

- **IMP_BasicMeasuresArt4_5** - has a column named UNIQUECODE_SuppAddMeasures - this code is AUTO generated and is used to establish a link to the table EUFunds_SupplAddMeasures. A drop-down list is available which for table EUFunds_SupplAddMeasures will be generated on the basis of the SupplementaryAddMeasureCode inserted into the table IMP_BasicMeasuresArt4_5.

Figure 2.8. IMP_BasicMeasuresArt4_5 table with an auto generated UNIQUECODE used to establish a link to a child table.

2.6 Order of populating the tables

The fields that form the link between tables will also be, in most cases, drop-down lists and it is therefore a good idea to fill information into the tables in a certain order since these drop-down lists will be created as the data is filled in. The specific order to follow when populating the tables, is given in Appendix A, defined by colour coding of the tables.

Note: The table 'Attributes' must be filled with the required information in order to make the conversion tool generate the xml file.

2.7 Complex structure

It is not enough just to use the database to fill in the information. It should be used in conjunction with the schemas. This is because there are some complex structures which need to be followed else a validation error will occur. The following are important to note:

2.7.1 Conditional checks

The Conditional check is required in order to ensure that an element is populated where a previous element is set to a defined value. For example if the 'SubstantialDelay' element in the table 'IMP_BasicMeasuresArt4_5' is populated with 'Y' then element 'ReasonsState' is then required and must also be populated.

Conditional fields are clearly marked within the schemas themselves (with the word CONDITIONAL at the start of the description). It is important to understand which fields are conditional and therefore what other fields become required once a conditional field is populated. This will help you avoid validation errors.

3. Creation of xml files – The DB-to-xml conversion tool

3.1 Concept

The purpose of the DB-to-xml conversion tool is to allow Member States to generate the required xml file from their own data without any prior knowledge of xml formats and standards. However, database knowledge (including MS Access) and advanced data transformation skills are still needed to use the conversion tool.

The tool extracts the data from the tables in the Access database, described in Section 2 and generates the IMP_POM schema.

This tool does not carry out any validation of the data that is used to create the xml files, nor does it validate the xml file produced. Validation is performed with the desktop validation tool and / or in ReportNet (as described later in this document)

Please note that the xml conversion tool will only function with the database structure which has been built specifically in the Access reporting database as supplied.

3.2 Computer Requirements

The DB-to-XML conversion tool requires the following;

- Windows XP or newer, 30 MB of free hard disk space and an 800x600 monitor (minimum).

- Microsoft .NET Framework 3.5 SP1 or higher. If .NET 3.5 SP1 is not already present, it will automatically be installed during the installation process. However the installation program itself requires at least Microsoft .NET Framework 2.0, see section 4.4.

Important: Running the Database to XML conversion tool requires a connection to the internet.

3.3 Installation / un-installation

3.3.1 Installation

The Database to XML conversion tool is installed through the internet from the URL below:

http://water.eionet.europa.eu/schemas/dir200060ec/resources/conversiontool/

It should be noted that the installation will only run from Internet Explorer, not from other browsers (e.g. FireFox).

As described in section 3.2 the installation will automatically include the Microsoft .NET Framework 3.5 SP1, if this is not already present. However, it should also be noted that installation of .NET requires local administrator access.

In order to run the installation program itself, you must have Microsoft .NET Framework 2.0 (at least) already installed. To determine what versions of the Microsoft .NET Framework is installed have a look in the folder C:\Windows\Microsoft.NET\Framework. Versions of the .NET framework will be in numbered folders.

If you do not already have .NET 2.0 or higher, it is recommended that you install the latest version of .NET, which at the time of writing is 3.5 SP1. This is available from the URL below:

http://www.microsoft.com/downloads/details.aspx?familyid=ab99342f-5d1a-413d-8319-81da479ab0d7

Each time the Database to xml conversion tool is started an automatic check for new versions will be performed. If an update is found, but installation is skipped, it can be installed manually later on.

Running the installation as well as the DB-to-xml conversion tool through a proxy server might cause problems. In this case your administrator must change the network configuration in order to remove the proxy for the following websites:

- http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/conversiontool

- http://eionet.europa.eu

3.3.2   Un-installation

The DB-to-xml conversion tool has to be un-installed from the Control Panel.

3.4   Using the conversion tool

The DB-to-xml conversion tool is started from the start menu (Programs→ The European Commission → Database to XML conversion tool).

To generate an XML file, first select the relevant database (depending on the RBD) for which you want to generate the xml. By doing this, the tool performs a basic check to see which schemas can be generated (all schemas can be generated from the database described in section 2). The xml file to be generated is chosen and when the 'Build XML file' button is pressed - the application builds the file and then prompts the user to save the file as follows:
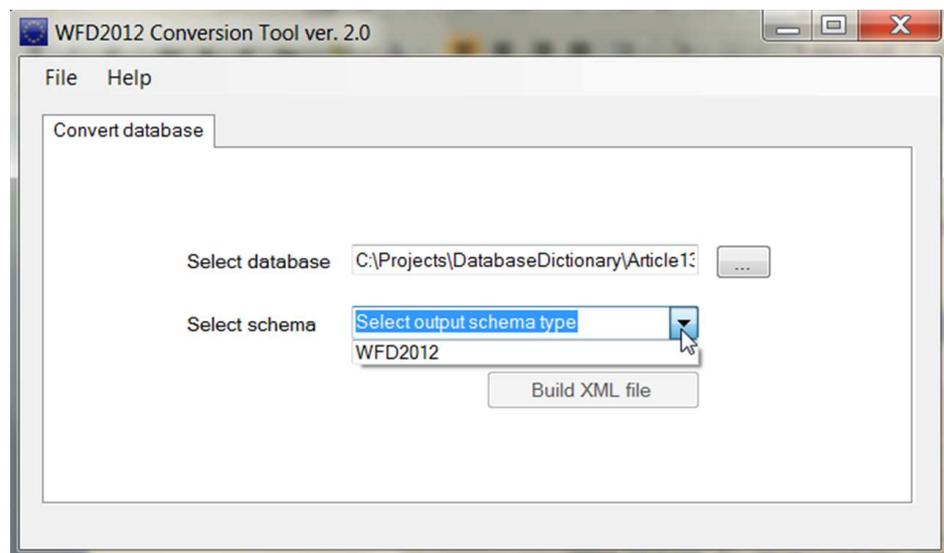
Figur 3.1. The conversion tool to be used to convert data in Access database to XML

Note: The generation of XML file can take a long time if there is a lot of information to map between the database and the XML file.

As previously mentioned the conversion tool does not include any validation of the data. Therefore the generated xml file must be validated using the desktop validation tool (see section 4).

If the validation results in errors, it is important to verify whether the error exists in the database or in the nationally reported data. It is very important that the corrections are made in the national dataset, not just in the conversion tool database.

4.   Desktop validation tool

4.1   Concept

The purpose of the desktop validation tool is to allow the Member States to validate their IMP_POM data prior to upload to ReportNet CDR (where another similar level of validation is performed, based on the same rules). By undertaking this task prior to uploading your xml files onto ReportNet, you can correct any validation errors earlier on in the process and therefore repeating the task later on (it will save you time).

The validation tool implies that an xml file has already been generated. Thus, it is not possible to generate the xml file through the validation tool. If the xml file cannot be generated directly from the MS national database, the MS Access Reporting DB / tool should be used followed by the DB-to-xml conversion tool.

4.2   Version 2.0 release September 2009

The validation tool was extended in September 2009 to allow the user to take advantage of XML file translations that have been set up in ReportNet to visualise the XML files. Visualisation of the XML file before submission is another form of validation.

The translations are specified as XSLT style sheets which the tool retrieves from ReportNet, then performs the translation and allows the user to print or save the output. The translations which have been set up are for translation to HTML, and for point files translation to KML so the files can be loaded into Google Earth.

Further guidance is provided in section 4.6.2

4.3   Computer Requirements

The desktop validation tool requires;

- Windows XP or newer
- 30 MB of free hard disk space
- an 800x600 monitor (minimum)
- Microsoft .NET Framework 3.5 SP1 or higher. If .NET 3.5 SP1 is not already present, it will automatically be installed during the installation process. However the installation program itself requires at least Microsoft .NET Framework 2.0, see section 4.4.

Important: Running the ReportNet desktop validation tool requires access to the internet.

4.4   Installation / uninstallation

4.4.1   Installation

The ReportNet desktop validation tool can be installed via the internet from the URL below:

http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/validationtool

Please note that the installation will only run from Internet Explorer, not from other browsers (e.g. FireFox).

As described in section 4.3 the installation will automatically include the Microsoft .NET Framework 3.5 SP1, if this is not already present. However, it should be noted that installation of

.NET requires local administrator access and you may therefore need to contact your system administrator.

In order to run the installation program itself Microsoft .NET Framework 2.0 (or later) must be installed. To determine what versions of the Microsoft .NET Framework is installed have a look in the folder C:\Windows\Microsoft.NET\Framework, and if present, the versions of the .NET framework will be in numbered folders.

If you do not already have .NET 2.0 or higher, you are recommended to install the latest version of .NET, which at the time of writing is 3.5 SP1. This is available from the URL below:

http://www.microsoft.com/downloads/details.aspx?familyid=ab99342f-5d1a-413d-8319-81da479ab0d7

Each time the desktop validation tool is started an automatic check for new versions will be performed. If an update is found, but installation is skipped, it can be installed manually later on.

Running the installation of the desktop validation tool (as well as running the tool itself) through a proxy server might cause problems. In this case your administrator must change the network configuration in order to remove the proxy for the following websites:

- http://water.eionet.europa.eu/schemas/dir200060ec/resources/validationtool

- http://eionet.europa.eu

4.4.2   Uninstallation

The ReportNet desktop validation tool has to be uninstalled from the Control Panel.

4.5   Principles of validation

The purpose of the validation of an xml file is to check that it is complying with required xml schema form. It checks that the xml is well formed and the technical validation is met.

The first validation carried out checks that the xml is well formed (and adheres to the common structure rules outlined in section 6.1.

The second validation carried out checks that xml adheres to the complex structure as outlined in section 6.2.

The desktop validation tool only works if you have a connection to the internet, because the tool pulls down the latest version of the relevant schema directly from ReportNet. This ensures that any validation is always consistent with the latest version of the RBMP schemas.

4.5.1   Schema definition (schemaLocation)

The XML file should contain a reference to the schema definition file so that the validation can be undertaken. The reference is an attribute to the root element and consists of two parts – namespace and location

e.g. xsi:schemaLocation="http://icm.eionet.europa.eu/schemas/dir200060ec http://water.eionet.europa.eu/schemas/dir200060ec/IMP_POM_1p0.xsd"

For the validation tool to successfully retrieve the other validation rules from ReportNet then the schema definition needs to point at the schema held on ReportNet. The urls to the latest schema versions can be found at this location (Description='WFD Reporting'):

http://converters.eionet.europa.eu/do/uplSchemas

The first validation, described below, checks this definition.

4.5.2   Cross-schema and within-schema validation checks

The desktop validation tool checks the integrity of the xml files generated, in terms of data structure, format, and duplicates. This tool only performs these checks within each schema; it does not cross reference any given schema against another. Cross-schema validation checks are carried out in ReportNet only.

4.6   Using the validation tool

The desktop validation tool can be accessed through the Start menu on your desktop, simply go to Start → Programs → The European Commission → ReportNet desktop validation tool

4.6.1   Validating an xml file

To validate an xml file, click the "Check XML file" button (see Figure 4.1) browse to the relevant xml file you wish to validate and the validation is run as soon as OK is clicked.

Figure 4.1. The desktop validation tool

The main output from the validation tool is presented as shown Figure 4.2.
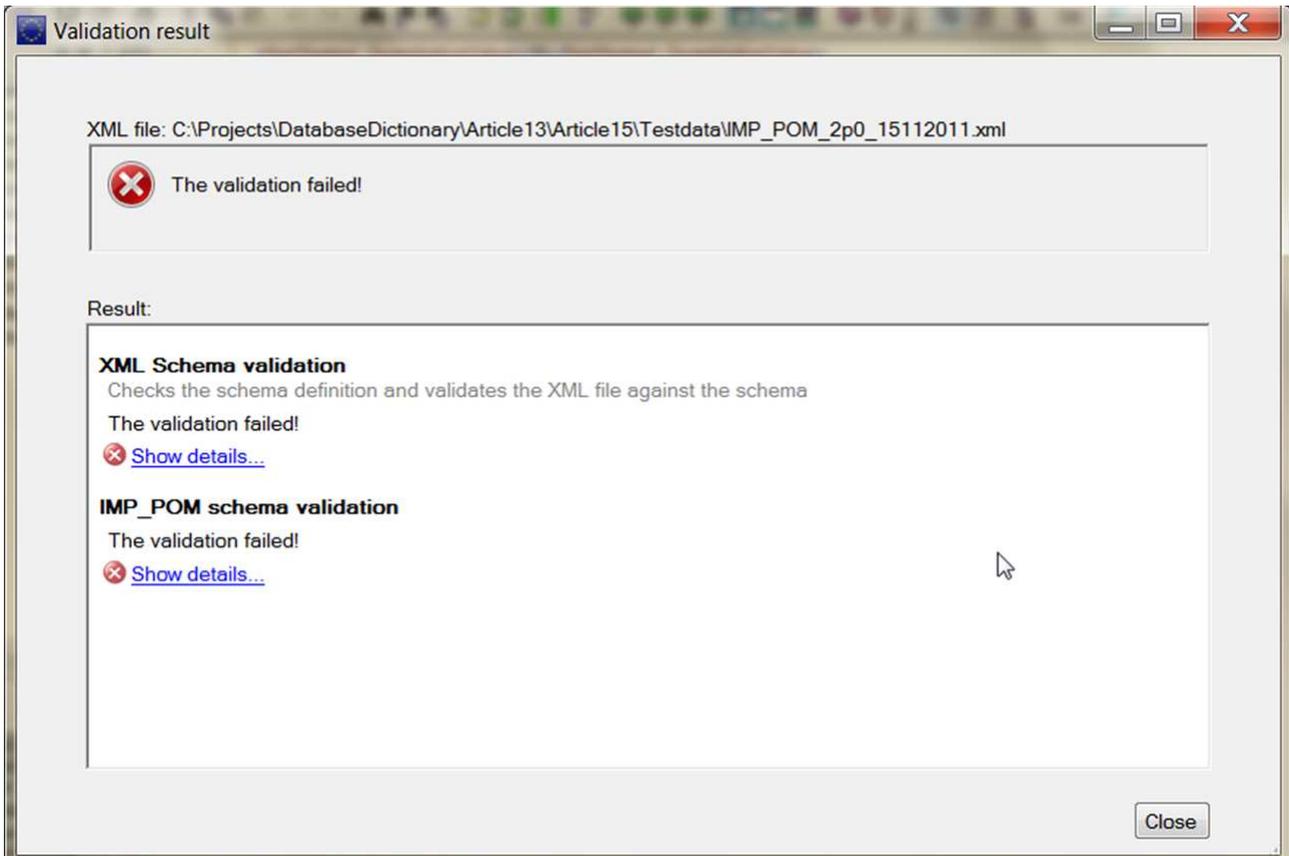
Figure 4.2. Result of validations

For each of the validations run the result is shown. The detailed reports are marked with the symbols below.

> ❌ The validation was not passed. The detailed report contains information about the validation including the errors found.

> ⚠️ The validation was passed with warnings. The detailed report contains information about the validation including the warnings (not shown).

> ℹ️ The validation was passed successfully. The detailed report contains additional information about the validation.

The detailed reports can be seen by clicking the "Show details…" link. This will open the report as shown below.
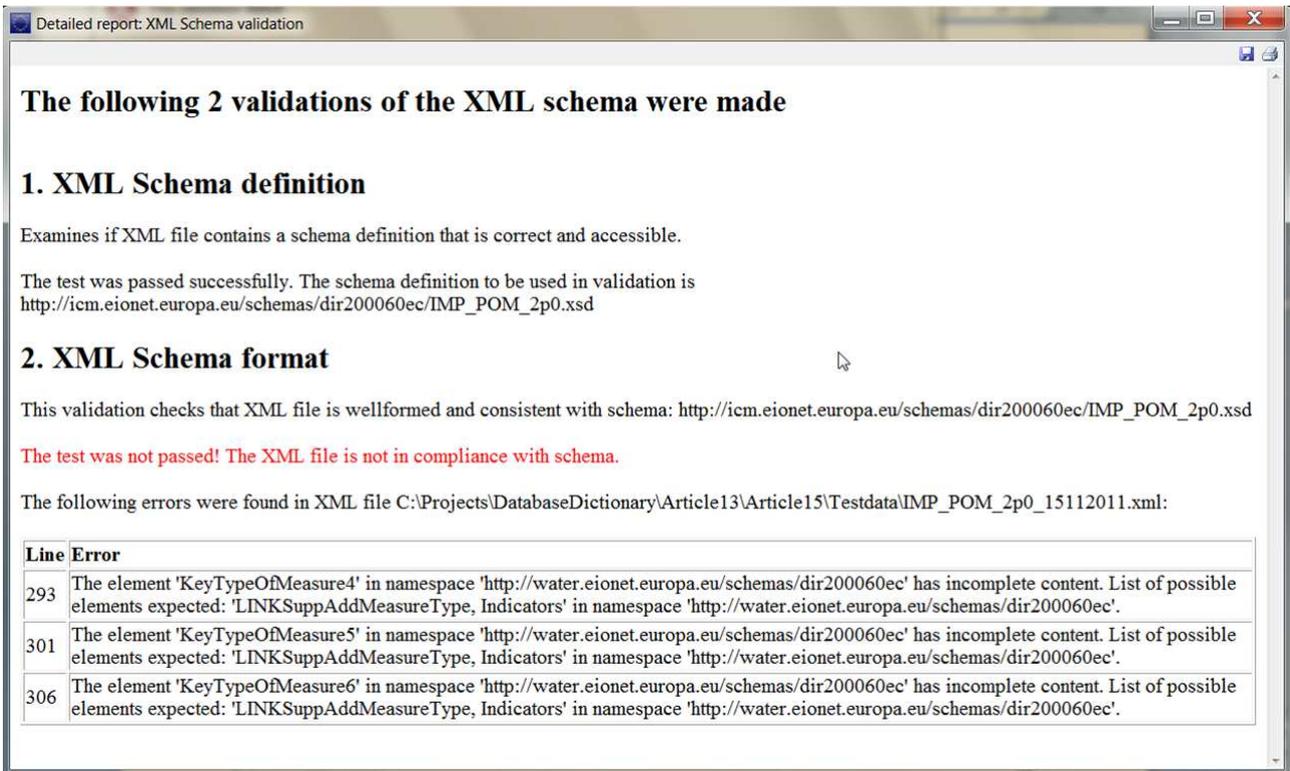
Figure 4.3. Example of desktop validation output (high level)
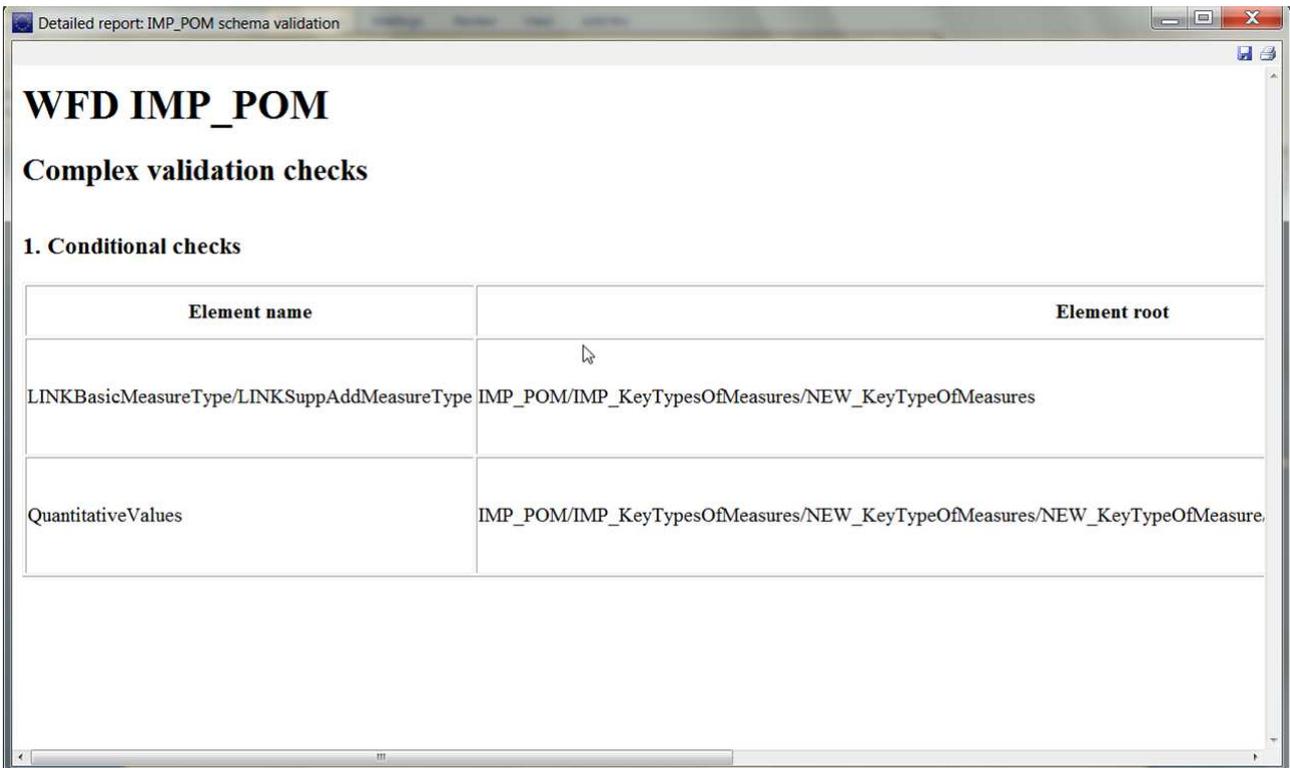
Figure 4.4. Example of desktop validation output (detailed)

The results of the validation can be saved and printed from the tool bar in the upper right corner.

4.6.2 Viewing an XML file

To view an xml file, click the "View XML file" button (see Figure 4.5) and browse to the relevant xml file you wish to view. When OK is clicked the tool will use the valid schema definition (see section 4.5.1) to retrieve the possible conversions which have been set up for this schema in ReportNet.

The conversions listed with hyperlinks to View the files (if the size of the XML is less then 250kb) or to Save the files, from where they can be opened using the appropriate application by the user.
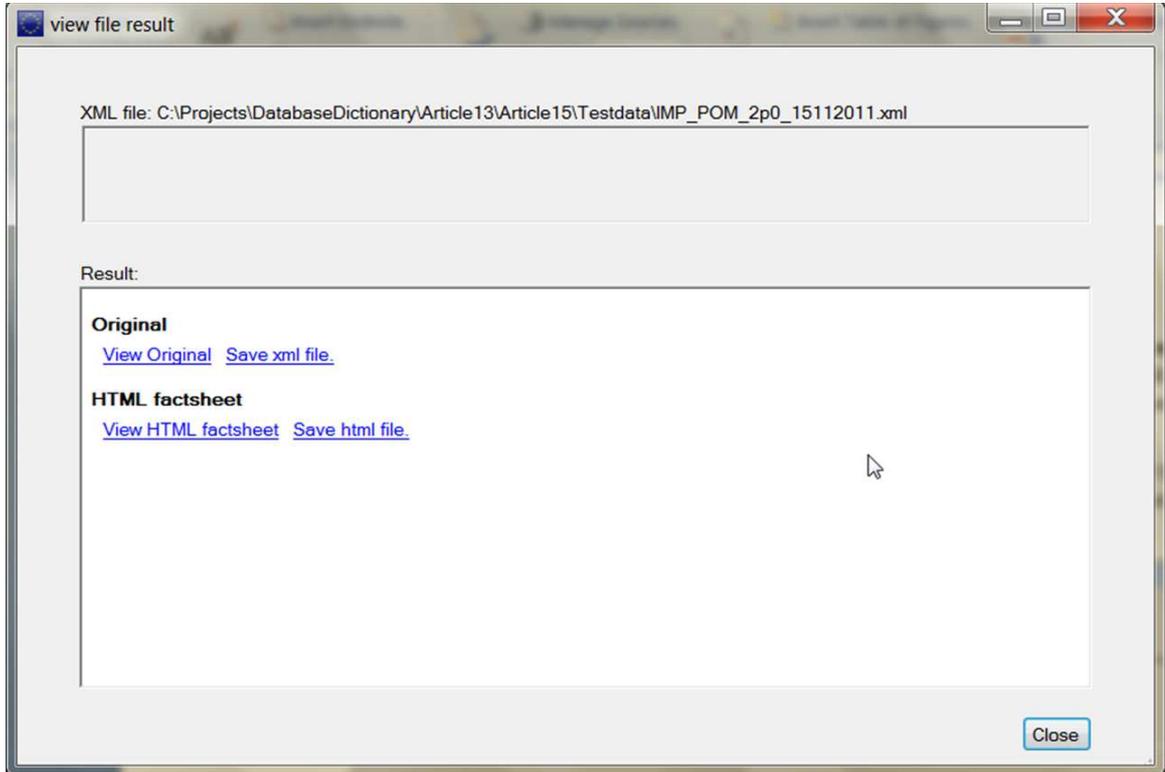
Figure 4.5. Example of desktop translation output

4.7 Understanding desktop validation output

If errors are reported under the first schema check – xml schema validation – the line number in the schema where the error was found and a description of the error itself are provided. The checks are typically those described in section 5. You should use a text editor (or similar viewer which gives line numbers - e.g. Notepad++) to display the xml schema and systematically work through the error list correcting as you go. Some examples of errors are:

Line	Error
13	The 'http://water.eionet.europa.eu/schemas/dir200060ec:LAT' element is invalid - The value '15N' is invalid according to its datatype 'http://water.eionet.europa.eu/schemas/dir200060ec/wfdcommon:CoordinateType' - The Pattern constraint failed.
14	The 'http://water.eionet.europa.eu/schemas/dir200060ec:LON' element is invalid - The value '43562656' is invalid according to its datatype 'http://water.eionet.europa.eu/schemas/dir200060ec/wfdcommon:CoordinateType' - The Pattern constraint failed.
16	The 'http://water.eionet.europa.eu/schemas/dir200060ec:Natural' element is invalid - The value 'ArtificialArtificialArtificialArtificialA' is invalid according to its datatype 'String' - The Enumeration constraint failed.
27	The 'http://water.eionet.europa.eu/schemas/dir200060ec:YesNo' element is invalid - The value 'B' is invalid according to its datatype 'http://water.eionet.europa.eu/schemas/dir200060ec/wfdcommon:YesNoCode' - The Enumeration constraint failed.

The format of the complex validation checks output is provided in section 6.4.

4.7.1 Correction of validation errors

If the validation results in errors, these must be corrected before uploading the xml file to Reportnet. **It is very important that the data are corrected in the source data, not just in the xml file**. See section 6.4 for an explanation on interpreting the error reports.

5.   Uploading xml files onto ReportNet

5.1   A Quick guide

This quick guide outlines the Central Data Repository (CDR) delivery procedure in quick steps for the experienced ReportNet User:

1. Download the xml schemas and use your chosen method of generating the information to report against them (i.e. the Access reporting tool supplied, or another).

2. Use the desktop validation tool to check your data and correct any errors found.

3. Enter the Central Data Repository (CDR) by going to http://cdr.eionet.europa.eu

4. Click on the country for which you want to make the delivery

5. Go to: data collection→ European Union (EU) → obligations

6. Click on the subcollection → Water Framework Directive→ Progress on the implementation of the Programmes of Measures

7. Add a new envelope for the RBD wishing to report against (using the RBD code as the name of the envelope) and open the envelope.

8. Activate the task (upper right corner)

9. Upload xml files into the envelope

10. Check that everything is correct and meets your national quality requirements

11. Release envelope and QA and cover letter will automatically be generated.

5.2   Overview

To participate in the upload process, you need to first log in with your Eionet username and password by going to http://cdrtest.eionet.europa.eu/ and clicking on the top-right Login button.

If you do not have an Eionet username and password then please contact helpdesk@eionet.europa.eu

Navigate to the location where you want to upload data and create a new envelope for each RBD you are reporting.

If you already started this work and you want to be reminded of the URL of the envelope you are working on, or if you want to see what you can do next, consult the Global Worklist linked from the left-side grey button available from every page.

Whether your job implies drafting the delivery, inspecting the result or finalising the work, the way to start it, and also inform other users that you are executing that action, is to activate a task (e.g. Draft for creating/updating the delivery).

Activation reserves the envelope for you and prevents your colleagues from inadvertently corrupting the data. If you want to transfer the task to someone else, you can deactivate the envelope.

5.3   Creating the envelope

First you should login.

When you have navigated to the obligation 'Water Framework Directive: Progress on the implementation of the Programmes of Measures' under European Union (EU) obligations, you will

see that collections have been created under the obligation for each River Basin District and one for 'National data' (to be used for additional information at Member State level). (If the River Basin Districts are incorrect, please contact heldeskwfd@atkinsglobal.com for them to be corrected.)

In each of these sub-collections a grey button on the right side of the page saying "New envelope". Click on it to create a delivery envelope. Most of the necessary metadata is already filled out. You need to enter a title for the envelope (user choice) and the date, which is the reference date of the data you are reporting.

Then click on "Add". You now have an envelope that you must activate by pressing the 'Activate task' button and uploading files.
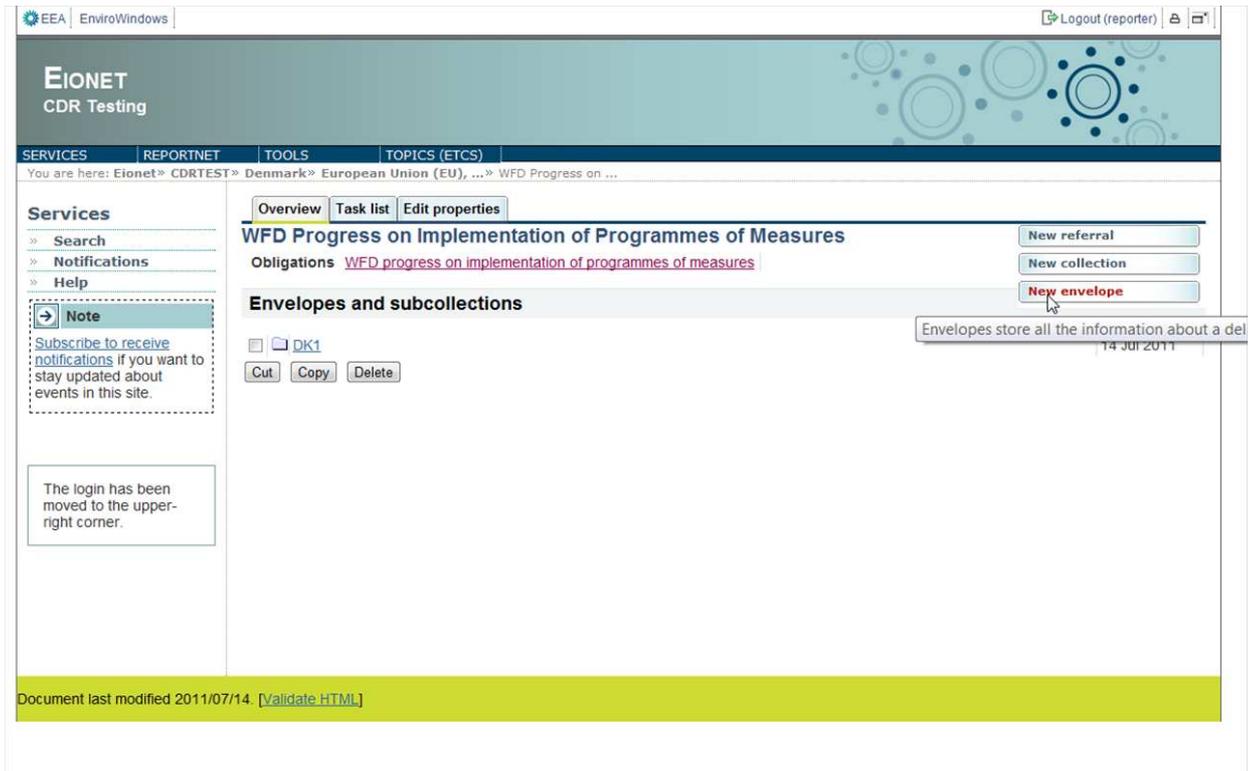
How CDR repository is set up with pre-created collections for reporting

5.4   Managing the envelope

After activation, you have reserved the envelope for yourself to work on. Other users will not be able to intervene until you:

- complete the task - in which case the system will move forward to the next step in the reporting process; or

- deactivate the task - from the corresponding right-side blue button which keeps the work already done and makes it possible for someone else to take over the task

It is possible to see if anyone else is working on a particular task by consulting the *Status* of the envelope:
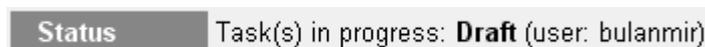
To track progress of the upload task, take a look at the History tab of that envelope.

When you have activated a task, you will notice a new tab in the envelope. The system will automatically place you there. This is the activity tab. It contains the information and guidance necessary for you to carry out your task.

5.4.1 Naming convention for xmls to be uploaded

Submissions are made at the RBD level and the file should be named according to the following format:

> **[country code]_[EURBDCode]_[schema]_[dateYYYYMMDD].xml**
>
> e.g. DK_RBD444_IMP_POM_20130322

5.4.2 Use of EU Languages

You may use any of the official EU languages to report in the free text fields. You are, however, requested to use only one language for the information within any single schema..

5.5 Checking data quality

Once you have uploaded your xml files, you need to check the quality of your data within Reportnet / EIONET.

The quality assessment (QA) consists of a set of rules checked against each individual report. It happens in two ways:

- During the drafting of the report into the envelope, QA is manually triggered by the user in order to fix possible errors at that stage; it is done by clicking the corresponding "QA" button next to each factsheet. During drafting, the QA result is not stored in the envelope, but is just displayed to the user on a web page. You can save it on your own PC if you wish for your records.

- After the data reporter completes the envelope, QA is automatically triggered by the system on all reports; in this case, the result is stored in the envelope as "Feedback" object; the rules checked are the same as in the case of manual QA.

Hint: the QA rules are available at http://converters.eionet.europa.eu/queriesindex.jsp

To start the QA, click on the 'Run QA' links next to your uploaded files. This will run a collection of quality assessment scripts and produce a report describing the specific tests carried out and the results. It can typically detect syntax issues, but won't know if your information makes sense in terms of the other schemas uploaded or not.

More detail on the specific QA functions is provided in chapter 6 of this document.

5.6 Understanding validation output in ReportNet

Validation in ReportNet can be run at two points. Manually after an XML file has been uploaded. (Buttons will appear next to the filename in the envelope "QA1" and "QA2"). Output from a manual validation is not saved anywhere, just displayed on-screen. Secondly when an envelope is released all the validations are run on all the submissted XML files in that envelope and the output is saved.

XML Schema validation checks "QA1"

The first schema check (QA1) is the xml schema validation which carries out checks that the XML file is well formed and simple validation checks as described in section 6.1.

Errors detected in this validation will be returned as a table within a texteditor file. The errors within the table will be labelled with the corresponding line and column numbers from the schema so you can easily find and correct the error within your schemas (example below).

Type	Position	Error message
ERROR	Line: 7, Col: 30	cvc-datatype-valid.1.2.1: 'this is not a url' is not a valid value for 'anyURI'.
ERROR	Line: 7, Col: 30	cvc-type.3.1.3: The value 'this is not a url' of element 'URL' is not valid.
ERROR	Line: 13, Col: 17	cvc-pattern-valid: Value '15N' is not facet-valid with respect to pattern '\-{0,1}[0-9]{1,2}\.[0-9]{1,5}' for type 'CoordinateType'.
ERROR	Line: 13, Col: 17	cvc-type.3.1.3: The value '15N' of element 'LAT' is not valid.
ERROR	Line: 14, Col: 22	cvc-pattern-valid: Value '43562656' is not facet-valid with respect to pattern '\-{0,1}[0-9]{1,2}\.[0-9]{1,5}' for type 'CoordinateType'.
ERROR	Line: 14, Col: 22	cvc-type.3.1.3: The value '43562656' of element 'LON' is not valid.
ERROR	Line: 27, Col: 21	cvc-enumeration-valid: Value 'B' is not facet-valid with respect to enumeration '[Y, N,]'. It must be a value from the enumeration.
ERROR	Line: 27, Col: 21	cvc-type.3.1.3: The value 'B' of element 'YesNo' is not valid.

Although QA1 performs the same checks as the desktop validation tool the error messages generated in reportnet validation are not written the same as those in the desktop validation tool. (This is because they use a different engine. Schema validation follows the W3C XML specification http://www.w3.org/TR/xmlschema-1/#concepts-schemaConstraints.)

These error messages are XML specified validation rules or constraints. Constraints have unique names and numbered parts. At the following link http://www.w3.org/TR/xmlschema-1/#concepts-schemaConstraints there is a reference in which any error messages can be looked up. As all errors relate to one of the following general rules https://svn.eionet.europa.eu/projects/Reportnet/wiki/SchemaValTec, it is easier to examine the element and if it is throwing an error, go through each criteria to see if that would throw a specific error. Reference to the original schema can also help pinpoint where the error is coming from.

Complex validation checks "QA2"

The second validation that is carried is the business rules as described in section 6.2

5.7 Completing the envelope

When you click on Release envelope you submit your report to EEA.

You will not be able to modify any files in the envelope after you click this button.

The full automated QA process will run on your delivery and a feedback report will be posted to the envelope. EEA and the team responsible for the expert manual review will receive an automatic email that you have completed the envelope. The completion process also automatically generates a cover letter acknowledging receipt of the data uploaded to CDR, including a list of all files uploaded and their precise location within the CDR.

5.7.1 Restricted or confidential data

The ReportNet approach means that submitted data is made available for the public to see. However you can specifically restrict individual files from public view if this is your national policy.

To restrict viewing of a file, click on the filename in the envelope. This will lead you to a page showing you the metadata of the file. There you will see a check box which allows you to restrict public access to the file after the envelope has been completed. EEA and the team responsible for the expert manual review can still access all files.

5.8 Resubmissions

If you wish to make an amendment to any data already submitted (i.e. envelope released), you must resubmit the whole schema for that RBD. This means that if a MS corrects information for some elements of the schema, the MS has to re-submit the full IMP_POM file again. This file will replace the previous version. Within the RBD collection create a new envelope for the re-submission.

6. QA/QC

6.1 Common validation checks

The following checks are carried out for all elements within the schema.

6.1.1 Element types and maximum and minimum limits

Submitted data needs to conform to the data types that have been used for each element in the schema. The data types are as follows:

- String: all characters allowed. The maximum and minimum settings define the maximum number and minimum number of characters that are allowed.

- Decimal: any number is allowed. The maximum and minimum values define the maximum and minimum values that are allowed.

- Date: must be a valid date in the format yyyy-mm-dd.

- URL: must be a valid URL format.

6.1.2 Required / Conditional / Optional elements

The data within the schemas may be Required, Conditional or Optional for the purposes of automatic validation.

The logic for determining whether an element is considered to be Required, Conditional or Optional is based on the minimum number of occurrences defined for that element and whether the element has been designated as Conditional. All elements that are Conditional are identified in the table in Appendix B and also in the annotation of the schemas themselves.

The logic used is as follows:

- Required: minimum occurrence is set to > 0.

- Conditional: minimum occurrence is set to 0 and there is a conditional check as described in the table in Appendix B.

- Optional: minimum occurrence is set to 0 and there is no conditional check described in the table in Appendix B.

6.1.3 Multiple occurrences

There are instances when multiple occurrences of elements are required. These are required when the maximum occurrence set for an element is > 1.

The following options exist in the schemas:

- Minimum occurrence = 1, maximum occurrence = infinity: there must be at least 1 occurrence of the element (or sequence of elements) and there is no limit to the number of times that element (or sequence of elements) can be repeated.

- Minimum occurrence = 0, maximum occurrence = infinity: there may be no occurrences of the element and there is no limit to the number of times that element (or sequence of elements) can be repeated.

- Minimum occurrence = 1, maximum occurrence = n: there must be at least 1 occurrence of the element (or sequence of elements) and that element (or sequence of elements) can be repeated up to a maximum of n times.

- Minimum occurrence = 0, maximum occurrence = n: there may be no occurrences of the element and that element (or sequence of elements) can be repeated up to a maximum of n times.

- Minimum occurrence = n, maximum occurrences = n: there must be n occurrences of the element (or sequence of elements) and that element (or sequence of elements) can be repeated up to a maximum of n times.

6.1.4   Code check

The Code check is the most common validation check and is required to ensure that, where relevant, valid codes are selected from the attached codelist defined in the WFD Common schema, or are selected from the enumeration list defined within the element itself, and that, in almost all cases, only one occurrence of the selected code exists in the data submission, avoiding the creation of duplicates. For example, element C_CD featuring throughout the schemas must be populated with a valid country code defined in the codelist 'wfd:CountryCodeType' within the WFD Common schema.

6.2   Complex validation checks

There are a number of more complex validation checks that should be made against specific elements in the submitted data.

6.2.1   Conditional check

The Conditional check is required in order to ensure that an element is populated where a previous element is set to a defined value. For example, in the 'IMP_BasicMeasuresArt4_5' table, if the element 'SubstantialDelay' is populated with 'Y' then element 'ReasonsState' must also be populated.

6.3   Complex validation checks by element

The table in Appendix B contains full details of the complex checks that are carried out on elements within the schemas in addition to the common validation checks described in the previous section. The overview of the complex checks identified have been described in the previous section. Note: Cross-schema checks are run as part of a manual process after MS has completed submission.

The complex checks in the Appendix are categorized according by the following:

1 = Conditional check

6.4   Validation check output

The example below shows the validation error output and the information that is given to help determine where the error is:

Element name	Element root	Element value	Error Description	RecordID
PrimeCompetentAuthority	RBDSUCA/RiverBasinDistrict	CAbbbc	Must be a valid EUCACode in RBDSUCA/CompetentAuthority	DKRBD111

- Element name: The name of the element (tag) within the schema which has caused the error

- Element root: Where this element is found within the schema

- Element value: The value which has caused the error (if there is one)

- Error description: Why the error occurred

- RecordID: An ID of the record within which the error was thrown

To find the error requires some detective work because this type of validation does not provide line numbers. If the element value is provided then searching for that value in the XML would be the quickest approach.

6.5   Correction of validation errors

If the validation results in errors, these must be corrected.

It is very important that the data are corrected in the source data, not just in the XML file.

7.   Documents and links

Guidance No 21 - Guidance for reporting under the WFD

The resource page: http://icm.eionet.europa.eu/schemas/dir200060ec/resources2012/

The Water Framework Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:02000L0060-20090113:EN:NOT

The 2012 reporting sheet: http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/thematic_documents/p_-_reporting/w-wise_background/reporting_guidance

Appendix A

A.1   Tables linkages
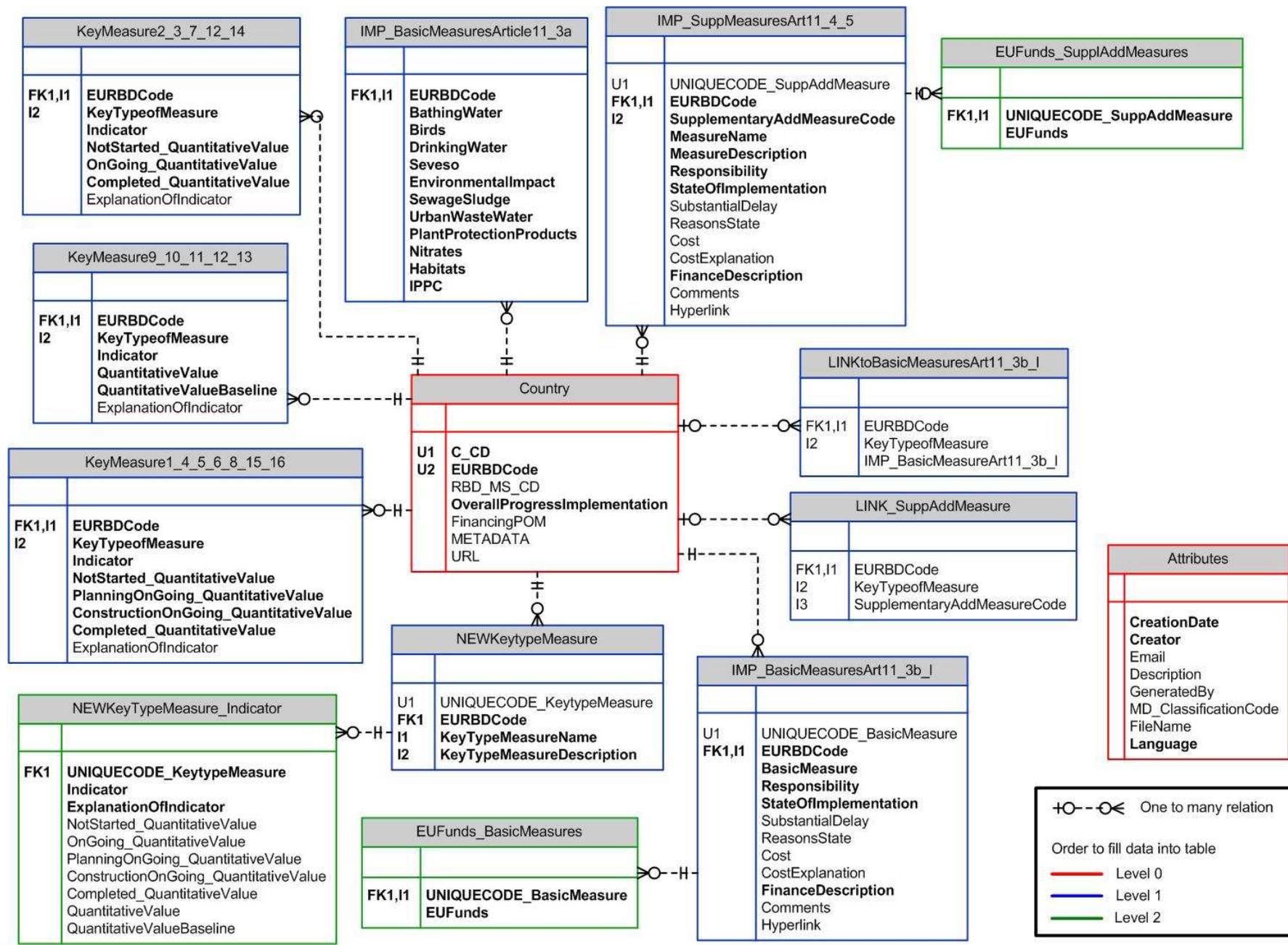
Appendix B

B.1   Complex validation checks

Key to Type of Check:

1 = Conditional check

Element name	Element root	Type of Check	Description/Error message
ReasonsState	IMP_POM/IMP_BasicMeasuresArt11-3b-l/[The 11 basic measures]/ReasonsState	1	Must be populated if Y (yes) has been indicated in the SubstantialDelay element
ReasonsState	IMP_POM/IMP_SuppMeasuresArt11_4_5/SuppAddMeasure/ReasonsState	1	Must be populated if Y (yes) has been indicated in the SubstantialDelay element
KeyTypeofMeasure	IMP_POM/ IMP_KeyTypesOfMeasures	1	At least one Key Type of Measure must be reported
LINKBasicMeasureType/ LINKSuppAddMeasureType	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure[1,…16]	1	Either LINKBasicMeasureType or/and LINKSuppAddMeasureType must be populated
LINKBasicMeasureType/ LINKSuppAddMeasureType	IMP_POM/ IMP_KeyTypesOfMeasures/ NEW_KeyTypeOfMeasures/ NEW_KeyTypeOfMeasure	1	Either LINKBasicMeasureType or/and LINKSuppAddMeasureType must be populated. If the measure has not been reported in the Programmes of Measures in 2010 this error can be ignored as the link to either a BasicMeasureType or/and a SuppAddMeasure cannot be established
OnGoing/PlanningOnGoing/ ConstructionOnGoing	IMP_POM/ IMP_KeyTypesOfMeasures/ NEW_KeyTypeOfMeasures/ NEW_KeyTypeOfMeasure/ Indicators/ QuantitativeValueNotStartedOngoingCompleted	1	At least one of the quantitative values OnGoing, PlanningOnGoing and/or ConstructionOnGoing must be reported
ExplanationOfIndicator	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure[1,…16]/ Indicators/	1	Must be populated if the if the indicator is to 'Other'

Element name	Element root	Type of Check	Description/Error message
QuantitativeValue	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure12/ Indicators/	1	Must be populated if the indicator 12.1, 12.3 or Other has been chosen.
QuantitativeValueBaseline	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure12/ Indicators/	1	Must be populated if the indicator 12.1, 12.3 or Other has been chosen.
NotStarted_QuantitativeValue	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure12/ Indicators/	1	Must be populated if the indicator 12.2 has been chosen.
OnGoing_QuantitativeValue	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure12/ Indicators/	1	Must be populated if the indicator 12.2 has been chosen.
Completed_QuantitativeValue	IMP_POM/ IMP_KeyTypesOfMeasures/ KeyTypeOfMeasure12/ Indicators/	1	Must be populated if the indicator 12.2 has been chosen.
OnGoing_QuantitativeValue/ PlanningOnGoing_Quantitativ eValue/ConstructionOnGoing_ QuantitativeValue	IMP_POM/ IMP_KeyTypesOfMeasures/ NEW_KeyTypeOfMeasures/ NEW_KeyTypeOfMeasure/ Indicators/ QuantitativeValueNotStartedOngoin gCompleted	1	At least one of the quantitative values OnGoing, PlanningOnGoing and/or ConstructionOnGoing must be reported

Appendix C

C.1   2012 reporting sheet and draft outline of the schemas

Status box

Title: **2012 reporting sheet and draft outline of the schemas**

Agenda item: 2b

Version no.:   5   Date: 18 May 2011

Author(s):   Sarah France, Steve Nixon, Balázs Horváth, Jorge Rodriguez Romero

Circulation and received comments:

A concept paper on the WFD 2012 reporting on the progress in the implementation of the programme of measures was discussed at the meeting of the WG D Reporting in September 2010. Following this meeting and the discussion at the SCG, a mandate to establish a Drafting Group on Reporting was endorsed by the Water Directors in December 2010. A first meeting of the Drafting Group took place on 24 February 2011, where a first version of the reporting sheet was discussed. A new version 1.2 was circulated for written comments in March and a third version 2 was distributed for the meeting of the Drafting Group of 8th of April. The discussions at the Drafting Group were informed by the results of an internet survey for the identification of key types of measures and feasible quantitative indicators. The internet survey was replied by 36 respondents from 15 Member States.

WG D was informed about the progress at the meeting of 7th April on the basis of version 2.

Version 3 of the reporting sheet incorporated changes agreed at the Drafting Group meeting on 8 April 2011. The document was then consulted in writing with Working Group D.

This version 4 incorporated the comments received from Working Group D and was presented to the SCG for agreement. During the discussion at the SCG some more changes were suggested that are incorporated in the current version 5 that is forwarded now to the Water Directors for final endorsement.

Next steps:
- Reporting sheet to be sent to Water Directors for endorsement at their meeting in Budapest 26-27 May
- Development of reporting schemas and tools (including testing) during the second half of 2011, finalisation end 2011

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Reporting Sheet Code	IMP_POM
Reporting Sheet Name	**Progress on the implementation of the Programmes of Measures**
Lead DG Env	Jorge Rodríguez Romero / Balázs Horváth
Lead WRc	Sarah France
Other inputs	Member States
Status	
Date	18 May 2011
Version	5
Status	Version for endorsement by Water Directors

Introduction

Legal base

The WFD obliges Member States to develop river basin management plans and programmes of measures by December 2009 and to make a report of those to the Commission by March 2010. The purpose of the programme of measures is to achieve the environmental objectives of the WFD. Article 11(7) of the WFD establishes that measures have to be made operational by December 2012. Article 15(3) states that Member States shall, within three years of the publication of each river basin management plan, submit an interim report to the Commission describing progress in the implementation of the planned programme of measures.

Purpose

The 2012 report should provide information on the progress in implementing the WFD programmes of measures (PoM). It should give concrete information to provide the Commission with a clear picture of which measures are being implemented, how, when and by whom. The 2012 report is about what is being done as part of WFD implementation to improve the status of the aquatic environment.

The 2012 reporting should enable a good understanding of the actions that are being taken to achieve the WFD environmental objectives and to improve the status of water bodies. It should also allow a comparison of the efforts across the EU river basin districts and measure them.

Given the limited scope of the 2012 reporting exercise, this should be relatively simple and at the same time it should contain easily extractable information. Simple reporting does not mean it is not important, on the contrary, it will report about the efforts to improve the status of the aquatic environment, which ultimately is what the WFD is all about.

The purpose is to find a right balance between the reporting effort and the usefulness of the reporting.

A simple report that provides qualitative information (not started, ongoing, completed) of the progress in implementing all the measures reported in 2010 will not provide the necessary information for the Commission to produce a meaningful report in 2015. The reporting of measures as "ongoing" does not provide any information about the importance of the measure or the progress achieved. For example a type of measure "upgrade of waste water treatment plants" can refer to a few or many plants or large or small size, can be very important for the basin or less important, the progress made could be significant or very little. All these different situations may be hidden behind a qualitative reporting signalling that the measure is "ongoing". It is not possible to produce a meaningful and useful report in 2015 with such simple information. It will not be possible to provide any useful information in term of

policy implementation or comparison of efforts among Member States. It will only be limited to a tick-box exercise that will not be able to provide any meaningful reply to the key question "how much progress has been done in implementing the WFD measures". Therefore, if this option is followed, the reporting effort done by Member States, although limited, would not provide any useful output.

On the other hand, collecting quantitative information for all measures reported in 2010 would involve a disproportionate effort.

The objective is therefore twofold:

- to limit the reporting effort by requesting basic qualitative information on the progress of all measures reported in 2010, considering that the total number of measures reported is in many cases high, in the order of hundreds, or even thousands, and

- to gather quantitative information for a number of key types of measures that will provide the bulk of the improvements towards achieving the WFD objectives.

What the 2012 reporting is not

In 2012 Member States are not required to provide information on the effectiveness of the measures, nor about how the environment is expected to improve (this has been reported in 2010 as part of the 2009 RBMP environmental objectives) nor about how the environment has improved in the meantime (this will be reported as part of the 2015 updated RBMP).

The 2012 report is also not a repetition of the one in 2010. Therefore, there is no need to repeat the information reported in 2010 (although links to it are necessary, see below).

The implementation of basic measures specified under Article 11(3)a is generally reported to the Commission under other reporting exercises. Therefore, it is not expected that Member States provide detailed information about the measures taken under those directives. However, given the importance for the WFD of measures taken under these other directives, it is expected that the Member States report a general appraisal of their implementation, to the extent that they are contributing to the achievement of the WFD environmental objectives.

Link to 2010 reporting

The starting point of the 2012 reporting is the PoM reported in 2010. The proposed structure is therefore based on the following main entries (measures):

- The basic measures of Article 11(3)a listed in table 4 in the WFD CIS Guidance Document 21 (see page 47). These are reported in the RBMP_POM schema under the element BasicMeasuresArticle11-3a.

  These are measures under existing EU legislation. In 2010 Member States were asked to indicate whether the measures were implemented and to give comments or explanations, in particular if they had not been (fully) implemented.

- The basic measures of Article 11(3) b to l listed in table 5 in the WFD CIS Guidance Document 21 (see pages 48-49). These are reported in the RBMP_POM schema under the element BasicMeasuresArticle11-3b-l.

  This is a list of measures that Member States are required to put in place in each RBD. As part of the RBMP reporting in 2010 Member States were required to indicate whether the type of measure was in place in the RBD, provide a reference, briefly describe the measure and provide any additional comments or an explanation if the measure had not been put in place.

- The supplementary and additional measures of WFD Articles 11(4) and 11(5) as in columns 2 and 4 of table 6b in the WFD CIS Guidance Document 21 (see pages 51-56). These are reported in the RBMP_POM schema under the element ListOfSupplementaryMeasures[1].

  Where necessary to achieve the WFD objectives Member States need to take supplementary or additional measures on top of the compulsory basic measures. These have been reported in 2010 first by identifying which pressures required supplementary measures and then by linking those pressures to supplementary measures that are coded and listed in the element ListOfSupplementaryMeasures in the RBMP_POM schema. For each measure some information was requested (see page 63 of WFD CIS Guidance Document 21).

Where technically feasible, Commission will ensure that information provided in 2010 PoMs will be pre-filled in the reporting tool.

How will the Commission use the information reported?

According to Article 18(4) the Commission shall, by December 2015, publish an interim report addressed to the European Parliament and to the Council describing the progress in implementation of the programme of measures on the basis of the 2012 interim reports of the Member States as mentioned in Article 15(3).

The Commission report could also contribute to the review of the Article 5 analysis but this is planned to be completed by December 2015. In recognition of this, the Commission is ready to make efforts to publish the interim report required by Article 18(4) as far in advance of the December 2015 deadline as possible in case that the reporting structure agreed allows an easy analysis and in case that the Commission receives the reports in due time from all Member States.

The Commission intends to make the information publicly available through WISE.

Detailed list of what information should be provided

Geographic Information
No geographic information is expected.

Reporting of basic measures
- For each of the Directives listed under Article 11.3(a) (11 entries, 1 per Directive in WFD Annex VI part A): provide a summary (< 2000 characters) on the progress made in implementation, in particular as regards aspects that are relevant for the implementation of the WFD. Overall quantitative information on the state of implementation should be reported if available. For each of the directives a text field will be provided.

Reporting of other basic measures and supplementary measures

- For each measure under Article 11.3(b) to 11.3(l) and for each of the supplementary measures as listed in the 2010 reporting (element ListOfSupplementaryMeasures in schema RBMP_POM):

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[1] In the RBMP_POM schema the supplementary and additional measures are reported in the same structure. The field TypeOfAdditionalMeasure allows Member States to flag if they considered the measure is an additional measure under Article 11(5).

- o Code[2] (for supplementary measures only): a unique code for the measure as reported in 2010 (element SupplementaryAddMeasureCode in schema RBMP_POM).
- o Name of the measure[2] (for supplementary measures only): short descriptive name for the measure as reported in 2010 (element MeasureName in schema RBMP_POM, <100 characters).
- o Description of the measure[2] (for supplementary measures only): as reported in 2010 (element MeasureDescription in schema RBMP_POM, <2000 characters)
- o Responsibility: which authority/authorities is/are responsible for adoption and/or execution of the measure – level of responsibility (e.g. national authority, RBD authority, municipality/ies, other water users) or name of the authority, if relevant
- o Status (estimated towards the end of 2012) of the implementation of the measure:
    - − Not started: choose this option if the implementation of the measure is likely not to start before the end of 2012 (conditional text field: if this option is chosen a short explanation must be provided on the reasons and/or obstacles for the measure not being implemented);
    - −
    - − On-going: choose this option if the implementation of the measure has started[3] and is progressing. A tick box will be provided to indicate if substantial delays in implementation are happening or are foreseen[4]: use the tick box if the implementation of the measure is ongoing but there are substantial delays that may put at risk the completion of the measure on time (optional text field: explanatory textual information may be provided. If the tick box of significant delay is used, a short explanation must be provided on the reasons and/or obstacles for the measure being significantly delayed. An alternative way of reporting obstacles/delays is at RBD level using text boxes, see below under "Other information").
    - − Completed (optional text field: explanatory textual information may be provided).

Box 1: Guidance on the interpretation of "not started", "ongoing" and "completed" for different types of measures:

Reference date is a best estimate of the situation towards the end of 2012. Therefore any reference below to "has not started", "planning on-going", "construction on-going", "on-going", "has been completed", etc. is to be understood as referring to the estimated situation towards the end of 2012.
- • Measures involving construction or building works (e.g. a waste water treatment plant, a fish pass, a river restoration project, etc):
    - o Not started means the technical and/or administrative procedures necessary for starting the construction or building works have not started
    - o Planning on-going means that administrative procedures necessary for starting the construction or building works have started but are not finalised. The simple inclusion in the RBMPs is not considered planning in this context.
    - o Construction on-going means the construction or building works have started but are not finalised
    - o Completed means the works have been finalised and the facilities are operational (maybe only in testing period in case e.g. a waste water

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[2] Pre-filled schemas with these elements for each RBD can be provided by the Commission.
[3] In case of measures involving construction or building works if the planning procedures have started it should be already considered as "on-going".
[4] A measure may consist of many individual projects and only some may be delayed. Member States are expected to make a choice on the basis of an overall assessment of the situation.

treatment plant)

- Measures involving advisory services (e.g. training for farmers)
  - o Not started means the advisory services are not yet operational and have not provided any advisory session yet
  - o On-going means the advisory services are operational and are being used. This is expected to be the situation for all multi-annual long/mid-term advisory services that are expected to be operational during the whole or most of RBMP cycle.
  - o Completed means an advisory service that has been implemented and has been finalised, i.e. is no longer operational. This is expected only for advisory services that are relatively short term or one-off, and which duration is time limited in relation to the whole RBMP cycle.
- Measures involving research, investigation or studies
  - o Not started means the research, investigation or study has not started, i.e. contract has not been signed or there has not been any progress
  - o On-going means the research, investigation or study has been contracted or started and is being developed at the moment
  - o Completed means the research, investigation or study has been finalised and has been delivered, i.e. the results ore deliverables are available (report, model, etc).
- Measures involving administrative acts (e.g. licenses, permits, regulations, instructions, etc)
  - o Not started means the administrative file has not been opened and there has not been any administrative action as regards the measure
  - o On-going means an administrative file has been opened and at least a first administrative action has been taken (e.g. requirement to an operator to provide information to renew the licensing, request of a permit by an operator, internal consultation of draft regulations, etc). If the measure involves more than one file, the opening of one would mean already "ongoing"
  - o Completed means the administrative act has been concluded (e.g. the license or permit has been issued, the regulation has been adopted, etc). If the measure involves more than one administrative act, "completed" is achieved only when all of them have been concluded.

- o Cost: cost of the measure estimated towards the end of 2012 in € (optional). A text box (<2000 characters) will be provided for explaining what is included in the cost calculation and/or for providing further details (e.g. whether figures refer to budget allocated or to expenditure to date)
- o Finance[5]: Is the financing secured? Description of how the measure is going to be financed (< 2000 characters); Tick boxes will be provided to indicate if EU funds are involved and which type (structural, cohesion, rural development, fisheries, LIFE+, RTD, others)
- o Comments: any additional useful information or clarification (optional, < 2000 characters)
- o Hyperlink to further information (optional)

Reporting key types of measures with quantitative indicators

- Identify a limited number of key types of measures for each RBD and provide for those quantitative indicators of progress in implementation.

The key types of measures are the ones that are expected to provide the bulk of the improvement towards the WFD achievement in each basin. Given the diversity of situations across the EU, it is not possible to produce a short-list of measures that are the most relevant

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[5] Information is not expected to be provided at project level, but global information on the allocation of funds.

for all basins. Nevertheless, a number of measures are commonly used and are being implemented across the EU in most of the basins. In addition, the selection of key types of measures involves certain judgement that is best done at Member State / basin level. Therefore, reporting has to be flexible to accommodate diversity of situations.

On this basis, a fixed list of commonly used types of measures that are important and implemented in most of the basins as well as quantitative progress indicator/indicators for those have been developed[6] (see Annex 1).

In case the MS judges that the type of measure in the fixed list is a key one in the RBD, then it should report the additional information including the values for the quantitative indicators for those types of measures.

If some key types of measures for a particular RBD are not on the predefined list the Member State will be able to provide information on them including their own quantitative progress indicator, preferably similar to those proposed for the predefined measures or of generic nature (e.g. investment cost, number of water bodies affected, etc).

As regards quantitative indicators, they should be understood as an estimate of the progress on the implementation of the measures. In this sense a baseline needs to be provided for each indicator (which would mean 100% progress in reference to the measure expected to be implemented in the first cycle[7]) and the value representing the progress achieved (absolute value or percentage). For the estimation of the indicators the aim is that Member States are able to use readily available information, avoiding extensive collection of new information. To accommodate different availability of information in the Member States, more than one indicator is provided for each type of measure. The Member States are required to provide:

- If possible, as a first option, the indicator identified as "preferred"

- As many other alternative indicators as possible among the proposed ones

- At least one indicator

The key types of measures may refer to one or more measures reported in 2010. In order to establish a link between the measures reported in 2010 and the key types of measures reported in 2012, Member States must identify:

- Through tick boxes, which of the measures (if any) under article 11.3(b) to (l), as reported in 2010, are considered to be included in each key type of measure.

- Through text boxes to indicate the code(s) (SupplementaryAddMeasureCode in schema RBMP_POM), which measure(s) of the list of supplementary measures, as reported in 2010, are considered to be included in each key type of measure.

In addition, an optional text box (<2000 characters) will be provided to include explanations on the values of the indicators or details on how they have been estimated.

Other information

- Brief summary of the overall progress in implementing the POMs including the main obstacles and achievements (< 5000 characters)

- Brief summary (optional) on how the measures are being financed, main achievements, progress and obstacles in securing the budget for the POMs. Figures on the overall

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[6] An internet survey was used to help identifying the key types of measures and feasible quantitative indicators.
[7] The baseline should reflect the latest information available, i.e. if there are more up-to-date estimates of the needs than those in the 2009 RBMPs and PoMs, they should be used.

budget allocation and/or expenditure should be given if available, as well as information on the use of EU funds (<5000 characters).

Annex 1: Key Measure Types and Quantitative Indicators

Notes:
- Each RBD would need to select which measures are the most important ones for delivery of WFD objectives. No fixed amount of measures is provided that need to be reported.
- The indicator presented in the first place for each key type of measure is the preferred one. Others should be filled in if the information is readily available. At least values for one indicator should be provided.
- It will be possible to add other key types of measures that are important in a particular RBD and are not listed here. In this case a quantitative indicator on progress would need to be provided by the MS (including definition of the indicator, units, value representing the baseline and value representing the progress)
- See Box 1 for the interpretation of "Not started", "Ongoing" and "Completed".

Reduction of Point Source Pollution

Key Type of Measure 1: Construction or upgrades of wastewater treatment plants beyond the requirements of the Directive on Urban Waste Water Treatment (e.g. more advanced treatment than required in the UWWT Directive or constructions below the size threshold given in the UWWT Directive; please consider only WFD measures). The four figures ("Not started", "Planning on-going", "Construction on-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	**Planning on-going**	**Construction on-going**	**Completed**
Number of population equivalent covered by measures beyond the requirements of the UWWTD				
Number of projects/measures[8]				
Estimated Total Costs (€) of the measures				

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[8] This generic indicator "Number of projects/measures " is possible to use only if measures reported refer to the detailed level of water body or groups of water bodies. It is not possible to use this indicator if measures refer to aggregated measures at the level of sub-unit or river basin district.

Reduction of Diffuse Source Pollution

Key Type of Measure 2: Reduce nutrient pollution in agriculture beyond the requirements of the Nitrates Directive (please consider only WFD measures). The three figures ("Not started", "On-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012		
	Not started	On-going	Completed
Area of agricultural land covered by measures (km^2) beyond the requirements of the NiD			
Estimated Total Costs (€) of the measures			
Number of projects/measures[8]			

Key Type of Measure 3: Reduce pesticides pollution in agriculture. The three figures ("Not started", "On-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012		
	Not started	On-going	Completed
Area of agricultural land covered by measures (km^2) to reduce pollution in agriculture			
Number of projects/measures[8]			

Key Type of Measure 4: Remediation of contaminated sites (historical pollution including sediments, groundwater, soil). The four figures ("Not started", "Planning on-going", "Construction on-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	Planning on-going	Construction on-going	Completed
Area of land covered by measures (km^2) for the remediation of contaminated sites				
Number of sites subject to measures for the remediation of contaminated sites				
Estimated Total Costs (€) of the measures				

Hydromorphology

Key Type of Measure 5: Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams). The four figures ("Not started", "Planning on-going", "Construction on-

going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	Planning on-going	Construction on-going	Completed
Number of projects/measures to improve longitudinal continuity[8]				
Estimated Total Costs (€) of the measures				

Key Type of Measure 6: Improving hydromorphological conditions of water bodies other than longitudinal continuity (e.g. river restoration, improvement of riparian areas, removal of hard embankments, reconnecting rivers to floodplains, improvement of hydromorphological condition of transitional waters, etc.). The four figures ("Not started", "Planning on-going", "Construction on-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	Planning on-going	Construction on-going	Completed
Length of rivers (km) affected by measures to improve hydromorphological conditions				
Area of RBD (km^2) affected by measures to improve hydromorphological conditions				
Number of projects/measures to improve hydromorphological conditions[8]				
Estimated Total Costs (€) of the measures				

Key Type of Measure 7: Improvements in flow regime and/or establishment of minimum ecological flow. The three figures ("Not started", "On-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012		
	Not started	On-going	Completed
Number of projects/measures (including permits) to improve flow regime and/or establishment of minimum ecological flow[8]			
Length of rivers (km) affected by measures to improve flow regime and/or establishment of minimum ecological flow			
Estimated Total Costs (€) of the measures			

Water Quantity

Key Type of Measure 8: Water efficiency measures for irrigation (technical measures). The four figures ("Not started", "Planning on-going", "Construction on-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	Planning on-going	Construction on-going	Completed
Area covered by projects improving water efficiency in irrigation				
Number of projects/measures to improve water efficiency in irrigation[8]				
Estimated Total Costs (€) of the measures				

Water Pricing

Key Type of Measure 9: Progress in water pricing policy measures for the implementation of the recovery of cost of water services from households

Indicators:
- Population affected by water pricing policy measures for the implementation of the recovery of cost of water services from households in relation to the total foreseen (NB the total population covered by measures foreseen in the RBMP will also be required)
- Area (km^2) covered by water pricing policy measures for the implementation of the recovery of cost of water services from households in relation to the total foreseen

Key Type of Measure 10: Progress in water pricing policy measures for the implementation of the recovery of cost of water services from industry

Indicator:
- Number of sites affected by water pricing policy measures for the implementation of the recovery of cost of water services from industry in relation to the total foreseen (NB the total number of industrial sites where such water service measures are foreseen in the RBMP will also be required)

Key Type of Measure 11: Progress in water pricing policy measures for the implementation of the recovery of cost of water services from agriculture

Indicator:
- Area (km^2) affected by water pricing policy measures for the implementation of the recovery of cost of water services from agriculture in relation to the total foreseen (NB the total area where such water service measures are foreseen in the RBMP will also be required.

Other measures

Key type of measure 12: Advisory services for agriculture

Indicators:
- Number of farms covered by advisory services for agriculture in relation to the total foreseen (NB the total number of farms to be covered by advisory services foreseen in the RBMP will also need to be provided)

Indicator	Status estimated towards the end of 2012		
	Not started	On-going	Completed
Number of advisory services[8]			

The three figures ("Not started", "On-going" and "Completed") need to be reported if this indicator is chosen.
- Area (km^2) of agricultural land covered by advisory services in relation to the total foreseen (NB the total area of agricultural land to be covered by advisory services foreseen in the RBMP will also need to be provided)

Key type of measure 13: Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc)

Indicator:
- Number of drinking water protection zones in place in relation to the total number of planned protection zones (NB the total number of zones foreseen in the RBMP will need to be provided)

Key Type of Measure 14: Research, improvement of knowledge base reducing uncertainty. The three figures ("Not started", "On-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012		
	Not started	On-going	Completed
Estimated Total Costs (€) of the research studies, development and demonstration projects			
Number of the research studies, development and demonstration projects			

Key Type of Measure 15: measures for the phasing-out of emissions, discharges and losses of priority hazardous substances or for the reduction of emissions, discharges and losses of priority substances. The four figures ("Not started", "Planning on-going", "Construction on-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	Planning on-going	Construction on-going	Completed
Number of permits issued or updated				
Number of projects/measures[8]				
Estimated Total Costs (€) of the measures				

Key Type of Measure 16: Upgrades or improvements of industrial wastewater treatment plants (including farms) beyond the requirements of the Integrated Pollution Prevention and

Control (IPPC) Directive (please consider only WFD measures). The four figures ("Not started", "Planning on-going", "Construction on-going" and "Completed") need to be reported for at least one indicator and should reflect the total foreseen in the first RBMP cycle.

Indicator	Status estimated towards the end of 2012			
	Not started	Planning on-going	Construction on-going	Completed
Number of projects/measures[8]				
Estimated Total Costs (€) of the measures				

Annex: Outline of the schema

Structure 1
- Code → *FreeText50Char*
- Name → *FreeText100Char*
- Description → *FreeText2000Char*
- Responsibility → *FreeText2000Char*
- StateOfImplementation → Or
  - *Not started*
  - *On-going*
  - *Tick box: substantial delay?*
  - *Completed*
- ReasonsState → Conditional (to be filled if "Not started" or "On-going" but tick box "substantial delay" is chosen, otherwise optional) → *FreeText2000Char*
- Cost
  - *Number in euros*
  - *Explanations costs: FreeText2000Char*
- Finance
  - *FreeText2000Char*
  - 1…∞ *Tick boxes: EU Funds (structural, cohesion, etc.)*
- Comment → *FreeText2000Char*
- Hyperlink → *Weblink*

Structure 2
- KeyTypeOfMeasure → *Choice among the predefined types of measures or "other"*
- LinkTo ImpBasicMeasuresArticle11-3b-l → Conditional 0…∞ → *Tick boxes: CostRecovery, EfficientWaterUse, etc* } At least 1 is expected
- SupplementaryAddMeasureCode → Conditional 0…∞ → *FreeText50Char*
- QuantitativeIndicator → *Structure depends on the KeyTypeOfMeasure selected*
- *Explanation indicators: FreeText2000Char*

Example structure quantitative indicator:

QuantitativeIndicatorKeyTypeOfMeasure1 — 1…∞
- IndicatorNbPopEquivalentCovered
  - Value: NotStarted
  - Value: Planning on-going
  - Value: Construction on-going
  - Value: Completed
- IndicatorNbProjectsMeasures
  - Value: NotStarted
  - Value: Planning on-going
  - Value: Construction on-going
  - Value: Completed
- IndicatorEstimatedCost
  - Value: NotStarted
  - Value: Planning on-going
  - Value: Construction on-going
  - Value: Completed

NOTES:
This is a draft outline of the schema intended to provide some basic information for WG D and the Drafting Group on how the schema may look like. The final schema will need to be developed by IT experts and may depart from that depicted here. In particular:
-The structure 2 will most probably need to be tailored for each of the predefined KeyTypesOfMeasures, in order to include the specific agreed indicators.
-In case "other" KeyTypesOfMeasures need to be included that are not in the predefined list, a flexible structure will be developed
-In case of the field "ReasonsState", an alternative way of giving explanations on obstacles and delays is to provide an overall explanation at RBD level using the text fields "OverallProgressImplementation" and/or "FinancingPOM".

1: Means that one element needs to be introduced (in this case one free text field)
1…∞: Means that at least one and as many as elements as needed can be introduced
0…∞: Means that either none or as many as elements as needed can be introduced
SupplementaryAddMeasureCode: this code needs to correspond with those submitted in the schema RBMP_POM in 2010 reporting (element RiverBasinManagementPlan/POM/
/ListOfSupplementaryMeasures/SuppAddMeasure/SupplementaryAddMeasureCode)
A **solid line around the box** means the field is required
A **dashed line around the box** means the field is optional or conditional (required only if relevant)
A **shaded box** indicates that the information will be prefilled from the 2010 data submission. This will only be the case for supplementary measures (not relevant in structure 1 for measures under 11.3(b to l))